Deploying Avaya Call Management System in an Avaya Customer Experience Virtualized Environment
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Chapter 1: Introduction

Purpose

This document provides procedures for deploying Avaya Call Management System (CMS) in the Avaya Customer Experience Virtualized Environment.

This environment is suitable for customer-provided VMware or Avaya-provided Avaya Converged Platform servers. The deployment is same regardless of the server type.

Task instructions in this document are based on the 6.5 vSphere Client (vSphere Client (HTML5)). You can also perform the tasks in this document by using the old installable vSphere Client (pre-6.5) or the vSphere Web Client (6.0, 6.5). The interface steps can vary with Client interfaces. Refer to the VMware documentation if the slight interface differences are an issue.

This document includes a description of virtualization architecture, how to plan for the deployment, a checklist of configuration data you must get, how to deploy the OVA, how to verify the installation, references to procedures for configuring the CMS software, and maintenance procedures related to the deployment on a virtual machine.

⚠️ Important:

This document does not contain detailed procedures for configuring or maintaining the CMS software. This document refers to standard CMS documents for those procedures.

Intended audience

The primary audience for this document is anyone who installs and configures CMS in a virtualized environment at a customer site. The audience includes implementation engineers, field technicians, business partners, solution providers, and customers.

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

<table>
<thead>
<tr>
<th>Issue</th>
<th>Date</th>
<th>Summary of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>September 2019</td>
<td>Updated the virtual machine resource requirements for customer-provided VMware servers. For more information, see <a href="#">Customer-provided virtual machine resource requirements and average utilization</a> on page 16.</td>
</tr>
<tr>
<td>2</td>
<td>September 2019</td>
<td>Updated the virtual machine resource requirements for Avaya Converged Platform VMware servers. For more information, see <a href="#">Avaya Converged Platform resource requirements and average utilization</a> on page 32.</td>
</tr>
</tbody>
</table>
| 2     | September 2019 | Updated the virtual machine configuration procedures for customer-provided VMware servers. For more information, see the following topics:  
  - [Configuring the virtual machine for a small configuration](#) on page 25  
  - [Configuring the virtual machine for a medium configuration](#) on page 26  
  - [Configuring the virtual machine for a large configuration](#) on page 27 |
| 2     | September 2019 | Updated the virtual machine configuration procedures for Avaya Converged Platform VMware servers. For more information, see the following topic:  
  - [Configuring Avaya Converged Platform for a medium configuration](#) on page 38 |
Chapter 2: Architecture overview

Avaya Customer Experience Virtualized Environment overview

Avaya Customer Experience Virtualized Environment integrates Avaya contact center applications with VMware virtualized server architecture.

Avaya Customer Experience Virtualized Environment provides the following benefits:

- Simplifies IT management by providing common software administration and maintenance
- Requires fewer servers and racks which reduces the footprint
- Lowers power consumption and cooling requirements
- Enables capital equipment cost savings
- Lowers operational expenses
- Uses standard operating procedures for both Avaya and non-Avaya products
- Allows customers to deploy Avaya products in a virtualized environment on customer-specified servers and hardware.
- Allows businesses can scale rapidly to accommodate growth and to respond to changing business requirements.

For existing customers who have a VMware IT infrastructure, Avaya Customer Experience Virtualized Environment allows upgrading to the next release level of collaboration using its own VMware infrastructure.

The Avaya Customer Experience Virtualized Environment project is only for VMware and is not intended to include any other industry hypervisor.

Note:

This document uses the following terms, and at times, uses the terms interchangeably:

- Server and host
- Reservations and configuration values

Deployment of customer-provided hardware

Deployment into the blade, cluster, and server is managed by vCenter Server and vSphere Client. The customer provides the servers and the VMware infrastructure including the VMware licenses.
Deployment of Avaya-provided Avaya Converged Platform hardware

The Avaya-provided Avaya Converged Platform hardware is delivered to the customer site. The servers contain preloaded VMware ESXi and the RHEL operating system.

Software delivery

The software is delivered as one or more pre-packaged Open Virtualization Appliance (OVA) files that are posted on the Avaya Product Licensing and Download System (PLDS). Each OVA contains the following components:

- the application software and operating system.
- preset configuration details for
  - RAM and CPU reservations and storage requirements
  - Network Interface Card (NIC)

Patches and upgrades

A minimum patch level can be required for each supported application. See the compatibility matrix tool at http://support.avaya.com/CompatibilityMatrix/Index.aspx for more information regarding the application patch requirements.

Important:

Do not upgrade the VMware tools software that is packaged with each OVA unless instructed to do so by Avaya. The supplied version is the supported release and has been thoroughly tested.

Performance and capacities

The OVA template is built with configuration values which optimize performance and follow recommended Best Practices.

Caution:

Modifying these values can have a direct impact on the performance, capacity, and stability of the virtual machine. It is the responsibility of the customer to understand the aforementioned impacts when changing configuration values. Avaya Global Support Services (GSS) may not be able to assist in fully resolving a problem if the resource allocation has been changed for a virtual application. Avaya GSS could require the customer to reset the values to the optimized values before starting to investigate the issue.

Virtualized components

<table>
<thead>
<tr>
<th>Software component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESXi Host</td>
<td>The physical machine running the ESXi Hypervisor software.</td>
</tr>
<tr>
<td>ESXi Hypervisor</td>
<td>A platform that runs multiple operating systems on a host computer at the same time.</td>
</tr>
</tbody>
</table>

Table continues…
### Software component Description

<table>
<thead>
<tr>
<th>Software component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vSphere Client</td>
<td>vSphere Client is an application that installs and manages virtual machines. vSphere Client connects to a vCenter server or directly to an ESXi host if a vCenter Server is not used. The application is installed on a personal computer or accessible through a web interface. The installable vSphere Client is not available in vSphere 6.5 and later releases.</td>
</tr>
<tr>
<td>vSphere Web Client</td>
<td>Using a Web browser, vSphere Web Client connects to a vCenter server or directly to an ESXi host if a vCenter Server is not used.</td>
</tr>
<tr>
<td>vSphere Client (HTML5)</td>
<td>vSphere Client (HTML5) is available in vSphere 6.0 or later. Using a Web browser, it connects to a vCenter server or directly to an ESXi host if a vCenter Server is not used. This is the only vSphere client administration tool after the next vSphere release.</td>
</tr>
<tr>
<td>vCenter Server</td>
<td>vCenter Server provides centralized control and visibility at every level of the virtual infrastructure. vCenter Server provides VMware features such as High Availability and vMotion.</td>
</tr>
</tbody>
</table>

### Functional differences when installing CMS in a virtualized environment

When deploying CMS in a virtualized environment, it operates almost identically as a CMS deployed on a traditional hardware server provided by Avaya using the Linux operating system. This section describes a few of the functional areas that are different when deploying CMS in a virtualized environment.

#### Hardware

CMS supports both customer-provided VMware servers or Avaya-provided Avaya Converged Platform VMware servers.

#### Software media

You must download an OVA file to deploy CMS in a virtualized environment. You do not receive a software disc with the OVA file, operating system software, or CMS software. The OVA file contains the operating system and a specific CMS load. Because you do not receive a software disc, you must make a backup copy of the OVA file in the event you must restore the system. Store the backup copy of the OVA file in a safe location so you can get it quickly if you must restore your system.

#### Base Load upgrade media

CMS in a virtualized environment uses an ISO image when doing a CMS Base Load upgrade. You do not receive a CMS software disc, so you must make a backup copy of the ISO image. Store the backup copy of the ISO image in a safe location so you can get it quickly if you must do a Base Load upgrade.
Backup options

Avaya supports backups to a network mount point and LAN Backup for CMS in a virtualized environment.

Avaya supports LAN Backup for CMS 18.1 in a virtualized environment. For customer-provided VMware deployments, you must allocate additional disk space for the LAN backups. To allocate this space, you must use Thick Provisioning when deploying the OVA and allocate the recommended amount of hard disk space as given in the configuration procedures. Thick Provisioning is the default option for Avaya Converged Platform deployments.

Under permissive use, you can back up CMS in a virtualized environment to USB-connected devices. Avaya does not officially support nor has tested USB-connected devices for CMS backup in a virtualized environment. USB backup is not recommended for any system with large data storage because of the slower speed of USB devices and the interface.

For more information about backup options, see *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®*.

Restore procedures

When first deploying CMS in a virtualized environment, the virtual machine takes and remembers a snapshot of the virtualized CMS hardware. If you must ever restore CMS, deploying the OVA a second time changes the virtualized CMS hardware. The restore process compares the original virtualized CMS hardware configuration against the new virtualized CMS hardware configuration and detects a difference between the two configurations. This difference causes the CMS setup process to fail during the restore procedure. You must contact Avaya personnel to run the `auth_set` command for the new virtualized CMS hardware configuration to overwrite the old virtualized CMS hardware configuration. The `auth_set` command requires a password known only by authorized Avaya personnel. If you must restore the system, arrange for Avaya personnel to be available to run the `auth_set` command.
Chapter 3: Planning, deploying, and configuring CMS on a customer-provided VMware deployment

Customer-provided VMware overview

This chapter describes the procedure for deploying a customer-provided VMware system.

⚠️ Note:
For information about the Avaya Converged Platform deployment, see the chapter Configuring the CMS OVA for an Avaya Converged Platform deployment.

Customer-provided VMware deployment checklist

Ensure that the following activities are complete before deploying the virtual appliance:

<table>
<thead>
<tr>
<th>#</th>
<th>Action</th>
<th>Notes</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assess the vSphere Infrastructure resource requirements. Key factors are:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CPU usage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Memory usage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Storage requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Network usage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Supported capacity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Coordinate deployment activities with service providers.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table continues…
### Action

<table>
<thead>
<tr>
<th>#</th>
<th>Action</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Buy all required VMware licenses and make all OVA files accessible.</td>
<td>You must separately license each CMS instance, that is, each installation of an OVA. To install multiple instances of CMS, customers or business partners must order a separate CMS license for each instance.</td>
</tr>
<tr>
<td>4</td>
<td>Buy and install all required hardware.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Plan and resource all staging and verification activities.</td>
<td></td>
</tr>
</tbody>
</table>

⚠️ **Note:**

You can deploy a configuration that consists of a mixture of CMS hosted on VMware platforms and CMS hosted on non-VMware platforms.

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### Deployment guidelines

- Deploy the virtualized environment on the same cluster if the cluster goes beyond the host boundary.
- Segment redundant elements on a different cluster, or ensure that the redundant elements are not on the same host.
- Create a tiered or segmented cluster infrastructure that isolates critical applications, such as CMS, from other virtual machines.
- Plan for rainy day scenarios. Do not configure resources only for traffic or performance on an average day.
- Do not oversubscribe resources, because it affects performance. Oversubscribing affects performance.
- Monitor the server, host, and virtualized environment performance.

⚠️ **Important:**

The values for performance, occupancy, and usage can vary. However, a virtual machine might run at 50% occupancy. If the CPU occupancy exceeds 60% or the CMS real time report mismatches the refresh rates, you can experience performance issues.
Supported hardware for VMware

VMware offers compatibility guides that list servers, system, I/O, storage, and backup compatibility with VMware infrastructure. For more information about VMware-certified compatibility guides and product interoperability matrices, see http://www.vmware.com/resources/guides.html.

CMS virtualized environment configurations

When deploying CMS in a virtualized environment, you can configure your deployment as a small, medium, or large configuration. The medium configuration is the default configuration. Contact Avaya engineering support to determine which configuration you should install.

High Availability for customer-provided VMware

High Availability (HA) CMS and Survivable CMS are Avaya product offers that are different from VMware vSphere High Availability. Contact your Avaya account team to discuss the deployment options for HA CMS and Survivable CMS.

VMware vSphere HA is a specific approach to VMware deployment. Customers implement HA in a specific VMware environment.

HA CMS and Survivable CMS

Avaya offers an HA CMS package and a Survivable CMS package. With HA CMS, you deploy two CMS systems and provision the systems to both receive the same call data from the same Communication Manager system. The deployment of two CMS systems provides reliability and duplication of ACD call data across both CMS systems for better reliability if the network fails or a server fails.

The Survivable CMS option expands reliability by providing data collection from the Communication Manager Survivable Core and Survivable Remote technology. Survivable CMS has two options. There is a Dual Role CMS option where the HA CMS supports a connection from the Communication Manager system and the Survivable Core or Survivable Remote, and the option for a separate Survivable CMS where only the Survivable Core or Survivable Remote connects to a Survivable CMS. The deployment of the Survivability option allows users to continue working if the main site is not operational because of network failures or server failures.

To have multiple CMS systems in an HA CMS, Survivable CMS, or an HA CMS and Survivable CMS combination deployment when using VMware, you must deploy separate CMS OVA files for each CMS. The reason you need separate OVA files is because all CMS virtual machines must be provisioned as active, licensed systems.

In addition to redundancy of ACD data provided by HA CMS or the resiliency of data provided by Survivable CMS, Avaya requires a feature that synchronizes the administrative data from a primary CMS to the HA CMS or Survivable CMS deployment. This feature allows all systems to remain synchronized with up-to-date administrative data.
Contact your Avaya account team for more information about HA CMS and Survivable CMS.

**VMware vSphere HA**

VMware vSphere HA provides automatic detection of hardware failures, server failures, and operating system failures. If a physical server fails, affected virtual machines restart automatically on another production server that has spare capacity. If an operating system fails, vSphere HA restarts the affected virtual machine on the same server. The restart takes several minutes, but the system does recover.

VMware HA ensures that capacity is always available to restart all virtual machines affected by a server failure. HA continuously and intelligently monitors capacity use and reserves spare capacity to restart virtual machines. VMware HA helps VMware vSphere users identify abnormal configuration settings detected within HA clusters. The VMware vSphere client interface reports relevant operating status and potential error conditions with suggested steps for correction.

Contact your Avaya account team for more information about HA CMS and Survivable CMS.

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**CMS software requirements**

The following CMS or later releases support deployments on VMware:

- R18.1 (cms-R18.1.0.0-xx.y.x86_64)

Avaya packages the CMS VMware environment as a virtual appliance ready for deployment on VMware-certified hardware.

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**Customer-provided virtual machine resource requirements and average utilization**

Before deploying the CMS virtual machine, ensure that the ESXi host can support the configuration you want. After deployment and during normal operation, monitor your resource use to ensure that the proper level of resources remains available.

⚠️ **Important:**

Customers that provide their own VMware systems can choose to use Thin Provisioning while adding virtual disk space in the OVA deployment. You can allocate less disk space than recommended in the resource requirements table and in the configuration procedures.
## Minimum required resources for configurations

<table>
<thead>
<tr>
<th>VMware resource</th>
<th>Small configuration</th>
<th>Medium configuration</th>
<th>Large configuration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCPU Cores (CPU)</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>The number of single core virtual CPUs.</td>
</tr>
<tr>
<td>Cores per Socket</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>The number of CPUs per socket. All cores are assigned to one (1) socket. Therefore, the number of vCPU Cores are the number of logical CPUs.</td>
</tr>
<tr>
<td>vCPU reservation</td>
<td>1,200 MHz</td>
<td>4,800 MHz</td>
<td>9,600 MHz</td>
<td>Guaranteed CPU allocation: 25% of vCPU capacity. Calculation: vCPUs x processor clock speed (2400Mhz)/4</td>
</tr>
<tr>
<td>Minimum CPU speed</td>
<td>2.4 GHz Xeon E5620 or equivalent</td>
<td>2.4 GHz Xeon E5620 or equivalent</td>
<td>2.4 GHz Xeon E5620 or equivalent</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB</td>
<td>32 GB</td>
<td>64 GB</td>
<td>The memory size represents the maximum that a CMS deployment might consume. The medium and large configuration memory sizes match real hardware machines. The real hardware memory configuration considers future memory growth.</td>
</tr>
<tr>
<td>Memory reservation</td>
<td>4,096 MB</td>
<td>16,384 MB</td>
<td>16,384 MB</td>
<td>These are the minimum values for Memory Reservation. However, Avaya recommends that the full Memory resource be reserved, that is, 8,192, 16,384, and 65,536. Administering a higher Memory Reservation is important when your capacities are on the high end for your configuration size. If the memory is not reserved and there is contention (with other VMware applications) for additional memory resource, sufficient memory may not be available resulting in CMS failure.</td>
</tr>
<tr>
<td>Storage</td>
<td>800 GB</td>
<td>800 GB</td>
<td>800 GB minimum, 1,800 GB recommended</td>
<td>If the recommended storage value on a large configuration is not administered, sufficient storage may not be available resulting in CMS failure. For procedures to expand a large configuration, see Requirements for expanding large configurations.</td>
</tr>
<tr>
<td>IOPS</td>
<td>200</td>
<td>300</td>
<td>600</td>
<td>IOPS data is based on the real CMS hardware machines with 50% read and 50% write.</td>
</tr>
</tbody>
</table>

Table continues…
The OVA contains many of the virtual machine resource requirements, such as vCPU reservation and memory reservation. The target virtual machine confirms that the required resources in the OVA are available before deploying the OVA.

⚠️ Caution:

Adhere to the resource specification mentioned in the above table, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine. To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer’s own risk.

### Average resource and network utilization for standard configurations

<table>
<thead>
<tr>
<th>Average resource usage</th>
<th>Small configuration</th>
<th>Medium configuration</th>
<th>Large configuration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU consumed</td>
<td>600 MHz</td>
<td>2 GHz</td>
<td>8 GHz</td>
<td></td>
</tr>
<tr>
<td>Memory consumed</td>
<td>500 MB</td>
<td>2 GB</td>
<td>4 GB</td>
<td></td>
</tr>
<tr>
<td>Network consumed</td>
<td>0.252 Mbps</td>
<td>0.512 Mbps</td>
<td>1.696 Mbps</td>
<td></td>
</tr>
<tr>
<td>IOPS</td>
<td>12</td>
<td>18</td>
<td>28</td>
<td>IOPS is higher during nightly summarization.</td>
</tr>
</tbody>
</table>

### Requirements for expanding large configurations

To accommodate CMS deployments that require larger databases or when you want to use the LAN Backup feature, you must increase the amount of disk space on the virtual machine. Use the following table to determine the amount of disk space required by the database to support a larger number of agent skill pairs at interval lengths of 15 or 30 minutes. You require additional disk space to support LAN backups for large configurations.

🌟 Note:

The values in this table assume 31 days of interval storage, five years of daily storage (1825 days), and three agent shifts every 24 hours when you have one time zone. You can optionally administer a second time zone for an ACD.

Perform the following procedure to get space estimates:

1. Log on to the CMS server as `cms`.
2. Run the `cms` command.
3. Navigate to System Setup > Data Storage Allocation and System Setup > Free Space Allocation to get space estimates.
For that second time zone, the Free Space Allocation feature automatically accounts for the second time zone. This is also true with tenancy. For more information, see *About time zone archiving with additional time zones* in *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®* and *Free Space Allocation in Avaya Call Management System Administration*.

To expand the disk size on a medium or large configuration that has already been deployed, see *Increasing the disk size on a medium or large configuration* on page 28.

### Hyper-threading

Some confusion can arise in relation to the processor core count on systems that have hyper-threading enabled CPUs where the logical core count increases above the physical core count, usually by a factor of two.

For Avaya contact center deployments, only the physical cores count towards the total number of processor cores on an ESXi host that can be assigned as vCPUs.

Hyper-threading is supported enabled or disabled on CPU types that offer the feature. If hyper-threading is enabled, the additional logical cores do not increase the host’s number of vCPUs available for provisioning.

Testing conducted on hosts with hyper-threading enabled concluded that scheduling problems can occur when provisioning vCPUs counts greater than the number of physical cores on the host resulting in a degradation of performance of the contact center applications, for example, slower call setup times and degraded media quality.

### VMware software requirements

CMS supports the following VMware software versions:

- VMware vSphere ESXi 5.5
- VMware vSphere ESXi 6.0
- VMware vSphere ESXi 6.5
- VMware vCenter Server 5.5
- VMware vCenter Server 6.0
- VMware vCenter Server 6.5
Note:
The Avaya Converged Platform servers support only the ESXi functions of the vSphere ESXi software.


Capacities

Use this table to determine the configuration you use for the customer-provided VMware deployment. Select the size that provides the capacities you require.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak busy-hour call volume</td>
<td>30,000</td>
<td>200,000</td>
<td>400,000</td>
</tr>
<tr>
<td>Concurrent Supervisor sessions¹</td>
<td>50</td>
<td>200</td>
<td>1,600²</td>
</tr>
<tr>
<td>Concurrent agents</td>
<td>500</td>
<td>5,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Third-party software</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Agent skill pairs</td>
<td>100,000</td>
<td>200,000</td>
<td>800,000³</td>
</tr>
<tr>
<td>Reports per Supervisor session</td>
<td>3</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Report elements</td>
<td>5</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Percentage of supervisors that can run reports with a three-second refresh rate</td>
<td>10%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Active agent traces</td>
<td>250</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Internal Call History (ICH) records</td>
<td>4,000 per 20 minutes</td>
<td>4,000 per 20 minutes</td>
<td>4,000 per 20 minutes</td>
</tr>
<tr>
<td>External Call History (ECH) records</td>
<td>10,000 per 20 minutes</td>
<td>60,000 per 20 minutes</td>
<td>300,000 per 20 minutes</td>
</tr>
</tbody>
</table>

¹ This value is the total number of active CMS Supervisor PC client and CMS Supervisor Web client sessions.
² Of the 1600 sessions supported, only 800 can be CMS Supervisor Web client sessions.
³ Supporting 800,000 agent skill pairs requires greatly increased disk space for interval data. Customers should create up to 8 additional disk volumes.
Customer configuration data worksheets

The following worksheet identifies the key customer configuration information that you must enter when deploying the OVA file. Determine your configuration data before you begin the deployment.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of OVA template file on your computer</td>
<td></td>
</tr>
<tr>
<td>Virtual machine template name</td>
<td></td>
</tr>
<tr>
<td>Virtual machine location</td>
<td></td>
</tr>
<tr>
<td>Destination storage location for virtual machine files</td>
<td></td>
</tr>
<tr>
<td>Disk format to store the virtual disks</td>
<td>Thick Provision</td>
</tr>
</tbody>
</table>

The following worksheet identifies the key customer networking information that you must enter when you run the CMS /cms/toolsbin/netconfig command.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Example</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network interface name</td>
<td>eth0</td>
<td></td>
</tr>
<tr>
<td>Host name; use the short host name</td>
<td>VM_CMS1</td>
<td></td>
</tr>
<tr>
<td>Domain name</td>
<td>CompanyName.com</td>
<td></td>
</tr>
<tr>
<td>IP address</td>
<td>123.45.67.89</td>
<td></td>
</tr>
<tr>
<td>Netmask</td>
<td>255.255.255.0</td>
<td></td>
</tr>
<tr>
<td>Default gateway IP address</td>
<td>123.45.67.254</td>
<td></td>
</tr>
<tr>
<td>DNS IP addresses, up to 3, separated with a space</td>
<td>123.1.0.1 123.1.0.2</td>
<td>123.1.0.3</td>
</tr>
<tr>
<td>DNS search domains separated with a space</td>
<td>AltCompanyName.com</td>
<td>OtherCompanyName.com</td>
</tr>
</tbody>
</table>

SAL Gateway

You require a Secure Access Link (SAL) Gateway for remote access and alarming.

Through SAL, support personnel or tools can gain remote access to managed devices to troubleshoot and debug problems.

A SAL Gateway:

1. Receives alarms from Avaya products in the customer network.
2. Reformats the alarms.
3. Forwards the alarms to the Avaya support center or a customer-managed Network Management System.
Deployment of cloned and copied OVAs

To redeploy a virtual machine, do not create a copy of the virtual machine or clone the virtual machine. These processes have subtle technical details that require a thorough understanding of the effects of these approaches. To avoid any complexities and unexpected behavior, deploy a new OVA on the virtual machine. At this time, Avaya only supports the deployment of new OVAs.

Deployment checklist

<table>
<thead>
<tr>
<th>Action</th>
<th>Notes/Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete all the planning and configuration requirements.</td>
<td>Planning on page 13</td>
</tr>
<tr>
<td>Deploy the OVA.</td>
<td>Deploying the OVA on a customer-provided VMware system on page 22</td>
</tr>
<tr>
<td>Configure the virtual machine settings if you are deploying a small or large configuration.</td>
<td>The default configuration is a medium configuration and requires no modifications.</td>
</tr>
<tr>
<td></td>
<td>Configuring the virtual machine for a small configuration on page 25.</td>
</tr>
<tr>
<td></td>
<td>Configuring the virtual machine for a large configuration on page 27.</td>
</tr>
<tr>
<td>Optional. Expand the disk size on a medium or large configuration.</td>
<td>If you are deploying a small configuration, skip this procedure.</td>
</tr>
<tr>
<td></td>
<td>Increasing the disk size on a medium or large configuration on page 28</td>
</tr>
</tbody>
</table>

Deploying the OVA on a customer-provided VMware system

Before you begin

Download the OVA file to the computer where you execute the vSphere client. Note down the folder and file name.

Determine the web browser. VMware recommends using Google Chrome or Mozilla Firefox.
Important:
Customers that provide their own VMware systems can choose to use Thin Provisioning while adding virtual disk space in the OVA deployment. You can allocate less disk space than recommended in the resource requirements table and in the configuration procedures.

Important:
You must separately license each CMS instance, that is, each installation of OVA. To install multiple instances of CMS, customers or business partners must order a separate CMS license for each instance.

About this task
Note:
Based on the vSphere version, you might observe minor differences in the interface.

Procedure
1. To start the vSphere client software, do one of the following:
   • In your web browser, enter https://vcsaesplabs6.apac.avaya.com/vsphere-client/?csp.
   • In your web browser, enter https://<hostname>/ui/#/login.
2. In the User Name field, enter the vCenter Single Sign On user name that has permissions on vCenter Server.
3. In the Password field, enter the password.
4. Click Login.
5. If you see a warning message on untrusted SSL certificate, select the appropriate action based on your security policy based on the following security policy:
   • To ignore the security for this login session only, click Ignore.
   • To ignore the security warning for this login session and install the default certificate, select Install this certificate and do not display any security warnings for this server, and click Ignore.
     Select this option only if you do experience any security problem in the default certificate in your environment.
   • To install a signed certificate before proceeding, click Cancel and ensure that the signed certificate is installed on the vCenter Server system before you attempt to connect again.
6. In the Home navigation pane, click Hosts and Clusters.
7. In the Host and Clusters tree, select an ESXi host where you want to deploy the OVA.
8. Select Actions, and then click Deploy OVF Template.
9. In the Deploy OVF Template window, perform the following steps:
   a. Select Local File, and then click Browse.
b. Browse to the location of the CMS OVA file, select the OVA file, and then click **Open**.

c. Click **Next**.

d. In the Select a name and folder window, enter the virtual machine name and click **Next**.

e. Select the destination compute resource and click **Next**.

f. In the Review Details window, verify the details of the OVA file, including the CMS version number, and then click **Next**.

10. In the End User License Agreement window, review the license agreement.

11. In the End User License Agreement window, click **Accept** and click **Next**.

12. From the **Select virtual disk format** drop-down list, select **Thick Provision**.

   **Important:**
   
   Customers that provide their own VMware systems can choose to use Thin Provisioning while adding virtual disk space in the OVA deployment. You can allocate less disk space than recommended in the resource requirements table and in the configuration procedures.

13. From the **VM Storage Policy** drop-down list, select **Datastore Default**.

14. From the **Datastore** table, select **Datastore** and click **Next**.

   **Important:**
   
   The data store type that you select must use the VMFS5 format.

   For an ESXi 5.5 and 6.0 server, the system displays the following warnings:

   Unable to parse 'flags.vbxEnabled' for attribute 'key' on element 'Config'.
   Unable to parse 'flags.vvtdEnabled' for attribute 'key' on element 'Config'.
   Unable to parse 'bootOptions.efiSecureEnabled' for attribute 'key' on element 'Config'.

   Do you want to continue?

   Click **Yes**. The warnings will not impact the deployment and deployment will successfully continue.

15. In the Select networks window, select **Destination Network**, choose a subnetwork, and then click **Next**.

16. From the **Subnetwork** drop-down list select a subnetwork, and click **Next**.

17. In the Ready to Complete window verify the deployment settings, and click **Finish**.

   The Deploy OVF window closes and installation begins.

   The Recent Tasks pane displays information for tasks **Deploy OVF template and Import OVF package**.

   The Status column shows the percentage of completion.

   Expected execution time is 10-20 minute. However, it can take longer. The execution time depends on the resources available on the vSphere server.
Next steps
Do one of the following:

• If the virtual machine is a small configuration, continue with Configuring the virtual machine for a small configuration on page 25.
• If the virtual machine is a medium configuration, continue with Configuring the virtual machine for a medium configuration on page 26.
• If the virtual machine is a large configuration, continue with Configuring the virtual machine for a large configuration on page 27.

Configuring the virtual machine for a small configuration

Before you begin
Turn off the virtual machine.

★ Note:
Interfaces on different vSphere versions might differ.

⚠ Caution:
Do not change the resource settings, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine. To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer’s own risk.

Procedure

1. On your web browser, type the vSphere vCenter URL.
2. In the User name field, type your user name.
3. In the Password field, type your password.
4. Click Login.
5. On the vSphere Web Client home page, click one of the following icons:
   • Hosts and Clusters
   • VMs and Templates
6. In the navigation pane, click the CMS virtual machine.
7. Click Actions > Edit Settings.
8. In the Edit Settings dialog box, do the following:
   a. In the navigation pane, click CPU and the select 2.
   b. In the content pane, click Cores per Socket and then select 2.
c. In the navigation pane, click **Reservation** and then select **1200 MHz**.

d. In the content pane, click **Memory** and then select **8 GB**.

e. Select **Reservation** and then select **4,096 MB**.

f. In the content pane, select **Hard Disk 1** and then click **800 GB**.

g. Click **OK**.

9. Click **Actions** and then select **Power > Power On**.

---

### Configuring the virtual machine for a medium configuration

**Before you begin**

Turn off the virtual machine.

**Note:**

Interfaces on different vSphere versions might differ.

**Caution:**

Do not change the resource settings, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine. To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer’s own risk.

**Procedure**

1. On your web browser, type the vSphere vCenter URL.
2. In the **User name** field, enter your user name.
3. In the **Password** field, enter your password.
4. Click **Login**.
5. On the vSphere Web Client home page, click one of the following icons:
   - **Hosts and Clusters**
   - **VMs and Templates**
6. In the navigation pane, click the CMS virtual machine.
7. Click **Actions** and select **Edit Settings**.
8. In the Edit Settings dialog box, do the following:
   a. In the navigation pane, select **CPU** and then click **8**.
   b. In the content pane, select **Cores per Socket** and then click **8**.
c. In the navigation pane, select **Reservation** and then click **4800 MHz**.
d. In the content pane, select **Memory** and then click **32 GB**.
e. Select **Reservation** and then select **16,384 MB**.
f. In the content pane, select **Hard Disk 1** and then click **800 GB**.
g. Click **OK**.

9. Click **Actions** and then select **Power > Power On**.

---

### Configuring the virtual machine for a large configuration

**Before you begin**

Turn off the virtual machine.

**Note:**
Interfaces on different vSphere versions might differ.

**Caution:**

*Do not change the resource settings, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine.* To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer's own risk.

**Procedure**

1. On your web browser, type the vSphere vCenter URL.
2. In the **User name** field, type your user name.
3. In the **Password** field, type your password.
4. Click **Login**.
5. On the vSphere Web Client home page, click one of the following icons:
   - **Hosts and Clusters**
   - **VMs and Templates**
6. In the navigation pane, click the CMS virtual machine.
7. Click **Actions** and select **Edit Settings**.
8. In the Edit Settings dialog box, do the following:
   a. In the navigation pane, select **CPU** and then click **16**.
   b. In the content pane, select **Cores per Socket** and then click **16**.
   c. In the navigation pane, select **Reservation** and then click **9600 MHz**.
d. In the content pane, select Memory and then click 64 GB.
e. Select Reservation and then select 16,384 MB.
f. In the content pane, select Hard Disk 1 and then click 800 GB.
g. Click OK.

9. Click Actions and then select Power > Power On.

---

**Increasing the disk size on a medium or large configuration**

**About this task**

Use the following procedure only for medium and large configurations. Do not change any parameters for small configurations. Adding disks will not affect the service.

**Before you begin**

Confirm that you have deployed a medium or large configuration as shown in the following sections:

- Deploying the OVA on a customer-provided VMware system on page 22
- Configuring the virtual machine for a medium configuration on page 26
- Configuring the virtual machine for a large configuration on page 27

Verify that IDS is on the CMS server and determine the disk space size.

**Procedure**

1. If not already active, open a browser to the vSphere vcenter host url.
2. In the username field, enter the user name.
3. In the password field, enter the password.
4. Click Login.
5. In the left pane, select the CMS virtual machine, click the Hosts and Clusters or VMs and Templates icon.
6. To power on the the CMS virtual machine, click Actions and select Power > Power On.
7. To verify if IDS is powered on the CMS machine and determine disk space size, perform the following steps:
   a. Click Launch Web Console or Launch Remote Control.
      The system displays the RedHat Linux login window to the CMS virtual machine in the browser Console or Remote Console.
   b. Type cmssvc on the console.
c. Type the number associated with the `run_ids` option.

d. Type the number associated with the `Turn on IDS` option.

e. Enter `su-cms`.

f. Enter `cms`.

g. To determine agent/skill pairs, click `System Setup > Data Storage Allocation` and `System Setup > Free Space Allocation`.

h. To determine allocated space and free space, click `System Setup > Free Space Allocation`.

i. To determine the size of the new disk based on agent/skill pairs, allocated space, and free space, use the following table:

   **Note:**
   
The values in this table assume 31 days of interval storage, five years of daily storage (1825 days), and three agent shifts every 24 hours when you have one time zone. You can optionally administer a second time zone for an ACD.

   Perform the following procedure to get space estimates:

   a. Log on to the CMS server as `cms`.

   b. Run the `cms` command.

   c. Navigate to `System Setup > Data Storage Allocation` and `System Setup > Free Space Allocation` to get space estimates.

<table>
<thead>
<tr>
<th>Agent skill pairs</th>
<th>200,000</th>
<th>400,000</th>
<th>600,000</th>
<th>800,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval length (minutes)</td>
<td>15</td>
<td>30</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Minimum virtual machine disk size (TB)</td>
<td>1.8</td>
<td>1.2</td>
<td>2.2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

For that second time zone, the Free Space Allocation feature automatically accounts for the second time zone. This is also true with tenancy. For more information, see *About time zone archiving with additional time zones in Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux® and Free Space Allocation* in *Avaya Call Management System Administration*.

8. On the vSphere Client browser, click **Actions** and select **Edit Settings**.

   The system displays the Edit Settings window.

9. In the Edit Settings window, click **ADD NEW DEVICE**.

   The system displays a drop-down list.

10. From the drop-down list, select **Hard Disk**.

11. Select **New Hard disk** and click to expand.
12. Enter the determined disk space size in the **Maximum Size** value.

13. Click **Disk Provisioning**, and select **Thin Provision**.

14. Select **OK**.

15. Select the **Console** tab.

   The system displays a console terminal window.

16. Log on as root.

17. Type the following command to initialize the new disks:

   ```bash
   /opt/informix/bin/dbinit.sh add_disks
   
   Verify that the disks were added successfully. If the procedure fails, contact the Avaya support.
Chapter 4: Deploying and configuring the CMS OVA in an Avaya Converged Platform deployment

Avaya Converged Platform overview

Avaya Converged Platform offers turnkey hardware solution to all Avaya applications and application requirements. You can configure the CMS OVA for an Avaya Converged Platform deployment. The profile of the Avaya Converged Platform hardware server you install depends on the sizing tool specification. You must determine the configuration size before starting the OVA deployment because the configuration is based on whether the system is small, medium, or large.

For more information about a customer-provided VMware deployment, see the chapters “Planning for a customer-provided VMware deployment” and “Deploying and configuring the CMS OVA in a customer-provided VMware deployment”.

High Availability for Avaya Converged Platform

High Availability (HA) CMS and Survivable CMS are Avaya product offers that are different from VMware vSphere High Availability. Contact your Avaya account team to discuss deployment options for HA CMS and Survivable CMS.

HA CMS and Survivable CMS

Avaya offers an HA CMS package and a Survivable CMS package. With HA CMS, you deploy two CMS systems and provision the systems to both receive the same call data from the same Communication Manager system. The deployment of two CMS systems provides reliability and duplication of ACD call data across both CMS systems for better reliability if the network fails or a server fails.

The Survivable CMS option expands reliability by providing data collection from the Communication Manager Survivable Core and Survivable Remote technology. Survivable CMS has two options. There is a Dual Role CMS option where the HA CMS supports a connection from the Communication Manager system and the Survivable Core or Survivable Remote, and the option for a separate Survivable CMS where only the Survivable Core or Survivable Remote connects to a Survivable CMS. The deployment of the Survivability option allows users to continue working if the main site is not operational because of network failures or server failures.
To have multiple CMS systems in an HA CMS, Survivable CMS, or an HA CMS and Survivable CMS combination deployment when using VMware, you must deploy separate CMS OVA files for each CMS. The reason you need separate OVA files is because all CMS virtual machines must be provisioned as active, licensed systems.

In addition to redundancy of the ACD data on HA CMS or the resiliency of data on Survivable CMS, Avaya requires a feature that synchronizes the administrative data from a primary CMS to the HA CMS or Survivable CMS deployment. This feature allows all systems to remain synchronized with up-to-date administrative data.

Contact your Avaya account team for more information about HA CMS and Survivable CMS.

---

**CMS software requirements**

The following CMS or later releases support deployments on VMware:

- R18.1 (cms-R18.1.0.0-xx.y.x86_64)

Avaya packages the CMS VMware environment as a virtual appliance ready for deployment on VMware-certified hardware.

---

**Avaya Converged Platform resource requirements and average utilization**

Before deploying the CMS on Avaya Converged Platform, ensure that the ESXi host can support the configuration you want. After deployment and during normal operation, monitor your resource use to ensure that the proper level of resources remains available.

**Minimum required resources for configurations**

<table>
<thead>
<tr>
<th>Avaya Converged Platform resource</th>
<th>Small configuration</th>
<th>Medium configuration</th>
<th>Large configuration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCPU Cores (CPU)</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>The number of single core virtual CPUs.</td>
</tr>
<tr>
<td>Cores per Socket</td>
<td>2</td>
<td>8</td>
<td>16</td>
<td>The number of CPUs per socket. All cores are assigned to one (1) socket. Therefore, the number of vCPU Cores are the number of logical CPUs.</td>
</tr>
</tbody>
</table>

*Table continues…*
### Avaya Converged Platform capacities

The following table shows the capacities provided for each configuration size:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak busy-hour call volume</td>
<td>30,000</td>
<td>200,000</td>
<td>400,000</td>
</tr>
<tr>
<td>Concurrent Supervisor sessions</td>
<td>50</td>
<td>200</td>
<td>1,600&lt;sup&gt;5&lt;/sup&gt;</td>
</tr>
<tr>
<td>Concurrent agents</td>
<td>500</td>
<td>5,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Third-party software</td>
<td>3</td>
<td>3</td>
<td>7</td>
</tr>
</tbody>
</table>

<sup>4</sup> This value is the total number of active CMS Supervisor PC client and CMS Supervisor Web client sessions.

<sup>5</sup> Of the 1600 sessions supported, only 800 can be CMS Supervisor Web client sessions.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent skill pairs</td>
<td>100,000</td>
<td>200,000</td>
<td>800,000</td>
</tr>
<tr>
<td>Reports per Supervisor session</td>
<td>3</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Report elements</td>
<td>5</td>
<td>5</td>
<td>12</td>
</tr>
<tr>
<td>Percentage of supervisors that can run reports with a 3 second refresh rate</td>
<td>0%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Active agent traces</td>
<td>250</td>
<td>1,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Internal Call History (ICH) records</td>
<td>4,000 per 20 minutes</td>
<td>4,000 per 20 minutes</td>
<td>4,000 per 20 minutes</td>
</tr>
<tr>
<td>External Call History (ECH) records</td>
<td>10,000 per 20 minutes</td>
<td>60,000 per 20 minutes</td>
<td>300,000 per 20 minutes</td>
</tr>
</tbody>
</table>

**Customer configuration data worksheets**

The following worksheet identifies the key customer configuration information that you must enter when deploying the OVA file. Determine your configuration data before you begin the deployment.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of OVA template file on your computer</td>
<td></td>
</tr>
<tr>
<td>Virtual machine template name</td>
<td></td>
</tr>
<tr>
<td>Virtual machine location</td>
<td></td>
</tr>
<tr>
<td>Destination storage location for virtual machine files</td>
<td></td>
</tr>
<tr>
<td>Disk format to store the virtual disks</td>
<td>Thick Provision</td>
</tr>
</tbody>
</table>

The following worksheet identifies the key customer networking information that you must enter when you run the CMS `/cms/toolsbin/netconfig` command.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Example</th>
<th>Your value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network interface name</td>
<td>eth0</td>
<td></td>
</tr>
<tr>
<td>Host name; use the short host name</td>
<td>VM_CMS1</td>
<td></td>
</tr>
<tr>
<td>Domain name</td>
<td>CompanyName.com</td>
<td></td>
</tr>
<tr>
<td>IP address</td>
<td>123.45.67.89</td>
<td></td>
</tr>
</tbody>
</table>

---

6 Supporting 800,000 agent skill pairs requires greatly increased disk space for interval data. Customers should create up to 8 additional disk volumes. For full details on disk space usage recommendations, see Virtual Machine resource requirements and average utilization on page 16.
### SAL Gateway

You require a Secure Access Link (SAL) Gateway for remote access and alarming. Through SAL, support personnel or tools can gain remote access to managed devices to troubleshoot and debug problems.

A SAL Gateway:

1. Receives alarms from Avaya products in the customer network.
2. Reformats the alarms.
3. Forwards the alarms to the Avaya support center or a customer-managed Network Management System.

For more information about SAL Gateway and its deployment, see the Secure Access Link documentation on the Avaya Support website at [http://support.avaya.com](http://support.avaya.com).

### Deploying the OVA on Avaya Converged Platform

**About this task**

Interfaces on different VMware EXSi versions might differ.

**Before you begin**

- Download the file to the computer where you execute the vSphere client. Note down the folder and the file name for the download.
- Decide on the browser to use for gaining access to the vSphere client. VMware recommends using Google Chrome or Mozilla Firefox.

**Procedure**

1. On your web browser, type the VMware EXSi URL.
2. In the **User name** field, type your user name.
3. In the **Password** field, type your password.
4. Click **Login**.

5. (Optional) If the VMware EXSi client browser displays a warning message about an untrusted SSL certificate, select the appropriate action based on your security policy below:
   - To ignore the security for this login session only, click **Ignore**.
   - To ignore the security warning for this login session, and install the default certificate so that the warning does not appear again, select **Install this certificate and do not display any security warnings for this server** and click **Ignore**.

   Select this option only if the default certificate does not present a security problem in your environment.
   - To install a signed certificate before proceeding, click **Cancel** and ensure that a signed certificate is installed on the vCenter Server system before you attempt to connect again.

6. In the Home navigation pane, click **Host**.

7. In the Host window, select **Create/Register VM**.

8. In the **Select creation type** window, select **Deploy a virtual machine from an OVF or OVA file** and then click **Next**.

9. In the **Select OVF and VMDK files** window, perform the following:
   - a. Enter the name of the virtual machine.
   - b. Select the **Click to select files or drag/drop** check box.
   - c. Browse to the location of the CMS OVA file, select the OVA file, click **Open**.
   - d. Click **Next**.

10. In the **Select storage** window, click the storage resource and then click **Next**.

    **Important:**
    
The data store type you select must use the VMFS5 format.

11. In the End User License Agreement window, review the license agreement. If you agree to the terms, click **I agree** and then click **Next**.

12. In the Deployment options window, implement the following settings.
   - a. From the **Network Mapping** drop-down list, select a subnetwork.
   - b. From the **Disk Provisioning** drop-down list, select **Thick**.
   - c. Select the **Power on automatically** check box.
   - d. Click **Next**.

13. In the Additional settings window, click **Next**.

14. In the Ready to Complete window, verify the deployment settings and then click **Finish**.

   The Deploy OVF window closes and installation begins.
The **Recent Tasks** pane displays information for tasks **Upload disk (Target VM name)** and **Import VApp package**.

The Completed column shows the percentage complete.

Expected execution time is 10-15 minutes, but it could take longer.

**Next steps**

Do one of the following:

- If Avaya Converged Platform is a small configuration, continue with [Configuring Avaya Converged Platform for a small configuration](#) on page 37.
- If Avaya Converged Platform is a medium configuration, continue with [Configuring Avaya Converged Platform for a medium configuration](#) on page 38.
- If Avaya Converged Platform is a large configuration, continue with [Configuring Avaya Converged Platform for a large configuration](#) on page 39.

---

**Configuring the Avaya Converged Platform for a small configuration**

**Before you begin**

Turn off the virtual machine.

⚠️ **Note:**

Interfaces on different vSphere versions might differ.

⚠️ **Caution:**

*Do not change the resource settings, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine.* To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer’s own risk.

**Procedure**

1. On your web browser, type the vSphere vCenter URL and press **Enter**.
2. In the **User name** field, type your user name.
3. In the **Password** field, type your password.
4. Click **Login**.
5. On the vSphere Web Client home page, select one of the following icons:
   - **Hosts and Clusters**
   - **VMs and Templates**
6. In the navigation pane, click CMS Virtual Machine.
7. Click Actions > Edit Settings.
8. In the Edit Settings dialog box, do the following:
   a. In the navigation pane, select CPU and click 2.
   b. In the content pane, select Cores per Socket and then click 2.
   c. In the navigation pane, select Reservation and then click 1200 MHz.
   d. In the content pane, select Memory and then click 8 GB.
   e. In the navigation pane, select, select Reservation and then click 8192 MB.
   f. In the content pane, select Hard Disk 1 and then click 800 GB.
   g. Click OK.
9. Select Actions and then click Power > Power On.

---

**Configuring Avaya Converged Platform for a medium configuration**

**Before you begin**

Turn off the virtual machine.

**Note:**

Interfaces on different vSphere versions might differ.

**Caution:**

Do not change the resource settings, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine. To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer's own risk.

**Procedure**

1. On your web browser, type the vSphere vCenter URL and press Enter.
2. In the User name field, enter your user name.
3. In the Password field, enter your password.
4. Click Login.
5. On the vSphere Web Client home page, select one of the following icons:
   - Hosts and Clusters
   - VMs and Templates
6. In the navigation pane, click **CMS Virtual Machine**.
7. Click **Actions > Edit Settings**.
8. In the Edit Settings dialog box, do the following:
   a. In the navigation pane, select **CPU** and then click **8**.
   b. In the content pane, select **Cores per Socket** and then click **8**.
   c. In the navigation pane, select **Reservation** and then click **4800 MHz**.
   d. In the content pane, select **Memory** and then click **32 GB**.
   e. Select **Reservation** and then click **32,768 MB**.
   f. In the content pane, select **Hard Disk 1** and then click **1200 GB**.
   g. Click **OK**.
9. Select **Actions** and then click **Power > Power On**.

---

**Configuring Avaya Converged Platform for a large configuration**

**Before you begin**

Turn off the virtual machine.

⚠️ **Note:**

Interfaces on different vSphere versions might differ

⚠️ **Caution:**

*Do not change the resource settings, because any changes in the allocated resources can impact the performance, capacity, and stability of the CMS virtual machine.* To run at full capacity, you must meet these resource size requirements. Removing or downsizing the reserved space can put this requirement at risk. Any deviation in the requirements is at customer's own risk.

**Procedure**

1. On your web browser, type the vSphere vCenter URL and press **Enter**.
2. In the **User name** field, type your user name.
3. In the **Password** field, type your password.
4. Click **Login**.
5. On the vSphere Web Client home page, select one of the following icons:
   - **Hosts and Clusters**
   - **VMs and Templates**
6. In the navigation pane, click **CMS Virtual Machine**.
7. Click **Actions > Edit Settings**.
8. In the Edit Settings dialog box, do the following:
   a. In the navigation pane, select **CPU** and then click 16.
   b. In the content pane, select **Cores per Socket** that then click 16.
   c. In the navigation pane, select **Reservation** and then click 9600 MHz.
   d. In the content pane, select **Memory** and then click 64 GB.
   e. Select **Reservation** and then click 65,536 MB.
   f. In the content pane, select **Hard Disk 1** and then click 1800 GB.
   g. Click **OK**.
9. Click **Actions** and then select **Power > Power On**.
Chapter 5: Verifying the deployment and configuring CMS

Verification and configuration checklist

<table>
<thead>
<tr>
<th>#</th>
<th>Action</th>
<th>Link/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Log on to the operating system, open a terminal window, and test the CMS software.</td>
<td>Verifying a successful deployment on page 41.</td>
</tr>
<tr>
<td>2</td>
<td>Configure the CMS software.</td>
<td>Configuring the CMS software on page 42.</td>
</tr>
<tr>
<td>3</td>
<td>Configure the virtual machine startup settings.</td>
<td>Configuring the virtual machine automatic startup settings on VMware on page 43.</td>
</tr>
</tbody>
</table>

Verifying a successful deployment

About this task

Interfaces on different vSphere versions might differ.

Before you begin

Confirm that the deployment and configuration of the OVA completed successfully.

Procedure

1. On your web browser, type the vSphere vCenter URL.
2. In the User name field, type your user name.
3. In the Password field, type your password.
4. Click Login.
5. On the vSphere Web Client home page, click one of the following icons:
   - Hosts and Clusters
   - VMs and Templates
6. Click one of the following icons:
   - Launch Web Console
   - Launch Remote Console
   
The vSphere vCenter client browser displays the RedHat Linux login window.

7. Log on as root.
   
   When you log on for the first time, the system does not prompt for a password.

8. To log on, click the cursor in the console window, and press **Enter**.
   
   The vSphere vCenter client browser displays the console terminal window.

9. Type `cmssvc`
   
   The vSphere vCenter client browser displays the CMS Services menu and verifies whether Red Hat Linux and CMS software are successfully deployed. Do not run any other CMS Services commands.

10. To exit from the CMS Services menu, type **q**.

---

### Configuring the CMS software

**Before you begin**

Use the procedures in [Verifying a successful deployment](#) on page 41 to confirm a successful deployment of Red Hat Linux and CMS.

**Procedure**

1. Install any CMS patches that apply to this release of CMS as shown in the “Maintaining the CMS software” chapter of *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®*.

2. Set up networking as shown in the “Recovering a CMS server” chapter of *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®*.

3. Install and set up the CMS software and supporting software as shown in the “Installing and configuring CMS and required software” chapter of *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®*. “Installing and configuring CMS and required software” contains the procedure to authorize the number of agents, ACDs, or CMS Supervisor log-ins. The authorization procedure is the equivalent of installing a license on the CMS.

4. Change the CMS Supervisor web client certificate as shown in the “Installing and configuring optional software” chapter of *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®*. 
5. Set the correct time and date on the system as shown in the “Maintaining the CMS software” chapter of *Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®*.

**Next steps**

Continue with Configuring the virtual machine automatic startup settings on page 43.

Optional. To expand the disk size on a large configuration that has already been deployed, see Increasing the disk size on a large configuration on page 28.

## Configuring the virtual machine automatic startup settings on VMware

**About this task**

When a vSphere ESXi host restarts after a power failure, the virtual machines that are deployed on the host do not start automatically. You must configure the virtual machines to start automatically.

In high availability (HA) clusters, the VMware HA software does not use the startup selections.

**Before you begin**

Verify with the ESXi system administrator that you have the permissions to configure the automatic startup settings.

**Procedure**

1. In the web browser, type the vSphere vCenter host URL.
2. Click one of the following icons: Hosts and Clusters or VMs and Templates icon.
3. In the navigation pane, click the host where the virtual machine is located.
4. Click Configure.
5. In Virtual Machines, click VM Startup/Shutdown, and then click Properties.
   
   The software displays the Edit VM Startup and Shutdown window.
6. Click Automatically start and stop the virtual machines with the system.
7. Click OK.
Chapter 6: Maintenance operations

General maintenance

In general, CMS maintenance varies little when deploying CMS on a virtual machine as opposed to a native Linux machine. Except for the procedures specified in this chapter, use the maintenance procedures shown in Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux® when performing maintenance on CMS.

Backing up CMS on a virtual machine

About this task

Do a CMSADM backup as shown in “Backing up CMS” in the “Maintaining the CMS software” chapter of Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®.

If you are using the LAN Backup feature, back up your system as shown in Avaya Call Management System LAN Backup User Guide.

Restoring CMS on a virtual machine

If a failure occurs on your virtual machine or the CMS software becomes corrupted, use the procedures in this section to restore your system. There are two ways you can restore the system:

• Use a CMSADM backup to restore the system.
• Use a backup done with the LAN Backup feature to restore the system.

Important:

When first deploying CMS in a virtualized environment, the virtual machine takes and remembers a snapshot of the virtualized CMS hardware. If you must ever restore CMS, deploying the OVA a second time changes the virtualized CMS hardware. The restore process compares the original virtualized CMS hardware configuration against the new virtualized CMS hardware configuration and detects a difference between the two configurations. This difference causes the CMS setup process to fail during the restore procedure. You must
contact Avaya personnel to run the auth_set command for the new virtualized CMS hardware configuration to overwrite the old virtualized CMS hardware configuration. The auth_set command requires a password known only by authorized Avaya personnel. If you must restore the system, arrange for Avaya personnel to be available to run the auth_set command.

Related links
- Restoring CMS using a CMSADM backup on page 45
- Restoring CMS using a LAN Backup on page 48

Restoring CMS using a CMSADM backup

Before you begin
This restore procedure refers to procedures in other CMS documents. Get copies of the following documents:

- Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®

⚠ Important:
When using NFS for backups on CMS 18.0.2 or later, you must use NFS Version 4 (v4). When upgrading from an older version of CMS that supports an older version of NFS, you must upgrade your NFS setup to NFS v4 after you upgrade your system.

Procedure
1. Deploy and configure the OVA.
   ⚠ Important:
   The CMS OVA must be version 18.1 and the disk provisioning must be set to Thick Provision.
   • For a customer-provided VMware deployment, see the procedures in “Deploying and configuring the CMS OVA in a customer-provided VMware deployment.”
   • For an Avaya Converged Platform deployment, see the procedures in “Deploying and configuring the CMS OVA in an Avaya Converged Platform deployment.”
2. For setting up networking, see chapter “Recovering a CMS server” in Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®.
3. To access the CMSADM backup from a NFS mount point, enter:
   ```
   mkdir NFSMountPoint
   mount NFSServer:NFSDirectory NFSMountPoint
   ```
4. To verify that the backup files are on the NFS mounted folder, enter the following command on a single line:
   ```
   ls -al NFSMountPoint
   ```
5. To change to the `/tmp` folder, type `cd /tmp`.

6. Enter the following command on a single line:

   ```
cpio -icumdv -C 10240 -I NFSMountPoint/CMSADMFilename " /cms/install/bin/restore"
   ```

   where `CMSADMFilename` is the CMSADM system backup file of interest. Enter the CMSADM file name to match the path on the media device, for example:

   ```
cpio -icmudv -C 10240 -I /a/CMSADM-rNNxx.y-121116151708-trex "/cms/install/bin/restore"
   ```

   The name of the CMSADM backup file identifies the following:
   - Type of backup: CMSADM
   - CMS version at the time of the backup: rNNxx.y
   - Date of the backup: 121116 (ymmd)
   - Unique identifier of the backup: 151708
   - CMS hostname: trex

7. Press `Ctrl+C`.

   The system stops searching the CMSADM backup media device.

   ✴ **Note:**

   If you do not press `Ctrl+C`, the system continues to search the entire backup media device. This search might take several hours to complete.

8. Verify that the restore script has the correct permissions. Enter:

   ```
   chmod +x /cms/install/bin/restore
   ```

   The system sets the correct permissions to run the script. If the permissions for the script are not correct, the restore fails.

9. Restore the system from the media device. Enter:

   ```
   /cms/install/bin/restore NFSMountPoint/CMSADMFilename
   ```

   The system restores the files on the backup media. The system automatically reboots after transferring the files on the media device.

   ✴ **Note:**

   If a problem occurs during the restore process, the system displays prompts indicating a problem. Follow the instructions displayed by the system.

10. Log on to the system as root.

11. The restore process continues. The process might fail when the system detects that the CMS hardware configuration has changed. The system displays the following messages:

    ```
    <timestamp> ERR:CMS Setup has failed 3 times.
    <timestamp> ERR:View the admin.log file for details on status.
    <timestamp> ERR:You will need to manually resolve the problem.
    ```
12. Review the /cms/install/logdir/admin.log file to verify the failure is from no running the auth_set command. Enter:

tail /cms/install/logdir/admin.log

Do one of the following:

- If the failure is because you must run the auth_set command, the file contains the following message. Continue with Step 14.

  Auth_set must be run (under cmssvc menu) before invoking this command.

- If the failure is not because you must run the auth_set command, escalate through normal channels.

13. Contact Avaya personnel to run the auth_set command.

14. After Avaya personnel have run the auth_set command, verify that the Avaya personnel authorized the CMS hardware feature. Enter:

   cmssvc

15. Enter the number for the auth_display option.

   The system displays the current authorizations.

16. Review the list of authorizations and verify authorization of the CMS hardware feature.

17. Turn off IDS. Enter:

   cmssvc

18. Enter the number of the run_ids option.

19. Enter the number of the Turn off IDS option.

20. Set up CMS. Enter:

   /cms/install/bin/restore database

21. To verify that the installation completed successfully, enter:

   tail /cms/install/logdir/admin.log

   The system logs all failure messages in this file. The CMS software setup is a success when the system displays a message similar to the following:

   Setup completed successfully <date/time>

🌟 Note:

If CMS Setup fails, verify that the flat file is correct and rerun Step 21. If CMS Setup fails again, escalate through normal channels.

22. Do a maintenance restore as shown in “Performing a CMS maintenance restore” in the Maintaining the CMS software chapter of Avaya CMS Software Installation, Maintenance, and Troubleshooting for Linux®.
Restoring CMS using a LAN Backup

Before you begin
This restore procedure refers to procedures in other CMS documents. Get copies of the following documents:

- Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®
- Avaya Call Management System LAN Backup User Guide

Procedure
1. Deploy and configure the OVA.
   
   ! Important:
   
   The CMS OVA must be version 18.1 and the disk provisioning must be set to **Thick Provision**.
   
   • For a customer-provided VMware deployment, see the procedures in “Deploying and configuring the CMS OVA in a customer-provided VMware deployment.”
   • For an Avaya Converged Platform deployment, see the procedures in “Deploying and configuring the CMS OVA in an Avaya Converged Platform deployment.”

2. Restore the CMS system data using the following steps from procedures in the Avaya Call Management System LAN Backup User Guide document:
   
   • When using Tivoli Storage Manager/IBM Spectrum Protect, perform Steps 1–23 in the section “Restoring an Avaya CMS Server and data using Tivoli Storage Manager.”
   • When using Netbackup, perform Steps 1–15 in the section “Restoring an Avaya CMS Server and data using NetBackup on Linux.”
   
   ! Important:
   
   Do not restore the CMS data yet.

3. Set up networking as shown in “Configuring the system network” in the “Recovering a CMS server” chapter of Avaya Call Management System Software Installation, Maintenance, and Troubleshooting for Linux®.

4. Restore the CMS database data using the following steps from procedures in the Avaya Call Management System LAN Backup User Guide document:
   
   • When using Tivoli Storage Manager/IBM Spectrum Protect, perform Steps 24–29 in the section “Restoring an Avaya CMS Server and data using Tivoli Storage Manager.”
   • When using Netbackup, perform Steps 16–19 in the section “Restoring an Avaya CMS Server and data using NetBackup on Linux.”

5. Contact Avaya personnel to run the **auth_set** command.

6. After Avaya personnel have run the **auth_set** command, verify that the Avaya personnel authorized the CMS hardware feature. Enter: **cmssvc**
7. Enter the number for auth_display option.
   The system displays the current authorizations.
8. Review the list of authorizations and verify authorization of the CMS hardware feature.
9. To turn off IDS, enter cmssvc.
10. Enter the number of the run_ids option.
11. Enter the number of the Turn off IDS option.
12. To set up CMS, enter /cms/install/bin/restore database.
13. To verify that the installation completed successfully, enter tail /cms/install/logdir/admin.log.
   The system logs all failure messages in this file. The CMS software setup is a success when the system displays a message similar to the following:
   
   | Setup completed successfully <date/time>
   |
   |
   |

   Note:
   If CMS Setup fails, verify that the flat file is correct and rerun Step 13. If CMS Setup fails again, escalate through normal channels.

14. Enter the following command: cmsadm
15. Enter the menu number associated with the run_cms option.
16. Enter the menu number associated with the Turn on CMS option.

---

**Powering off CMS on a virtual machine**

**About this task**
Use this procedure to shut down CMS and the virtual machine. Shut down the system when you perform maintenance on the virtual machine hardware.

**Procedure**

1. Log on as root at the console.
2. Enter: `shutdown -h 0`
   The system displays a message similar to the following:
   
   Broadcast message from root@testova
   (/dev/pts/0) at 20:13 ...
   The system is going down for halt NOW!
Starting up CMS on a virtual machine

About this task
Use this procedure to start the virtual machine and CMS. Do this after you have done maintenance on the virtual system hardware or if the virtual machine had a power failure.

Procedure
1. If not already active, open a browser to the vSphere vcenter host url.
2. In the username field, enter username.
3. In the password field, enter password.
4. Click Login.
5. Click Hosts and Clusters or VMs and Templates icon. In the left pane, select the CMS virtual machine.
6. Click Actions and select Power > Power On.

Doing a base load upgrade

Procedure
Do a base load upgrade as shown in Avaya CMS Base Load Upgrade. Follow the procedures for base load upgrades on a CMS VMware deployment.
## Related resources

### Documentation

The following table lists the documents that relate to this product. Download the documents from the Avaya Support website at [http://support.avaya.com](http://support.avaya.com).

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Avaya Customer Experience Virtualized Environment Solution Description</em></td>
<td>Describes the Avaya Customer Experience Virtualized Environment market solution from a holistic perspective that focuses on the functional view of the solution architecture.</td>
<td>Sales engineers</td>
</tr>
<tr>
<td><em>Avaya CMS Overview and Specification</em></td>
<td>Describes tested product characteristics and product capabilities including feature descriptions, interoperability, performance specifications, security, and licensing requirements.</td>
<td>Sales engineers</td>
</tr>
<tr>
<td><strong>Implementation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Avaya CMS Software Installation, Maintenance, and Troubleshooting for Linux®</em></td>
<td>Describes how to install, configure, and maintain Avaya CMS when installed on a Linux OS.</td>
<td>Avaya support personnel Avaya factory personnel Contact center administrators</td>
</tr>
<tr>
<td><em>Avaya CMS Switch Connections, Administration, and Troubleshooting</em></td>
<td>Describes how to connect and administer Avaya communication servers (switches) that CMS uses Avaya.</td>
<td>Avaya support personnel</td>
</tr>
<tr>
<td><em>Avaya CMS Base Load Upgrade</em></td>
<td>Describes how to install a new version of the Avaya CMS software.</td>
<td>Contact center administrators</td>
</tr>
<tr>
<td><em>Avaya CMS High Availability User Guide</em></td>
<td>Describes how to install and maintain an Avaya CMS High Availability (HA) system.</td>
<td>Avaya support personnel Avaya factory personnel Contact center administrators</td>
</tr>
</tbody>
</table>

*Table continues…*
## Title | Description | Audience
--- | --- | ---
Administration |  |  
Avaya CMS Administration | Provides instructions on administering a contact center through Avaya CMS Supervisor. | Avaya support personnel Contact center administrators

**Avaya Converged Platform**

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avaya Converged Platform Overview and Specification</td>
<td>Describes the key features of Avaya Converged Platform server</td>
<td>IT Management, sales and deployment engineers, solution architects, and support personnel</td>
</tr>
</tbody>
</table>

**Installing the Avaya Converged Platform 130 Appliance**

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installing the Avaya Converged Platform 130 Appliance</td>
<td>Describes how to install Avaya Converged Platform 130 Series.</td>
<td>Sales and deployment engineers, solution architects, and support personnel</td>
</tr>
</tbody>
</table>

**Maintaining and Troubleshooting Avaya Converged Platform 130 Appliance**

<table>
<thead>
<tr>
<th>Title</th>
<th>Description</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining and Troubleshooting Avaya Converged Platform 130 Appliance</td>
<td>Describes procedures to maintain and troubleshoot Avaya Converged Platform 130 Series.</td>
<td>Sales and deployment engineers, solution architects, and support personnel</td>
</tr>
</tbody>
</table>

## VMware documentation

<table>
<thead>
<tr>
<th>VMware component or operation</th>
<th>Document description</th>
<th>Document description (link)</th>
</tr>
</thead>
</table>
| vSphere Virtual Machine Administration | Provides information on managing virtual machines in the VMware vSphere Web Client for vSphere 5.5, 6.0, and 6.5. This document also provides information of the following:  
• Deploying OVF templates  
• Configuring virtual machine hardware and options  

Table continues…
<table>
<thead>
<tr>
<th>VMware component or operation</th>
<th>Document description</th>
<th>Document description (link)</th>
</tr>
</thead>
</table>

**Note:**
If the document description (link) are no longer active, consult VMware for documents associated with the component or operation.

**Related links**
- [Finding documents on the Avaya Support website](#) on page 53

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**Finding documents on the Avaya Support website**

**Procedure**
1. Go to [https://support.avaya.com](https://support.avaya.com).
2. At the top of the screen, type your username and password and click **Login**.
3. Click **Support by Product > Documents**.
4. In **Enter your Product Here**, type the product name and then select the product from the list.
5. In **Choose Release**, select an appropriate release number.
6. In the **Content Type** filter, click a document type, or click **Select All** to see a list of all available documents.
   - For example, for user guides, click **User Guides** in the **Content Type** filter. The list displays the documents only from the selected category.
7. Click **Enter**.

**Related links**
- [Documentation](#) on page 51

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**Viewing Avaya Mentor videos**

Avaya Mentor videos provide technical content on how to install, configure, and troubleshoot Avaya products.
About this task
Videos are available on the Avaya Support website, listed under the video document type, and on the Avaya-run channel on YouTube.

Procedure
• To find videos on the Avaya Support website, go to https://support.avaya.com/ and do one of the following:
  - In Search, type Avaya Mentor Videos, click Clear All and select Video in the Content Type.
  - In Search, type the product name. On the Search Results page, click Clear All and select Video in the 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 key word or key words 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 the topic. For example, Contact Centers.

➤ Note:
Videos are not available for all products.

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

Using the Avaya InSite Knowledge Base
The Avaya InSite Knowledge Base is a web-based search engine that provides:
• Up-to-date troubleshooting procedures and technical tips
• Information about service packs
• Access to customer and technical documentation
• Information about training and certification programs
• Links to other pertinent information

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

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

2. Log on to the Avaya website with a valid Avaya user ID and password.
   The system displays the Avaya Support page.
3. Click Support by Product > Product Specific Support.
4. In Enter Product Name, enter the product, and press Enter.
5. Select the product from the list, and select a release.
6. Click the Technical Solutions tab to see articles.
7. Select relevant articles.
Glossary

**AFS**
Authentication File System. AFS is an Avaya Web system that allows you to create Authentication Files for secure Avaya Global Services logins for supported non-Communication Manager Systems.

**Application**
A software solution development by Avaya that includes a guest operating system.

**Avaya Appliance**
A physical server sold by Avaya running a VMware hypervisor that has several virtual machines, each with its virtualized applications. The servers can be staged with the operating system and application software already installed. Some of the servers are sold as just the server with DVD or software downloads.

**Blade**
A blade server is a stripped-down server computer with a modular design optimized to minimize the use of physical space and energy. Although many components are removed from blade servers to save space, minimize power consumption and other considerations, the blade still has all of the functional components to be considered a computer.

**ESXi**
A virtualization layer that runs directly on the server hardware. Also known as a *bare-metal hypervisor*. Provides processor, memory, storage, and networking resources on multiple virtual machines.

**Hypervisor**
A hypervisor is also known as a Virtual Machine Manager (VMM). A hypervisor is a hardware virtualization technique which runs multiple operating systems on the same shared physical server.

**MAC**
Media Access Control address. A unique identifier assigned to network interfaces for communication on the physical network segment.

**OVA**
Open Virtualization Appliance. An OVA contains 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 specifies the guaranteed minimum required amounts of CPU or memory for a virtual machine. |
| **RFA** | Remote Feature Activation. RFA is an Avaya Web system that you use to create Avaya License Files. These files are used to activate software including features, capacities, releases, and offer categories. RFA also creates Authentication Files for secure Avaya Global Services logins for Communication Manager Systems. |
| **SAN** | Storage Area Network. A SAN is a dedicated network that provides access to consolidated data storage. SANs are primarily used to make storage devices, such as disk arrays, accessible to servers so that the devices appear as locally attached devices to the operating system. |
| **Snapshot** | The state of a virtual appliance configuration at a particular point in time. Creating a snapshot can affect service. Some Avaya virtual appliances have limitations and others have specific instructions for creating snapshots. |
| **Storage vMotion** | A VMware feature that migrates virtual machine disk files from one data storage location to another with limited impact to end users. |
| **vCenter Server** | An administrative interface from VMware for the entire virtual infrastructure or data center, including VMs, ESXi hosts, deployment profiles, distributed virtual networking, and hardware monitoring. |
| **virtual appliance** | A virtual appliance is a single software application bundled with an operating system. |
| **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 executes programs similar to a physical machine. |
| **vMotion** | A VMware feature that migrates a running virtual machine from one physical server to another with minimal downtime or impact to end users. vMotion cannot be used to move virtual machines from one data center to another. |
| **VMware HA** | VMware High Availability. A VMware feature for supporting virtual application failover by migrating the application from one ESXi host to another. Since the entire host fails over, several applications or virtual machines can be involved. The failover is a reboot recovery level which can take several minutes. |
| **vSphere Client** | The vSphere Client is an interface for administering vCenter Server and ESXi. Downloadable versions are VMware 5.5 and 6.0. A browser-based Web client version is VMware 6.5 and later. |
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