



Deploying Avaya Aura[®] Contact Center Software Appliance for Avaya Aura[®] Unified Communications

Release 7.1.2.3
Issue 1
August 2026

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Chapter 1: Introduction

This document describes how to deploy the Avaya Aura® Contact Center Release 7.1 software appliance.

Purpose

This document includes installation, configuration, and troubleshooting procedures.

Intended audience

The primary audience for this document is anyone who is involved with installing, configuring, and verifying Avaya Aura® Contact Center in a VMware® vSphere™ virtualization environment at a customer site. The audience includes and is not limited to implementation engineers, field technicians, business partners, solution providers, and customers.

This document does not include optional or customized aspects of a configuration.

Related resources

Avaya Aura® Contact Center documentation

The following table lists the documents related to Avaya Aura® Contact Center. Download the documents from the Avaya Support website at <https://support.avaya.com>.

Title	Document purpose	Audience
Overview		

Table continues...

Title	Document purpose	Audience
<i>Avaya Aura® Contact Center Overview and Specification</i>	This document provides the high-level technical details you need to set up your Contact Center suite. The document contains background planning and engineering information, including server preparation information, routing options, licensing configurations, and hardware configuration information. It also contains the background information you require to install all software components that are part of and work with Contact Center. General information about considerations for upgrading your existing Contact Center is also included. This document contains strategies and requirements to plan your network configuration and prepare your servers for Contact Center software installations.	Customers and sales, services, and support personnel
<i>Avaya Aura® Contact Center and Avaya Aura® Unified Communications Solution Description</i>	This document describes the solution architecture, suggested topologies, and capacities for the Avaya Aura® Unified Communications (UC) platform. This document also describes the features and functional limitations of certain configurations.	Customers and sales, services, and support personnel
<i>Avaya Aura® Contact Center and Avaya Communication Server 1000 Solution Description</i>	This document describes the solution architecture, suggested topologies, and capacities for the Avaya Communication Server 1000 platform. This document also describes the features and functional limitations of certain configurations.	Customers and sales, services, and support personnel
<i>Avaya Aura® Contact Center Documentation Catalog</i>	This document contains high-level information about Avaya Aura® Contact Center documentation resources and the type of information in each document.	Customers and sales, services, and support personnel
<i>Avaya Aura® Contact Center Terminology</i>	This document contains definitions for the technical terms specific to Contact Center.	Customers and sales, services, and support personnel
<i>Contact Center Performance Management Data Dictionary</i>	This document contains reference tables that describe statistics and data in historical and real-time reports generated in Contact Center.	System administrators and contact center supervisors

Table continues...

Title	Document purpose	Audience
Implementing		
<i>Avaya Aura® Contact Center and Avaya Aura® Unified Communications Integration</i>	This document contains information and procedures to integrate the Avaya Aura® UC platform with Contact Center.	Implementation personnel
<i>Avaya Aura® Contact Center and Avaya Communication Server 1000 Integration</i>	This document contains information and procedures to integrate the Avaya Communication Server 1000 platform with Contact Center.	Implementation personnel
<i>Deploying Avaya Aura® Contact Center DVD for Avaya Aura® Unified Communications</i>	This document contains information about Contact Center DVD installation, initial configuration, and verification for the Avaya Aura® UC platform.	Implementation personnel
<i>Deploying Avaya Aura® Contact Center DVD for Avaya Communication Server 1000</i>	This document contains information about Contact Center DVD installation, initial configuration, and verification for the Avaya Communication Server 1000 platform.	Implementation personnel
<i>Deploying Avaya Aura® Contact Center Software Appliance for Avaya Aura® Unified Communications</i>	This document describes how to deploy the Avaya Aura® Contact Center Software Appliance for the Avaya Aura® UC platform.	Implementation personnel
<i>Avaya Aura® Contact Center Commissioning for Avaya Aura® Unified Communications</i>	This document describes Contact Center preparation, initial configuration, and verification of the installation on the Avaya Aura® UC platform.	Implementation personnel
<i>Avaya Aura® Contact Center Commissioning for Avaya Communication Server 1000</i>	This document describes Contact Center preparation, initial configuration, and verification of the installation on the Avaya Communication Server 1000 platform.	Implementation personnel
<i>Avaya Aura® Contact Center and Proactive Outreach Manager Integration</i>	This document provides conceptual and procedural information on the integration between Avaya Aura® Contact Center (AACC) and Avaya Proactive Outreach Manager (POM). It describes the tasks required for AACC and POM integration.	Implementation personnel
<i>Upgrading and Patching Avaya Aura® Contact Center</i>	This document contains information and procedures to upgrade from previous releases to Contact Center, migrating the databases, and information and procedures to download and install service packs.	Implementation personnel and system administrators

Table continues...

Title	Document purpose	Audience
Administering		
<i>Avaya Aura® Contact Center Server Administration</i>	This document contains information and procedures for day-to-day maintenance of all servers in the Contact Center suite, including server maintenance tasks, administrative tasks, managing data, configuring data routing, performing archives, and backing up data. It also describes optional configuration procedures.	System administrators
<i>Avaya Aura® Contact Center Client Administration</i>	This document contains information and procedures to configure users and user access, skillsets, server management, and configuration data in the Contact Center database.	System administrators and contact center supervisors
<i>Using Contact Center Orchestration Designer</i>	This document contains information and procedures to configure script and flow applications in Orchestration Designer.	System administrators
Maintaining		
<i>Maintaining Avaya Aura® Contact Center</i>	This document contains routine maintenance procedures, such as installing service packs and maintaining the databases for the Contact Center system.	System administrators and support personnel
<i>Troubleshooting Avaya Aura® Contact Center</i>	This document contains system-wide troubleshooting information and procedures for Contact Center hardware, software, and network.	System administrators and support personnel
<i>Contact Center Event Codes</i>	This Microsoft Excel spreadsheet contains a list of errors in the Contact Center suite and recommendations to resolve them.	System administrators and support personnel
Using		
<i>Using Avaya Aura® Contact Center Reports and Displays</i>	This document contains procedures to generate performance reports, and to monitor and analyze performance data and performance measurements.	System administrators and contact center supervisors
<i>Using Agent Desktop for Avaya Aura® Contact Center</i>	This document provides information and procedures for agents who use the Agent Desktop application to accept, manage, and close contacts of all media types in Contact Center.	Contact center agents and supervisors

Table continues...

Title	Document purpose	Audience
<i>Using the Contact Center Agent Browser application</i>	This document provides information and procedures for agents who use the Agent Browser application to log on to Contact Center and perform basic tasks.	Contact center agents
<i>Using Avaya Workspaces for AACC and ACCS</i>	This document describes the tasks that Contact Center agents can perform using Avaya Workspaces.	Contact center agents and supervisors
Release Notes		
<i>Avaya Aura® Contact Center Release Notes</i>	The Release Notes contain information about known issues, patches, and workarounds.	System administrators and support personnel

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.

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 - In **Search**, type `Avaya Mentor Videos`, click **Clear All** and select **Video** in the **Select Content Type**.
 - In **Search**, type the product name. On the Search Results page, click **Clear All** and select **Video** in the **Select Content Type**.

The **Video** content type is displayed only when videos are available for that product.

In the right pane, the page displays a list of available videos.

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

Note:

Videos are not available for all products.

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

Chapter 2: Changes in this release

Changes in the release 7.1.2.3

The following are the changes or updates introduced in the release 7.1.2.3:

Workspaces Operating System Migration from CentOS 7.9 to RHEL 9.6

Avaya Workspaces infrastructure migrated from CentOS 7.9 to Red Hat Enterprise Linux (RHEL) 9.6.

Third-Party Component Version Upgrades

This release includes upgrades to several third-party software components used by the Avaya Aura® Contact Center and Avaya Workspaces environments. The updated versions provide improved platform compatibility, security, stability, and alignment with supported software versions.

The following table lists the software components and their versions included in release 7.1.2.3:

Software Component	Version in 7.1.2.3
Operating System	RHEL 9.6
Java (Avaya Aura® Contact Center)	8.94.0.18 (OpenJDK 1.8.0_492)
Java (Avaya Workspaces)	17.60.17
.NET	4.8
Spring Boot	3.5.6
Log4j	2.25.3
SLF4J	2.0.17, 1.7.36
Jetty	9.4.58
ActiveMQ	5.16.7
Tomcat (Avaya Aura® Contact Center)	9.0.111
Tomcat (Avaya Workspaces)	10.1.54
Istio	1.28.1
Kafka Broker (Confluent)	7.2.1
Apache Kafka	3.2
Kubernetes	1.35.2
Container Runtime	Containerd 2.2.1
Fluent Bit	4.0.7
Helm	3.18.6

Table continues...

Software Component	Version in 7.1.2.3
Metrics Server	3.13.0
VMware ESXi	8.0.2 and 9.0.2

Interoperability

Supported features	Versions Tested
Avaya Aura® Contact Center and Avaya Contact Center Select interoperability with latest WebLM 8.x release	WebLM 10.2
Avaya Aura® Contact Center and Avaya Contact Center Select interoperability with Avaya IX Workplace softphone	IX Workplace 3.40 or 3.41
Avaya Aura® Contact Center and Avaya Contact Center Select support for the latest AAMS release	AMS 10.1 or 10.2
Avaya Aura® Contact Center interoperability with Avaya Aura UC current and previous releases	Aura 10.1 or 10.2
Avaya Aura® Contact Center and Avaya Contact Center Select interoperability with the latest and previous AAEP releases	AAEP 8.1.2.2
Avaya Contact Center Select interoperability with the latest and previous Avaya IP Office releases	IPO 12.2 or 12.3
Avaya Aura® Contact Center interoperability with current and previous releases of POM	POM 4.1
Avaya Aura® Contact Center interoperability with current release of CBA	Callback Assist 5.2

Hyper-V Host Requirement for Workspaces

As part of AACC 7.1.2.3 Service Pack, the Workspaces operating system has been migrated from CentOS to Red Hat Enterprise Linux (RHEL) 9.6.

Customers deploying or upgrading the Workspaces Virtual Machine (VM) on Microsoft Hyper-V running on Windows Server 2016 must migrate the Hyper-V host to Windows Server 2019 before deploying or upgrading to AACC 7.1.2.3 Service Pack.

This is a mandatory prerequisite. Due to a known compatibility issue affecting RHEL 9.4 and later kernels on Windows Server 2016 Hyper-V, the Workspaces VM may fail to boot, preventing successful deployment or upgrade of the Workspaces solution.

Deployment Scenario	Action
Workspaces VM hosted on Microsoft Hyper-V running on Windows Server 2016.	Migrate the Hyper-V host to Windows Server 2019 before deploying or upgrading to AACC 7.1.2.3 Service Pack.
Workspaces VM hosted on Microsoft Hyper-V running on Windows Server 2019.	No Action Required.

Table continues...

Deployment Scenario	Action
Workspaces VM hosted on VMware.	No Action Required.
Deployments that do not host the Workspaces VM on Windows Server 2016 Hyper-V.	No Action Required.

Avaya Aura Media Server 8.x Support Change

Avaya Aura Media Server (AAMS) 8.x software bundle and co-resident deployment with Avaya Aura® Contact Center (AACC) or Avaya Contact Center Select (ACCS) 7.1.2.x is no longer supported. The following are the updates:

- The upgrade process removes the AAMS co-resident virtual machine (VM) and the associated AAMS resources and artifacts from the AACC installation.
- Existing AACC or ACCS deployments on physical hardware using AAMS 8.x are no longer supported.
- Customers using AAMS 8.x are required to migrate to a supported AAMS version.
- AACC or ACCS supports AAMS 10.x as an independent deployment.
- For supported AAMS 10.x deployment configurations, refer to the applicable Avaya Aura Media Server 10.x documentation.
- For information about configuring an independent AAMS deployment with AACC or ACCS, refer to the *Avaya Aura Contact Center Server Administration* or *Avaya Contact Center Select Advanced Administration* guides.

Chapter 3: Overview

Avaya Aura® Contact Center Release 7.1 offers a software appliance package that consists of the following components:

- Avaya Aura® Contact Center virtual machine
- Avaya Aura® Media Server OVA
- Avaya WebLM OVA

These components integrate with an Avaya Aura® Unified Communications platform to build a SIP-enabled contact center solution.

*** Note:**

The Avaya Aura® Contact Center software appliance does not support High Availability (HA).

You can use a single Open Virtual Appliance (OVA) package to distribute a virtual appliance. For example, an Avaya Aura® Media Server OVA package includes all of the Open Virtualization Format (OVF) information required to create an Avaya Aura® Media Server virtual appliance on a VMware host. A virtual appliance contains a preinstalled, preconfigured operating system and an application stack optimized to provide a specific set of services. The Avaya Aura® Media Server and Avaya WebLM OVAs are prepackaged and ready for deployment.

For the Avaya Aura® Contact Center virtual machine, you build a suitably specified virtual machine and then install product software from the Avaya Aura® Contact Center DVD or ISO image.

The following diagram shows a typical SIP-enabled virtualized contact center solution using Avaya Aura® Contact Center, Avaya Aura® Media Server, and Avaya WebLM installed on a single VMware host server.

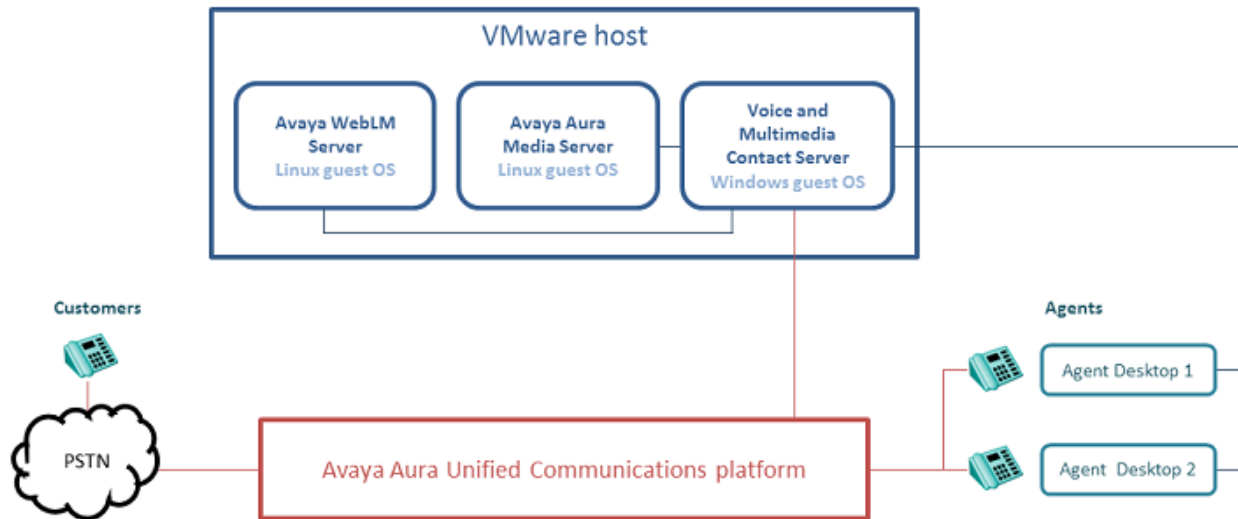


Figure 1: Typical SIP-enabled virtualized contact center solution

You can use VMware vSphere or vCenter and these Avaya Aura® Contact Center components to create virtual machines in your virtualized environment.

The Avaya Aura® Contact Center software appliance is supported only on the following virtualization environments:

- ESXi 8.0.2
- ESXi 9.0.2

! Important:

- Avaya Workspaces is supported on ESXi 8.0.2 and 9.0.2 only.
- VMFS 5.54 or later is required for all supported versions of ESXi.

Avaya Aura® Contact Center supports the Avaya WebLM virtual machine co-resident on the same VMware host server or deployed on a separate VMware host server.

Avaya Aura® Contact Center supports the Avaya Aura® Media Server virtual machine co-resident on the same VMware host server or deployed on a separate VMware host server.

For more information about the ESXi host server hardware requirements for the Avaya Aura® Contact Center software appliance, see *Avaya Aura® Contact Center Overview and Specification*.

Virtualization considerations

Using virtualization in a contact center enterprise solution requires careful up-front planning, engineering, and implementation. While the technical and business advantages are clear, virtualization imposes extra considerations when designing the contact center solution architecture. Environmental isolation allows multiple operating systems to run on the same

VMware host machine. While virtualization offers these forms of isolation, virtualization environments do not provide performance isolation. The behavior of one virtual machine can adversely affect the performance of another virtual machine on the same host. Most modern virtualization environments provide mechanisms that you can use to detect and reduce performance interference. You must carefully engineer your virtualized contact center solution to avoid performance interference.

If you plan to install non-Avaya Aura® Contact Center software applications on other virtual machines on the host server, you must carefully analyze the impact of these applications on the contact center solution and provide extra performance isolation to safeguard Contact Center functionality.

! Important:

Deploy Avaya Aura® Contact Center on an enterprise-grade virtual environment with the most recent hardware that supports hardware-assisted virtualization. Avaya recommends that you apply virtualization planning, engineering, and deployment with full organizational support for virtualization rather than organically growing a virtualization infrastructure.

VMware components

The following table describes some common VMware components and terms

VMware components	Description
ESXi host	The physical machine running the ESXi hypervisor software.
ESXi hypervisor	A platform that runs multiple operating systems on a host computer at the same time.
vSphere Client	The client application that is installed on a personal computer or accessible through a Web interface. It connects to a vCenter server or directly to an ESXi host in the case where vCenter Server is not used. You use vSphere Client software to install and manage virtual machines.
vCenter Server	vCenter Server provides centralized control and visibility of the virtual infrastructure. Virtual machines are managed through vSphere Client software which provides alarming and performance monitoring of ESXi hosts and virtual machines. vCenter Server provides additional VMware features such as VMware High Availability and vMotion.
VMware virtual machine	A virtual machine (VM) is a software-based emulation of a Microsoft Windows OS or Linux OS computer. A VMware ESXi server can host one or more virtual machines.

VMware feature support

Avaya Aura® Contact Center is a collection of real-time applications running on the Microsoft Windows Server 2012 R2 or Microsoft Windows Server 2016 operating system. Avaya Aura® Contact Center provides real-time call control, multimedia handling, and statistical reporting.

Avaya Aura® Media Server is a real-time media processing application running on the Red Hat Enterprise Linux (RHEL) operating system. Avaya Aura® Media Server provides the real-time conferencing and media processing capabilities for Avaya Aura® Contact Center.

Some VMware features require host CPU, Disk I/O, or networking resources to function. Running these VMware features can cause resource constraints and impact the real-time performance of the Avaya Aura® Contact Center and Avaya Aura® Media Server Virtual Machines (VMs). These features are therefore not supported while Avaya Aura® Contact Center or Avaya Aura® Media Server are active.

Some VMware features are not supported by Avaya Aura® Contact Center or Avaya Aura® Media Server. Some other VMware features are supported only while the Avaya Aura® Contact Center or Avaya Aura® Media Server Virtual Machines are stopped for maintenance.

The following table shows the Avaya Aura® Contact Center (AACC) and Avaya Aura® Media Server level of support for VMware features.

VMware Feature	Supported on active AACC VM	Supported during AACC VM maintenance window	Supported on active Avaya Aura® Media Server VM	Supported during Avaya Aura® Media Server VM maintenance window
Cloning	No	Yes	No	No
Distributed Power Management (DPM)	No	Yes	No	Yes
Distributed Resources Scheduler (DRS)	No	Yes	No	Yes
Distributed Switch	Yes	Yes	Yes	Yes
Fault Tolerance	No	No	No	No
High Availability (HA)	No	No	No	No
Snapshots	No	Note 1	No	Note 2
Storage DRS	No	Yes	No	Yes
Storage Thin Provisioning	No	N/A	No	N/A
Storage vMotion	No	Yes	No	Yes
Suspend & Resume	No	N/A	No	N/A
vMotion	No	Yes	No	No
• Note 1: See Avaya Aura Contact Center VMware Snapshot considerations on page 22 • Note 2: See Avaya Aura Media Server VMware snapshot considerations on page 23				

Licensing

Avaya Aura® Contact Center Software Appliance supports only the Virtualized Environment deployment of Avaya WebLM server.

When Contact Center License Manager starts, it extracts WebLM license keys from the Avaya WebLM server. Contact Center License Manager then converts the WebLM license keys into local PLIC license keys and distributes the keys to the Contact Center applications as required. Contact Center License Manager distributes PLIC license keys to Contact Center Manager Server, Contact Center Manager Administration, Communication Control Toolkit, Contact Center Multimedia, and Avaya Aura® Media Server as required.

When Contact Center License Manager requests licenses from an Avaya WebLM server, it reserves all the Contact Center licenses available on that server. Contact Center therefore supports only the PLDS standard license file (SLF) type. Contact Center does not support the WebLM Enterprise model. Contact Center supports WebLM in nodal contact centers. WebLM does not support Contact Center corporate licensing.

Contact Center License Manager distributes nodal license keys to all configured Avaya Aura® Media Servers in the solution. Configure Avaya Aura® Media Server as a Media Server in Contact Center Manager Administration. Contact Center License Manager, when restarted, pushes license keys to that Avaya Aura® Media Server. Do not configure WebLM licensing on Avaya Aura® Media Server servers.

In solutions using the Contact Center High Availability feature, you must deploy a second Avaya WebLM server. The Contact Center license file is based on the Host IDs of both Avaya WebLM servers. Install the license file, containing both Host IDs, on both Avaya WebLM servers.

The active server references one Avaya WebLM server, and the standby server or the Remote Geographic Node server references the other Avaya WebLM server.

For more information about licensing, see *Avaya Aura® Contact Center Overview and Specification*.

How to obtain a license

In an Avaya Aura® Unified Communications platform SIP-enabled environment, Avaya Aura® Contact Center uses an remote WebLM server to provide nodal licensing control.

1. Obtain the Avaya WebLM host ID from the WebLM user interface. If you are using the Contact Center High Availability feature, obtain the host IDs from both Avaya WebLM servers.
2. Use the WebLM host ID or IDs to obtain WebLM license keys from the Avaya Product Licensing and Delivery System (PLDS).
3. Enter these license keys on the Avaya WebLM server or servers. Contact Center License Manager connects to the Avaya WebLM server and uses the Contact Center-specific license keys from it to control Contact Center licensed features. Contact Center does not import the license file to a Contact Center server; WebLM stores the license file on the Avaya WebLM server.

You can use the License Manager Configuration Utility to check which Avaya Aura® Contact Center features are licensed and how many agent licenses are available.

VMware vSphere host considerations

When planning virtual machines on your host system, the total resources needed by the virtual machines running on the host server must not exceed the total capacity of the host. It is good practice to under-commit CPU and memory resources on the host. If the host CPU capacity is overloaded, Contact Center does not function correctly.

Important:

Avaya Aura® Contact Center is not supported on an over-committed host where the total virtual resources from all virtual machines hosted exceeds the physical resources of the host.

Virtual Machine File System (VMFS)

VMware virtual machines and snapshots are stored in a Virtual Machine File System (VMFS) datastore. To support Avaya Aura® Contact Center on a virtual machine, the VMware datastore containing Contact Center must be VMFS 5.54 or later. If you upgrade an existing VMware host server, ensure the associated datastore is upgraded to VMFS 5.54 or later.

Hardware-Assisted Virtualization

Most recent enterprise-level processors from Intel support virtualization. There are two generations of virtualization support: the first generation introduced CPU virtualization; the second generation included CPU virtualization and added memory management unit (MMU) virtualization. For the best performance, make sure your system uses processors with at least second-generation hardware-assist features.

Hardware-Assisted CPU Virtualization (Intel VT-x)

The first generation of hardware virtualization assistance includes VT-x from Intel. These technologies automatically trap sensitive interrupts, eliminating the overhead required to do so in software. This allows the use of a hardware virtualization (HV) virtual machine monitor (VMM).

Hardware-Assisted MMU Virtualization (Intel EPT)

More recent enterprise-level processors also include a feature that addresses the overheads due to memory management unit (MMU) virtualization by providing hardware support to virtualize the MMU. VMware vSphere supports this feature in Intel processors, where it is called Extended Page Tables (EPT).

Storage Area Network (SAN)

A Storage Area Network (SAN) is a dedicated storage network that provides access to consolidated block level storage. SANs are used to make storage devices such as disk arrays, accessible to servers so that the devices appear as locally attached to the operating system.

When Avaya Aura® Contact Center is installed on virtual machines it supports a SAN. You must monitor the Contact Center demand on the SAN storage device. Adhere to your vendor-specific SAN configuration recommendations to ensure the SAN storage device meets the demands of Contact Center.

Disk drive provisioning

Provision sufficient hard disk drive space on the host server to support all the virtual machines, an ISO library, and provision additional space for snapshot image storage.

Avaya Aura® Contact Center VMware Snapshot considerations

VMware snapshots save the current state of the virtual machine, so you can return to it at any time. Snapshots are useful when you need to revert a virtual machine repeatedly to the same state, but you don't want to create multiple virtual machines.

The following considerations apply when using snapshots with Avaya Aura® Contact Center on VMware:

- Snapshots must be taken during an Avaya Aura® Contact Center maintenance window. Do not take a snapshot of a Contact Center virtual machine while Contact Center is running. Snapshots have a negative impact on the performance of a virtual machine over time. You must Delete All snapshots at the end of the maintenance window and *Consolidate* snapshots if required, before putting the Contact Center virtual machine back into production. For more information about consolidating snapshots, refer to VMware documentation.
- Create a snapshot for the Contact Center virtual machines all at the same time. Likewise, when you restore a snapshot, restore all snapshots to ensure the data is consistent across the Contact Center suite.
- In solutions using the Avaya Aura® Contact Center High Availability feature, take a snapshot of the Active and Standby virtual machines at the same time. The Active and Standby virtual machines must be hosted on different host servers.
- When restoring snapshots, carefully consider the possible impact from out-of-date antivirus definitions, missed Microsoft Windows OS and security updates, and lapsed domain accounts on the contact center. Isolate the restored virtual machine until these issues are resolved.
- By default, a Windows Server 2012 R2 machine account password is changed every 30 days. This is an important consideration when reverting to a snapshot of a virtual machine that has been in use for more than 30 days, as it can cause the machine to lose its connection to the Windows domain. If this issue occurs, rejoin the Windows Server 2012 R2 virtual machine to the domain.

VMware snapshots are not a replacement for Avaya Aura® Contact Center database backup and restore procedures and practices. You must continue to perform regular and frequent Contact Center backups.

Avaya Aura® Media Server VMware Snapshot considerations

VMware snapshots save the current state of the virtual machine, so you can return to it at any time. Snapshots are useful when you need to revert a virtual machine repeatedly to the same state, but you don't want to create multiple virtual machines.

The following considerations apply when using snapshots with Avaya Aura® Media Server on VMware:

- Snapshots must be taken during an Avaya Aura® Media Server maintenance window. Do not take a snapshot of an Avaya Aura® Media Server virtual machine while the contact center is running. Snapshots have a negative impact on the performance of a virtual machine over time. You must Delete All snapshots at the end of the maintenance window and *Consolidate* snapshots if required, before putting the Avaya Aura® Media Server virtual machine back into production. For more information about consolidating snapshots, refer to VMware documentation.
- When restoring snapshots, carefully consider the possible impact from out-of-date antivirus definitions, missed Linux operating system updates and security updates. Isolate the restored virtual machine until these issues are resolved.

VMware snapshots are not a replacement for Avaya Aura® Media Server database backup and restore procedures and practices.

Performance monitoring and management

You must continuously monitor and measure the performance of the Contact Center VMware host server. You can use VMware vCenter to measure the critical host performance metrics in real-time. VMware vCenter aggregates and archives performance data so that data can be visualized and reported on.

Configure VMware vCenter statistics collection to collect 5 minute and 30 minute Interval Duration data for the host at Statistics Level 3. Retain the 5 minute Interval Duration data for 3 days and retain the 30 minute Interval Duration for 1 week.

Generate performance reports using vCenter Report Performance and archive these reports to provide a baseline performance reference. Generate and store 1-day and 1-week reports. Store the associated vCenter Report Summary with the performance reports. You must analyze performance reports after changes to the host to assess the impact of the change on the host.

Monitor, acknowledge, and resolve VMware vCenter alarms. In particular, you must immediately investigate and resolve host CPU usage and host memory usage alarms.

In addition, the command-line tools “esxstop” and “resxstop” are available to provide a fine-grained look at real-time metrics. There are a number of critical CPU-related counters to watch out for:

- If the load average listed on the first line of the CPU Panel is equal to or greater than the number of physical processors in the system, this indicates that the system is overloaded.
- The usage percentage of physical CPUs on the PCPU line can indicate an overloaded condition. In general, 80 percent usage is a reasonable ceiling in production environments. Use 90 percent as an alert to the VMware administrator that the CPUs are approaching an overloaded condition, which must be addressed.
- %RDY - The percentage of time a schedulable entity was ready to run but is not scheduled to a core. If %RDY is greater than 10 percent, then this can indicate resource contention.
- %CSTP - The percentage of time a schedulable entity is stopped from running to allow other vCPUs in the virtual machine to catch up. If %CSTP is greater than 5 percent, this usually means the virtual machine workload is not using VCPUs in a balanced fashion. High %CSTP can be an indicator of a system running on an unconsolidated snapshot.

For more information about using esxstop or resxstop, see the *VMware Resource Management Guide*.

Chapter 4: Deployment process

This work flow shows you the sequence of tasks you perform to deploy Avaya Aura® Contact Center.

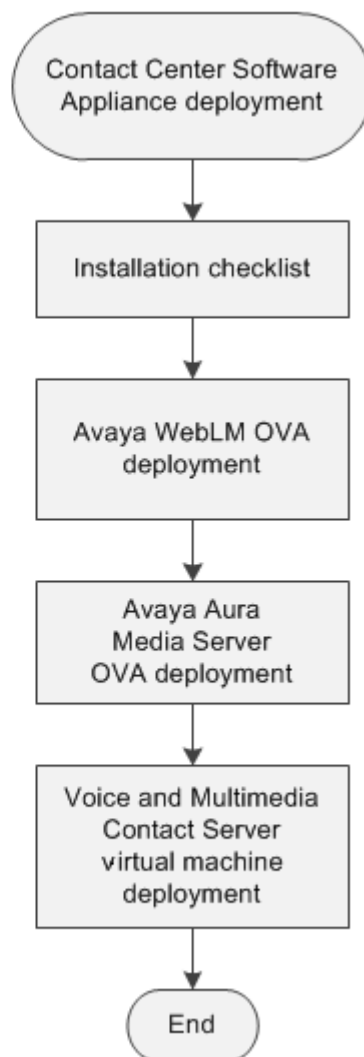


Figure 2: Avaya Aura® Contact Center deployment process

Chapter 5: Deployment checklist

The following sections list the main Avaya WebLM, Avaya Aura® Media Server, and Avaya Aura® Contact Center configuration and deployment details. You must know these configuration details to deploy and commission an Avaya Aura® Contact Center solution.

Complete these checklists.

Avaya WebLM deployment checklist

The following table lists and describes the configuration details required by WebLM.

Configuration Item	Your value	Description
Virtual machine name in VMware inventory		The name of the WebLM virtual machine as it appears on the VMware inventory list.
Server hostname		The host name of the WebLM server
Server IP address		The IP address of the WebLM server.
Server mask		The network mask of the WebLM server.
Server domain name		The domain the WebLM server is on.
Server default gateway		The default gateway used by the WebLM server.
DNS server IP address		The IP address of the DNS server used by the WebLM server.
WebLM User Name		The user name used to log on to the WebLM web interface.
WebLM Password		The password used to log on to the WebLM web interface.
Primary Host ID		The WebLM server Host ID used to obtain a license.

Avaya Aura® Media Server deployment checklist

The following table lists and describes the configuration details required by Avaya Aura® Media Server.

Configuration Item	Your value	Description
Virtual machine name in VMware inventory		The name of the Avaya Aura® Media Server virtual machine as it appears on the VMware inventory list.
Server hostname		The host name of the Avaya Aura® Media Server Linux server.
IP address		The IP address of the Avaya Aura® Media Server server.
Network Mask		The network mask of the Avaya Aura® Media Server server.
Default Gateway IP address		The default gateway used by the Avaya Aura® Media Server server.
DNS server IP address		The IP address of the DNS server used by Avaya Aura® Media Server.
SIP Trusted IP Address		The IP address of the Contact Center server.
SOAP Trusted IP address		The IP address of the Contact Center server. Optionally, the SOAP Trusted IP address of the active, standby and managed IP Address of Contact Center Server.
SIP Domain name		The SIP domain name used by Avaya Aura® Media Server. This must match the SIP domain name as configured for your voice platform.
NTP server IP address		The IP address for the Network Time Protocol (NTP) server.
Administration account "cust" password		A password for the Avaya Aura® Media Server Element Manager interface.

Voice and Multimedia Contact Server deployment checklist

The following table lists and describes the configuration details required by the Avaya Aura® Contact Center Voice and Multimedia Contact Server. The email and instant messaging (IM) configuration items are optional.

Configuration Item	Your value	Description
Virtual machine name in VMware inventory		The name of the Voice and Multimedia Contact Server virtual machine as it appears on the VMware inventory list.
Computer Name or Hostname		The host name of the Voice and Multimedia Contact Server.
IP address		The IP address of the Voice and Multimedia Contact Server.

Table continues...

Configuration Item	Your value	Description
Subnet Mask		The network mask of the Voice and Multimedia Contact Server.
Default gateway		The default gateway used by the Voice and Multimedia Contact Server.
DNS server IP address		The IP address of the DNS server used by Voice and Multimedia Contact Server.
Country or region		The Microsoft Windows Server 2012 R2 country or region server setting.
Time and currency		The Microsoft Windows Server 2012 R2 time and currency server setting.
Keyboard layout		The Microsoft Windows Server 2012 R2 keyboard layout server setting.
Microsoft Windows Server 2012 R2 product key		The Microsoft Windows Server 2012 R2 Standard and Datacenter edition product key used to activate the Operating System.
Administrator password		A password for the Voice and Multimedia Contact Server Microsoft Windows “Administrator” account.
Site Name		The site name for the Voice and Multimedia Contact Server.
Avaya Aura® Media Server Locale		The language and country locale used by Avaya Aura® Media Server.
System Account Configuration Password.		A password for the Avaya Aura® Contact Center administration account.
WebLM IP Address		The IP address of the Remote WebLM server.
SIP Voice Proxy Server - IP Address		The Avaya Aura® Session Manager IP address.
SIP Voice Proxy Server - Port		The Avaya Aura® Session Manager port number.
SIP Voice Proxy Server - Transport		The transport type used by Avaya Aura® Session Manager.
SIP CTI Proxy Server - IP Address		The Avaya Aura® Application Enablement Services IP address.
SIP CTI Proxy Server - Port		The Avaya Aura® Application Enablement Services port number.
SIP CTI Proxy Server - Transport		The transport type used by Avaya Aura® Application Enablement Services.
SIP domain		The SIP domain name as configured in Avaya Aura® Session Manager.
IM Server IP Address		The IP address of the instant messaging provider server.

Table continues...

Configuration Item	Your value	Description
XMPP Domain		The domain name of the Extensible Messaging and Presence Protocol (XMPP) server. The XMPP Domain name must be different to the SIP domain name.
IM Server details		The port number and transport type for the instant messaging (IM) service provider server.
Incoming Mail Server Host Name		The name of the server on which email messages are received in your network.
Incoming Mail Server Protocol		The communication protocol for the inbound email server.
Outgoing Mail Server Host Name		The name of the server from which email messages are sent. Your inbound and outbound mail servers can have the same name.
Outgoing Mail Server Protocol		The communication protocol for the outbound email server.

Chapter 6: Avaya WebLM OVA deployment

Deploy the Avaya WebLM OVA to provide solution licensing. You can deploy the Avaya WebLM OVA on the same VMware host server as the Contact Center virtual machine and the Avaya Aura® Media Server OVA. Alternatively, you can deploy the Avaya WebLM OVA standalone on a separate VMware host server.

For additional information about deploying the Avaya WebLM OVA, see *Avaya WebLM using VMware® in the Virtualized Environment Deployment Guide* available on the Avaya Support website at <http://support.avaya.com>.

After you have deployed WebLM, you can apply WebLM patches, feature packs, or service packs.

WebLM OVA

Contact Center supports the WebLM license manager server. For increased efficiency and flexibility, the WebLM license manager supports the VMware Virtual Appliance and Open Virtualization Archive (OVA) deployment mechanisms. In a virtualized Contact Center environment, you can use VMware to load the WebLM OVA package onto a separate virtual machine in your contact center solution. The virtualized Contact Center server can then use the virtualized WebLM server as the license manager.

The WebLM OVA contains a hardened Linux operating system.

The WebLM OVA requires the following:

vCPU	Minimum CPU speed	Virtual memory reservation	Number of NICs	Virtual disk storage reservation
1	2300 MHz	2 GB	1 shared	35 GB

 Note:

Do not change any of these WebLM OVA VMware virtual machine settings.

The WebLM OVA uses the following network mapping:

WebLM Server VM Interface	Application
Eth0	License management

The WebLM server for VMware is packaged as a vAppliance ready for deployment using either VMware vSphere Client or VMware vCenter.

Deploy the WebLM OVA using Disk Format - Thick Provision Lazy Zeroed. Avaya WebLM does not support thin provisioning in production environments.

WebLM OVA deployment procedures

About this task

This task flow shows you the sequence of procedures you perform to deploy the WebLM OVA.

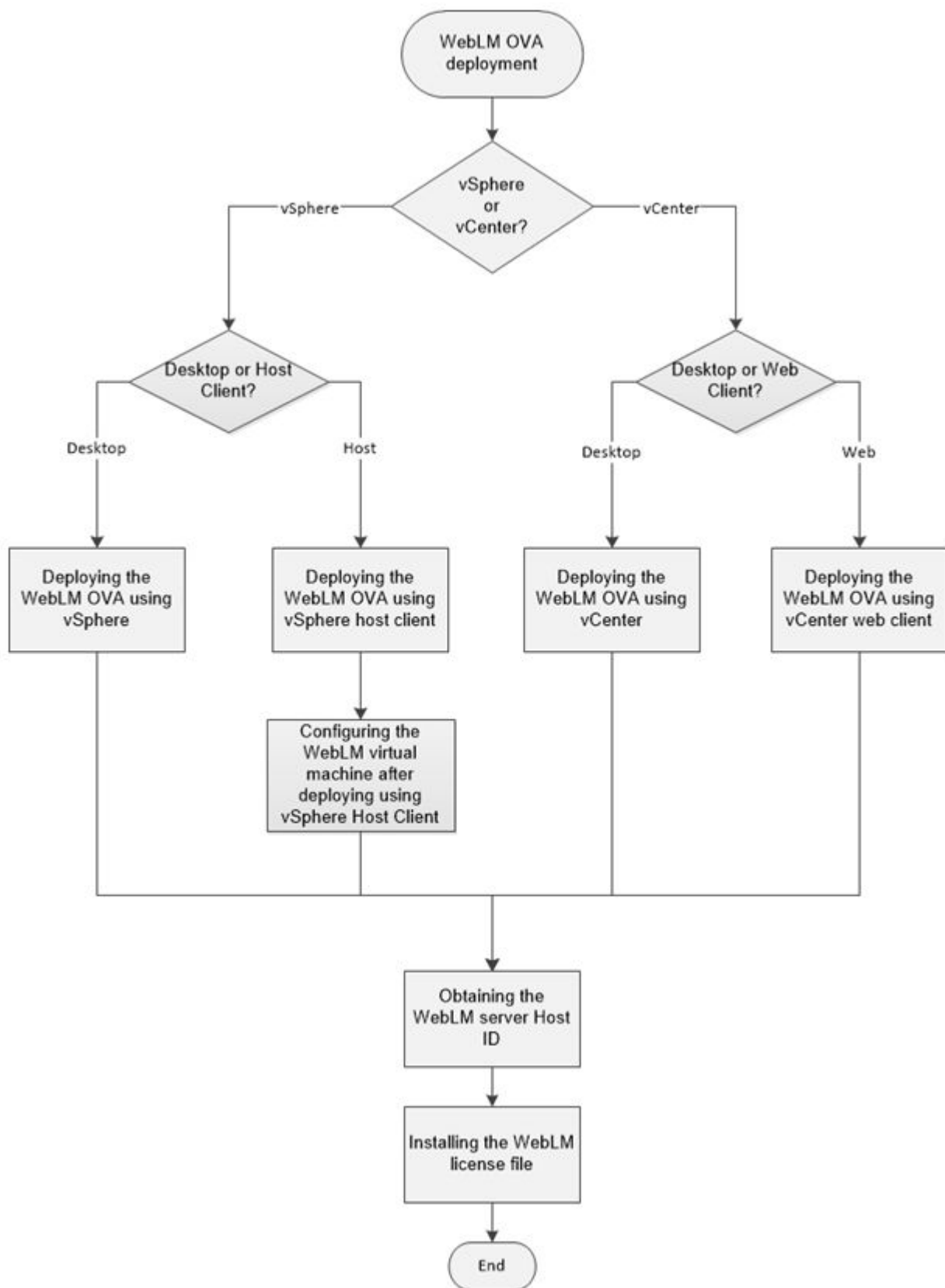


Figure 3: WebLM OVA deployment process

Deploying the WebLM OVA using vSphere (vSphere desktop client connected directly to ESXi host)

Before you begin

- Download the WebLM OVA file from the Avaya Product Licensing and Delivery System (PLDS) website at <https://plds.avaya.com/>.
- Know the IP address and network details of the WebLM server.

About this task

Deploy the WebLM OVA file onto a VMware ESXi host server. This creates a single instance of WebLM server for use in Contact Center solutions.

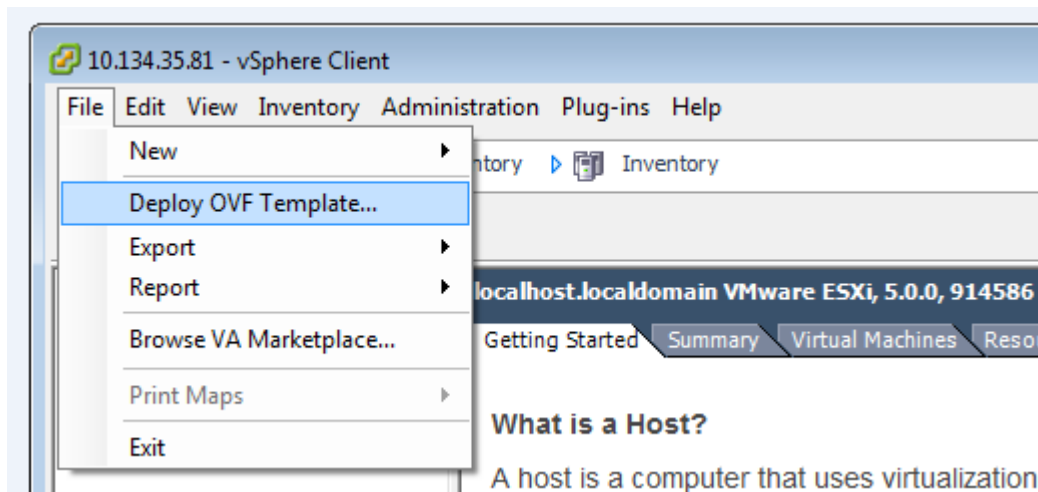
The WebLM OVA includes VMware tools. They are a suite of utilities that enhances the performance of the virtual machine's operating system and improves the management of the virtual machine.

Always deploy WebLM with a thick provisioned disk.

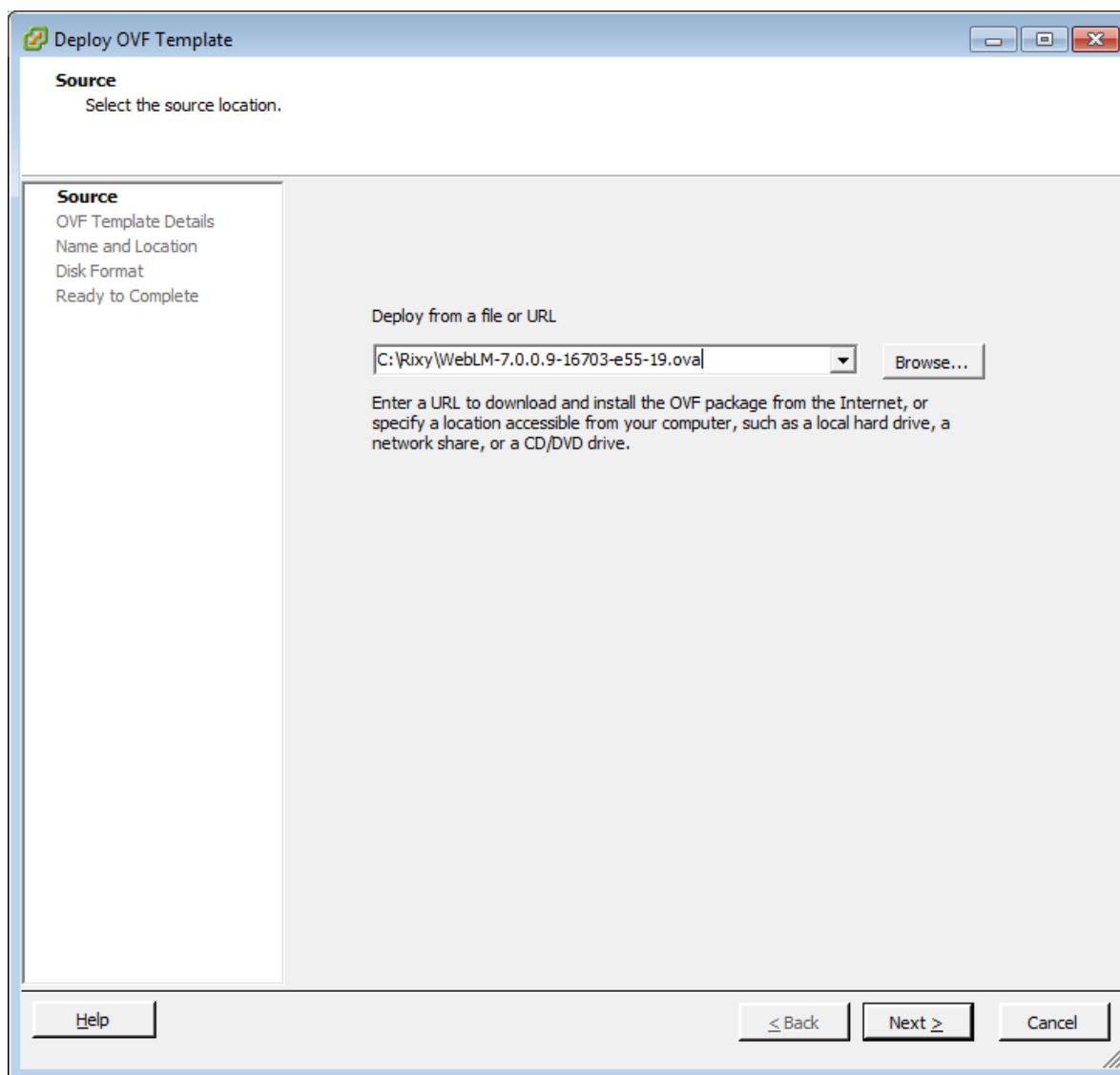
For best performance, use WebLM only on disks local to the ESXi Host, or SAN storage devices. Do not store WebLM on a NFS storage system.

Procedure

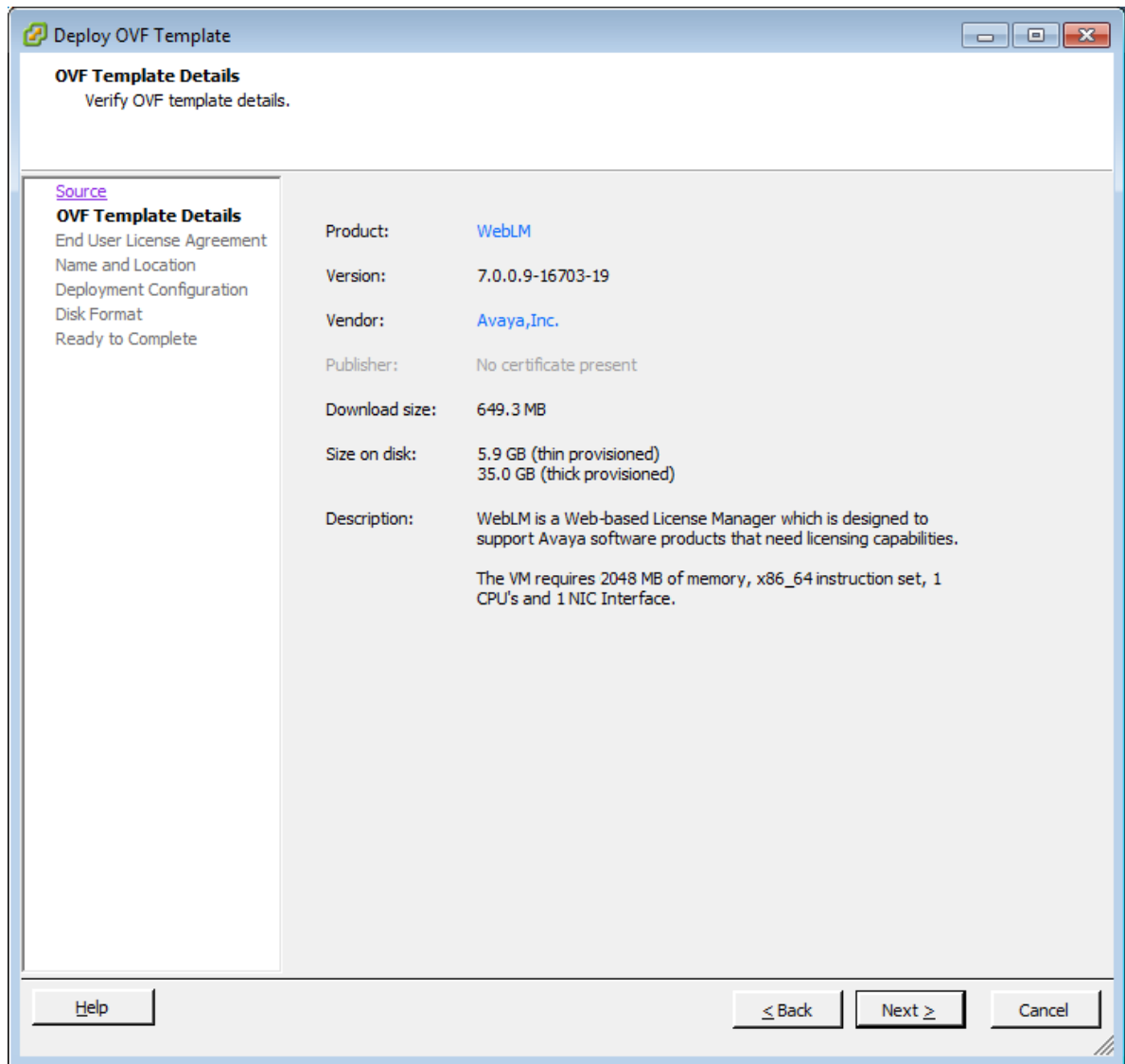
1. In your vSphere client, select the ESXi host server.
2. Select **File** > **Deploy OVF Template**.



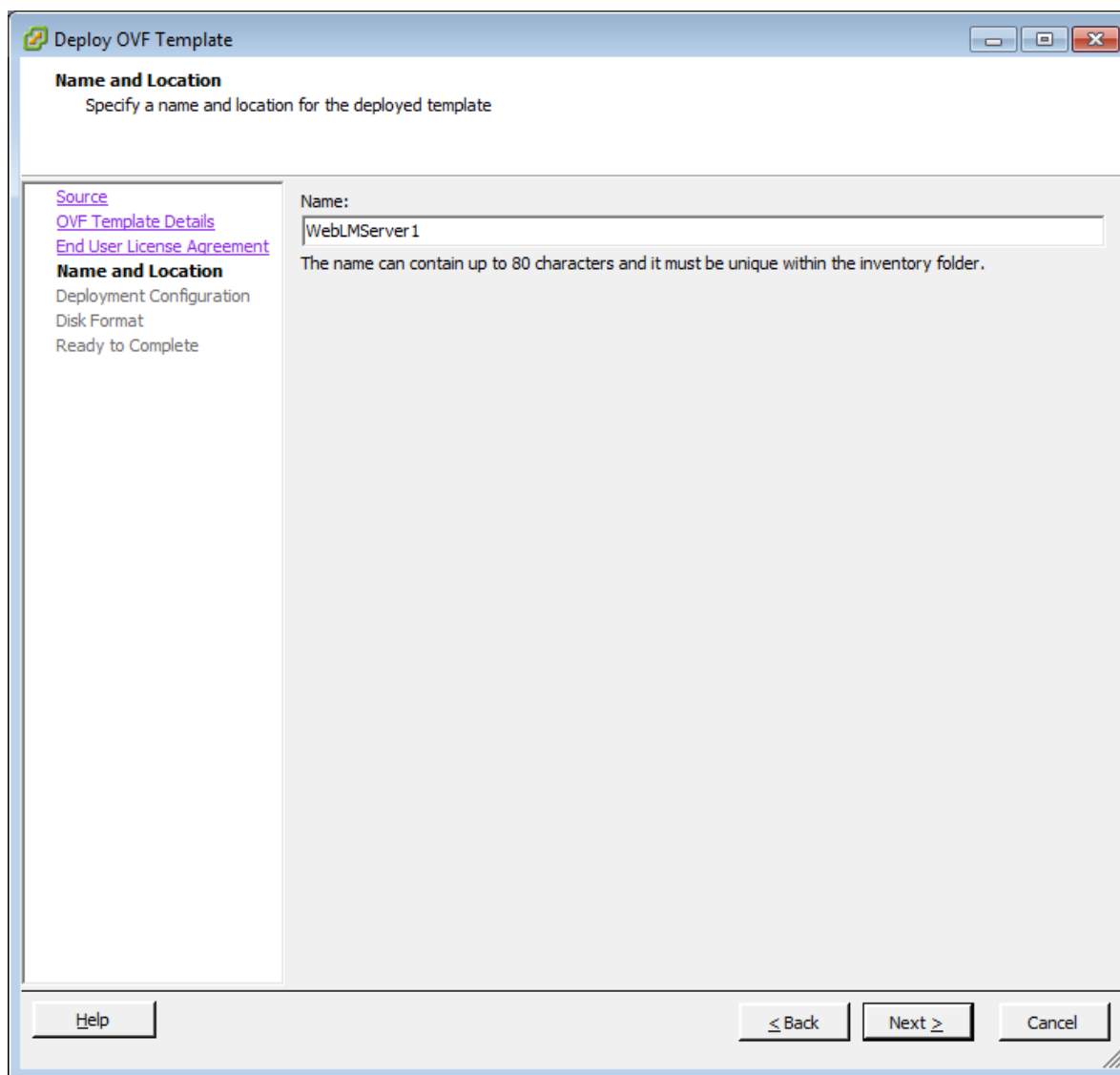
3. On the **Source** window, click **Browse**.
4. On the **Open** message box, select the WebLM OVA file.
5. Click **Open**.



6. On the **Source** window, click **Next**.

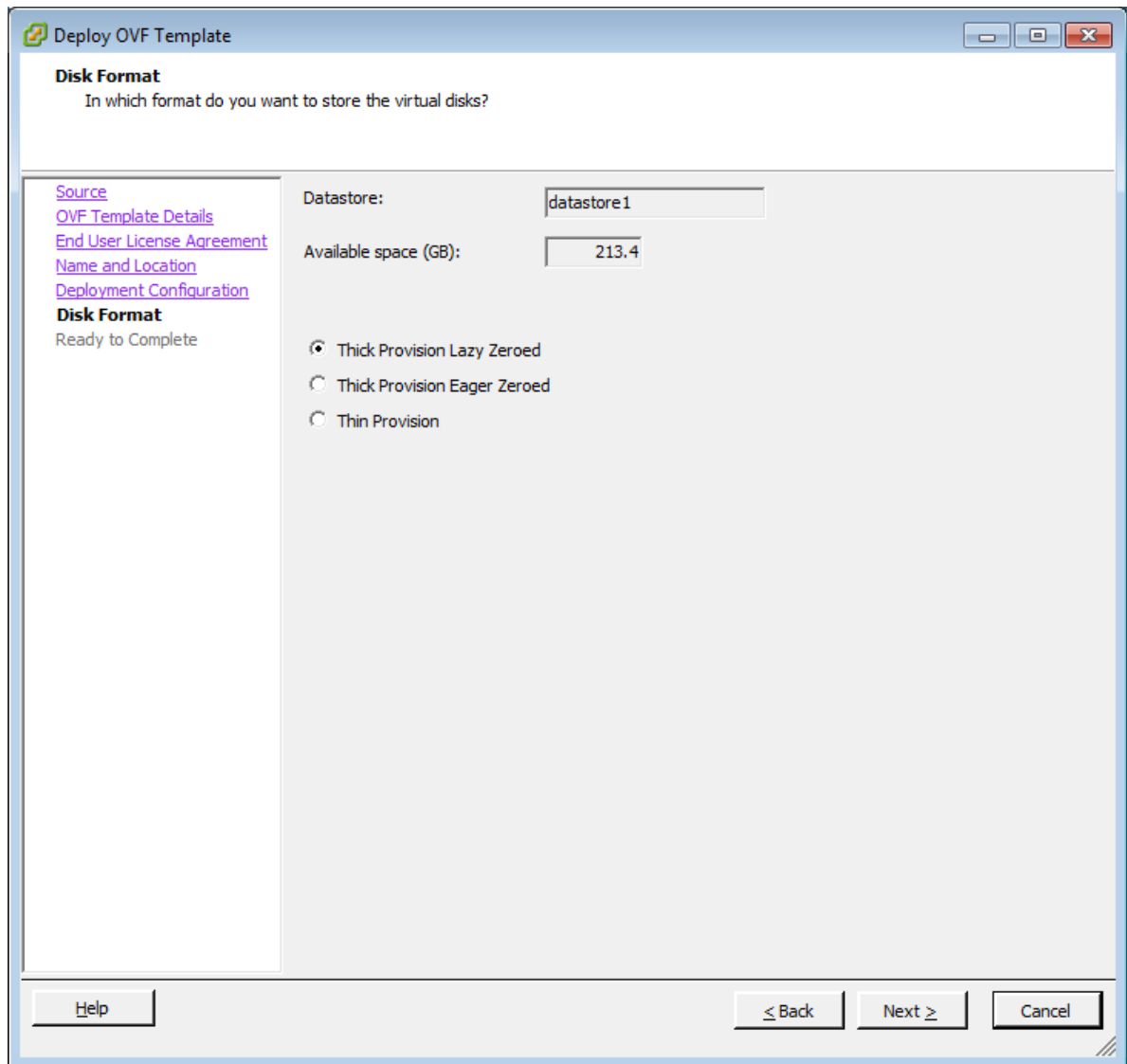


7. On the **OVF Template Details** window, verify the details of the OVA template and click **Next**.
8. On the **End User License Agreement** window, read the license agreement, and if acceptable, click **Accept**.
9. Click **Next**.
10. On the **Name and Location** window, type the name of the new WebLM virtual machine. This is not the host name of the WebLM server. This is the name of the VMware virtual machine.



The image shows a 'Deploy OVF Template' window. The title bar says 'Deploy OVF Template'. Below the title bar, there's a section titled 'Name and Location' with the instruction 'Specify a name and location for the deployed template'. On the left side, there's a navigation pane with links: 'Source', 'OVF Template Details', 'End User License Agreement', 'Name and Location' (which is selected), 'Deployment Configuration', 'Disk Format', and 'Ready to Complete'. The main area on the right has a 'Name:' label and a text input field containing 'WebLMServer1'. Below the input field, there's a note: 'The name can contain up to 80 characters and it must be unique within the inventory folder.' At the bottom of the window, there are three buttons: 'Help', '< Back', and 'Next >', and a 'Cancel' button on the far right.

11. Click **Next**.
12. On the **Deployment Configuration** window, from the **Configuration** list, select **Profile –1**.
13. Click **Next**.
14. On the **Disk Format** window, select **Thick Provision Lazy Zeroed**.



15. Click **Next**.
16. On the **Ready to Complete** window, verify the deployment settings. If you need to modify any of the settings, click **Back**.
17. Click **Power on after deployment**.
18. Click **Finish**.
The WebLM template begins to load.
19. On the **Deployment Completed Successfully** message box, click **Close**.
20. In the vSphere client, from the inventory list in the left pane, select the new WebLM virtual machine.
21. With the deployed WebLM virtual machine still selected, right-click and select **Open Console**.

On the WebLM console screen, as the WebLM virtual machine boots, you are prompted to configure the network settings.

22. To configure the WebLM server network settings, enter `y` at the menu.
23. At the **IP Address** prompt, enter the IP address of the WebLM virtual machine. Use IPv4 formatting.
24. At the **Netmask** prompt, enter the subnet mask IP address. Use IPv4 formatting.
25. At the **hostname** prompt, enter the host name of the WebLM virtual machine.
26. At the **domain name** prompt, enter the name of the domain containing the WebLM virtual machine.
27. At the **default gateway** prompt, enter the Default Gateway IP address. Use IPv4 formatting.
28. At the **DNS server(s)** prompt, enter the DNS server IP address. Use IPv4 formatting.
29. At the **default Search List (optional)** prompt, enter a search list if you are using one.
30. At the **NTP Server IP or FQDN** prompt, enter the IP address or FQDN of your Network Time Protocol (NTP) server.
31. At the **Time Zone Detail** prompt, select the time zone continent or ocean for WebLM from the list.
32. At the **Please select a country** prompt, select the country for WebLM from the list.
33. Review the **Network Settings** and enter `y`.

The WebLM OVA deployment continues until the installation is complete.

34. With the WebLM virtual machine still selected, right-click and select **Open Console**.
WebLM provides a restricted shell to perform CLI based operations.

Deploying the WebLM OVA using vCenter (vSphere desktop client connected to vCenter)

Before you begin

- Download the WebLM OVA file from the Avaya Product Licensing and Delivery System (PLDS) website at <https://plds.avaya.com/>.
- Know the IP address and network details of the WebLM server.

About this task

Deploy the WebLM OVA file onto a VMware ESXi host server. This creates a single instance of WebLM server for use in Contact Center solutions.

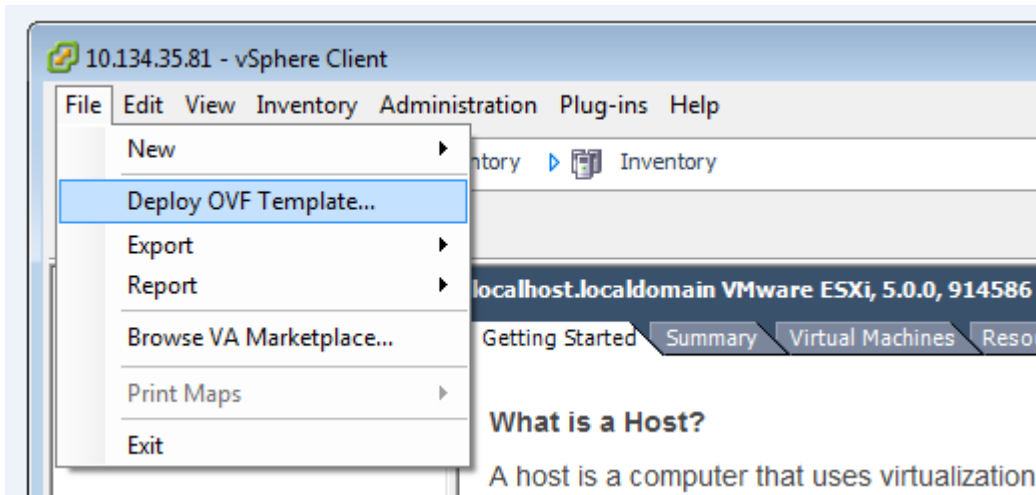
The WebLM OVA includes VMware tools. They are a suite of utilities that enhances the performance of the virtual machine's operating system and improves the management of the virtual machine.

Always deploy WebLM with a thick provisioned disk.

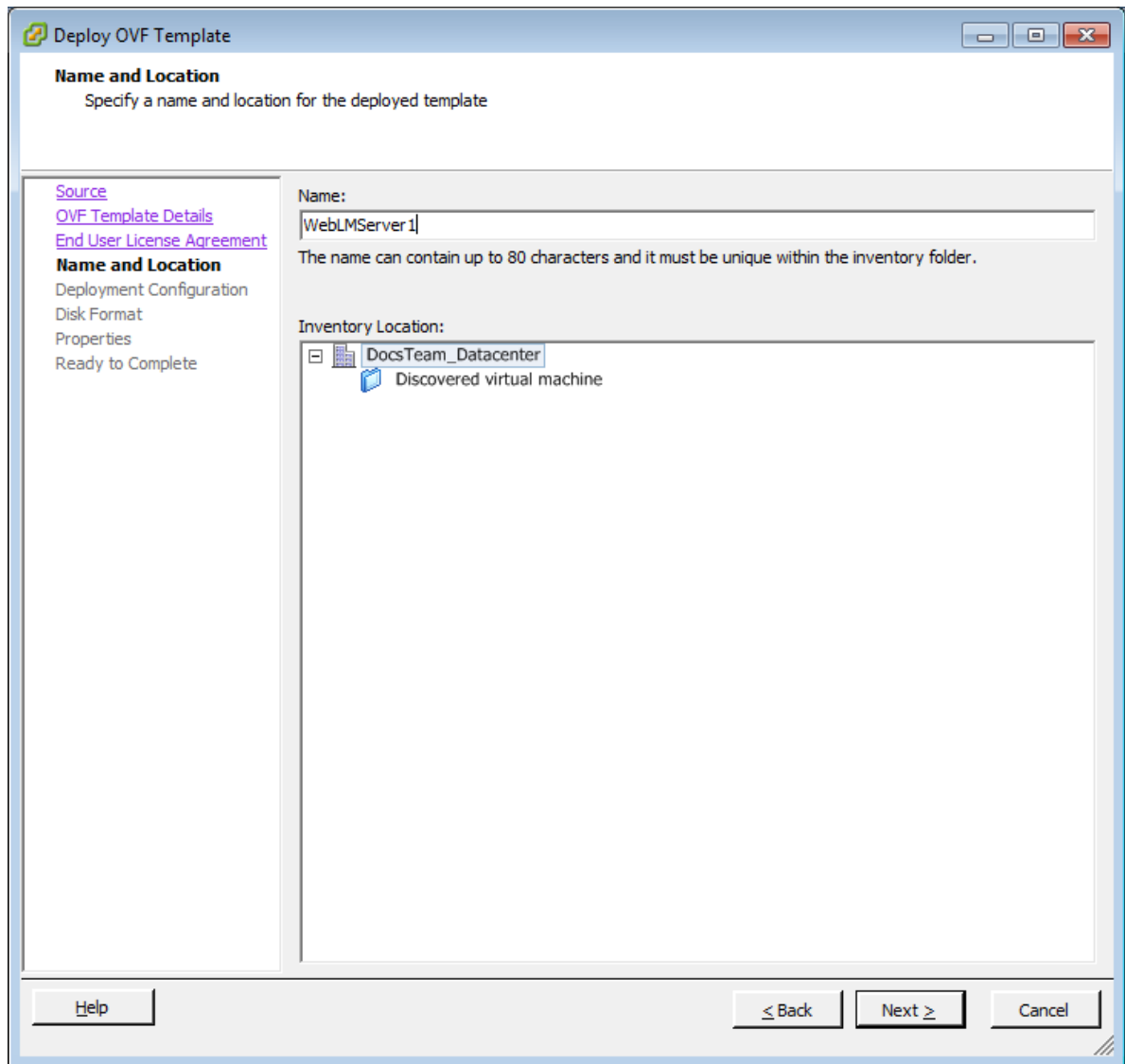
For best performance, use WebLM only on disks local to the ESXi Host, or SAN storage devices. Do not store WebLM on a NFS storage system.

Procedure

1. In your vSphere client, select **File > Deploy OVF Template**.



2. On the **Source** window, click **Browse**.
3. On the **Open** message box, select the WebLM OVA file.
4. Click **Open**.
5. On the **Source** window, click **Next**.
6. On the **OVF Template Details** window, verify the details of the OVA template and click **Next**.
7. On the **End User License Agreement** window, read the license agreement, and if acceptable, click **Accept**.
8. Click **Next**.
9. On the **Name and Location** window, in the **Name** box, type the name of the new WebLM virtual machine. This is not the host name, this is the name of the VMware virtual machine.



10. Click **Next**.
11. On the **Deployment Configuration** window, from the **Configuration** list, select **Profile –1**.
12. Click **Next**.
13. On the **Host and Cluster** window, select the host server or cluster on which to deploy the WebLM OVA. If you selected a cluster, select a **Specific Host** on that cluster.
14. Click **Next** to display the **Storage** window.
15. From the **Select a destination storage for the virtual machine files** list, select a location to store the WebLM virtual machine image.
16. Click **Next**.
17. On the **Disk Format** window, select **Thick Provision Lazy Zeroed**. Thin provisioning is not supported in production environments.

18. Click **Next**.

Deploy OVF Template

Properties
Customize the software solution for this deployment.

[Source](#)
[OVF Template Details](#)
[End User License Agreement](#)
[Name and Location](#)
[Deployment Configuration](#)
[Disk Format](#)
Properties
Ready to Complete

Application

Please enter the IP Address to assign to the VM:
[. . .]
Enter an IP address.

Please enter the Netmask to assign to the VM:
[255 , 255 , 255 , 0]

Please enter the IP Address of your default gateway:
[. . .]
Enter an IP address.

Please enter the IP Address of your DNS server: [Multiple IP's separated by comma]
[]
A value must be provided.

Please enter the Short Hostname to assign to the VM:
[]
A value must be provided.

Properties with invalid values will be left unassigned. The vApp will not be able to power on until all properties have valid values.

[Help](#) [≤ Back](#) [Next ≥](#) [Cancel](#)

19. On the **Network Mapping** window, configure a network interface for the WebLM virtual machine.
20. Click **Next**.
21. In the **Properties** window, in the **Please enter the IP Address to assign to the VM** box, type the IP address of the WebLM virtual machine. Use IPv4 formatting.
22. In the **Please enter the Netmask to assign to the VM** box, type the subnet mask IP address. Use IPv4 formatting.
23. In the **Please enter the IP Address of your default Gateway** box, type the Default Gateway IP address. Use IPv4 formatting.

24. In the **Please enter the IP Address of your DNS server** box, type the DNS server IP address. Use IPv4 formatting.
25. In the **Please enter the Short Hostname to assign to the VM** box, type the short hostname of the WebLM server.
26. In the **Please enter the Domain Name to assign to the VM** box, type the domain name of the WebLM server.
27. From the **Please select the Time Zone** list, select the time zone for the solution.
28. Click **Next**.
29. On the **Ready to Complete** window, verify the deployment settings. If you need to modify any of the settings, click **Back**.
30. Click **Power on after deployment**.
31. Click **Finish**.
The WebLM template begins to load.
32. On the **Deployment Completed Successfully** message box, click **Close**.

Deploying the WebLM OVA using vSphere host client

Before you begin

- Download the WebLM OVA file from the Avaya Product Licensing and Delivery System (PLDS) website at <https://plds.avaya.com/>.
- Know the IP address and network details of the WebLM server.

About this task

Deploy the WebLM OVA file onto a VMware ESXi host server. This creates a single instance of WebLM server for use in Contact Center solutions.

The WebLM OVA includes VMware tools. They are a suite of utilities that enhances the performance of the virtual machine's operating system and improves the management of the virtual machine.

Always deploy WebLM with a thick provisioned disk.

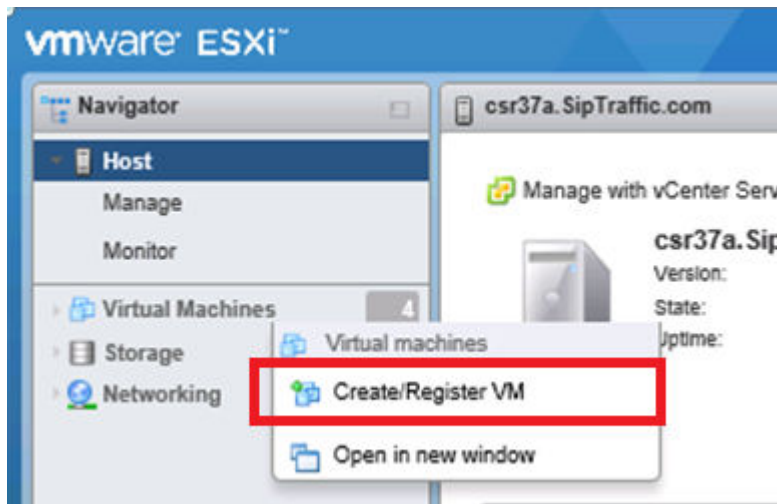
For best performance, use WebLM only on disks local to the ESXi Host, or SAN storage devices. Do not store WebLM on a NFS storage system.

Note:

The vSphere host client is a HTML5 client.

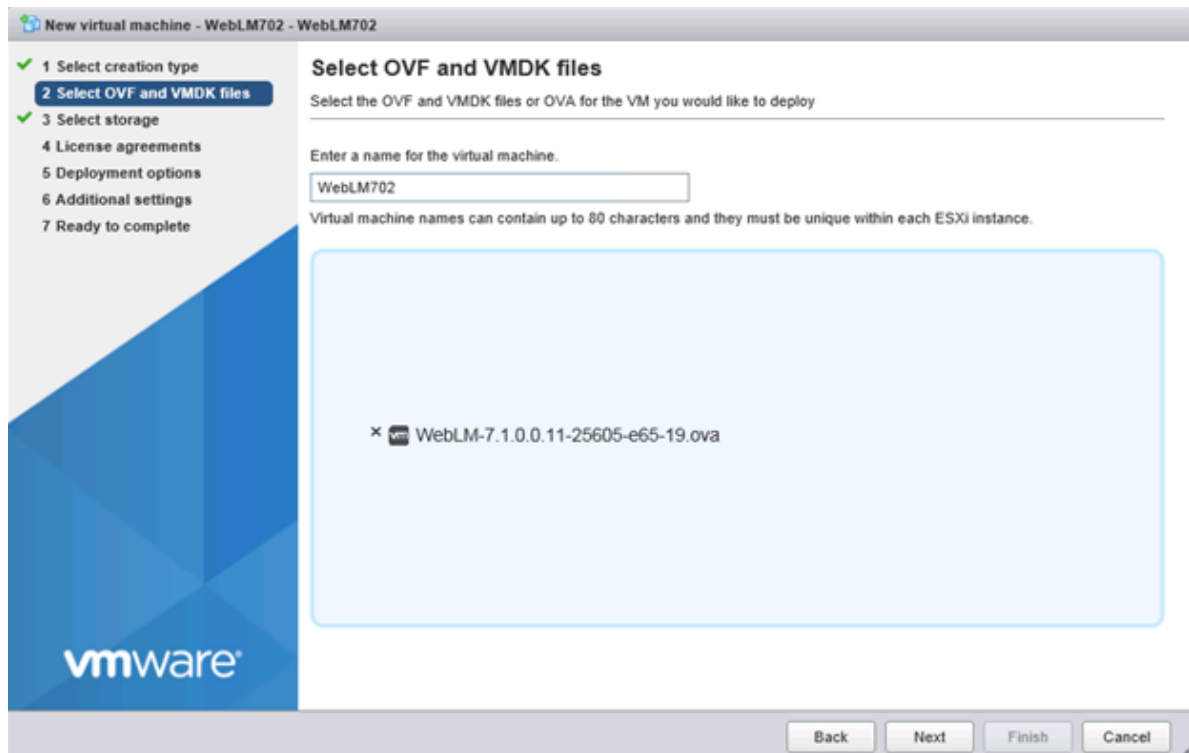
Procedure

1. In your vSphere host client, right-click on **Virtual Machines** and select **Create/Register VM**.



2. Under **Select creation type**, select **Deploy a virtual machine from an OVF or OVA file**.
3. Click **Next**.
4. Under **Select OVF and VMDK files**, type a name for the virtual machine.
5. Click **Browse** and select the WebLM OVA file.

6. Click **Next**.



7. Under **Select storage**, select a datastore location to store the WebLM virtual machine image. Ensure that the storage location you select has sufficient available storage space to store a thick provisioned virtual machine image.
8. Click **Next**.
9. Under **License agreements**, read the End User License Agreement and click **I agree**.
10. Click **Next**.
11. Under **Deployment options**, select the **Network mappings** and under Disk provisioning select **Thick**.
12. Click **Next**.
13. On the **Additional settings** page, under **Application**, in the **Please enter the IPv4 Address to assign to the VM** box type the IP address of the WebLM server.
14. In the **Please enter the Netmask to assign to the VM** box, type the subnet mask IP address.
15. In the **Please enter the IPv4 Address of your default gateway** box, type the default gateway IP address.
16. In the **Please enter the IP Address of your DNS server** box, type the IP address of one or more DNS servers. Use IPv4 formatting. Separate the IP addresses with a comma.
17. In the **Please enter the Short Hostname to assign to the VM** box, type the name of the WebLM server.

18. In the **Please enter the Domain Name to assign to the VM** box, type the domain name for the WebLM server.
19. In the **Please provide NTP Server IP/FQDN** box, type a comma separated list of NTP servers. You use the NTP server to synchronize servers with each other and with the contact center solution.
20. In the **Please select the Time Zone** box, enter the Timezone for the WebLM server.
21. Under **WebLM CLI USER**, in the **Please enter the WebLM command line user name** box, type the name for the command line user.
22. In the **Please enter the WebLM command line user password** box, type the password for the command line user. Confirm the password.
23. Under **WebLM UI Password for User – admin**, in the **Please enter the WebLM UI admin user password** box, type the password for the WebLM UI admin user. Confirm the password.

New virtual machine - WebLM702 - WebLM702

- ✓ 1 Select creation type
- ✓ 2 Select OVF and VMDK files
- ✓ 3 Select storage
- ✓ 4 License agreements
- ✓ 5 Deployment options
- 6 Additional settings**
- 7 Ready to complete

Additional settings

Additional properties for the VM

Application	
Please enter the IPv4 Address to assign to the VM:	172.18.69.235
Please enter the Netmask to assign to the VM:	255.255.248.0
Please enter the IPv4 Address of your default gateway:	172.18.71.254
Please enter the IP Address of your DNS server: [Multiple IP's separated by comma]	172.18.71.252
Please enter the Short Hostname to assign to the VM:	WebLM702
IPv6 Address. Please enter IPv6 address (optional) :	
IPv6 Network Prefix. Please enter IPv6 Network Prefix (Optional) :	64
IPv6 Gateway. Please enter IPv6 Gateway (optional) :	
Please enter the Domain Name	siptraffic.com

Back Next Finish Cancel

24. Click **Next**.
25. Under **Ready to complete**, review and verify the deployment settings. If you need to modify any of the settings, click **Back**.
26. Click **Finish**.

 Important:

Do not refresh your browser while the VM is being deployed.

Next steps

When the WebLM OVA has been successfully deployed the virtual machine will be powered on automatically. If the virtual machine is not powered on automatically, power on the WebLM virtual machine.

After deploying the WebLM OVA using the vSphere host client, you might need to re-enter the configuration data after starting the WebLM virtual machine for the first time. If WebLM prompts you to configure the appliance after you start the virtual machine, then you must re-enter the configuration data. See [Configuring the WebLM virtual machine after deploying using the vSphere Host Client](#) on page 50.

Deploying the WebLM OVA using vSphere web client

Before you begin

- Download the WebLM OVA file from the Avaya Product Licensing and Delivery System (PLDS) website at <https://plds.avaya.com/>.
- Know the IP address and network details of the WebLM server.

About this task

Deploy the WebLM OVA file onto a VMware ESXi host server. This creates a single instance of WebLM server for use in Contact Center solutions.

The WebLM OVA includes VMware tools. They are a suite of utilities that enhances the performance of the virtual machine's operating system and improves the management of the virtual machine.

Always deploy WebLM with a thick provisioned disk.

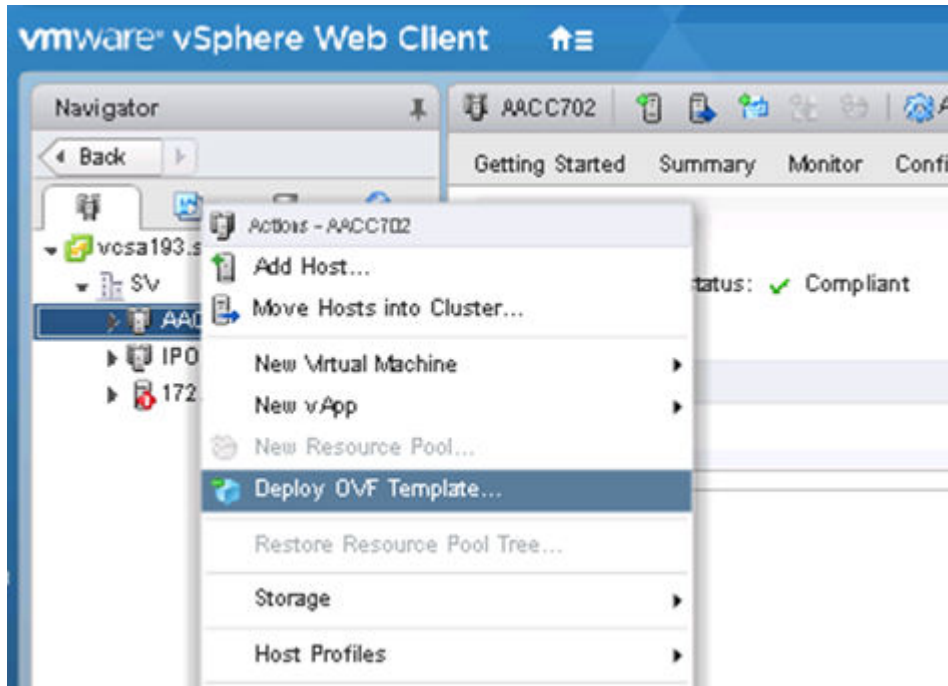
For best performance, use WebLM only on disks local to the ESXi Host, or SAN storage devices. Do not store WebLM on a NFS storage system.

 Note:

The vSphere web client is supported with vCenter deployments only.

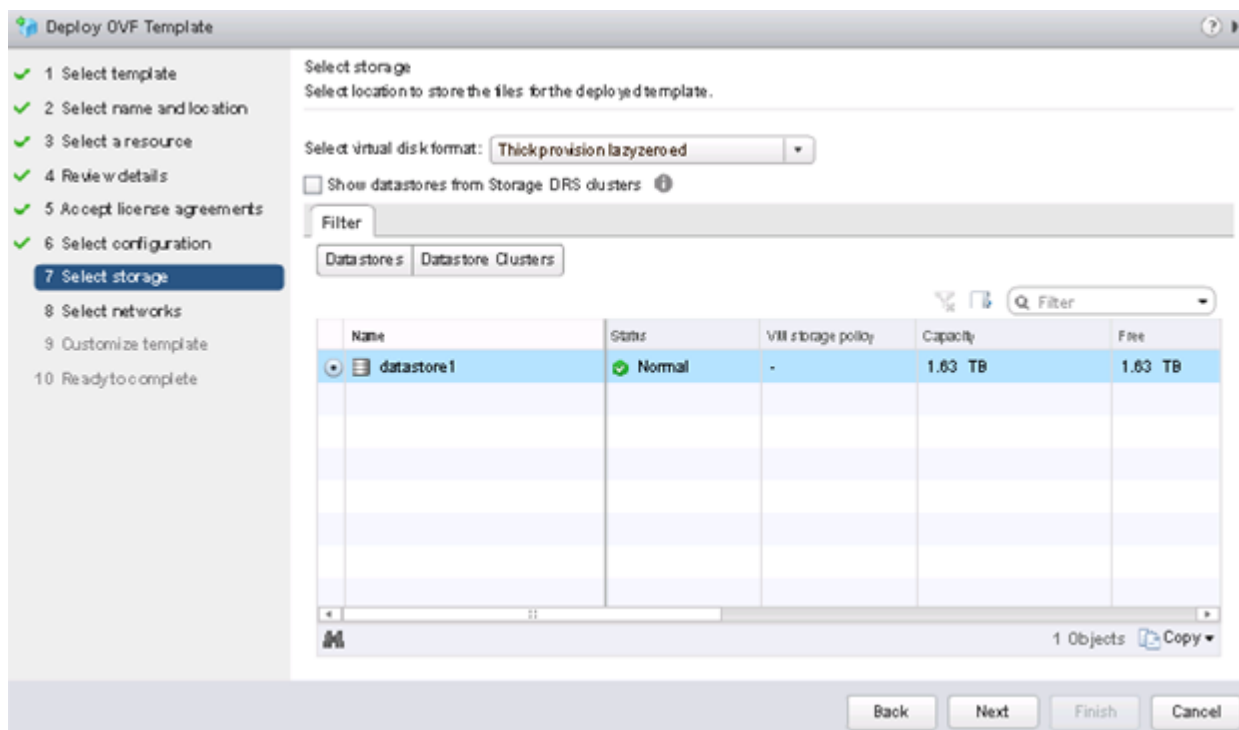
Procedure

1. In your vSphere web client, right-click in the **Navigator pane** and select **Deploy OVF Template**.



2. On the **Select template** page, select **Local file** and click **Browse** to select the WebLM OVA file.
3. Click **Next**.
4. On the **Select name and location** page, in the **Name** box, type a name for the virtual machine.
5. Select a datacenter location for the WebLM virtual machine.
6. Click **Next**.
7. On the **Select a resource** page, navigate to and select the host where you want to deploy the WebLM virtual machine.
8. Click **Next**.
9. On the **Review details** page, review the WebLM details.
10. Click **Next**.
11. On the **Accept license agreements** page, read the license agreement and click **Accept**.
12. Click **Next**.
13. On the **Select configuration** page, accept the default profile 1.
14. Click **Next**.

15. On the **Select storage** page, from the **Select virtual disk format** drop-down list, select **Thick provision lazy zeroed**.
16. Select a location to store the WebLM virtual machine image. Ensure that the storage location you select has sufficient available storage space to store a thick provisioned virtual machine image.



17. Click **Next**.
18. On the **Select networks** page, select the destination network for the WebLM virtual machine from the drop-down list.
19. Click **Next**.
20. On the **Customize template** page, under **Application**, in the **Please enter the Domain Name to assign to the VM** box type the domain name for the WebLM server.
21. In the **Please enter the IP Address of your DNS server** box, type the IP address of one or more DNS servers. Use IPv4 formatting. Separate the IP addresses with a comma.
22. In the **Please enter the IPv4 Address of your default gateway** box, type the default gateway IP address.
23. In the **Please enter the IPv4 Address to assign to the VM** box, type the IP address of the WebLM server.
24. In the **Please enter the Netmask to assign to the VM** box, type the subnet mask IP address.
25. In the **Please enter the Short Hostname to assign to the VM** box, type the name of the WebLM server.

26. In the **Please provide NTP Server IP/FQDN** box, type a comma separated list of NTP servers. You use the NTP server to synchronize servers with each other and with the contact center solution.
27. In the **Please select the Time Zone** box, enter the Timezone for the WebLM server.
28. Under **Enhanced Access Security Gateway(EASG)**, in the **EASG User Access** box, type 1 to enable EASG or type 2 to disable EASG.
29. Under **WebLM CLI USER**, in the **Please enter the WebLM command line user name** box, type the name for the command line user.
30. In the **Please enter the WebLM command line user password** box, type the password for the command line user. Confirm the password.
31. Under **WebLM UI Password for User – admin**, in the **Please enter the WebLM UI admin user password** box, type the password for the WebLM UI admin user. Confirm the password.
32. Click **Next**.
33. Under **Ready to complete**, review and verify the deployment settings. If you need to modify any of the settings, click **Back**.

Deploy OVF Template

Ready to complete
Review configuration data.

Name	WebLM-7.1.0.0.11-29605-e65-19
Source VM name	WebLM-7.1.0.0.11-29605-e65-19
Download size	942.6 MB
Size on disk	40.0 GB
Datacenter	SV
Resource	172.18.68.67
Deployment configuration	Profile -1
Storage mapping	1
Network mapping	1
IP allocation settings	IPv4, Static - Manual

IPv6 Address. Please enter IPv6 address (optional) :=
 IPv6 Gateway. Please enter IPv6 Gateway (optional) :=
 IPv6 Network Prefix. Please enter IPv6 Network Prefix (Optional) := 64
 Please enter the Domain Name to assign to the VM: = siptraffic.com
 Please enter the IP Address of your DNS server: [Multiple IP's separated by comma] = 172.18.71.252
 Please enter the IPv4 Address of your default gateway: = 172.18.71.254
 Please enter the IPv4 Address to assign to the VM: = 172.18.69.236
 Please enter the Netmask to assign to the VM: = 255.255.249.0

Back Next Finish Cancel

34. Click **Finish**.

Important:

Do not refresh your browser while the VM is being deployed.

Next steps

When the WebLM OVA has been successfully deployed, power on the virtual machine.

Configuring the WebLM virtual machine after deploying using the vSphere Host Client

About this task

After you power on the WebLM virtual machine for the first time, enter the WebLM configuration data.

Procedure

1. Connect to the WebLM virtual machine, using the VMware console, after you power on the virtual machine for the first time.
2. When the **Provide user input configuration** prompt appears, type **Y** and press **Enter**.
3. At the **Please enter the IP Address to assign to the VM** prompt type the IP address of the WebLM server and press Enter.
4. At the **Please enter the Netmask to assign to the VM** prompt, type the subnet mask IP address and press Enter.
5. At the **Please enter the IPv4 Address of your default gateway** prompt, type the default gateway IP address and press Enter.
6. At the **Please enter the Short Hostname to assign to the VM** prompt, type the name of the WebLM server and press Enter.
7. At the **Please enter the Domain Name to assign to the VM** prompt, type the domain name for the WebLM server and press Enter.
8. At the **Please enter the IP Address of your DNS server** box, type the IP address of one or more DNS servers and press Enter. Use IPv4 formatting. Separate the IP addresses with a comma.
9. At the **Please enter the Management IPV6 Address to assign to the VM** prompt, press Enter to skip.
10. At the **Please Enter the default Search List** prompt, press Enter to skip.
11. At the **Please provide NTP Server IP/FQDN** prompt, type a comma separated list of NTP servers and press Enter. You use the NTP server to synchronize servers with each other and with the contact center solution.
12. At the **WebLM CLI User Name** prompt, type the name for the command line user and press Enter. Note the provided list of WebLM CLI user names that you must not use.
13. At the **WebLM CLI User Password** prompt, type the password for the command line user and press Enter. Confirm the password.

14. At the **WebLM UI Admin User Password** prompt, type the password for the WebLM UI admin user and press Enter. Confirm the password.
15. At the **WebLM CLI User Password** prompt, type the password for the command line user and press Enter. Confirm the password.
16. At the **Enter 1 to Enable EASG (Recommended) or 2 to Disable EASG** prompt, enter 1 to enable EASG or 2 to disable EASG and press Enter.
17. At the **Please select a continent or ocean** prompt, type the number that relates to your continent or ocean and press Enter.
18. At the **Please select a country** prompt, type the number that relates to your country and press Enter.
19. At the **Please select one of the following time zone regions** prompt, type the number that relates to your time zone region and press Enter.
20. Review the Network Settings and press Enter.
21. Review WebLM CLI User, WebLM UI admin User, and EASG settings, type **y** to continue or type **n** to go back and make changes to the configuration data. Press Enter and wait for the WebLM server to apply the configuration data.
22. Close the console session.
23. Restart the WebLM virtual machine.

Obtaining the WebLM server Host ID

Before you begin

- Deploy the WebLM OVA on your VMware host server.

About this task

Obtain the WebLM server Host ID so you can use it to obtain or generate a license for use by Contact Center features.

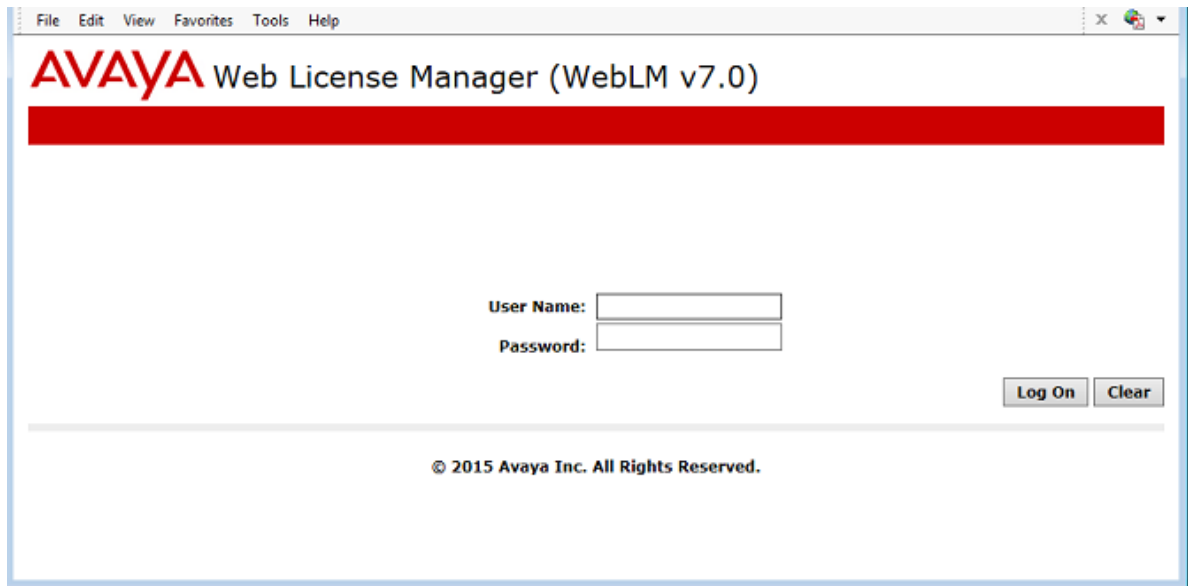
The first time you log in to the WebLM Web interface, you must change the default password.

Procedure

1. Open Internet Explorer and enter the following URL:

`https://<WebLMIPAddress>:52233/WebLM/index.jsp`

Where WebLMIPAddress is the IP address of the WebLM virtual machine.



2. Log in to the Web License Manager user interface using the default settings:
The default **User Name** is admin.
The default **Password** is weblmadmin.
3. Click **Log On**.
4. You are forced to change the password and log back on again using the new password.
5. On the left hand pane, select **Server properties**.



6. Record the Server Host ID **Primary Host ID** number.
7. Use the WebLM server Host ID to obtain Contact Center licenses from the Avaya Product Licensing and Delivery System (PLDS).

Installing the WebLM license file

Before you begin

- Use the WebLM server Host ID to obtain Contact Center licenses from the Avaya Product Licensing and Delivery System (PLDS).

About this task

Install the WebLM license file to license Contact Center features and agents.

Procedure

1. Open Internet Explorer and enter the following URL:

https://<WebLMIPAddress>:52233/WebLM/index.jsp

Where WebLMIPAddress is the IP address of the WebLM virtual machine.
2. Log in to the Web License Manager user interface using the “admin” **User Name** and your new password.
3. Log in to the WebLM Web interface using your new password.
4. In the left hand pane, click **Install license**.
5. In the **Enter license path** box, enter the license file details. Alternatively, click **Browse** to load the license file.
6. Click **Install**.
7. You can review the Contact Center licensed details by clicking **Licensed products > CCTR > ContactCenter**.

AVAYA Web License Manager (WebLM v7.0) [Help](#) | [About](#) | [Change Password](#) | [Log off admin](#)

WebLM Home
Install license
Licensed products
CCTR
▼ ContactCenter
View license capacity
View peak usage
Uninstall license
Server properties
Manage users
Shortcuts
Help for Installed Product

Contact Center - Release: 7 - SID: 101030 **Standard License file**

You are here: Licensed Products > ContactCenter > View License Capacity

License installed on: September 9, 2015 1:22:07 PM +01:00

License File Host IDs: VF-39-FF-06-31-06

Licensed Features

30 Items Show 15

Feature (License Keyword)	Expiration date	Licensed capacity	Currently Used
Maximum AMS Instance VALUE_CCTR_AMS_INSTANCE	permanent	1	0
Base Offer VALUE_CCTR_BASE	permanent	ENTERPRISE	Not counted
Maximum Contact Center Manager Standard Nodes VALUE_CCTR_CCM_STD_NODE	permanent	1	0
Maximum Open Interface VALUE_CCTR_OI	permanent	2000	0
Maximum License Managers VALUE_CCTR_PLICD	permanent	1	0
Maximum Basic Port VALUE_CCTR_BASIC_PORT	permanent	2000	0
Maximum SMS Agents VALUE_CCTR_SMS_AGENT	permanent	2000	0

WebLM licensing is now available for Contact Center.

Chapter 7: Avaya Aura® Media Server OVA deployment

Deploy the Avaya Aura® Media Server OVA to provide the conference services required by SIP-enabled Contact Center.

The Avaya Aura® Media Server OVA creates and configures a virtual machine containing Avaya Aura® Media Server software. The resulting virtual machine contains a Linux operating system, hard disk drive, third-party components, system configuration, firewall settings, and Avaya Aura® Media Server application software.

You can deploy the Avaya Aura® Media Server OVA on the same VMware host server as the Contact Center virtual machine and the Avaya WebLM OVA. Alternatively, you can deploy the Avaya Aura® Media Server OVA standalone on a separate VMware host server.

Avaya Aura® Media Server OVA

The Avaya Aura® Media Server OVA contains information about the virtual machine specification, virtual machine operating system, and application software. This OVA contains the following components:

- Red Hat Enterprise Linux 7.x, 64-bit
- Avaya Aura® Media Server 8.0 software
- IP tables firewall file application
- VMware Tools. Do not update the VMware Tools software on this virtual machine unless instructed to do so by Avaya.

Avaya Aura® Media Server is a software based media processing platform. Avaya Aura® Media Server provides the conference services required by SIP-enabled Contact Center.

The Avaya Aura® Media Server OVA package has the following default hardware configuration:

vCPU	Minimum CPU speed	Virtual memory required	Number of NICs	Virtual disk storage required	
4	2400 MHz	4.5 GB (4608 MB)	1 VMXNET3 Network Adapter.	Size	50 GB
				Deploy the Avaya Aura® Media Server OVA using Thick Provision Lazy Zeroed. Avaya Aura® Media Server does not support thin provisioning	

Contact Center does not support Avaya Aura® Media Server using these default deployment settings. After you deploy the Avaya Aura® Media Server, re-configure the virtual machine to have 4 or 8 CPUs and at least 8 GB RAM. Avaya Aura® Media Server is supported only on virtual machines with 4 or 8 CPUs.

In a virtualized Contact Center environment, you can use VMware to load the Avaya Aura® Media Server OVA package into a virtual machine in your contact center solution. The virtualized Contact Center server can then use the virtualized Avaya Aura® Media Server as a voice media processor.

Deploy the Avaya Aura® Media Server OVA using Disk Format - Thick Provision Lazy Zeroed. Avaya Aura® Media Server does not support thin provisioning.

Avaya Aura® Media Server OVA deployment procedures

About this task

This task flow shows you the sequence of procedures you perform to deploy the Avaya Aura® Media Server OVA.

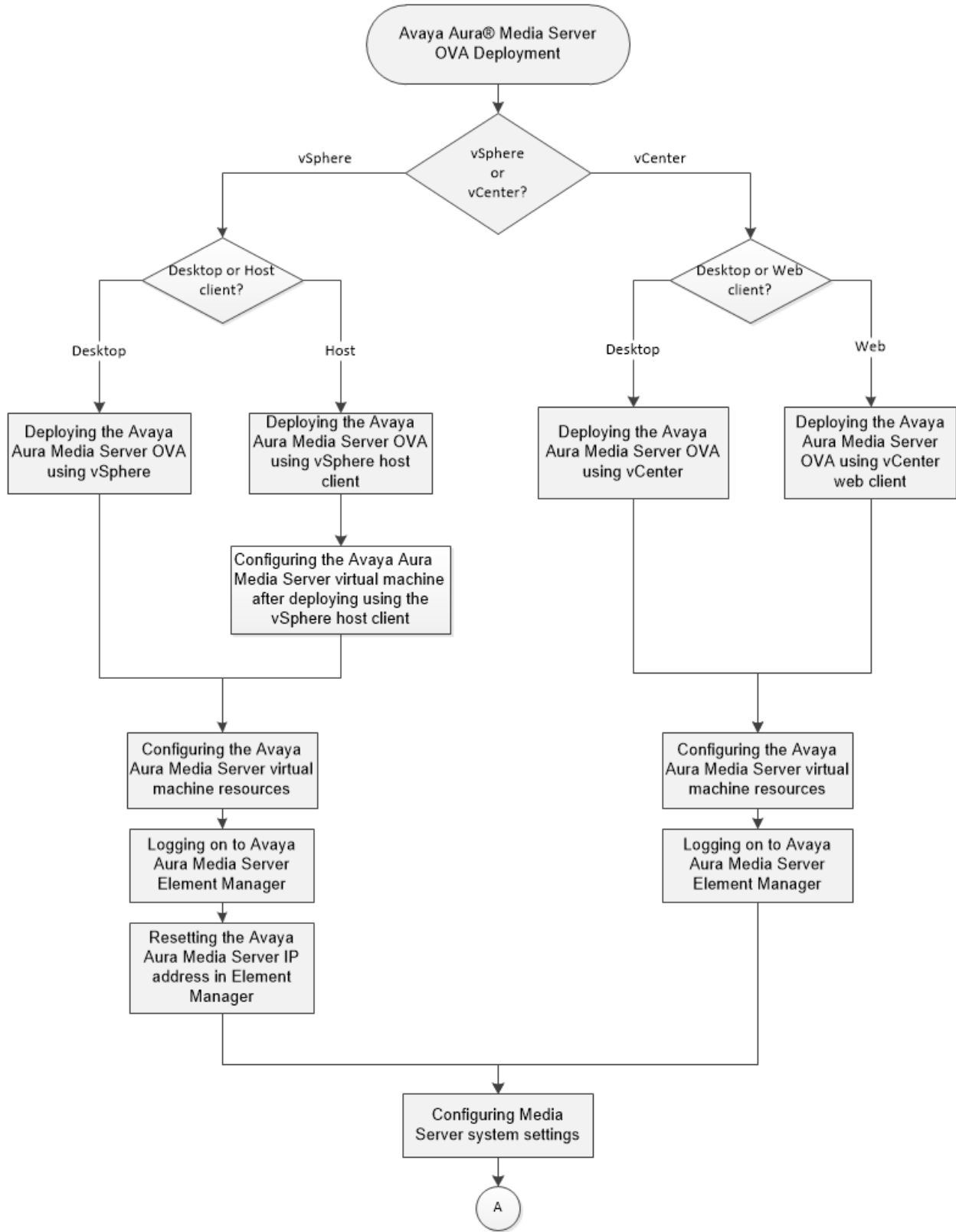


Figure 4: Avaya Aura® Media Server OVA deployment process

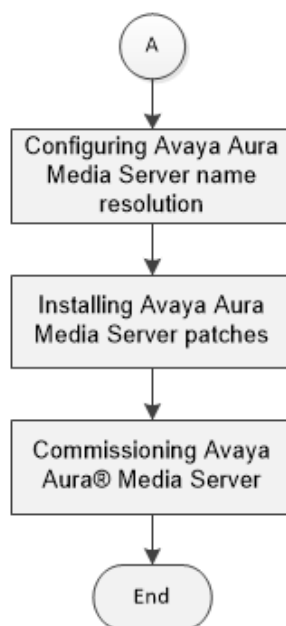


Figure 5: Avaya Aura® Media Server OVA deployment process continued

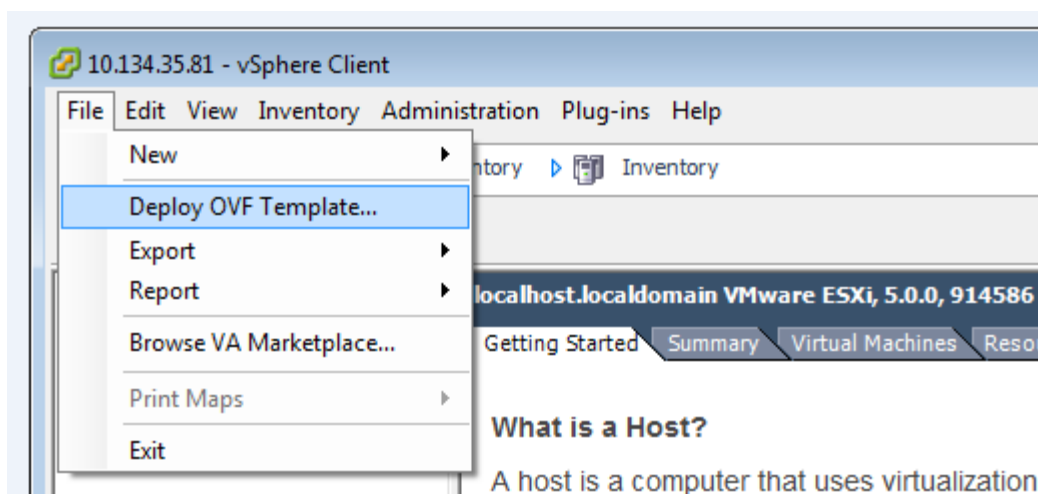
Deploying the Avaya Aura® Media Server OVA using vSphere (vSphere desktop client connected directly to ESXi host)

About this task

Deploy the Avaya Aura® Media Server OVA file onto a VMware ESXi host server. This creates a virtual machine with Avaya Aura® Media Server software for use in Contact Center solutions.

Procedure

1. In your vSphere client, select the ESXi host server.
2. Select **File > Deploy OVF Template**.



3. On the **Deploy OVF Template** window, click **Browse**.
4. On the **Open** message box, select Avaya Aura® Media Server OVA file.
5. Click **Open**.
6. On the **Deploy OVF Template** window, click **Next**.
7. On the **OVF Template Details** window, verify the details of the OVA template and click **Next**.
8. Read the **End User License Agreement** and click **Accept**.
9. Click **Next**.

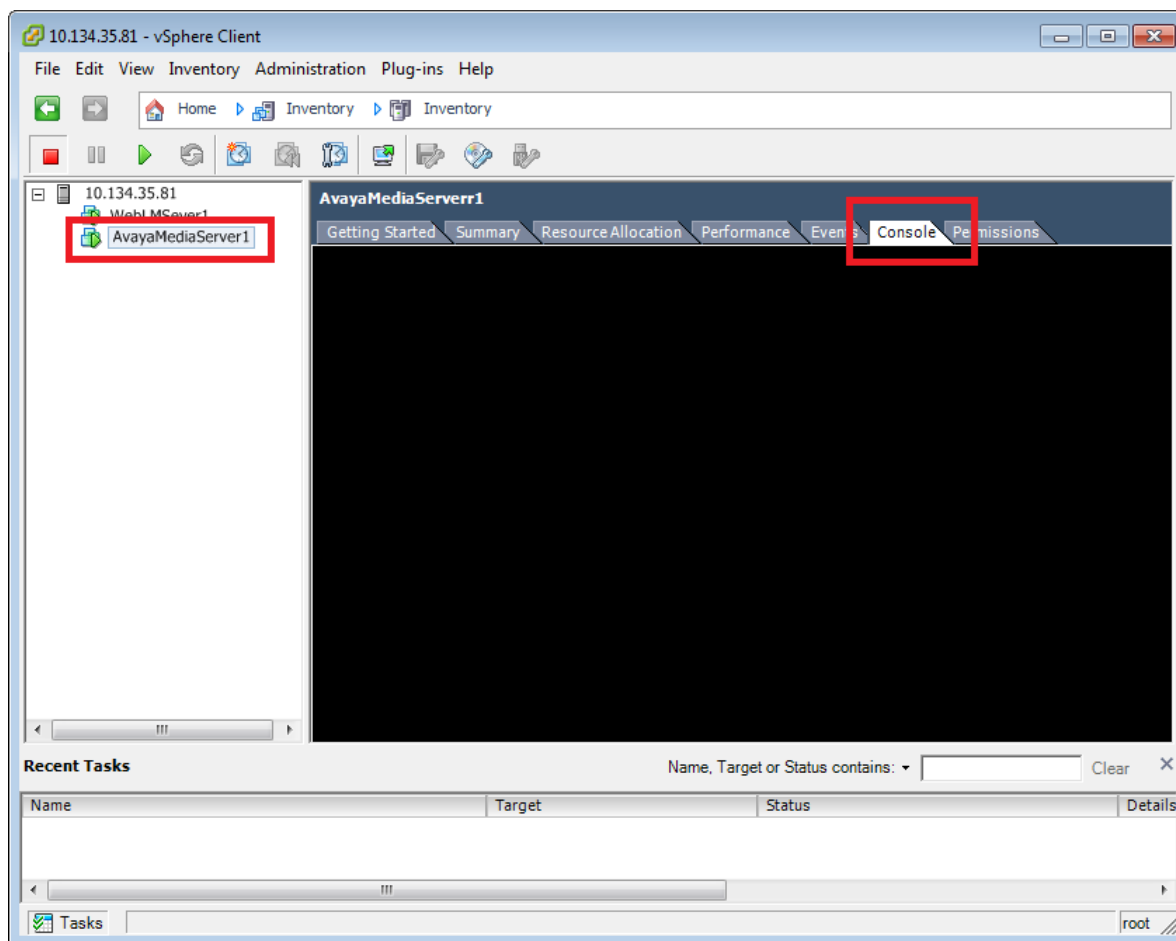
10. On the **Name and Location** window, type the name of the new Avaya Aura® Media Server virtual machine.

The screenshot shows a window titled "Deploy OVF Template" with standard Windows window controls. The main area is titled "Name and Location" with the instruction "Specify a name and location for the deployed template". On the left, a vertical pane contains a list of steps: "Source", "OVF Template Details", "End User License Agreement", "Name and Location" (which is highlighted), "Disk Format", and "Ready to Complete". The main content area has a "Name:" label followed by a text input field containing "AvayaMediaServer1". Below the input field, a note states: "The name can contain up to 80 characters and it must be unique within the inventory folder." At the bottom of the window, there are three buttons: "Help", "< Back", and "Next >", along with a "Cancel" button.

11. Click **Next**.
12. On the **Disk Format** window, select **Thick Provision Lazy Zeroed**.
13. Click **Next**.
14. On the **Ready to Complete** window, verify the deployment settings. If you need to modify any of the settings, click **Back**.
15. Click **Power on after deployment**.
16. Click **Finish**.

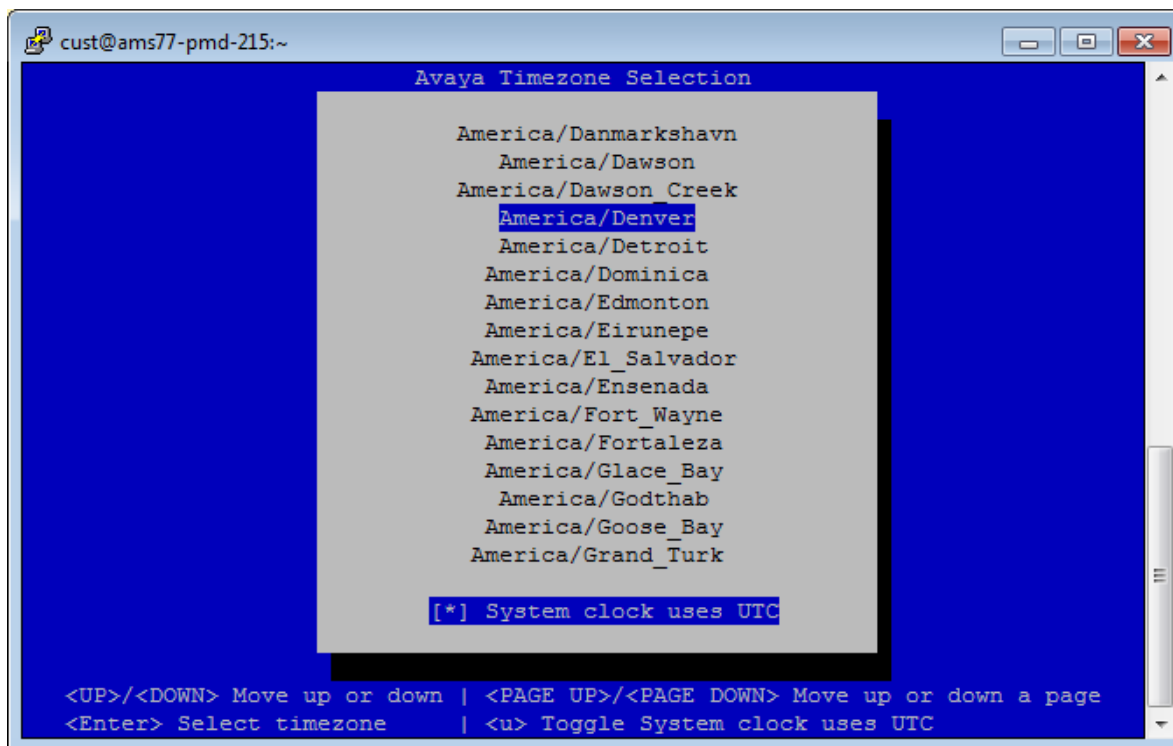
The Avaya Aura® Media Server template begins to load.

17. On the **Deployment Completed Successfully** message box, click **Close**.
18. In the vSphere client, from the inventory list in the left pane, select the new Avaya Aura® Media Server virtual machine.



19. In the right pane, select the **Console** tab for the Avaya Aura® Media Server virtual machine.
20. On the console, at the **login as** prompt, enter `cust`.
21. At the **Password** prompt, enter the password for the `cust` account.
22. At the command prompt, enter `netSetup`.
The Avaya Aura® Media Server appliance configuration utility starts.
23. Press `Enter` to continue.

24. From the list of time zones, select the time zone for the Contact Center solution.



25. To confirm selection and continue, press **c**.
26. At the **Enter Date** prompt, enter the date or press **Enter** to accept the displayed date.
27. At the **Enter Time** prompt, enter the time or press **Enter** to accept the displayed time.
28. To confirm selection and continue, press **c**.
29. At the **Enter server's hostname** prompt, enter the hostname of the Avaya Aura® Media Server virtual machine or press **Enter** to accept the displayed hostname.
30. At the **Enter server's IP address** prompt, enter the IP address of the virtual machine or press **Enter** to accept the displayed IP address.
31. At the **Enter netmask or prefix** prompt, enter the netmask IP address of the virtual machine or press **Enter** to accept the displayed IP address.
32. At the **Enter gateway IP address** prompt, enter the gateway IP address for the virtual machine or press **Enter** to accept the displayed IP address.
33. At the **Enter network domain** prompt, enter the domain name for the Avaya Aura® Media Server virtual machine or press **Enter** to accept the displayed domain. You must enter the domain name for the Contact Center solution.
34. At the **Enable static route (y/n)** prompt, enter **n**.
35. At the **Enter Primary DNS server IP address** prompt, enter the IP address of the primary DNS server or press **Enter** to accept the displayed IP address.

36. At the **Enter Secondary DNS server IP address** prompt, enter the IP address of the optional secondary DNS server or press `Enter` to accept the displayed IP address.
37. At the **Enable NTP Daemon (y/n)** prompt, enter `y` and then enter your NTP server details.
38. To confirm selection and continue, press `c`.

The Avaya Aura® Media Server appliance configuration utility updates the network details of the server.

39. Close the Avaya Aura® Media Server console.
40. Restart the Avaya Aura® Media Server virtual machine.

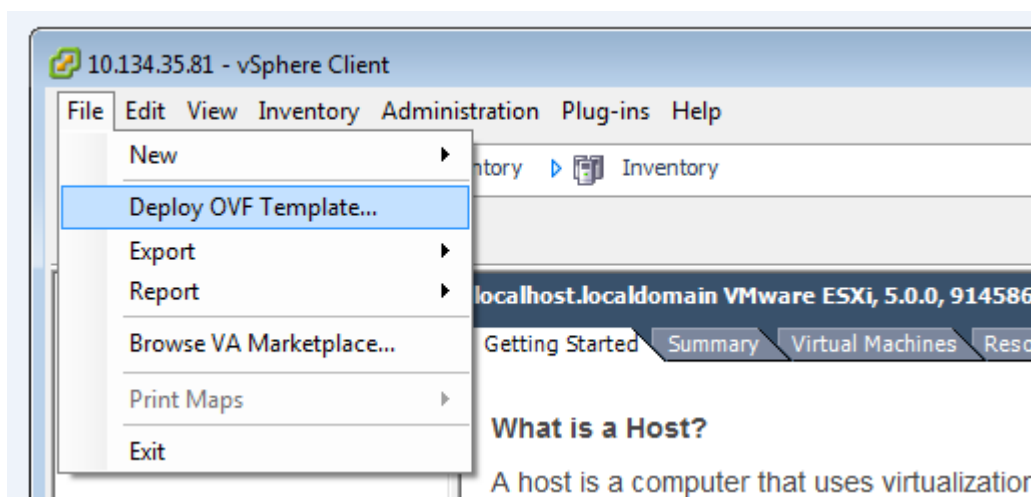
Deploying the Avaya Aura® Media Server OVA using vCenter (vSphere desktop client connected to vCenter)

About this task

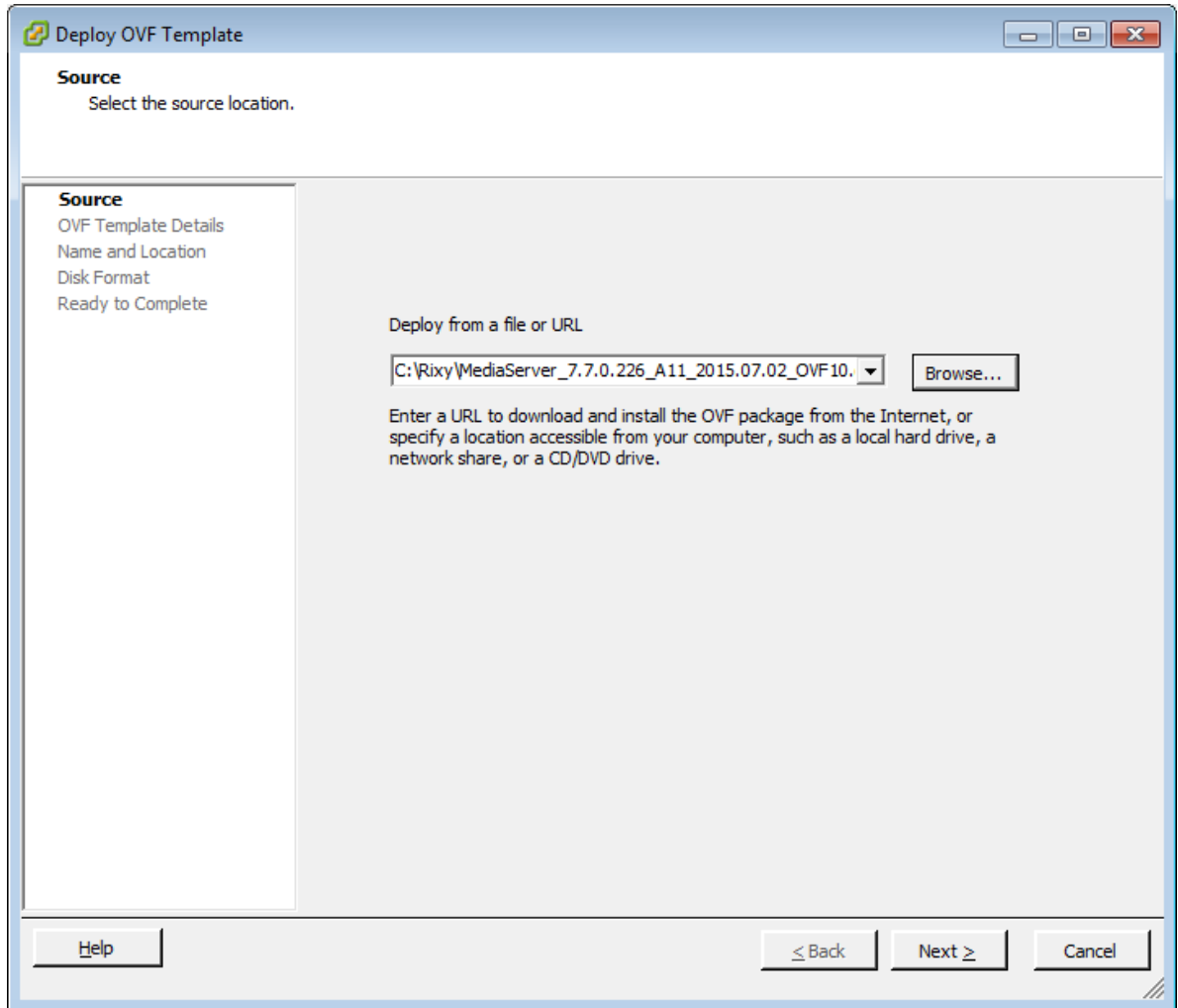
Deploy the Avaya Aura® Media Server OVA file onto a VMware ESXi host server using vCenter. This creates a virtual machine with Avaya Aura® Media Server software for use in Contact Center solutions.

Procedure

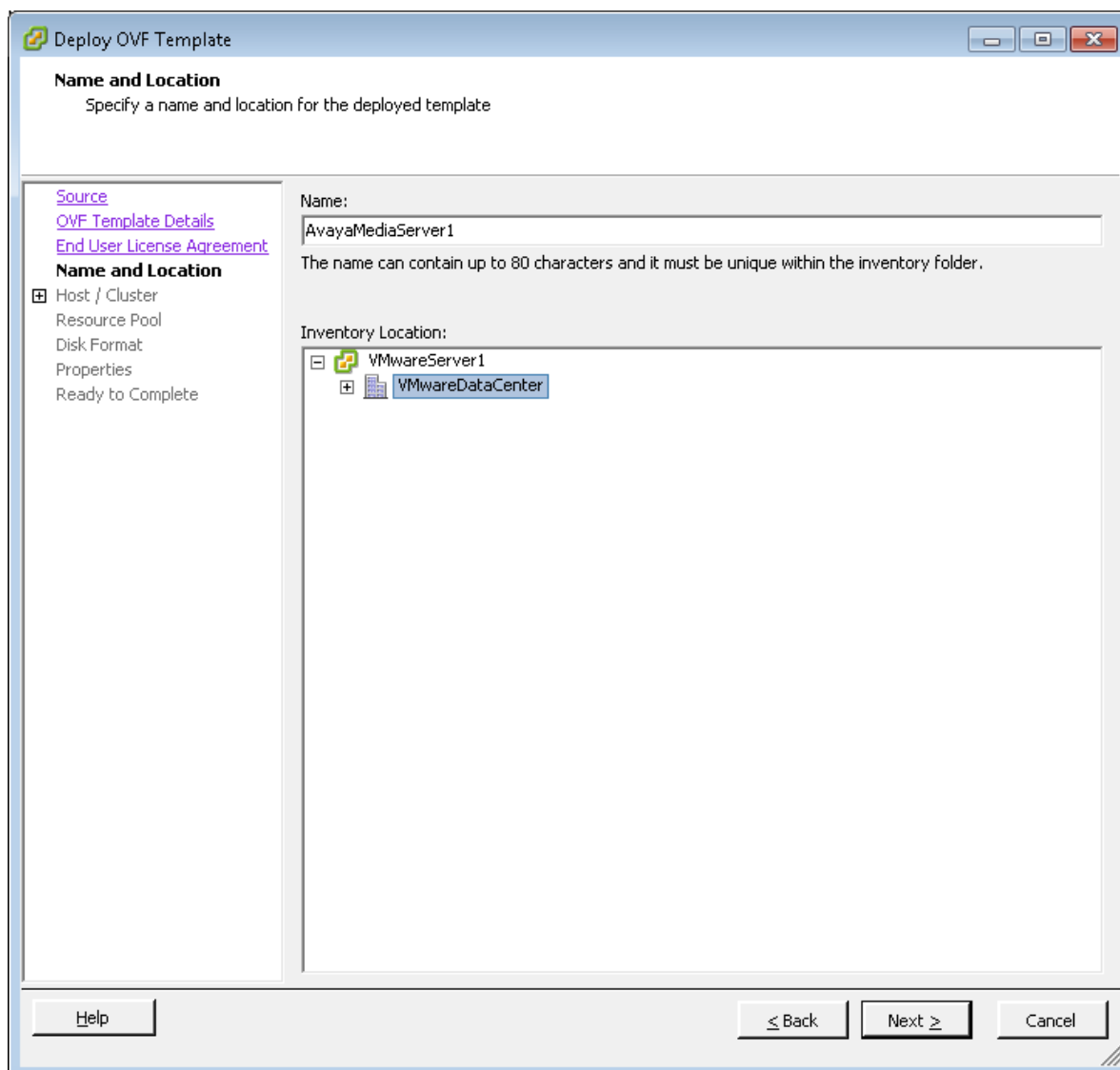
1. In your vCenter client, select the host server on which to deploy the Avaya Aura® Media Server OVA.
2. Select **File > Deploy OVF Template**.



3. On the **Source** window, click **Browse**.
4. On the **Open** message box, select the Avaya Aura® Media Server OVA file.
5. Click **Open**.



6. On the **Source** window, click **Next**.
7. On the **OVF Template Details** window, verify the details of the Avaya Aura® Media Server OVA template and click **Next**.
8. On the **End User License Agreement** window, read the license agreement, and if acceptable, click **Accept**.
9. Click **Next**.



10. On the **Name and Location** window, type the name of the new Avaya Aura® Media Server virtual machine. This is not the server host name, this is the name of the VMware virtual machine as it appears in the VMware inventory.
11. Click **Next**.
12. On the Host and Cluster window, select the host server or cluster on which to deploy the Avaya Aura® Media Server OVA. If you selected a cluster, select a **Specific Host** on that cluster.
13. Click **Next** to display the **Storage** window.
14. From the **Select a destination storage for the virtual machine files** list, select a location to store the Avaya Aura® Media Server virtual machine image. Ensure that the storage location you select has sufficient available storage space to store a thick provisioned virtual machine image.

15. Click **Next**.
16. On the **Disk Format** window, select **Thick Provision Lazy Zeroed**. Avaya Aura® Media Server does not support thin provisioning in production environments.
17. Click **Next**.

Deploy OVF Template

Properties
Customize the software solution for this deployment.

[Source](#)
[OVF Template Details](#)
[End User License Agreement](#)
[Name and Location](#)
[Disk Format](#)
Properties
Ready to Complete

Network Settings

Public IP address of the application
The IP address for the application interface. Check application documentation for details of IP addressing.
192 . 168 . 0 . 2

Short hostname
The short-form of the Linux hostname for the VM.
avaya-ams

Network domain
The domain to which the hostname belongs.
localdomain

Public interface netmask
The network mask for the application public interface.
255 . 255 . 255 . 0

Default gateway
The default gateway address for this VM.
192 . 168 . 0 . 254

DNS server(s)
The domain name servers for this VM. A comma-separated list of one to three IP addresses.

[Help](#) [≤ Back](#) [Next ≥](#) [Cancel](#)

18. On the **Properties** window, in the **Public IP address of the application** box, type the IP address of the Avaya Aura® Media Server server.
19. In the **Short hostname** box, type the name of the Avaya Aura® Media Server server.
20. In the **Network domain** box, enter the name of the domain used by Contact Center.
21. In the **Public interface netmask** box, type the subnet mask IP address.
22. In the **Default gateway** box, type the IP address of the default gateway.
23. In the **DNS server(s)** box, type the IP address of one or more DNS servers. Use IPv4 formatting. Separate the IP addresses with a comma.

24. On the **Properties** window, scroll down.

Deploy OVF Template

Properties
Customize the software solution for this deployment.

[Source](#)
[OVF Template Details](#)
[End User License Agreement](#)
[Name and Location](#)
[Disk Format](#)
Properties
Ready to Complete

DNS server(s)
The domain name servers for this VM. A comma-separated list of one to three IP addresses.

System Time Settings

Timezone
Select the timezone for the VM.

NTP server(s)
Optional list of Network Time Protocol servers. A comma-separated list of up to three IP addresses or fully-qualified hostnames.

Customer Login settings

Login Name
Provide a customer account name.

Login password.
Provide a password for the customer account.
Enter password
Confirm password

[Help](#) [< Back](#) [Next >](#) [Cancel](#)

25. From the **Timezone** list, select the time zone for the solution.
26. In the **NTP server(s)** box, type the IP address of your Network Time Protocol (NTP) server. You use the NTP server to synchronize servers with each other and with the contact center solution. Use IPv4 formatting.
27. In the **Login Name** box, type the name of the customer account. The default name is `cust`.
28. In the **Enter password** box, type a password for the customer account.
29. In the **Confirm password** box, retype the password for the customer account.
30. Click **Next**.
31. On the **Ready to Complete** window, verify the deployment settings. If you need to modify any of the settings, click **Back**.
32. Click **Power on after deployment**.

33. Click **Finish**.

The Avaya Aura® Media Server template begins to load.

34. On the **Deployment Completed Successfully** message box, click **Close**.

Deploying the Avaya Aura® Media Server OVA using vSphere host client

About this task

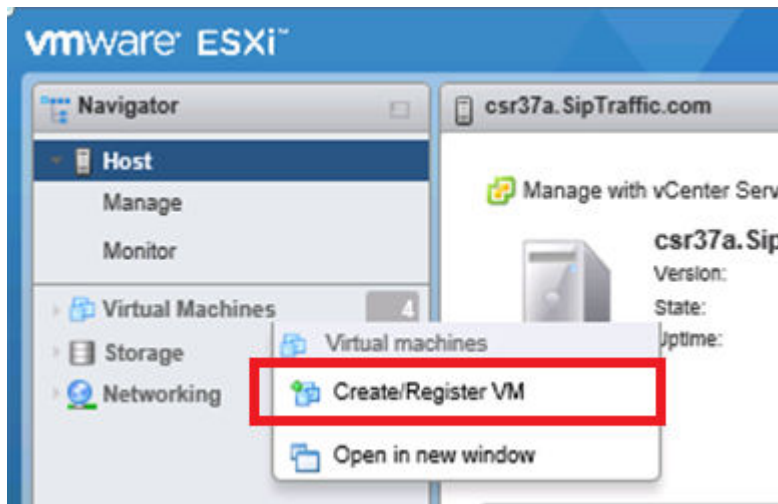
Deploy the Avaya Aura® Media Server OVA file onto a VMware ESXi host server. This creates a virtual machine with Avaya Aura® Media Server software for use in Contact Center solutions.

* Note:

The vSphere host client is a HTML5 client.

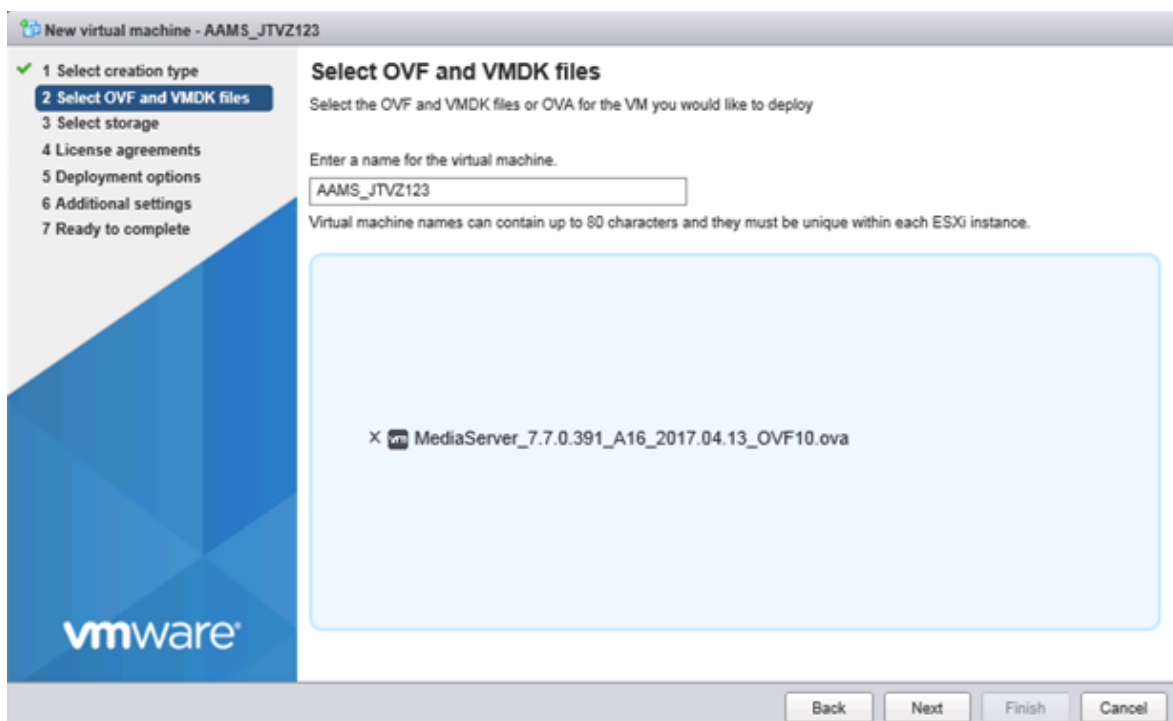
Procedure

1. In your vSphere host client, right-click on **Virtual Machines** and select **Create/Register VM**.



2. Under **Select creation type**, select **Deploy a virtual machine from an OVF or OVA file**.
3. Click **Next**.
4. Under **Select OVF and VMDK files**, type a name for the virtual machine.
5. Click **Browse** and select the Avaya Aura® Media Server OVA file.

6. Click **Next**.



7. Under **Select storage**, select a datastore location to store the Avaya Aura® Media Server virtual machine image. Ensure that the storage location you select has sufficient available storage space to store a thick provisioned virtual machine image.

8. Click **Next**.

9. Under **License agreements**, read the End User License Agreement and click **I agree**.

10. Click **Next**.

11. Under **Deployment options** , select the **Network mappings** and under Disk provisioning select **Thick**.

12. Click **Next**.
13. Under **Network Settings**, in the **Media Server IP address** box, type the IP address of the Avaya Aura® Media Server server.
14. In the **Short Hostname** box, type the name of the Avaya Aura® Media Server server.
15. In the **Network Domain** box, enter the name of the domain used by Contact Center.
16. In the **Media Server Netmask** box, type the subnet mask IP address.
17. In the **Default Gateway** box, type the IP address of the default gateway.
18. In the **DNS Servers** box, type the IP address of one or more DNS servers. Use IPv4 formatting. Separate the IP addresses with a comma.
19. Under **System Time Settings**, select the time zone for the solution from the **Timezone** list.
20. In the **NTP Servers** box, type the IP address of your Network Time Protocol (NTP) server. You use the NTP server to synchronize servers with each other and with the contact center solution. Use IPv4 formatting.
21. Under **Customer Login settings**, in the **Login Name** box, type the name of the customer account. The default name is `cust`.
22. In the **Login password** box, type a password for the customer account, and confirm the password.
23. Click **Next**.

24. Under **Ready to complete**, review and verify the deployment settings. If you need to modify any of the settings, click Back.
25. Click **Finish**.

 Important:

Do not refresh your browser while the VM is being deployed.

Next steps

When the Avaya Aura® Media Server OVA has been successfully deployed the virtual machine will be powered on automatically. If the virtual machine is not powered on automatically, power on the Avaya Aura® Media Server virtual machine.

After deploying the Avaya Aura® Media Server OVA using the vSphere host client, you might need to re-enter the configuration data after starting the Avaya Aura® Media Server virtual machine for the first time. If Avaya Aura® Media Server prompts you to configure the appliance after you start the virtual machine, then you must re-enter the configuration data. See [Configuring the Avaya Aura Media Server virtual machine after deploying using the vSphere Host Client](#) on page 76.

Deploying the Avaya Aura® Media Server OVA using vSphere web client

About this task

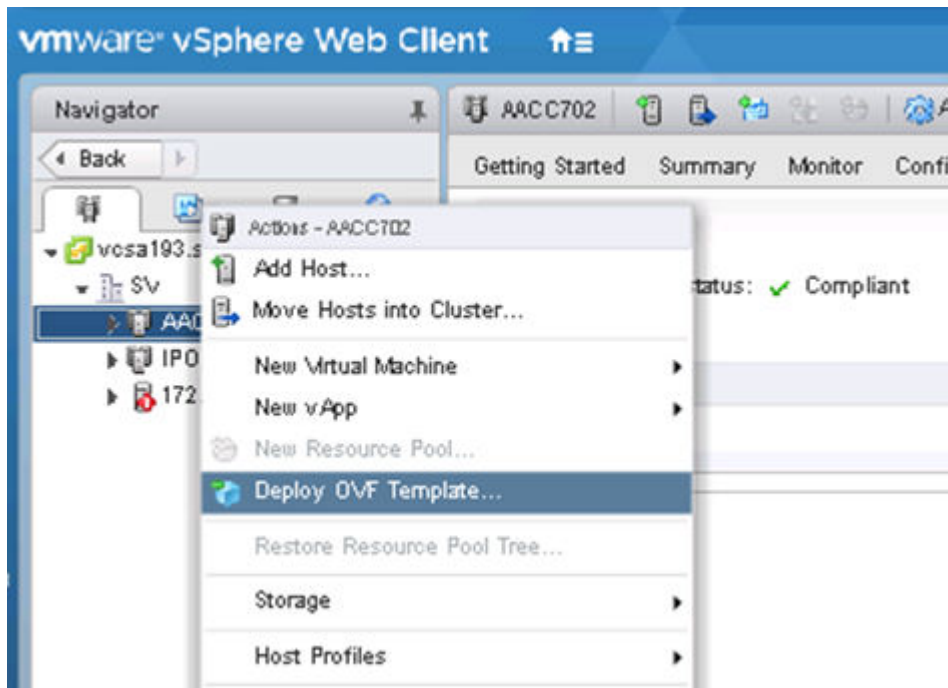
Deploy the Avaya Aura® Media Server OVA file onto a VMware ESXi host server. This creates a virtual machine with Avaya Aura® Media Server software for use in Contact Center solutions.

 Note:

The vSphere web client is supported with vCenter deployments only.

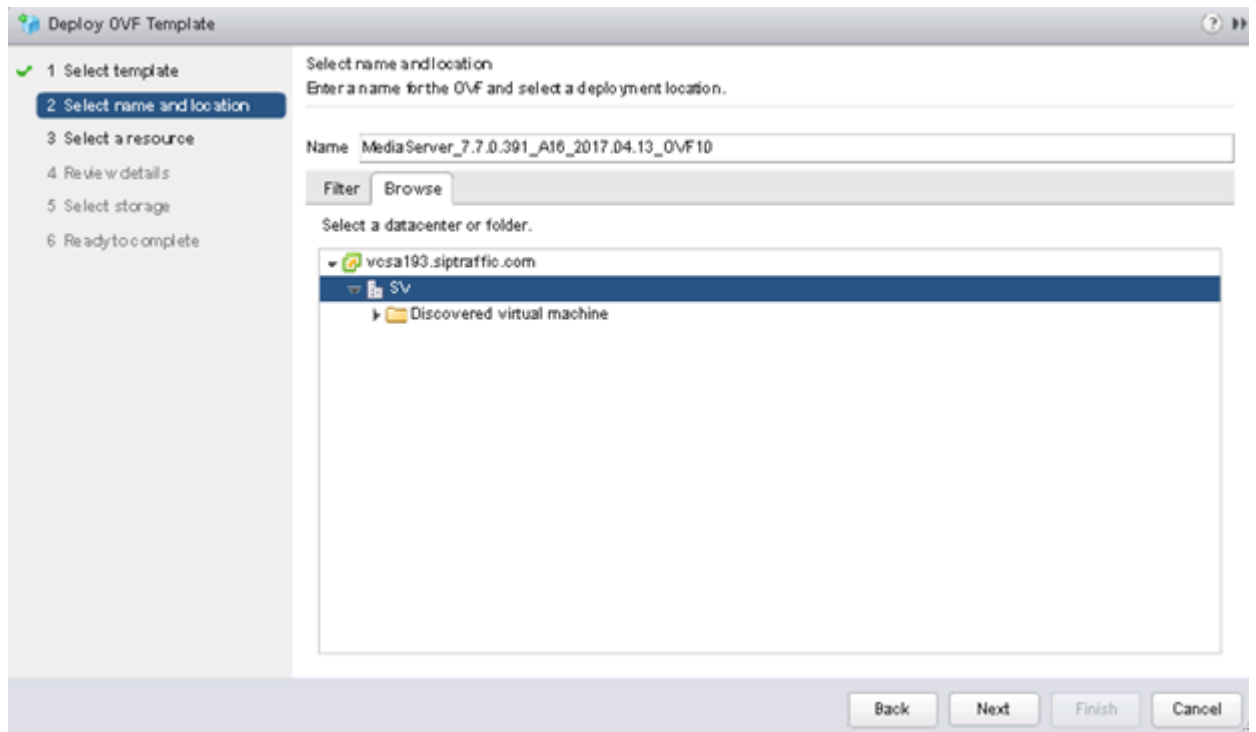
Procedure

1. In your vSphere web client, right-click in the **Navigator pane** and select **Deploy OVF Template**.



2. On the **Select template** page, select **Local file** and click **Browse** to select the Avaya Aura® Media Server OVA file.
3. Click **Next**.
4. On the **Select name and location** page, in the **Name** box, type a name for the virtual machine.

5. Select a datacenter location for the Avaya Aura® Media Server virtual machine.



6. Click **Next**.
7. On the **Select a resource** page, navigate to and select the host where you want to deploy the Avaya Aura® Media Server virtual machine.
8. Click **Next**.
9. On the **Review details** page, review the Avaya Aura® Media Server details.
10. Click **Next**.
11. On the **Accept license agreements** page, read the license agreement and click **Accept**.
12. Click **Next**.
13. On the **Select configuration** page, accept the default profile 1 with 4 vCPU, 4.5GB Memory, and 50GB vDisk.
14. Click **Next**.
15. On the **Select storage** page, from the **Select virtual disk format** drop-down list, select **Thick provision lazy zeroed**.

16. Select a location to store the Avaya Aura® Media Server virtual machine image. Ensure that the storage location you select has sufficient available storage space to store a thick provisioned virtual machine image.

Deploy OVF Template

1 Select template
2 Select name and location
3 Select a resource
4 Review details
5 Accept license agreements
6 Select configuration
7 Select storage
8 Select networks
9 Customize template
10 Ready to complete

Select storage
Select location to store the files for the deployed template.

Select virtual disk format: **Thick provision lazyzeroed**

☐ Show datastores from Storage DRS clusters

Filter

Datastore s Datastore Clusters

Name	Status	VMM storage policy	Capacity	Free
datastore1	Normal	-	1.63 TB	1.63 TB

1 Objects Copy

Back Next Finish Cancel

17. Click **Next**.
18. On the **Select networks** page, select the destination network for the Avaya Aura® Media Server virtual machine from the drop-down list.
19. Click **Next**.
20. On the **Customize template** page, under **Customer Login settings**, type the name of the customer account in the **Login Name** box. The default name is `cust`.
21. In the **Login password** box, type a password for the customer account, and confirm the password.
22. Under **Network Settings**, in the **DNS Servers** box, type the IP address of one or more DNS servers. Use IPv4 formatting. Separate the IP addresses with a comma.
23. In the **Default Gateway** box, type the IP address of the default gateway.
24. In the **Media Server IP address** box, type the IP address of the Avaya Aura® Media Server server.
25. In the **Media Server Netmask** box, type the subnet mask IP address.
26. In the **Network Domain** box, enter the name of the domain used by Contact Center.
27. In the **Short Hostname** box, type the name of the Avaya Aura® Media Server server.

28. Under **System Time Settings**, in the **NTP Servers** box, type the IP address of your Network Time Protocol (NTP) server. You use the NTP server to synchronize servers with each other and with the contact center solution. Use IPv4 formatting.
29. From the **Timezone** list, select the time zone for the solution.
30. Click **Next**.
31. Under **Ready to complete**, review and verify the deployment settings. If you need to modify any of the settings, click **Back**.

Deploy OVF Template

Ready to complete
Review configuration data.

Name	MediaServer_7.7.0.391_A16_2017.04.13_OVF10
Source VM name	MediaServer_7.7.0.391_A16_2017.04.13_OVF10
Download size	2.7 GB
Size on disk	50.0 GB
Datacenter	S/v
Resource	172.18.69.191
Deployment configuration	Profile 1: 4 vCPUs, 4.5GB Memory, 50GB vDisk
Storage mapping	1
Network mapping	1
IP allocation settings	IPv4, Static - Manual
Properties	Login Name = cust DNS Servers = 192.168.0.3 Default Gateway = 192.168.0.254 Media Server IP address = 192.168.0.2 Media Server Netmask = 255.255.255.0 Network Domain = aaccdomain

Back Next Finish Cancel

32. Click **Finish**.

! Important:

Do not refresh your browser while the VM is being deployed.

Next steps

When the Avaya Aura® Media Server OVA has been successfully deployed, power on the virtual machine.

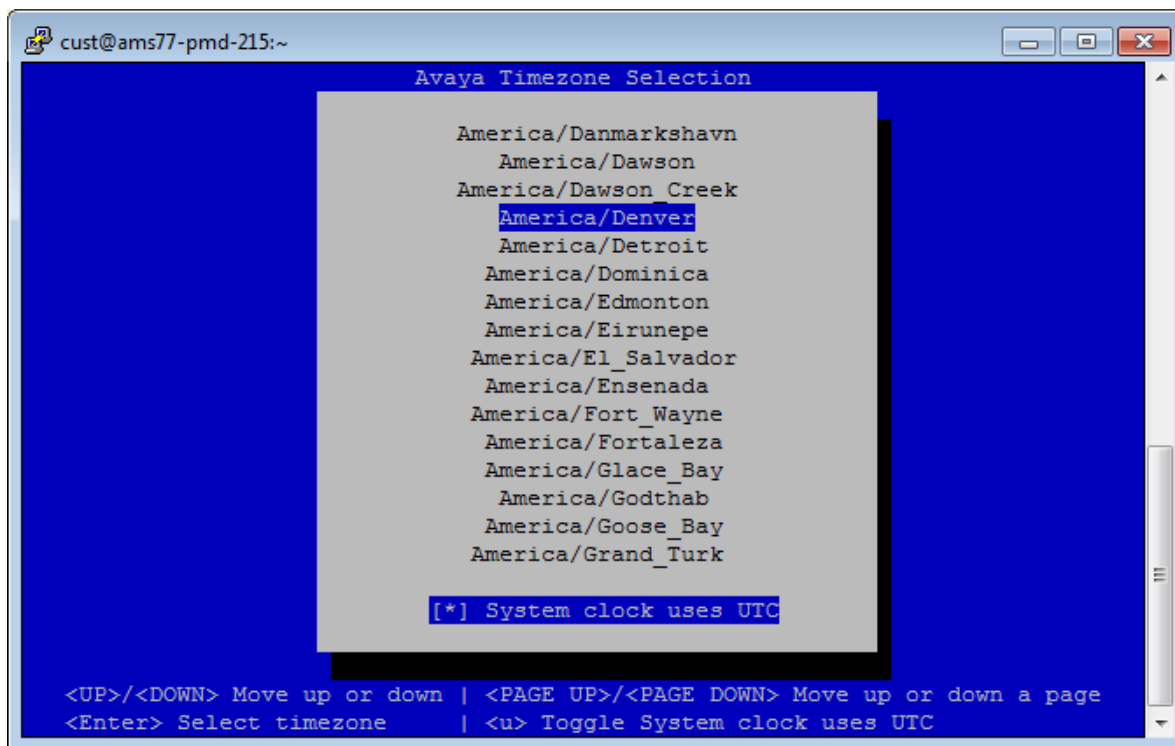
Configuring the Avaya Aura® Media Server virtual machine after deploying using the vSphere Host Client

About this task

After you power on the Avaya Aura® Media Server virtual machine for the first time, enter the Avaya Aura® Media Server configuration data.

Procedure

1. Connect to the Avaya Aura® Media Server virtual machine, after you power on the virtual machine for the first time.
2. When the **Do you wish to configure this appliance now? y/n** prompt appears, type **Y** and press **Enter**.
3. From the list of time zones, select the time zone for the Contact Center solution.



4. To confirm selection and continue, press **c**.
5. At the **Enter Date** prompt, enter the date or press **Enter** to accept the displayed date.
6. At the **Enter Time** prompt, enter the time or press **Enter** to accept the displayed time.
7. To confirm selection and continue, press **c**.
8. At the **Enter server's hostname** prompt, enter the hostname of the Avaya Aura® Media Server virtual machine or press **Enter** to accept the displayed hostname.

9. At the **Enter server's IP address** prompt, enter the IP address of the virtual machine or press `Enter` to accept the displayed IP address.
10. At the **Enter netmask or prefix** prompt, enter the netmask IP address of the virtual machine or press `Enter` to accept the displayed IP address.
11. At the **Enter gateway IP address** prompt, enter the gateway IP address for the virtual machine or press `Enter` to accept the displayed IP address.
12. At the **Enter network domain** prompt, enter the domain name for the Avaya Aura® Media Server virtual machine or press `Enter` to accept the displayed domain. You must enter the domain name for the Contact Center solution.
13. At the **Enable static route (y/n)** prompt, enter `n`.
14. At the **Enter Primary DNS server IP address** prompt, enter the IP address of the primary DNS server or press `Enter` to accept the displayed IP address.
15. At the **Enter Secondary DNS server IP address** prompt, enter the IP address of the optional secondary DNS server or press `Enter` to accept the displayed IP address.
16. At the **Enable NTP Daemon (y/n)** prompt, enter `y` and then enter your NTP server details.
17. Verify the details entered. If you need to update any of the details, press `u`.
18. To confirm selection and continue, press `c`.
19. At the **Enter Login ID** prompt type the name of the customer account to configure. The default account name is `cust`.
20. At the **New password** prompt, type a password for the customer account.
21. Confirm the password.
22. To confirm selection and continue, press `c`.

The Avaya Aura® Media Server appliance configuration utility updates the details of the server.
23. Restart the Avaya Aura® Media Server virtual machine.

Configuring the Avaya Aura® Media Server virtual machine resources

About this task

Configure the VMware resources of the Avaya Aura® Media Server virtual machine. A virtual machine cannot have more vCPUs than the maximum number of physical CPUs on the host virtual server platform.

Avaya Aura® Media Server supports only a 4 vCPU or 8 vCPU virtual machine. You must set the *CPU — Resource Allocation* of the virtual machine to match the vCPU count. For Contact Center deployments, Avaya Aura® Media Server must have at least 8GB of memory.

To adjust the virtual machine *Resource Allocations*, you must power off the virtual machine.

 Note:

This is a generic procedure for configuring the required resources for the virtual machine. There are interface differences depending on the VMware configuration client you are using. Refer to VMware documentation for more information about configuring virtual machine resources.

Before you begin

- Monitor the performance of the virtual machine.
- Review the following documents to determine the required resource values for your deployment type:
 - For AACC solutions, see *Avaya Aura® Contact Center Overview and Specification*.
 - For ACCS solutions, see *Avaya Contact Center Select Solution Description*.

Procedure

1. Locate the virtual machine in the VMware inventory, and shut down the guest.
2. Right-click on the virtual machine and select **Edit Settings**.
3. Set the CPU (total number of cores) count to the required number of CPUs for your deployment type. Set the number of cores per socket to 1.
4. Set the CPU Resource Reservation value to the required MHz value for your deployment.
5. Set the Memory value to the required memory value for your deployment.
6. Set the Memory Reservation value to the required memory reservation value for your deployment.
7. Save your changes.
8. Power on the virtual machine.
9. Continue to monitor the performance of the Avaya Aura® Media Server virtual machine.

Logging on to Avaya Aura® Media Server Element Manager

About this task

Log in to Avaya Aura® Media Server Element Manager to configure Avaya Aura® Media Server.

Element Manager (EM) is a web-based administration tool that facilitates the Operation, Administration, and Maintenance (OAM) of Avaya Aura® Media Server.

 Note:

You must have more than one Avaya Aura® Media Server account managed by separate users. If one account is disabled or lost, another account can perform critical tasks, backups or recovery. For more information, see *Implementing and Administering Avaya Aura® Media Server*.

Procedure

1. On your client computer, start a Web browser.
2. In the address box, enter `https://SERVER_IP_ADDRESS:8443/em`. Where `SERVER_IP_ADDRESS` is the IP address of the Avaya Aura® Media Server.
3. In the **User ID** box, type the Avaya Aura® Media Server User ID log in account name. For example, type `Admin`.
4. In the **Password** box, type the account password.
5. Click **Sign In**.

Resetting the Avaya Aura® Media Server IP address in Element Manager

About this task

When you change the Avaya Aura® Media Server IP address, the Avaya Aura® Media Server database still contains the old IP address. You must update the IP address in Element Manager.

Procedure

1. Log on to Avaya Aura® Media Server Element Manager with administrative privileges.
2. In the left pane, select **System Configuration > Network Settings > IP Interface Assignment**.
3. Under **IPv4 Interfaces**, set the **Signaling**, **Media**, and **Cluster** boxes to the IP address of the Avaya Aura® Media Server server.
4. Click **Save**.

Configuring Media Server system settings

About this task

Configure the media security settings so Avaya Aura® Media Server can communicate with Contact Center. Add Contact Center as a trusted node to Avaya Aura® Media Server. This permits Contact Center to use the Avaya Aura® Media Server services.

Procedure

1. Log on to Avaya Aura® Media Server Element Manager.
2. In the navigation pane, click **System Configuration** > **Network Settings** > **General Settings** > **Connection Security**.
3. Clear **Verify Host Name on HTTPS Client Connections**.
4. Click **Save**.
5. If using SRTP, skip to step 9.
6. In the navigation pane, click **System Configuration** > **Media Processing** > **Media Security**.
7. From the **Security Policy** drop-down list, select **SECURITY DISABLED**.
8. Click **Save**.
9. In the navigation pane, click **System Configuration** > **Network Settings** > **General Settings**.
10. Scroll down to the **SOAP** section.

General Settings

This task allows administrators to view and modify network general settings.

[General](#) | [SNMP Traps](#) | [SNMP Agent](#) | [SOAP](#) | [Connection Security](#) | [Transmit Prioritization](#)

HTTP Digest Authentication User Name: (maximum: 64 characters)

HTTP Digest Authentication Password: (maximum: 64 characters)

Enable Trusted SOAP Nodes: ☒

Trusted Nodes:

192.168.1.10	✖
192.168.1.11	✖
192.168.1.12	✖
	✖

Server Private Key: (maximum: 16384 characters)

Connection Security

11. In the **Trusted Nodes** box, type the IP address of the Contact Center server.
If the solution uses Contact Center resiliency, in the **Trusted Nodes** boxes, enter the IP address of the active Contact Center server, the IP address of the standby Contact Center server and the Managed IP address of the Contact Center pair.
12. Click **Save**.
13. In the navigation pane, click **System Configuration** > **Signaling Protocols** > **SIP**.
14. Click **Nodes and Routes**.
15. Click the **Trusted Nodes** link.

16. If the contact center is not a High Availability system:
 - a. Click **Add**.
 - b. On the **Add SIP Trusted Node** page, in the **Host or Server Address** field, type the IP address of the Contact Center server.
 - c. Click **Save**.
17. If the contact center is a High Availability system:
 - a. Click **Add**.
 - b. On the **Add SIP Trusted Node** page, in the **Host or Server Address** field, type the Managed IP address of the Contact Center High Availability pair.
 - c. Click **Save**.
 - d. Click **Add**.
 - e. On the **Add SIP Trusted Node** page, in the **Host or Server Address** field, type the IP address of the active Contact Center server.
 - f. Click **Save**.
 - g. Click **Add**.
 - h. On the **Add SIP Trusted Node** page, in the **Host or Server Address** field, type the IP address of the standby Contact Center server.
 - i. Click **Save**.

Configuring Avaya Aura® Media Server name resolution

About this task

Configure Avaya Aura® Media Server to resolve the hostname and Fully Qualified Domain Name (FQDN) of the Contact Center Manager Administration server. The Contact Center Manager Administration (CCMA) software is installed on the Contact Center server.

Procedure

1. Log in to Element Manager with administrative privileges.
2. Navigate to **EM > System Configuration > Network Settings > Name Resolution**.
3. Click **Add**.
4. In the **IP Address** box, enter the Contact Center Manager Administration IP address.
5. In the **Hostname** box, enter the Contact Center Manager Administration hostname.
6. Click **Save**.

Installing Avaya Aura® Media Server updates and patches on a virtual machine

Before you begin

- Download and review the Contact Center Release Notes. The Release Notes contain the known issues, patches, and workarounds specific to a release and patch line-up of Contact Center. For more information about the Contact Center Release Notes, see <http://support.avaya.com>.
- Download the most recent Avaya Aura® Media Server patches and store them in a local subdirectory on your client computer.
- Backup the Avaya Aura® Media Server before applying patches.

About this task

Install a new update or patch to apply a change to an Avaya Aura® Media Server virtual machine. Contact Center cannot process contacts while Avaya Aura® Media Server patches or updates are installing.

* Note:

Follow the instructions in the Contact Center Release Notes and in each Avaya Aura® Media Server patch Readme file.

* Note:

You can update the Avaya Aura® Media Server software appliance RHEL operating system and other underlying lower-level software. Contact Center cannot process contacts while these Avaya Aura® Media Server System Layer updates are installing. For more information, see *Deploying and Updating Avaya Aura® Media Server Appliance* on the Avaya Support website at <https://support.avaya.com>.

Procedure

1. Navigate to the Element Manager for the Avaya Aura® Media Server node you want to patch.
2. In the navigation pane, click **Tools > Manage Software > Updates > Upload Updates**.
3. Click **Browse** to select the software update to upload.

The selected file must be an official Avaya Aura® Media Server update package in ISO or ZIP format.

4. Click **Upload**.

Your browser shows a progress spinner until the upload completes.

The web page refreshes when the update completes and displays the details of the update including the filename of the uploaded file.

5. Determine if you need to use the Quick Fix Engineering (QFE) procedure by performing the following steps:
 - a. In the navigation pane, click **Tools > Manage Software > Manage Updates**.

- b. Expand the **Details** section of the update by clicking on the down arrow button.
 - c. Review the list of updates. If only QFEs are listed as **Ready for Installation**, then stop using this procedure and perform the QFE installation procedure instead. For more information on installing QFEs, refer to the QFE Readme and to the upgrading and patching documentation.
6. Prevent new sessions from starting on the system. In the Element Manager navigation pane, click **System Status > Element Status** and select **More Actions > Pending Lock**.
7. Click **Confirm**.
8. Check for active sessions on the server. In the Element Manager navigation pane, click **System Status > Monitoring > Active Sessions**.

Wait for the active sessions to end. If you continue before all active sessions end, then the system ends the remaining active sessions
9. Lock Avaya Aura® Media Server and end any remaining sessions. In the Element Manager navigation pane, click **System Status > Element Status** and select **More Actions > Lock**.
10. Click **Confirm**.
11. After the system ends all the sessions, stop Avaya Aura® Media Server. In the navigation pane, click **System Status > Element Status**.
12. Click **Stop** and confirm the operation on the following page.
13. Click **Tools > Manage Software > Updates > Upload Updates**.
14. Click **Browse**, and browse to the local subdirectory where you downloaded the patches.
15. Select the update to apply to Avaya Aura® Media Server.

If you downloaded a System Layer update, apply this first.
16. Click **Upload**.
17. If you have multiple updates to apply, repeat [step 14](#) on page 83 to [step 16](#) on page 83 until all updates are complete.
18. When the patch application is complete, click **Tools > Manage Software > Inventory**.
19. Verify the patch version listed in the **Patch Level** column is correct.
20. Select **System Status > Element Status**, and click **Start**.
21. Click **Confirm**.
22. In the Element Manager navigation pane, click **System Status > Element Status** and select **More Actions > Unlock**.
23. Click **Confirm**.
24. Select **System Status > Alarms** and check for service-impacting alarms.

Commissioning Avaya Aura® Media Server

About this task

Commission Avaya Aura® Media Server to provide the conference services required by SIP-enabled Avaya Aura® Contact Center.

Procedure

For information about commissioning Avaya Aura® Media Server, see *Avaya Aura® Contact Center Commissioning for Avaya Aura® Unified Communications*.

Chapter 8: Voice and Multimedia Contact Server virtual machine deployment

Create a VMware virtual machine and then install Avaya Aura® Contact Center application software on it to build a Voice and Multimedia Contact Server virtual machine.

Voice and Multimedia Contact Server virtual machine

Use the Voice and Multimedia Contact Server virtual machine to provide context-sensitive and skill-based routing for customer voice and multimedia contacts.

The Voice and Multimedia Contact Server virtual machine contains the following contact center application software:

- Contact Center Manager Server (CCMS)
- Contact Center Manager Administration (CCMA)
- Communication Control Toolkit (CCT)
- Contact Center Multimedia (CCMM)
- Contact Center License Manager (LM)
- Contact Center Manager Server Utility (SU)
- Orchestration Designer (OD)
- Firewall policy

To create the Voice and Multimedia Contact Server virtual machine, do the following:

1. Create a VMware virtual machine that meets or exceeds the minimum specifications for your solution. For information about engineering the VMware resources for your solution, see *Avaya Aura® Contact Center Overview and Specification*.
2. Install the Windows Server 2016 or Windows Server 2019 Standard or Datacenter edition English operating system on the virtual machine.
3. License and activate the Microsoft Windows operating system.

4. Configure the server and format the hard disks and disk partitions to the required specifications.
5. Install VMware tools on the server.
6. Download and read the latest Avaya Aura® Contact Center Release Notes.
7. Obtain an Avaya Aura® Contact Center DVD or ISO image.
8. Download the latest Avaya Aura® Contact Center Service Packs and updates.
9. Obtain an Avaya Aura® Contact Center license file.
10. Use the Avaya Aura® Contact Center DVD or ISO image to install the SIP-enabled Voice and Multimedia Contact Server without Avaya Aura® Media Server.
11. Use the Avaya Aura® Contact Center Configuration Ignition Wizard to install the software.
12. Commission the Voice and Multimedia Contact Server for your solution.
13. Continue to monitor the VMware real-time resources.

Each SIP-enabled Voice and Multimedia Contact Server requires one or more Avaya Aura® Media Server systems. You must install and configure one or more Linux-based Avaya Aura® Media Server systems in the contact center solution.

The Voice and Multimedia Contact Server supports the following Avaya Aura® Media Server options:

- Use the Avaya Aura® Contact Center DVD to install Avaya Aura® Media Server software on a physical Linux server.
- Use the Avaya Aura® Contact Center DVD to install Avaya Aura® Media Server software on a Linux virtual machine.
- Deploy the Avaya Aura® Media Server OVA package to create a virtualized Avaya Aura® Media Server virtual machine.

Each SIP-enabled Voice and Multimedia Contact Server virtual machine also requires an additional, separate Avaya WebLM licensing server. In a High Availability deployment, you must provision a second Avaya WebLM server to provide licenses to the standby server or to the Remote Geographic Node server.

You can use any account with local administrative rights to install Avaya Aura® Contact Center, or to upgrade and patch Avaya Aura® Contact Center. You do not need to always use the same account to perform these tasks.

 Important:

Disable the Admin Approval Mode security feature on the Contact Center server. This ensures that accounts with local administrative rights get full privileges for running applications on the Contact Center server.

Downloading the most recent documentation

Before you begin

- Download the most recent version of Acrobat Reader.
- Access the Avaya website at <http://support.avaya.com>.

About this task

Download the most recent documentation to ensure you have the most recent updates. Updates in the documentation accurately reflect the most recent changes in the software.

Procedure

1. Log on to the Avaya website.
2. Compare the versions of the documentation on the site with the versions you have.
3. If the version number on <http://support.avaya.com> is higher than your version, download the latest version of the document.
4. Review the Avaya website for release notes and readme files.

Creating a VMware virtual machine for Contact Center software

About this task

Create a VMware virtual machine for the Contact Center application software.

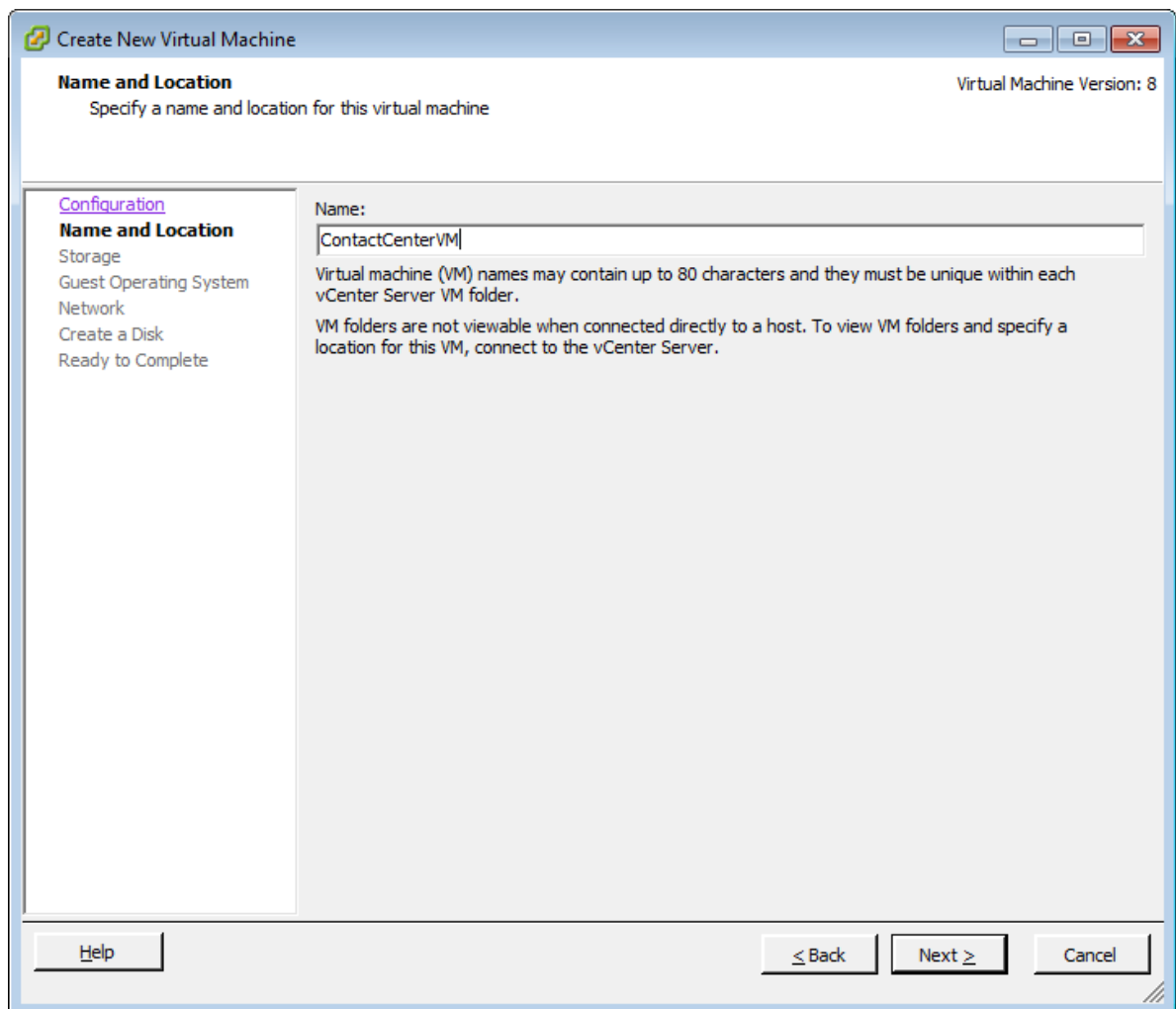
Note:

When creating virtual machines for deploying Contact Center, ensure that the custom VMware setting `SMBIOS.reflectHost` is either absent, or, if present, is set to `False`. If this setting is set to `True`, it can break the installation of the Contact Center software. Installations of the Contact Center software with `SMBIOS.reflectHost=True` are not supported.

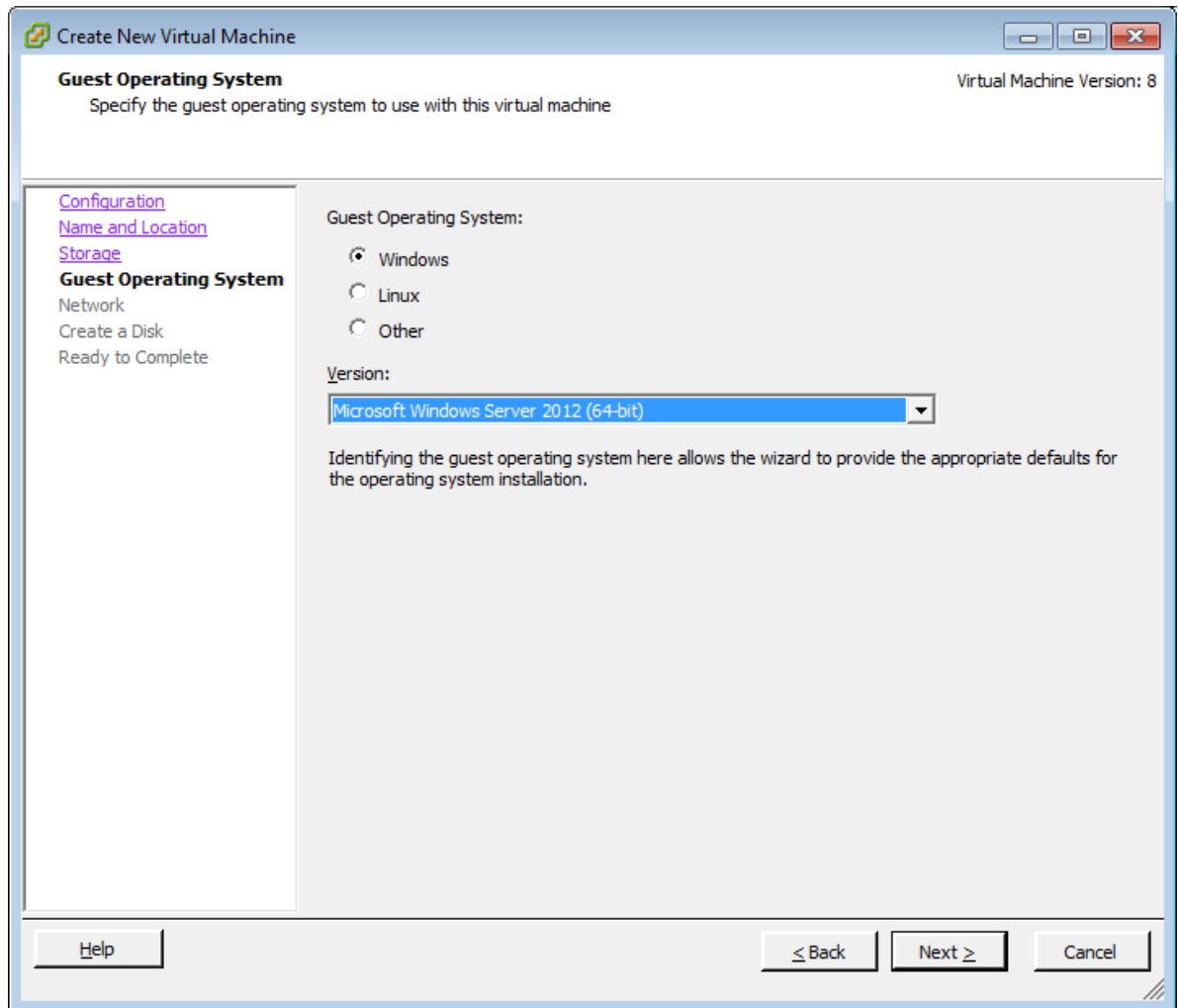
Procedure

1. Read *Performance Best Practices for VMware vSphere* for the version of VMware you are using.
2. Read your server hardware provider's documents covering virtualization support.
3. Obtain server hardware that meets the Contact Center host hardware specification and supports VMware vSphere.
4. Install the most recent Basic Input/Output System (BIOS) or Unified Extensible Firmware Interface (UEFI) available for your host server.
5. On the VMware host server, disconnect or disable unused or unnecessary physical hardware devices such as: COM ports, LPT ports, USB controllers, network interfaces, storage controllers.

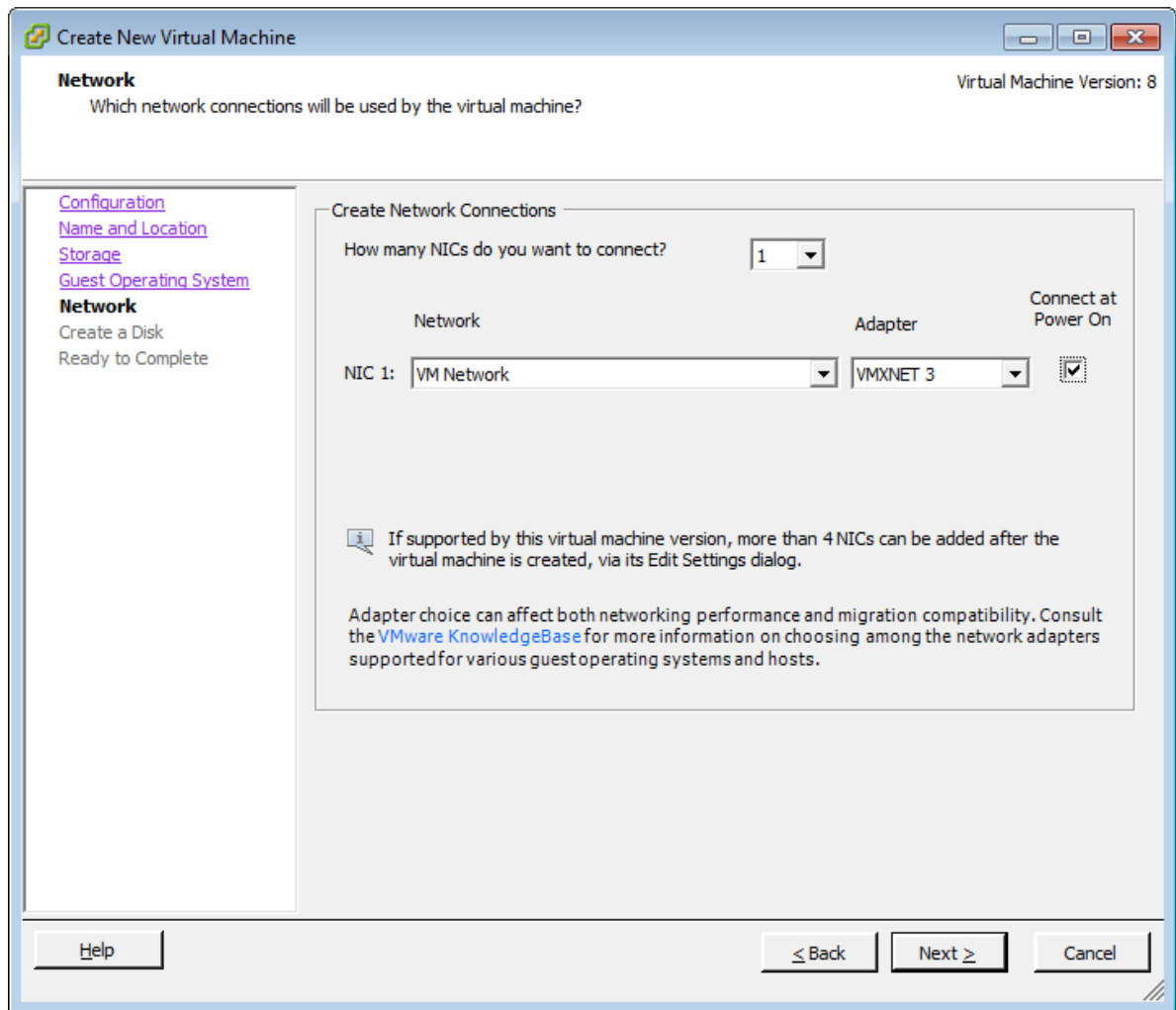
6. On the host server, enable all available Virtualization Technology options in the hardware. The available virtualization settings vary by hardware provider and BIOS or UEFI version. Read your hardware provider's documents covering virtualization support to determine which settings to configure.
7. Configure the server hardware and firmware settings to select system performance over power savings.
8. Install VMware vSphere software on your host server.
9. Configure a networking infrastructure on the host server. Configure a VM Network and a Standard Switch (vSwitch).
10. Using the vSphere client, create a new virtual machine for Contact Center. Using vSphere client, select **File > New > Virtual Machine**.
11. Give the virtual machine a descriptive **Name**.



12. On the **Guest Operating System** tab, select **Microsoft Windows Server 2012 (64-bit)**, **Microsoft Windows Server 2016 (64-bit)**, or **Microsoft Windows Server 2019 (64-bit)**.

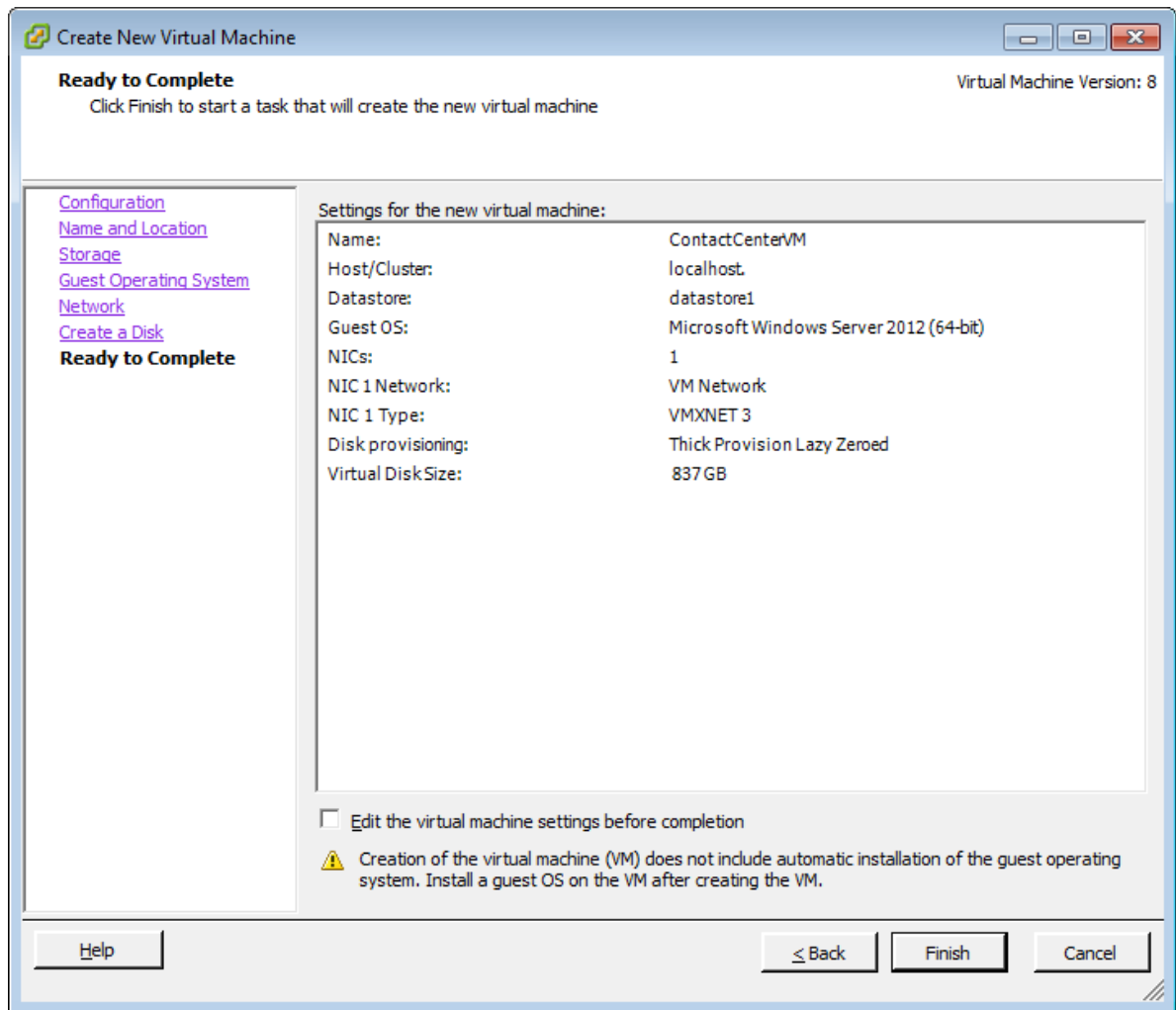


13. Configure and use VMXNET 3 networking.

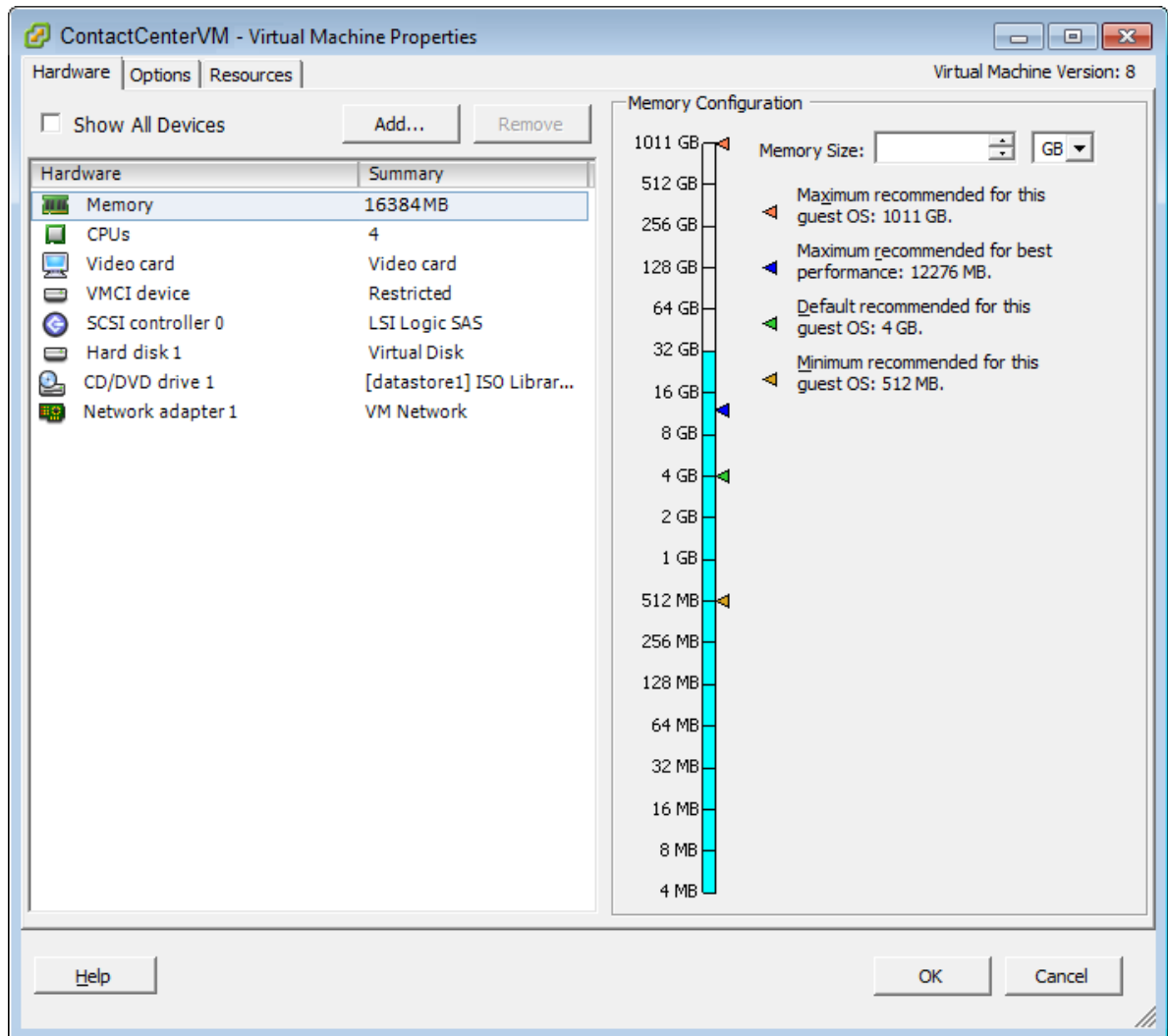


14. Configure the virtual disk space using **Thick Provision Lazy Zeroed**. Contact Center does not support thin provisioning.

15. Review your configuration before creating the virtual machine.



16. Configure the virtual machine with the CPU, memory, and disk space required for your Contact Center configuration.



17. On each virtual machine, completely disable time synchronization to the host time.
During commissioning, you set the operating system to synchronize time from the Domain Name Server (DNS).
18. Add the Microsoft Windows Server 2012 Release 2, Microsoft Windows Server 2016, or Microsoft Windows Server 2019 DVD image to the vSphere ISO library. Configure the virtual machine **CD/DVD drive 1** to use this Windows Server ISO image.
19. Using vSphere client, turn on the virtual machine and prepare to install the operating system software.

Installing Microsoft Windows Server 2012 R2

Before you begin

- To mitigate security vulnerabilities and maintain a secure environment, ensure all Windows systems are updated with the latest Microsoft security patches and cumulative updates before installing or using Avaya Aura® Contact Center. Avaya Aura® Contact Center systems that are not fully updated may remain vulnerable to known security issues and may not be supported until the required Windows updates are applied.
- Ensure that you have a newly formatted server that meets the specifications in *Avaya Aura® Contact Center Overview and Specification* on which to install Microsoft Windows Server 2012 R2.

Do not upgrade your operating system from a previous release. Contact Center is not supported on an upgraded operating system.

- Configure all servers for RAID as described in *Avaya Aura® Contact Center Overview and Specification*.
- Ensure that you have a DVD for Microsoft Windows Server 2012 R2 *Standard* or *Data Center*. Ensure that your DVD is the R2 version of Windows Server 2012 *Standard* or *Data Center*.
- Ensure that you have a Microsoft Windows Server 2012 R2 operating system product key.
- Know the IP addresses for the contact center subnet.

About this task

Install the Microsoft Windows Server 2012 R2 *Standard* or *Data Center* operating system and configure it to support Contact Center server software.

The following table lists the main inputs to consider while installing the operating system.

Name	Description
Computer name	Do not use spaces or underscores or exceed 15 characters. The name must start with an alphabetic character. Server names must adhere to RFC1123. Avaya recommends that you configure the server final production name before installing Contact Center software. The computer name must match (including case sensitivity) the DNS name.
Disk drives	Format the partitions as required for the server. For more information, see <i>Avaya Aura® Contact Center Overview and Specification</i> .
Domain name	Configure as required for your site. You must check to ensure the DNS Domain name (including case) matches the server name if the server is added to a domain after configuration.
Licensing modes	Select Per server licensing mode. Accept the default five concurrent connections.
Network components	Configure IP Address, WINS, DNS for one or two network cards as per configuration. Contact Center does not support IPv6.

Table continues...

Name	Description
Network connections	If the server has more than one NIC/adaptor, ensure contact center subnet appears first in the network adapter binding order.
Hard Disk Partitions	Configure C: drive to be a primary drive. Configure the other drives on your server to meet the requirements according to <i>Avaya Aura® Contact Center Overview and Specification</i> for the server.

Perform this procedure on each server before you install Contact Center server software on the server.

Procedure

1. Insert the Microsoft Windows Server 2012 R2 *Standard* or *Data Center* DVD into the DVD drive.
2. Turn on the power to the server.
The server begins to boot up.
3. On the **Windows Setup** screen, select a **Language to install** from the list.
4. Select a **Time and currency format** from the list.
5. Select **Keyboard or input method** from the list.
6. Click **Next**.
7. Click **Install now**.
8. Depending on the DVD image that you use, you might need to select an operating system from a list. Select a version of Windows Server 2012 R2 *Standard* or *Data Center* that includes a Graphical User Interface (GUI). Install a version that includes “**(Server with a GUI)**”.
9. Click **Next**.
10. On the **Enter the product key to activate Windows** window, enter the operating system product key.
11. Click **Next**.
12. On the **Windows Setup** screen, read the terms of the license agreement and select **I accept the license terms**.
13. Click **Next**.
14. Select **Custom: Install Windows only (advanced)** to install a clean new installation of the operating system.
15. Select the disk partition on which you want to install Windows Server 2012 R2.

Important:

You can use the partition management options to configure the partitions on your server.

16. Click **Next**.

The installation proceeds and automatically restarts the server several times.

17. After completing the installation, log on to the server as Administrator. Enter and confirm the Administrator password.
18. Select **Set time zone** and complete the information as required for your system.
19. Select **Configure Networking** and complete the information for your Network Interface Card (NIC) with the server IP address.
20. Select **Provide computer name and domain** and complete the information for your server name and network settings.
21. Change the DVD drive letter to E: to ensure the correct drive letters are free for the Contact Center application and database hard disk drives and partitions.
22. Configure the hard disk drives and partitions for this server using the Windows Server 2012 R2 Computer Management - Disk Management utility. For more information about hard disk drives and partitions, see *Avaya Aura® Contact Center Overview and Specification*.
23. Install other required drivers for your hardware configuration.

Voice and Multimedia Contact Server virtual machine hard disks and partitions

Create individual virtual hard disks for each of the required partitions for your Contact Center virtual machine. When creating a virtual hard disk for the operating system partition, create a hard disk size 1GB greater than the required partition size, to accommodate the creation of any additional Windows partitions that the Windows Server 2016 or Windows Server 2019 installation might create automatically.

For example, for an operating system partition size requirement of 80GB, create an 81GB virtual hard drive. For each additional Contact Center required partition, create a virtual hard drive greater than or equal to the partition size requirement. The virtual hard disk must be of sufficient size such that when the associated partition is created and formatted it has a size matching the required partition size for the install.

For improved multimedia offline data retention, Avaya recommends using a 600 GB partition for multimedia storage. The multimedia 600 GB partition requires SAN Storage.

Table 1: Contact Center virtual machine hard disk minimum partition sizes

Hard disk drive partition description	Drive letter	Minimum partition sizes	Recommended partition sizes, 300 GB multimedia partition	Recommended partition sizes, 600 GB multimedia partition
Operating system drive	C:	80 GB NTFS partition	80 GB NTFS partition	80 GB NTFS partition

Table continues...

Hard disk drive partition description	Drive letter	Minimum partition sizes	Recommended partition sizes, 300 GB multimedia partition	Recommended partition sizes, 600 GB multimedia partition
Application drive	D:	100 GB NTFS partition	120 GB NTFS partition	120 GB NTFS partition
DVD drive	E:	—	—	—
Voice database drive	F:	180 GB NTFS partition	200 GB NTFS partition	200 GB NTFS partition
Multimedia database drive	G:	200 GB NTFS partition	300 GB NTFS partition	600 GB NTFS partition
Database journal drive	H:	80 GB NTFS partition	100 GB NTFS partition	100 GB NTFS partition
Total		641 GB of Thick Provisioned disk space in a VMware datastore.	801 GB of Thick Provisioned disk space in a VMware datastore.	1101 GB of Thick Provisioned disk space in a SAN datastore.

If using 900 GB Raid–1 disks, use the above Minimum Partition size option.

Contact Center requires Hardware RAID-1 with duplicate hard disk drives with identical specifications. Therefore, the VMware host server must implement Hardware RAID-1 or better.

Navigating the Microsoft Windows Server 2012 R2 User Interface

This section describes how to navigate between the main user interface screens of the Windows Server 2012 R2 operating system.

The following table describes some of the main Microsoft Windows Server 2012 R2 user interface screens.

Screen name	Description
Start	The Start screen contains shortcuts to the main administration interfaces of the server. If you have an application that you access on a regular basis, you can add it to the Start screen so that it's more immediately accessible. The Start screen displays the currently logged on user and provides some basic server log out and locking functions. This is the operating system default screen.
Apps	The Apps screen contains shortcuts to the applications and utilities installed on the server. The server applications and utilities are grouped into categories. Third-party vendors and applications can also add custom, vendor or product specific, categories to the Apps screen.

Table continues...

Screen name	Description
Desktop	The Desktop screen contains the Windows start button, the Windows Taskbar, Recycle Bin, and shortcuts to the Windows Explorer utility, among others. The Taskbar displays the Windows Notification Area and System Tray. The notification area is located on the right portion of the Taskbar next to the time.

Navigation tips:

- Use the up  and down  arrow icons to navigate between the **Start** and **Apps** screens.
- To display the **Start** screen, on the **Desktop** screen, click the Windows start button.
- To display the **Desktop** screen, on the **Start** screen select the **Desktop** tile.
- To display the **Desktop** screen, on the **Apps** screen select the **Desktop** tile.
- To switch between the **Start** screen and the **Desktop** screen press the Windows start button on your keyboard.
- To access the Control Panel, on the **Apps** or **Start** screen click on the **Control Panel** tile.
- To access the Administration Tools, on the **Apps** or **Start** screen click on the **Administrative Tools** tile.

These screen navigation methods work when you are using the server's keyboard and mouse directly, or when you are using Remote Desktop to access the server.

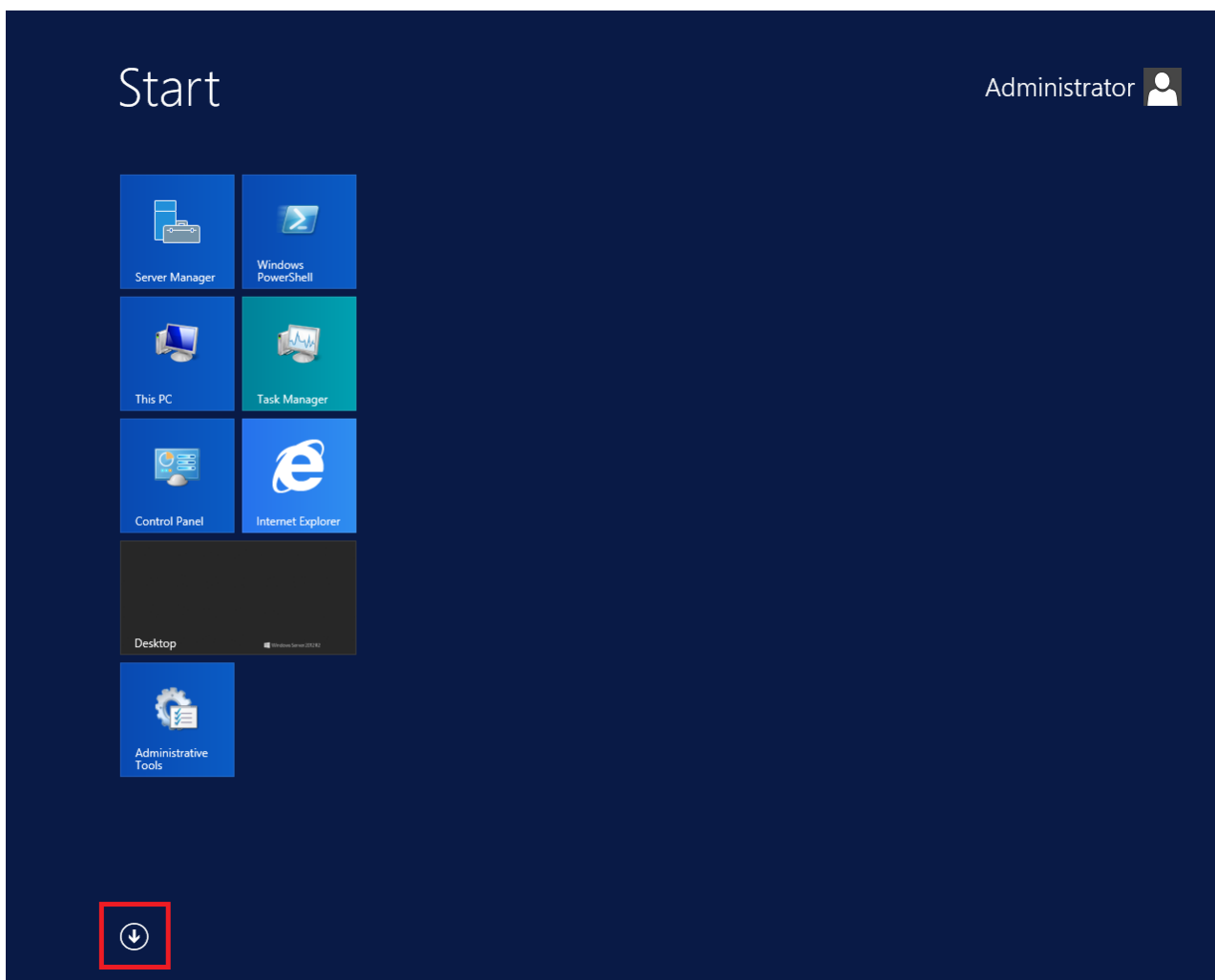


Figure 6: Example of the Start screen, with the down arrow icon highlighted in a red box.

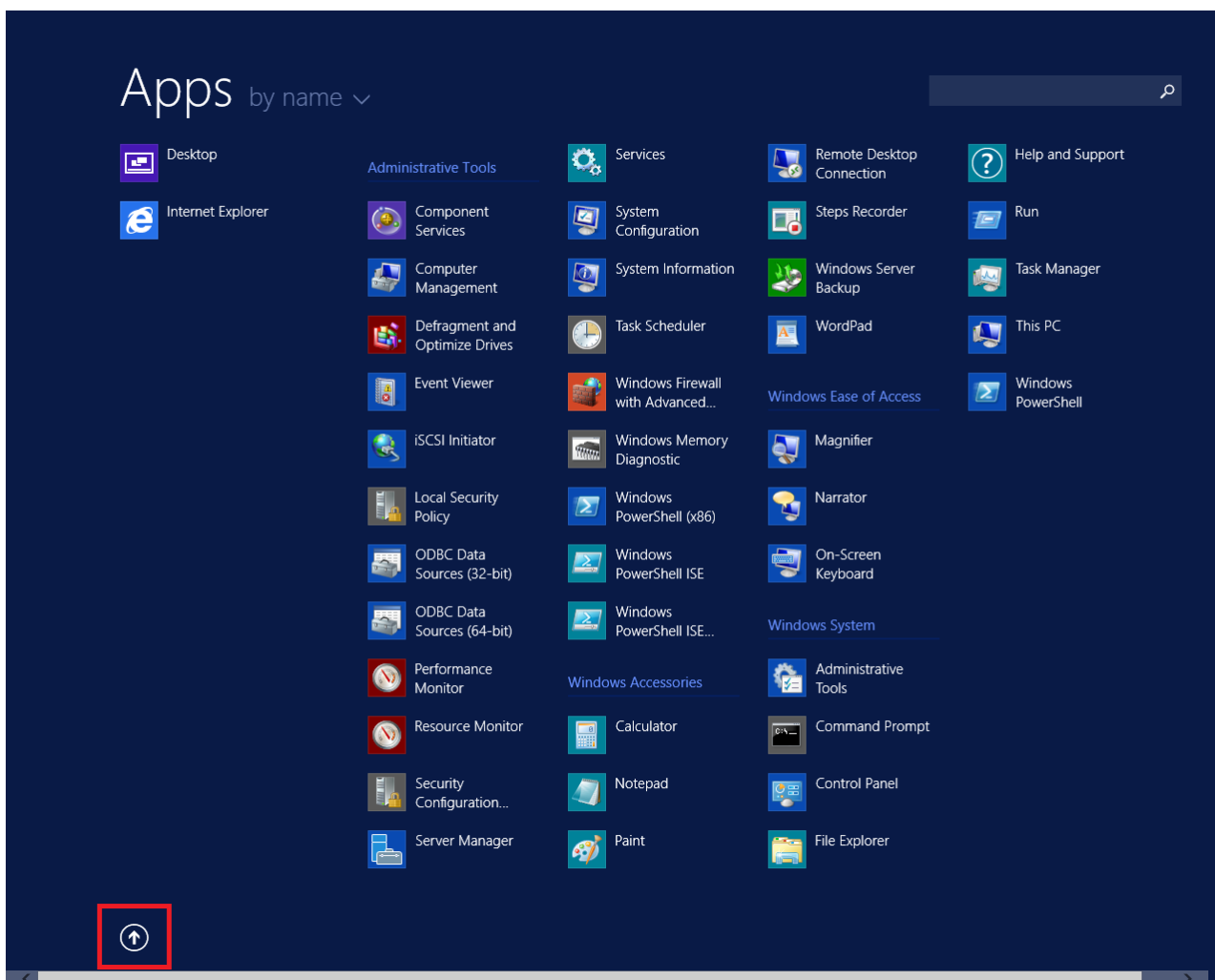


Figure 7: Example of the Apps screen, with the up arrow icon highlighted in a red box.

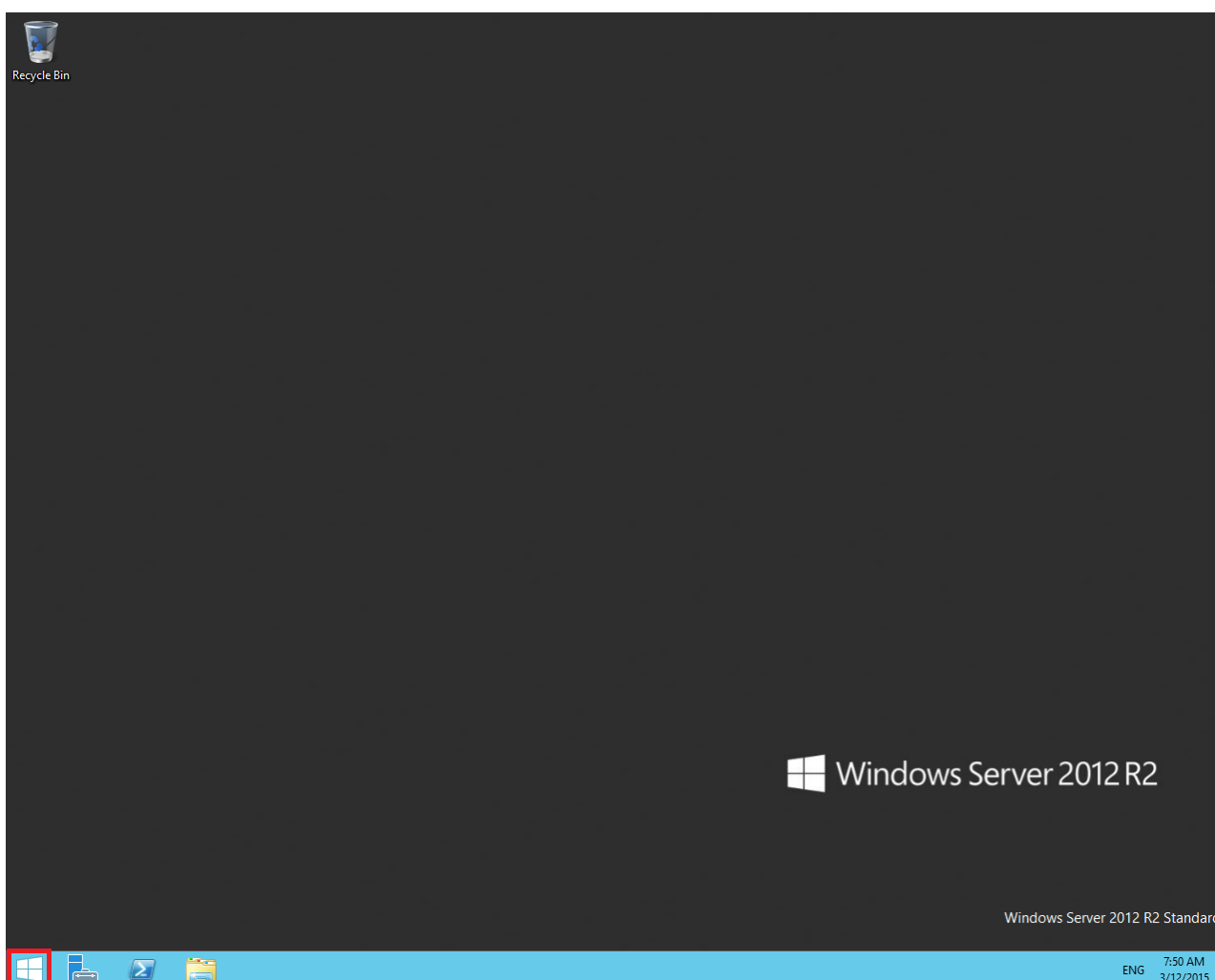


Figure 8: Example of the Desktop screen, with the Windows start button highlighted in a red box.

The following table describes some of the Taskbar sections of the **Desktop** screen.

Icon	Name	Description
	Windows start button	Use the Windows start button to navigate to the Start screen. Use this button to switch between the Start screen and the Desktop screen.
	Server Manager	Use this button to access the Server Manager to configure the roles and features to the server.
	PowerShell	Use the PowerShell button to start the Windows PowerShell console. Windows PowerShell is a command-line shell that provides cmdlets (pronounced command-lets) for server configuration and management. PowerShell also provides scripting functions for task automation.
	This PC	Use this button to start the This PC Windows Explorer. Use this to access and navigate the folders, files, and storage devices on the server.

The contents of your screens can vary depending on the roles, features, and applications installed on your server.

For more information about the Windows Server 2012 R2 operating system, refer to the Microsoft support website and Microsoft product documentation.

Installing Microsoft Windows Server 2016 or Windows Server 2019

Before you begin

- To mitigate security vulnerabilities and maintain a secure environment, ensure all Windows systems are updated with the latest Microsoft security patches and cumulative updates before installing or using Avaya Aura® Contact Center. Avaya Aura® Contact Center systems that are not fully updated may remain vulnerable to known security issues and may not be supported until the required Windows updates are applied.
- Ensure that you have a newly-formatted server on which to install Microsoft Windows Server 2016 or Windows Server 2019. The server must meet the specifications in *Avaya Aura® Contact Center Overview and Specification*.
- Do not upgrade your operating system from a previous release. Contact Center is not supported on an upgraded operating system.
- Configure all servers for RAID as described in *Avaya Aura® Contact Center Overview and Specification*.
- Ensure that you have a DVD for Microsoft Windows Server 2016 or 2019 Standard or Data Center edition.
- Ensure that you have a Microsoft Windows Server 2016 or 2019 operating system product key.
- Ensure that you know the IP addresses for the contact center subnet.

About this task

Install the Microsoft Windows Server 2016 or Windows Server 2019 Standard or Data Center operating system and configure it to support Contact Center server software.

The following table lists the main inputs to consider while installing the operating system:

Name	Description
Computer name	Do not use spaces or underscores or exceed 15 characters. The name must start with an alphabetic character. Server names must adhere to RFC1123. Avaya recommends that you configure the server's final production name before installing Contact Center software. The computer name must match the DNS name. It is case sensitive.
Disk drives	Format the partitions as required for the server. For more information, see <i>Avaya Aura® Contact Center Overview and Specification</i> .

Table continues...

Name	Description
Domain name	Configure as required for your site. You must check to ensure the DNS domain name (including case) matches the server name if the server is added to a domain after configuration.
Licensing modes	Select Per server licensing mode. Accept the five default concurrent connections.
Network components	Configure the IP address, WINS, and DNS for one or two network cards as appropriate. Contact Center does not support IPv6.
Network connections	If the server has more than one NIC/adaptor, ensure contact center subnet is displayed first in the network adapter binding order.
Hard Disk Partitions	Configure C: drive as the primary drive. Configure the other drives on your server to meet the requirements according to <i>Avaya Aura® Contact Center Overview and Specification</i> for the server.

Perform this procedure on each server before you install Contact Center server software on the server.

Procedure

1. Insert the Microsoft Windows Server 2016 or Windows Server 2019 Standard or Data Center DVD into the DVD drive.
2. Turn on the power to the server.
The server begins to boot up.
3. On the Windows Setup page, select a language from the **Language to install** list.
4. Select a **Time and currency format** from the list.
5. Select **Keyboard or input method** from the list.
6. Click **Next**.
7. Click **Install now**.
8. On the Activate Windows window, enter the operating system product key.
9. Click **Next**.
10. Select a version of Windows Server 2016 or Windows Server 2019 Standard or Data Center that includes the **Desktop Experience** option.
11. Click **Next**.
12. Read and accept the terms of the license agreement.
13. Click **Next**.
14. Select **Custom: Install Windows only (advanced)** to install a clean new installation of the operating system.
15. Select the disk partition on which you want to install Windows Server 2016 or Windows Server 2019.

You can use the partition management options to configure the partitions on your server.

16. Click **Next**.

The installation proceeds and automatically restarts the server several times.

17. After completing the installation, log in to the server as Administrator.

You must enter and confirm the Administrator password.

18. After logging in, configure the time zone settings for your server.
19. Specify the server IP address for your Network Interface Card (NIC).
20. Configure your computer name and domain.
21. **(Optional)** Change the DVD drive letter to E: to ensure the correct drive letters are free for the Contact Center application and database hard disk drives and partitions.
22. Configure the hard disk drives and partitions for this server using the Windows Server 2016 or Windows Server 2019 Computer Management - Disk Management utility.
23. Install other required drivers for your hardware configuration.

Voice and Multimedia Contact Server virtual machine hard disks and partitions

Create individual virtual hard disks for each of the required partitions for your Contact Center virtual machine. When creating a virtual hard disk for the operating system partition, create a hard disk size 1GB greater than the required partition size, to accommodate the creation of any additional Windows partitions that the Windows Server 2016 or Windows Server 2019 installation might create automatically.

For example, for an operating system partition size requirement of 80GB, create an 81GB virtual hard drive. For each additional Contact Center required partition, create a virtual hard drive greater than or equal to the partition size requirement. The virtual hard disk must be of sufficient size such that when the associated partition is created and formatted it has a size matching the required partition size for the install.

For improved multimedia offline data retention, Avaya recommends using a 600 GB partition for multimedia storage. The multimedia 600 GB partition requires SAN Storage.

Table 2: Contact Center virtual machine hard disk minimum partition sizes

Hard disk drive partition description	Drive letter	Minimum partition sizes	Recommended partition sizes, 300 GB multimedia partition	Recommended partition sizes, 600 GB multimedia partition
Operating system drive	C:	80 GB NTFS partition	80 GB NTFS partition	80 GB NTFS partition
Application drive	D:	100 GB NTFS partition	120 GB NTFS partition	120 GB NTFS partition

Table continues...

Hard disk drive partition description	Drive letter	Minimum partition sizes	Recommended partition sizes, 300 GB multimedia partition	Recommended partition sizes, 600 GB multimedia partition
DVD drive	E:	—	—	—
Voice database drive	F:	180 GB NTFS partition	200 GB NTFS partition	200 GB NTFS partition
Multimedia database drive	G:	200 GB NTFS partition	300 GB NTFS partition	600 GB NTFS partition
Database journal drive	H:	80 GB NTFS partition	100 GB NTFS partition	100 GB NTFS partition
Total		641 GB of Thick Provisioned disk space in a VMware datastore.	801 GB of Thick Provisioned disk space in a VMware datastore.	1101 GB of Thick Provisioned disk space in a SAN datastore.

If using 900 GB Raid–1 disks, use the above Minimum Partition size option.

Contact Center requires Hardware RAID-1 with duplicate hard disk drives with identical specifications. Therefore, the VMware host server must implement Hardware RAID-1 or better.

Navigating the Microsoft Windows Server 2016 or Windows Server 2019 interface

The following table describes some key Microsoft Windows Server 2016 and Windows Server 2019 user interface items.

User interface item	Description
Start menu	The Start menu button opens a list of shortcuts to the main administration interfaces of the server, including shortcuts to Contact Center applications. The Start menu displays the currently logged on user and provides some basic server logout and locking functions. This menu offers similar functionality as the Windows Server 2012 R2 Start and App pages. Note that Windows Server 2012 R2 is no longer supported.
Desktop	The Desktop screen contains the Windows Start button, Taskbar, Recycle Bin, and shortcuts to the Windows Explorer utility, among others. The Taskbar displays the Windows Notification Area and System Tray. The notification area is located on the right portion of the Taskbar next to the time.

Navigation tips:

- To display the **Start** menu, on the desktop, click the Windows **Start** button.
- To access the control panel, on the **Start** menu, click the **Control Panel** tile.

- To access administration tools, on the **Start** menu, click the **Windows Administrative Tools** tile.

The contents of your screens can vary depending on the roles, features, and applications installed on your server.

For more information about the Windows Server 2016 or Windows Server 2019 operating system, refer to the Microsoft support website and Microsoft product documentation.

 Important:

Instructions in the Contact Center documentation might vary depending on the Windows Server version you are using.

Installing the most recent supported operating system service packs

Before you begin

- Access the Avaya hotfixes list on the website <https://support.avaya.com>.
- Install and configure Microsoft Windows Server 2016 or 2019 on your server.
- Review the specifications for operating system service updates in *Avaya Aura® Contact Center Overview and Specification*.

About this task

Avaya recommends that you install the most recent supported operating system service packs. You must download the supported operating system service pack from the Avaya hotfixes list to ensure your Contact Center server software functions correctly with the supported operating system patches.

Procedure

1. Review the Contact Center Service Packs Compatibility and Security Hotfixes Applicability List to determine the most recent supported Avaya Aura® Contact Center patches or service packs.
2. Download the appropriate Windows Server patches for the Avaya Aura® Contact Center software installed on this server.
3. Install the most recent Windows Server service pack that is validated with Avaya Aura® Contact Center by following the Microsoft installation instructions.

Installing VMware Tools

About this task

Install VMware Tools on the Contact Center virtual machine. VMware Tools provides performance monitoring, networking drivers, and improved mouse performance.

Procedure

1. Using VMware vSphere client, in the left pane, right-click on the Contact Center virtual machine and select **Guest > Install/Upgrade VMware Tools**.
2. Follow the on-screen instructions.
3. To complete installing VMware Tools, reboot the virtual machine.

Connecting to the contact center subnet

About this task

Connect the Contact Center server to the contact center subnet. The contact center subnet is the network on which the server software applications work together to route contacts and generate reports.

Procedure

1. Locate the slot assigned to the contact center subnet network interface card for the server. Make a note of the slot.
2. Connect the cable from the contact center subnet to the contact center subnet network interface card in the server in accordance with customer site networking guidelines.
3. Use the ping command to test the contact center subnet.

Adding a server to a domain

Before you begin

- Ensure that you have domain administrator privileges, or ask the Domain Administrator to assign you a domain user account for remote access.
- On the server, configure a preferred Domain Name System (DNS) server on the Network Interface Card (NIC).

About this task

Add the server to an existing domain.

*** Note:**

Add the server to a Windows domain before installing Contact Center software. When joining the domain, ensure the server time and domain controller time are synchronized to the same time.

Ask your System Administrator to add a Domain Name System (DNS) static entry for this server. Each Contact Center server in a domain requires a DNS static entry.

If your solution is going to use High Availability, ask your System Administrator to add one DNS static entry for each managed name and associated managed IP address. A typical High Availability campus solution with a pair of servers requires three DNS static entries; one DNS static entry for the active server, one DNS static entry for the standby server, and one DNS static entry for the managed name and associated IP address. Avaya Aura® Contact Center High Availability solutions do not support Windows Server Dynamic DNS.

Procedure

1. Log on to the server.
2. On the **Start** screen, select **Administrative Tools > Server Manager**.
3. In the left pane, select **Local Server**.
4. In the right pane, in the **Properties** section, double-click on the **Domain** value.
The **System Properties** dialog box appears.
5. In the **System Properties** dialog box, click the **Computer Name** tab.
6. Click **Change**.
7. In the **Member of** section, click the **Domain** option.
8. Type the domain name (you must provide the fully qualified domain name, which includes the prefix and suffix).
9. Click **OK**.
10. Type the domain administrator **User name** and **Password**.
11. Click **OK**.
12. Restart the server when you are prompted to do so.

Downloading the most recent Contact Center patches to the server

Before you begin

- Download and install the most recent and supported updates per Microsoft Windows Server 2016 or 2019.
- Know the location where plan to install each Contact Center server software package.

- Ensure that you use one administrator account on your server to uninstall and install software updates.

About this task

To ensure that you have the most current software, download the most recent Contact Center patches from <https://support.avaya.com> to the server you plan to install.

Procedure

1. Log on to the server using the administrator account.
2. Create a folder <Drive>:\Avaya-ProductUpdates\ to save the software updates, where <Drive> is the drive letter on which you want to save the Contact Center software updates.
3. Download the most recent service pack file.
4. Save and unzip the file on the Contact Center server in the Avaya-ProductUpdates folder.
5. If new patches are available for the latest service pack, download and save the patches in the Avaya-ProductUpdates folder.
6. Read the Contact Center Release Notes for the latest instructions.

Enabling Microsoft Remote Desktop connection

About this task

Enable Microsoft Remote Desktop connection as your remote access tool. Microsoft Remote Desktop provides remote access for support on the server.

Procedure

1. Log on to the server with administrator privileges.
2. On the **Start** screen, select **Control Panel** > **System and Security**.
3. In the **System** section, select **Allow remote access**.
4. Click the **Remote** tab.
5. Select **Allow remote connections to this computer**.
6. Click **Apply**.
7. Click **OK**.

Disabling Admin Approval Mode for Windows Server administrators

About this task

Windows Server implements a security feature known as User Account Control (UAC). By default, this feature causes applications run by local non built-in administrators to behave as if the applications had been run by standard users. Perform this procedure to ensure that local administrators get full privileges for running applications.

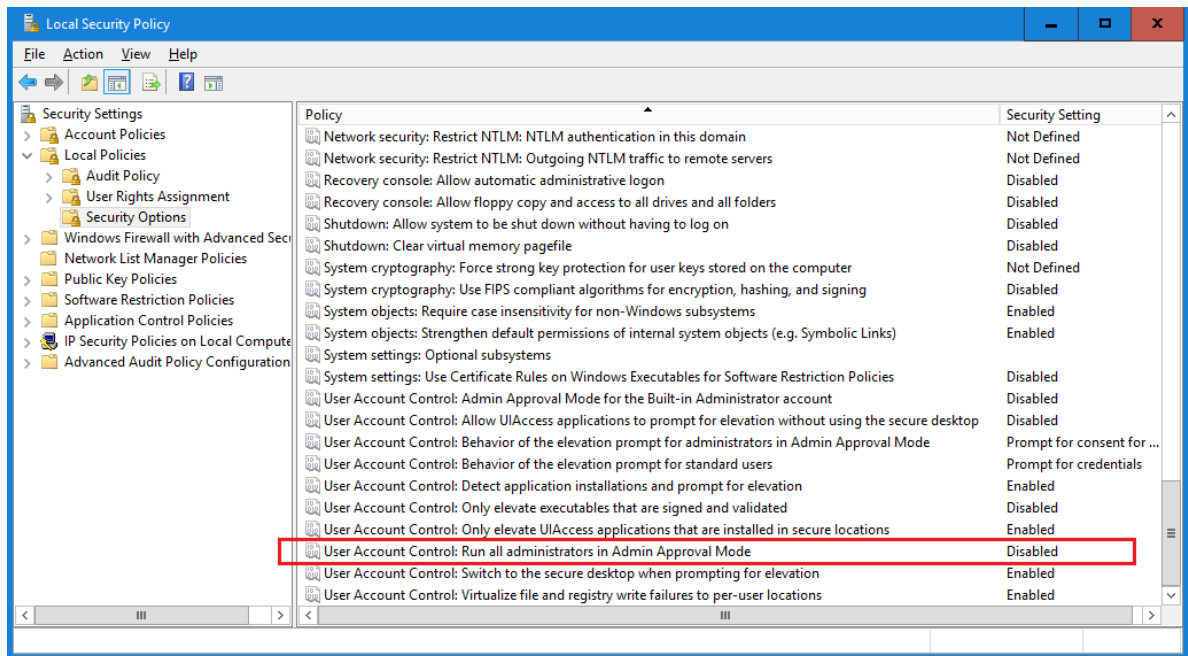
* Note:

This procedure describes how to disable Admin Approval Mode on the Contact Center server using one method only; there are additional methods available. For example, you can also administer User Account Control settings for the Contact Center server using a group policy.

Procedure

1. On the **Start** screen, select **Administrative Tools** > **Local Security Policy**.
2. Under **Security Settings**, expand **Local Policies**.
3. Select **Security Options**.
4. In the policy pane on the right, double-click on **User Account Control: Run all administrators in Admin Approval Mode**.
5. Click the **Local Security Setting** tab, and select **Disabled**.
6. Click **OK**.

If prompted, restart the server.



Creating a shared location for security configuration

About this task

If you want to enable security on the Contact Center server, and complete security configuration when installing Contact Center software, you must ensure that a shared network location exists on the Contact Center server. You can then export the Certificate Signing Request (CSR) file to this location using the Contact Center Ignition Wizard.

Procedure

Create a shared network location on the Contact Center server.

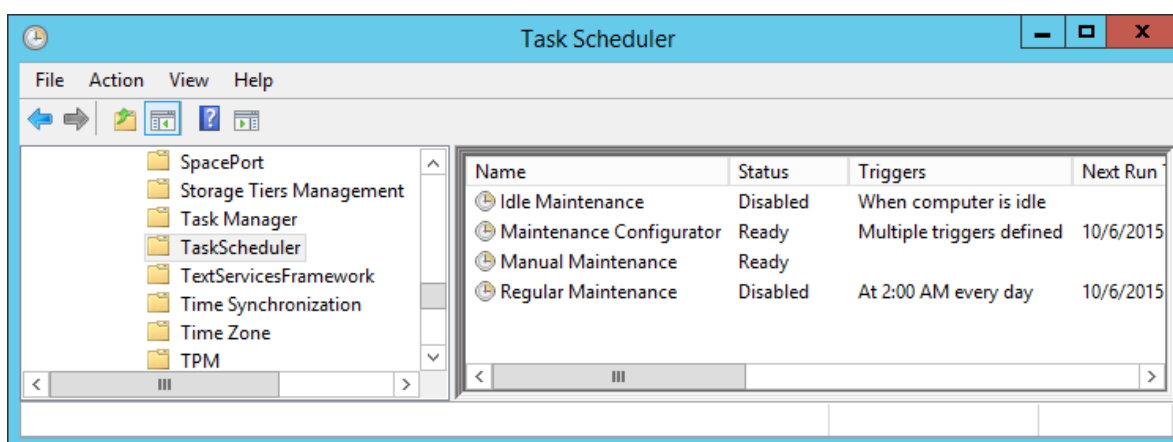
Disabling Windows Server Automatic Maintenance

About this task

Disable Windows Server Automatic Maintenance while installing Contact Center software. Windows Server Automatic Maintenance can occasionally interfere with the real-time requirements for Contact Center. You must therefore temporarily disable Automatic Maintenance to install and configure Contact Center software. Re-enable it after deploying Contact Center.

Procedure

1. Log on to the Contact Center server as an administrator.
2. From the **Start** menu, click **Run** and type `Taskschd.msc`.
3. On the Task Scheduler window, in the left pane, click **Task Scheduler Library > Microsoft > Windows > TaskScheduler**.
4. In the **Name** column, right-click **Idle Maintenance** and then click **Disable**.
5. In the **Name** column, right-click **Regular Maintenance** and then click **Disable**.



6. From the **File** menu, click **Exit**.

Installing the Voice and Multimedia Contact Server without Avaya Aura® Media Server software for Avaya Aura® Unified Communications platform

Before you begin

- Ensure the Avaya Aura® Unified Communications platform is configured. For more information see *Avaya Aura® Contact Center and Avaya Aura® Unified Communications Integration*.
- Avoid installation from shared locations, because it might lead to installation failure. To ensure successful installation, either mount a DVD or download a local copy of a build.
- Download the most recent Contact Center patches to the server.

About this task

Install the Contact Center Voice and Multimedia Contact Server without Avaya Aura® Media Server software and enable your contact center to route contacts to the agents that can answer the call with the correct skills.

Procedure

1. Insert the Contact Center DVD into the DVD drive of your server.
2. If the installation does not automatically start, double-click **Setup.exe**.
3. Click **Install** to install the Microsoft .NET Framework on the server.

If you are prompted to accept the Microsoft .NET Framework license agreement, click **Yes**.
If you are prompted to restart the server, click **Yes** and repeat step 2.
4. Contact Center software installer runs Operating System and hardware checks on the server. If the installer returns a Fail, the software installation cannot proceed until you correct the problem. Review any failures returned by the System Readiness Check and consult *Avaya Aura® Contact Center Overview and Specification* to determine the actions to resolve the issue.

You can ignore warnings if the potential impact to the operation of the contact center is understood and not applicable.
5. The Contact Center software installer platform and server selection screen appears.
6. In the **Select Voice Platform** section, select **Avaya Aura - SIP**.
7. In the **Select Server Installation Option** section, select **Voice and Multimedia Contact Server without Avaya Aura Media Server**.
8. Click **Next**.
9. Under **Journal Database Drive**, select the drive for the database journal. The default drive partition is H:.
10. Under **Voice Contact Server Database Drive**, select the drive for the Contact Center Manager Server, Communication Control Toolkit, and Contact Center Manager Administration databases. The default drive partition is F:.

11. Under **Multimedia Contact Server Database Drive**, select the drive for the Contact Center Multimedia database. The default drive partition is G:.
12. In the **Service Packs** section, browse to and select the Service Pack.



13. Click **Install**.
14. The **AVAYA GLOBAL SOFTWARE LICENSE TERMS** window appears.
15. Read the terms of the license.
 - If you accept the terms, click **I ACCEPT THE LICENSE TERMS**. *The installation continues.*
 - If you do not accept the terms, click **I DECLINE THE LICENSE TERMS**. *The installation returns to the Select Destination Drive screen.* Click **Cancel** to stop the install.
 - To print the license terms, click **Print**.
16. The **MICROSOFT SOFTWARE LICENSE TERMS** window appears.
17. Read the terms of the license.
 - If you accept the terms, click **I ACCEPT THE LICENSE TERMS**. *The installation continues.*

- If you do not accept the terms, click **I DECLINE THE LICENSE TERMS**. *The installation returns to the Select Destination Drive screen.* Click **Cancel** to stop the install.
 - To print the license terms, click **Print**.
18. The **Progress** window appears and displays the installation progress.
19. When the software is installed, you have the following options.
- To continue configuring the server installation data:
 - a. Select **Launch Avaya Aura Contact Center Ignition Wizard**.
 - b. Click **Configure**. This starts the Avaya Aura® Contact Center Ignition Wizard.
 - To defer configuring the server installation data:
 - a. Clear **Launch Avaya Aura Contact Center Ignition Wizard**.
 - b. On the message box, click **Yes**.
 - c. On the main installer screen, click **Close**.
 - d. Follow the on-screen instructions and shut down the Contact Center server.

You must use the Ignition Wizard to initialize Avaya Aura® Contact Center, otherwise Avaya Aura® Contact Center is not operational. For more information about the Ignition Wizard, see the following procedure.

Configuring the Voice and Multimedia Contact Server without Avaya Aura® Media Server software for Avaya Aura® Unified Communications platform

Before you begin

- Ensure the Avaya Aura® Unified Communications platform is configured. For more information see *Avaya Aura® Contact Center and Avaya Aura® Unified Communications Integration*.
- You must configure the required language and locale of the Contact Center server operating system, if it is not a Latin-1 language, before configuring the Contact Center server using the Contact Center Ignition Wizard. For more information about configuring language and locale settings on the Contact Center server, see *Avaya Aura® Contact Center Server Administration*.
- Read the Contact Center Release Notes for the most recent instructions.

About this task

Configure the Contact Center Voice and Multimedia Contact Server software and enable your contact center to route contacts to the agents that can answer the call with the correct skills.

Procedure

1. Log on to the Contact Center server using the Administrator account details.
2. On the Contact Center Ignition Wizard screen, click **Next**. If the Contact Center Ignition Wizard is not visible, click the Ignition Wizard shortcut on the desktop.
3. On the **End-User License Agreement** screen, read the license agreement. Optionally, click **Print** to generate a local soft copy (in OpenXPS Document format) of the license agreement.
4. Select **I Accept the Terms of the End-User License Agreement** and click **Next**.
5. On the **Configuration Data** window, type the configuration details for each tab.
6. Select the **Core** tab, and configure the server details.

The screenshot shows the 'Configuration Data' window for Avaya Contact Center. The 'Core' tab is selected, and the 'System Account Configuration' section is active. The 'Site Name' field contains 'CC7SIP' and the 'Real-Time Statistics Multicast IP Address' field contains '234.5.6.10'. The 'System Account Configuration' section has 'Password' and 'Confirm Password' fields, both containing '*****', with a green message 'Passwords match' below them. The window has a blue header with 'Avaya Contact Center' and the Avaya logo. At the bottom, there are buttons for '< Back', 'Next >', and 'Cancel', along with a 'Click Next to Continue' prompt.

7. In the **Site Name** box, type the site name for the Contact Center server. The site name must not contain spaces or non-alphabetical characters except hyphen (-) and underscore (_). The first character must be a letter. The site name must be unique and can consist of 6 to 15 characters.
8. In the **Real-Time Statistics Multicast IP Address** box, type the Real-time Statistics Multicast IP Address of the server to associate with sending real-time data. The **IP Address** must be from 224.0.1.0 to 239.255.255.255. The default is 234.5.6.10.

9. In the **System Account Configuration** section, in the **Password** box, type a password for the Contact Center administration account. The password is checked against the server security policy for minimum password requirements. Avaya recommends that you enter a password that conforms to your corporate password policy.
10. In the **Confirm Password** box, type the password.
11. Select the **Licensing** tab, and configure the licensing details.

The screenshot shows the 'Configuration Data' window for the Avaya Contact Center. The 'Licensing' tab is selected. The window contains the following fields and options:

- License Type:** A drop-down menu currently showing 'Local WebLM'.
- License File:**
 - License File Location:** A text box with a 'Browse' button and a 'Skip' button.
 - System HostID (MAC Address):** A text box containing '00:50:56:8D:48:8D'.
- License Manager Package:**
 - Package:** A drop-down menu currently showing 'Nodal Enterprise'.
 - Features:** A list of checkboxes for optional features:
 - ☐ Networking
 - ☐ Instant Messaging
 - ☐ Web Based Statistics
 - ☐ Multiplicity
 - ☐ Open Queue
 - ☐ Open Interfaces Open Queue
 - ☐ Open Interfaces Universal Networking
 - ☐ Agent Greeting
 - ☐ Offsite Agent

At the bottom, there is a 'Click Next to Continue' instruction and three buttons: '< Back', 'Next >', and 'Cancel'.

12. From the **License Type** drop-down list, select **Remote WebLM** to use the Avaya WebLM server.
13. In the **IP Address** box, type the IP address for the Avaya WebLM server.
14. In the **Port** box, type the port number for the Avaya WebLM server. The default port number is 52233.
15. From the **Licensing Package** list, select the license type that you have purchased. Select **Nodal Enterprise** for single-site contact centers.
16. From the list of **Optional Packages**, enable the licensed features that you have purchased.
17. Select the **Open Queue** check box.
18. Select the **SIP** tab, and configure the SIP details.

Avaya Contact Center

Configuration Data

Enter the required configuration data.

Core
Licensing
SIP
Multimedia
Security Configuration

Switch Configuration

Avaya Aura

SIP Voice Proxy Server

IP Address: Port: 5060 Transport: TCP

SIP CTI Proxy Server

IP Address: Port: 4723 Transport: TLS

Local SIP Subscriber

Domain Name:

Backup SIP Voice Proxy Server

IP Address: Port: 5060 Transport: TCP

SIP IM Proxy Server

IM Provider: Aura Presence Services

XMPP Domain:

IP Address: Port: Transport:

Click Next to Continue

< Back
Next >
Cancel

19. In the **SIP Voice Proxy Server** section, in the **IP Address** box, type the IP address for the primary Avaya Aura® Session Manager.
20. In the **SIP Voice Proxy Server** section, in the **Port** box, type the server listening port number. The default port is 5060.
21. In the **SIP Voice Proxy Server** section, from the **Transport** list, select the SIP Network Transport communication protocol. The default is TCP.

*** Note:**

If there are Contact Center agents using SIP deskphones, or if your solution uses Avaya Aura® Presence Services 7.1 or later, you must ensure that the SIP Network Transport communication protocol is set to TLS.

22. In the **SIP CTI Proxy Server** section, in the **IP Address** box, type the IP address for the Avaya Aura® Application Enablement Services server.
23. In the **SIP CTI Proxy Server** section, in the **Port** box, type the SIP CTI Proxy Server port number. The default SIP CTI Proxy Server port is 4723.
24. In the **SIP CTI Proxy Server** section, from the **Transport** list, select the SIP Network Transport CTI communication protocol. The default Avaya Aura® Application Enablement Services communication protocol is TLS.

25. In the **Local SIP Subscriber** section, in the **Domain Name** box, type the SIP domain name for the SIP-enabled contact center. Typically the Avaya Aura® Contact Center SIP Domain Name matches your Active Directory domain name. The Avaya Aura® Contact Center SIP Domain Name matches the Session Manager contact center SIP domain name. The Local SIP Subscriber Domain Name must be different to the XMPP Domain name.
26. If your solution is going to support High Availability, in the **Backup SIP Voice Proxy Server** section, in the **IP Address** box, type the IP address for the second Avaya Aura® Session Manager. You must have a High Availability Standby Server license to support a Backup SIP Voice Proxy Server. If your solution is not going to support High Availability, leave the **Backup SIP Voice Proxy Server** section **IP Address** box empty.
27. In the **Backup SIP Voice Proxy Server** section, in the **Port** box, type the server listening port number. The default port is 5060.
28. In the **Backup SIP Voice Proxy Server** section, from the **Transport** list, select the SIP Network Transport communication protocol. The default is TCP.

 Note:

If there are Contact Center agents using SIP deskphones, or if your solution uses Avaya Aura® Presence Services 7.1 or later, you must ensure that the SIP Network Transport communication protocol is set to TLS.

29. In the **SIP IM Proxy Server** section, from the **IM Provider** list, select the Instant Messaging provider. Select Aura Presence Services or, if you are using Microsoft Skype for Business or Microsoft Lync, select Microsoft Lync. The **IM Provider** question is enabled if you select the **Instant Messaging** optional license package on the **Licensing** tab.
30. In the **SIP IM Proxy Server** section, if using an Avaya Aura® Presence Services server, in the **XMPP Domain** box, type the domain name of the Extensible Messaging and Presence Protocol (XMPP) server. The XMPP Domain name must be different to the Local SIP Subscriber Domain Name.
31. In the **SIP IM Proxy Server** section, in the **IP Address** box, type the IP address of the SIP IM Proxy Server.
32. In the **SIP IM Proxy Server** section, in the **Port** box, type the port number for the IM Proxy Server. The default port number for Avaya Aura® Presence Services is 5222. The default port number for Microsoft instant messaging servers is 5060.
33. In the **SIP IM Proxy Server** section, from the **Transport** list, select the SIP IM Proxy Server transport protocol.
34. Select the **Multimedia** tab, and configure the Contact Center Multimedia details.

The image shows the 'Configuration Data' screen in the Avaya Contact Center software. The title bar at the top says 'Avaya Contact Center'. The main heading is 'Configuration Data' with the Avaya logo to the right. Below the heading, it says 'Enter the required configuration data.' There are five tabs: 'Core', 'Licensing', 'SIP', 'Multimedia', and 'Security Configuration'. The 'Multimedia' tab is currently selected. Inside this tab, there are two sections: 'Incoming Mail Server' and 'Outgoing Mail Server'. The 'Incoming Mail Server' section has a 'Host Name' text box and a 'Protocol' dropdown menu with 'POP3' selected. The 'Outgoing Mail Server' section has a 'Host Name' text box and a 'Protocol' dropdown menu with 'SMTP' selected. At the bottom of the form area, it says 'Click Next to Continue'. At the very bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'.

35. In the **Incoming Mail Server** box, type the name of the server on which email messages are received in your network.
36. From the **Protocol** list, select the communication protocol for the inbound email server. Select **POP3** or **IMAP**. The default protocol is POP3.
37. In the **Outgoing Mail Server** box, type the name of the server from on which email messages are sent. Your inbound and outbound mail servers can have the same name.
38. Select the **Security Configuration** tab, and configure the security details in the **Security Store Details** section.

The screenshot shows the 'Avaya Contact Center' configuration interface. The 'Configuration Data' section is active, with the 'Security Configuration' tab selected. The 'Security Store Details' section contains fields for 'Full Computer Name (FQDN)' (CC7SIP.aaccdomain.com), 'Encryption Algorithm Level' (SHA256), 'Key Size' (2048), 'Security Store Password', and 'Confirm Store Password'. The 'Name of Organizational unit' and 'Name of Organization' fields are empty. The 'City or Locality' and 'State or Province' fields are also empty. The 'Two letter country code' field is empty. The 'Subject Alternative Name' section has a 'Type' dropdown set to 'DNS' and a 'Value' field. There are 'Add' and 'Remove' buttons. A 'Create Store' button is at the bottom right. A checkbox for 'Skip Security Configuration' is at the bottom left. Navigation buttons '< Back', 'Next >', and 'Cancel' are at the bottom.

39. If you do not want to enable security, select the **Skip Security Configuration** checkbox and skip to [the next steps](#) on page 122.

! Important:

A warning message appears. If you proceed without enabling security, you cannot fully commission your solution. The SIP CTI link is disabled until you configure Contact Center TLS certificates to communicate securely with Application Enablement Services.

40. In the **Full Computer Name (FQDN)** box, type the full FQDN of the server on which you are creating the security store.

! Important:

The FQDN must be the full machine name of the server that the Security Store resides on. The FQDN name is case-sensitive.

41. In the **Name of Organizational unit** box, type the name of the department or division within the company.
42. In the **Name of Organization** box, type the company name.
43. In the **City or Locality** box, type the name of the city or district in which the contact center is located.

44. In the **State or Province** box, type the state or province in which the contact center is located.
45. In the **Two Letter Country Code** box, type the country code in which the contact center is located.
46. In the **Security Store password** box, type a password for accessing the new security store.
47. In the **Confirm Store password** box, confirm the password for accessing the new security store.

 Important:

Ensure you remember this password, because you need it when you log on to Security Manager after install. If you forget the password, you cannot access Security Manager.

48. If you are implementing High Availability in the contact center, generate the security store using Subject Alternative Names (SANs). In the **Subject Alternative Name** section, for each SAN you want to add:
 - a. From the **Type** drop-down list, select DNS.
 - b. In the **Value** field, type the FQDN for the server.
 - c. Click **Add**.

For a High Availability system, add the current server FQDN and the Managed name for the HA pair.

49. If you want to change the encryption setting, select the required encryption settings from the **Encryption Algorithm Level** and **Key Size** drop-down lists.

The default value for **Encryption Algorithm** is SHA256 and the default value for **Key Size** is 2048.

Contact Center displays a warning message if you select SHA1 or 1024. Contact Center includes these values for backward-compatibility only, because these settings do not meet the industry-recommended level of encryption.

50. Click **Create Store**.
51. You can now use the **Security Configuration** tab to create and save a Certificate Signing Request (CSR) file.

The screenshot shows the 'Avaya Contact Center' configuration interface. The 'Configuration Data' section is active, with the 'Security Configuration' tab selected. The page title is 'Configuration Data' with the Avaya logo. Below the title, it says 'Enter the required configuration data.' The tabs are 'Core', 'Licensing', 'SIP', 'Multimedia', and 'Security Configuration'. The main content area is titled 'Store created – Generate Identity Security Certificate by signing the Certificate Signing Request provided.' It contains a 'Certificate Signing Request file' section with a 'Create CSR File' button. Below this is an 'Add' button and a section for 'Imported Trusted Certificate Authority Root Certificate(s)' with a 'Remove' button. There is also a section for 'Imported Identity Security Certificate' with a 'Remove' button. On the right, a 'Status' box contains instructions: 'Ensure that a removable or network drive is available.', 'Create the Certificate Signing Request file and save it to a removable or network drive.', and 'Alternatively, to defer Security Configuration and continue with the Installation Wizard.' There is a 'Reset' button in the status box. At the bottom, there are navigation buttons: '< Back', 'Next >', and 'Cancel'. A 'Click Next to Continue' link is also present.

52. Click **Create CSR File**.

53. From the **Save In** drop-down list, select a shared location in which to save the CSR file and click **Save**.

You must now send the Certificate Signing Request file to a Certificate Authority and receive a signed certificate and root certificate to import to the security store.

54. Click **Add** to import certificates. In the **Open** dialog box, navigate to the location of a certificate and click **Open**. To remove the imported certificate, select the required certificate from the list and click **Remove**.

You can import either a chained certificate, or separate root and signed certificates. Root certificates appear in the **Imported Trusted Certificate Authority Root Certificate(s)** section. A signed certificate appears in the **Imported Identity Security Certificate** section.

If a chained certificate contains both root and signed certificates, you can add root certificates and signed certificate simultaneously by importing just one chained certificate.

If a chained certificate contains root certificates only, you can use the chained certificate to add all root certificates at a time. To add a signed certificate, click **Add** and navigate to the required signed certificate.

If you have separate root and signed certificates, you must add them one by one by clicking the **Add** button. Always add a signed certificate last.

! Important:

When adding a chained certificate, the system can ask you to enter the password you created for accessing the security store. See [the previous steps](#) on page 120.

55. Click **Next**.
56. Review and verify the summary information, and click **Configure**.
57. After the installation is complete, click **Finish**.
58. If prompted, restart the server.

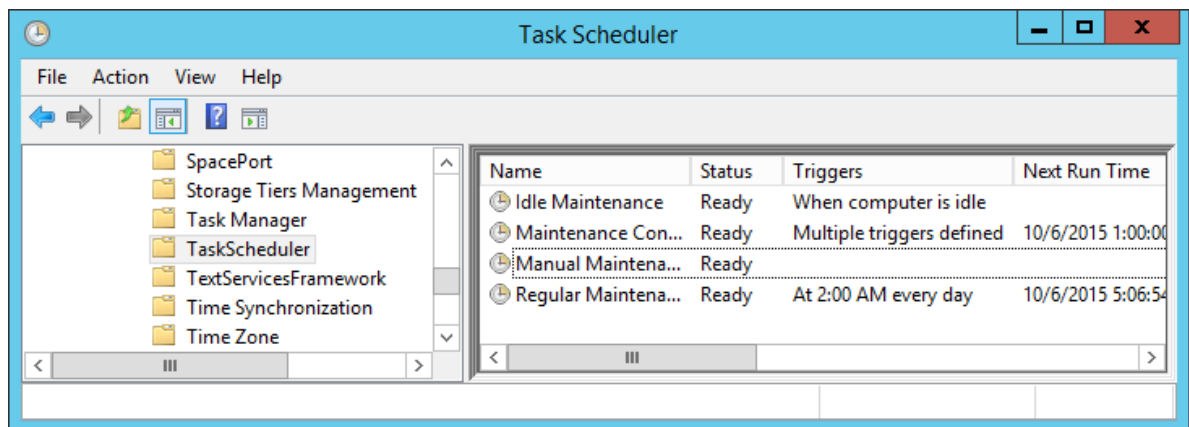
Enabling Windows Server Automatic Maintenance

About this task

Enable Windows Server Automatic Maintenance after deploying Contact Center software.

Procedure

1. Log on to the Contact Center server as an administrator.
2. From the **Start** menu, click **Run** and type `Taskschd.msc`.
3. On the Task Scheduler window, in the left pane, click **Task Scheduler Library > Microsoft > Windows > TaskScheduler**.
4. In the **Name** column, right-click **Idle Maintenance** and then click **Enable**.
5. In the **Name** column, right-click **Regular Maintenance** and then click **Enable**.



6. From the **File** menu, click **Exit**.

Configuring the Contact Center virtual machine

About this task

Configure the VMware resources for the Contact Center virtual machine. A virtual machine cannot have more vCPUs than the maximum number of physical CPUs on the host virtual server platform.

To adjust the virtual machine *Resource Allocations*, you must power off the virtual machine.

Before you begin

- Monitor the performance of the virtual machine.

Procedure

1. Using the vSphere client, select the **Inventory** view.
2. Locate the Contact Center virtual machine in the inventory navigation tree on the left. If not shown, select **View** > **Show VMs in Inventory**.
3. Click on the virtual machine.
4. Right-click on the virtual machine and select **Power** > **Shut Down Guest**.
Wait for the virtual machine to power off.
5. Right-click on the virtual machine and select **Edit Settings**.
6. Click the **Hardware** tab and select **CPUs**.
7. From the **Number of virtual sockets** list, select a value.
8. From the **Number of cores per sockets** list, select a value.
9. Click the **Hardware** tab and select **Memory**.
10. In the **Memory Size** box, increase the memory to at least 16 GB.
11. Click **OK**.
12. Right-click on the virtual machine and select **Edit Settings**.
13. Click the **Resources** tab and select **CPU**.
14. Select the **Reservation** slider and move it all the way to the right.
15. Click **OK**.
16. Click the **Resources** tab and select **Memory**.
17. Select the **Reservation** slider and then click on the orange triangle just below the slider.
18. Click **OK**.
19. Right-click on the virtual machine and select **Power** > **Power On**.
20. Continue to monitor the performance of the Contact Center virtual machine.

Securing the Windows server

About this task

Apply optional security measures to your operating system to further secure your server.

Important:

Scanning software can degrade the performance and decrease the reliability of the system. Install virus scanning software only if the system connects to an exposed network or to the internet.

To maintain server performance, you must schedule virus scans during maintenance periods or low usage hours only.

Procedure

1. Harden the operating system using defined site procedures.
2. Install antivirus software if required.

If you install antivirus software, Avaya recommends that you exclude some contact center files and folders from real-time and scheduled scans. For more information, and for a list of files and folders to exclude, see *Avaya Aura® Contact Center Overview and Specification*.

Installing the external Web communication server software

Before you begin

- Install Contact Center Multimedia software.

About this task

If you use Web communications in your contact center, you can use the Sample Customer Interface (CI) website implementation to help you develop pages for your corporate website. The Web services architecture is a platform-independent interface that customers can access from both Microsoft .NET and Java applications. Customer websites or third-party applications use the open interface for integration with the Contact Center Multimedia system.

The Customer Interface Web services provide a range of methods to perform the following functions:

- Register new customers in the Contact Center Multimedia database
- Log on or log off existing customers
- Update customer logon credentials
- Create customer contacts
- Update customer details
- Read customer information
- Review a customer contact history

- Request immediate or scheduled callback requests
- Read a contact
- Create and maintain a Web communications chat session

To integrate Web Communications with the Contact Center Multimedia system, download the Avaya Aura® Contact Center Web Communications SDK package and Reference Implementation from www.avaya.com/devconnect. The Web Communications Reference Implementation contains information about customizing the Web communication application to your solution.

! Important:

Do not install the Web Communications Reference Implementation on an Avaya Aura® Contact Center server. Install the Web Communications Reference Implementation on your own server in the contact center solution.

Procedure

1. Locate and download the Web Communications Reference Implementation software from www.avaya.com/devconnect.
2. Copy the Web Communications Reference Implementation software to the external Web server.
3. Follow the Reference Implementation instructions to install and commission the Web Communications server.

Configuring the virtual machine automatic startup settings

Before you begin

- Confirm that you have the proper level of VMware permissions to configure the automatic startup settings. If you do not have the proper level of VMware permissions, contact your system administrator.

About this task

When a vSphere ESXi host restarts or starts after a power failure, the virtual machines that are deployed on the host do not start automatically. All Contact Center virtual machines must be configured to start automatically when the vSphere ESXi host starts.

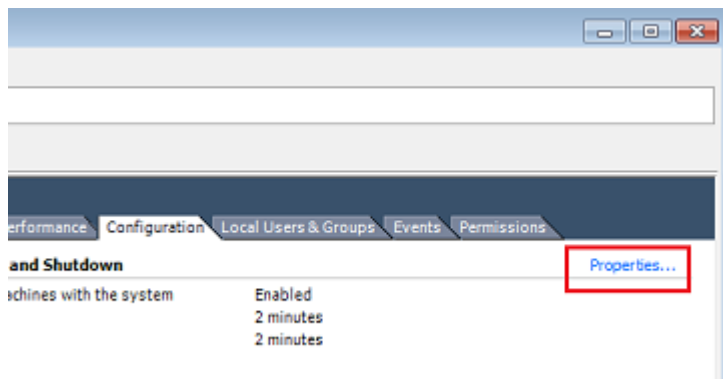
If the following virtual machines are deployed on the same ESXi host server, configure an automatic startup order for them:

1. Avaya WebLM
2. Avaya Aura® Media Server
3. Contact Center

If these virtual machines are deployed on separate ESXi host servers, configure them to start up automatically and ensure they are high in the automatic restart order on their respective ESXi host servers.

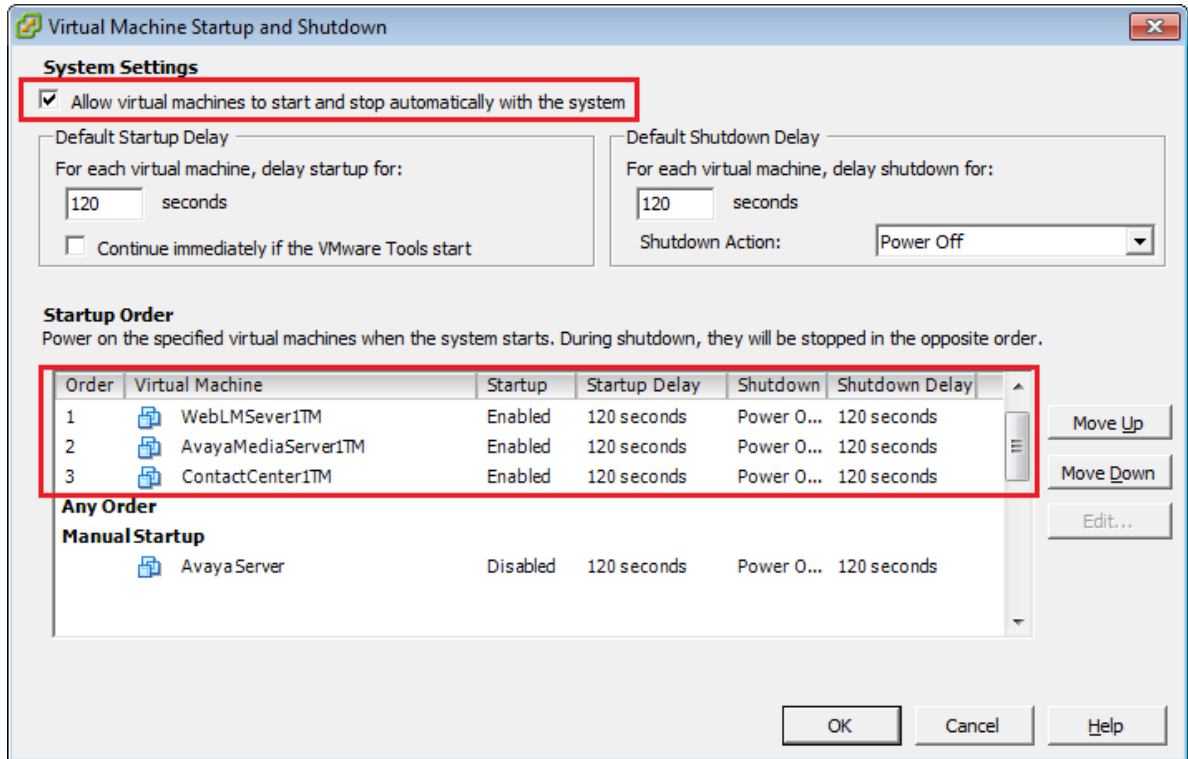
Procedure

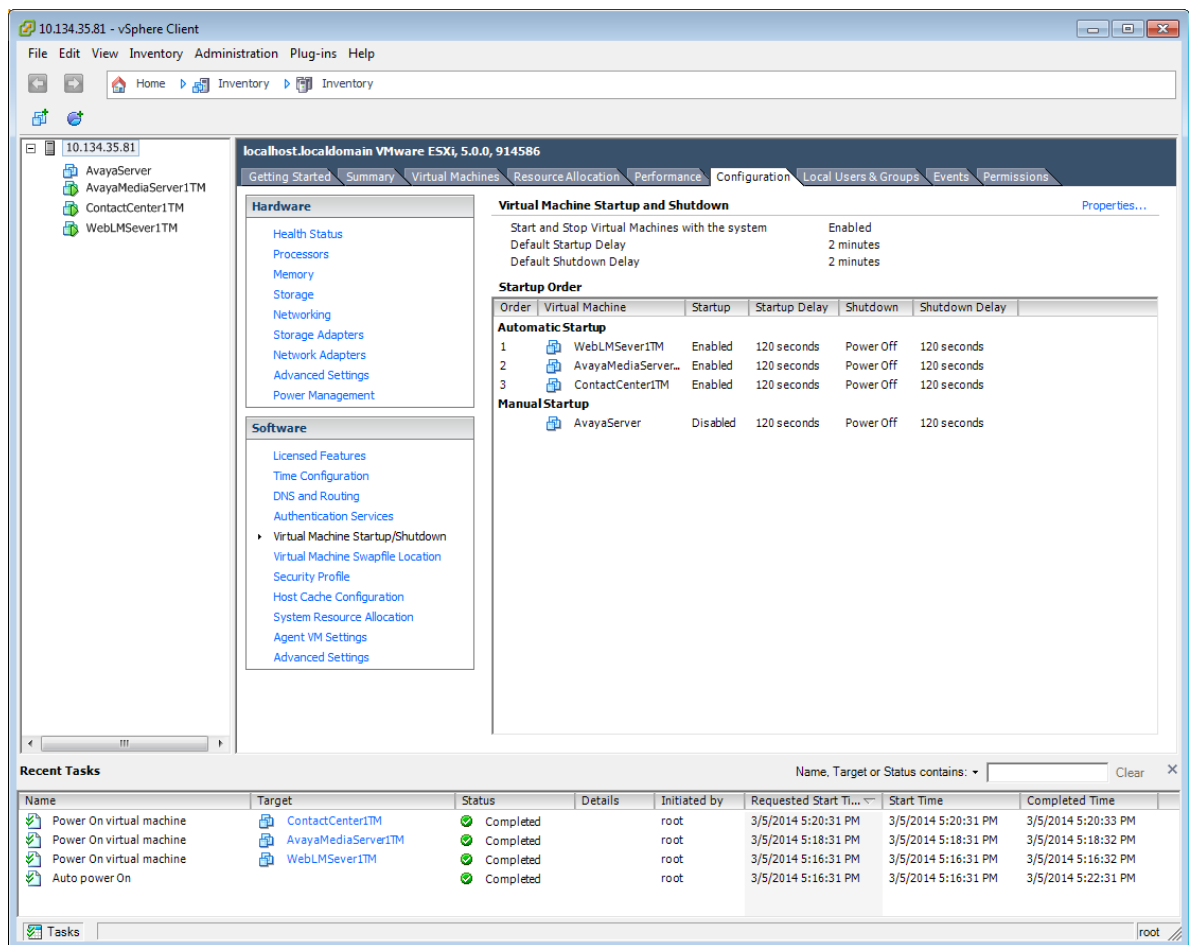
1. In the vSphere Client inventory, select the host where the Contact Center virtual machines are located.
2. Click the **Configuration** tab.
3. In the **Software** section, click **Virtual Machine Startup/Shutdown**.
4. Click **Properties** in the upper right corner of the screen.



5. In the **System Settings** section, select **Allow virtual machines to start and stop automatically with the system**.
6. In the **Manual Startup** section, select the WebLM virtual machine and using the **Move Up** button, move it to the top of the **Startup Order** list.
7. In the **Manual Startup** section, select the Avaya Aura® Media Server virtual machine and using the **Move Up** button, move it to the second position on the **Startup Order** list.

8. In the **Manual Startup** section, select the Contact Center virtual machine and using the **Move Up** button, move it to the third position on the **Startup Order** list.



9. Click **OK**.

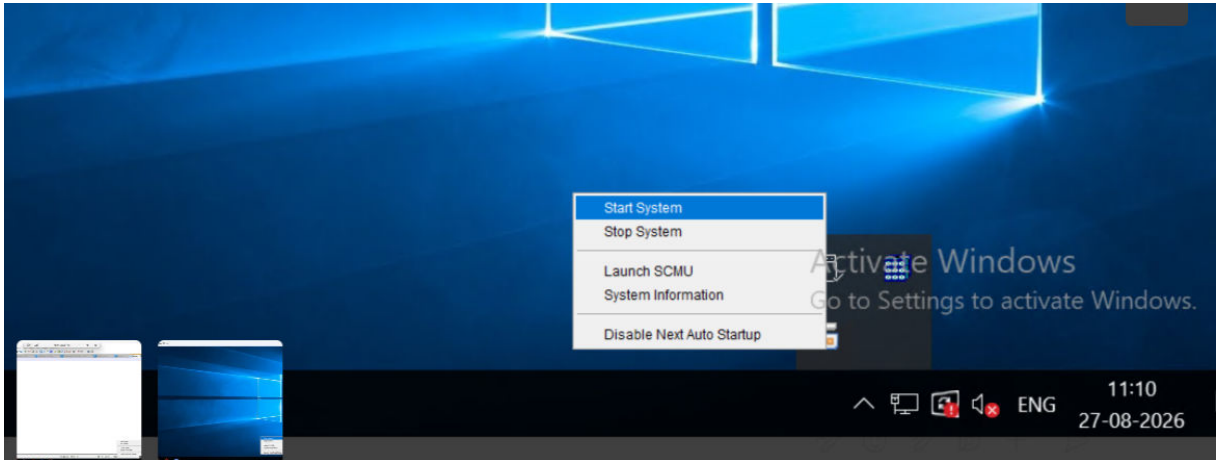
Commissioning the Contact Center server

About this task

Commission the installed Contact Center software.

To initialize the SMMC service after the reboot, perform either of the following actions:

- On the task bar, click the show hidden icons button and click **smmc service > Start System > OK**.



- Restart the Avaya Aura® Contact Center machine a second time to trigger the automatic startup sequence.

Procedure

1. Commission the installed Contact Center software.

For information about commissioning the installed server software, see *Avaya Aura® Contact Center Commissioning for Avaya Aura® Unified Communications*.

2. Use the procedures in *Avaya Aura® Contact Center Server Administration* to configure your licensed features.

Appendix A: VMware Best Practices for performance

The following sections describe some of the Best Practices for VMware performance and features.

Virtualization host hardware settings

For details on BIOS settings to improve the environment for latency-sensitive workloads for an application, see the Best Practices for Performance Tuning of Latency-Sensitive Workloads in vSphere VMs technical white paper at <http://www.vmware.com>.

The following are the best performance BIOS settings for a few specific servers from the VMware-certified server list. In general, turn off power-saving server options for optimal performance. Consult the manufacturer technical data for your particular server.

Intel Virtualization Technology support

Intel CPUs require EM64T and Virtualization Technology (VT) support in the chip and in the BIOS to run 64-bit virtual machines.

All Intel Xeon processors feature:

- Intel Virtualization Technology
- Intel Extended Memory 64 Technology
- Execute Disable Bit

Ensure that VT is enabled in the host system BIOS. The feature might be called VT, Vanderpool Technology, Virtualization Technology, VMX, or Virtual Machine Extensions.

Note:

The VT setting is locked (either on or off) at boot time. After enabling VT in the system BIOS, save your changes to the BIOS settings and exit. The host server reboots, and the BIOS changes takes effect.

Other virtualization host hardware settings

Servers with Intel Nehalem class and newer Intel Xeon CPUs also offer two power management options: C-states and Intel Turbo Boost.

- Disabling C-states lowers latencies to activate the CPUs from halt or idle states to full power on.
- Intel Turbo Boost steps up the internal frequency of the processor if the workload requires more power. The default for this option is enabled. Do not change the default.

These settings depend on the OEM make and model of the server. The BIOS parameter terminology for current Dell and HP servers are described in the following sections. Other server make and models can have other terminology but equivalent BIOS controls.

Dell PowerEdge Servers — Hardware settings

When the Dell server starts, you select F2 to display the system setup options. The following are the recommended BIOS settings for the Dell PowerEdge servers:

- Set the Power Management Mode to **Maximum Performance**.
- Set the CPU Power and Performance Management Mode to **Maximum Performance**.
- Under Processor Settings, set **Turbo Mode** to **enable**.
- Under Processor Settings, set **C States** to **disabled**.

HP ProLiant Servers — Hardware settings

The following are the recommended BIOS settings for the HP ProLiant servers:

- Set the Power Regulator Mode to **Static High Mode**.
- Disable **Processor C-State Support**.
- Disable **Processor C1E Support**.
- Disable **QPI Power Management**.
- Enable **Intel Turbo Boost**.

VMware networking best practices

There are many different ways of configuring networking in a VMware environment. Review the VMware networking best practices documentation before deploying Avaya applications on an ESXi host. This section is not a substitute for the VMware documentation. For improved performance and best practice, Contact Center uses Network Adapter type VMXNET 3.

The following are some suggested networking best practices:

- Separate network services to achieve greater security and performance. Create a vSphere *Standard Switch* with dedicated NICs for each service. Separate VMware Management,

iSCSI (SAN traffic), and VM networks to separate physical NICs. If separate switches are not possible, consider port groups with different VLAN IDs.

- All physical NICs that are connected to the same vSphere *Standard Switch* must be connected to the same physical network.
- Configure all VMkernel vNICs to the same MTU (IP Maximum Transmission Unit).
- Configure Contact Center to use Network Adapter type VMXNET 3.

For more information about VMware networking best practices, refer to the VMware documentation.

VMware Tools

VMware Tools are included as part of the application OVA. The tools are a suite of utilities that enhances the performance of the operating system on the virtual machine and improves the management of the virtual machine.

The tools provide:

- VMware Network acceleration
- Host to virtual machine time synchronization
- Disk sizing
- Startup/Shutdown

 Note:

Do not upgrade the VMware tools software which is packaged with each OVA unless instructed to do so by Avaya.

Network Time Protocol and time configuration

For accurate time keeping, use the Network Time Protocol (NTP) as a time source instead of the ESXi hypervisor.

The NTP servers can be local to the LAN or over the Internet. If the NTP servers are on the Internet, the corporate firewall must open UDP port 123 so that NTP service can communicate with the external NTP servers.

Troubleshooting VMware

Virtualization platform performance issues can result with Contact Center performance problems. The virtualization platform includes the host and the running virtual machines on the host. Contact

Center performance problems can include but are not limited to high CPU usage, link instability, defaulted or abandoned calls.

You must logically and systematically investigate any Contact Center performance issues to rule out virtualization performance problems. All deviations from the published specifications must be investigated and resolved before the Contact Center software investigation is initiated. For more information, refer to the VMware vSphere documentation.

To support troubleshooting VMware resourcing issues, collect information about the following VMware Key Performance Indicators (KPIs).

VMware vSphere Host KPIs:

- Physical CPU
 - PCPU - Physical CPU usage.
 - CPU load average - Average CPU load average of host.
- Physical Memory
 - SWAP/MB - Memory swap usage statistics.

VMware vSphere Virtual Machine (VM) KPIs:

- vCPU
 - CPU RDY - Time VM was ready to run, but was not provided CPU resource.
 - CPU WAIT - Percentage of time spent in the blocked or busy wait state.
 - AMIN - Reservation allocated.
 - ASHRS - CPU shares allocated.
 - CPU CSTP - Amount of time a Symmetric Multi-Processing (SMP) VM was ready to run, but was delayed due to co-vCPU scheduling contention.
- Disk I/O
 - GAVG - Average operating system read latency per read operation.
 - DAVG/rd - Average device read latency per read operation.
 - DAVG/wr - Average device write latency per write operation.
 - RESETS/s - Number of commands reset per second.
 - ABRTS/s - Number of disk commands abandoned per second.
- Network
 - %DRPTX - Percentage of packets dropped when transmitting.
 - %DRPRX - Percentage of packets dropped when receiving.
- Memory
 - MCTLSZ - Amount of physical memory reclaimed memory balloon statistics.

Glossary

Application	An application is one or more software programs that run on a computer. For example, Avaya Aura® Contact Center software is a suite of software applications.
MAC	Media Access Control address. A unique identifier assigned to network interfaces for communication on the physical network segment.
OVA	Open Virtualization Application. An OVA is the virtual machine description, disk images, and a manifest zipped into a single file. The OVA follows the Distributed Management Task Force (DMTF) specification.
PLDS	Product Licensing and Download System. The Avaya PLDS provides product licensing and electronic software download distribution.
Reservation	A reservation is the amount of physical RAM, CPU cycles, or memory that are reserved for a virtual machine.
VM	Virtual Machine. Replica of a physical server from an operational perspective. A VM is a software implementation of a machine (for example, a computer) that runs programs similar to a physical machine.

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