



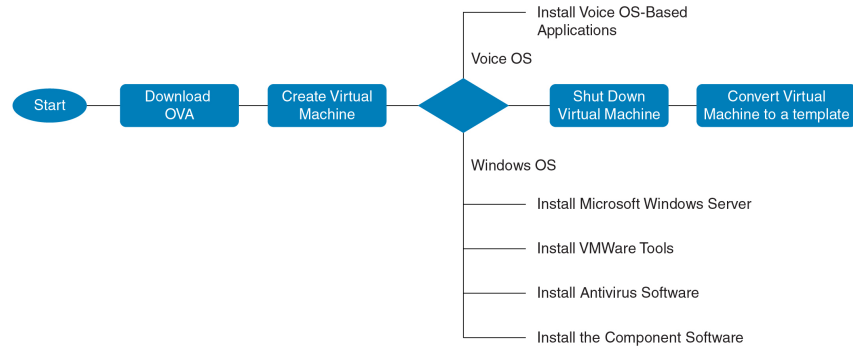
## Core Component Installation

- [Core Components Installation Approach, on page 1](#)
- [Golden Template Requirements, on page 3](#)
- [Common Procedures for Golden Templates, on page 13](#)

## Core Components Installation Approach

You can use golden templates to clone and deploy contact center core components as virtual machines (VM) on servers.

**Figure 1: High-Level Golden Template Workflow**



**Note** If you chose to create virtual machines directly on destination servers, do not convert the virtual machine to a template. For VOS based machines, see *Cisco Unified Contact Center Enterprise Installation and Upgrade Guide* <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-guides-list.html>.

## Core Component Voice Gateway Installation

For instructions on deploying the Cisco CSR 1000v OVA using vSphere, see the Cisco CSR 1000v Series Cloud Services Router Software Configuration Guide at: <https://www.cisco.com/c/en/us/td/docs/routers/>

[csr1000/software/configuration/b\\_CSR1000v\\_Configuration\\_Guide/b\\_CSR1000v\\_Configuration\\_Guide\\_chapter\\_011.html#d41950e959a1635](https://www.cisco.com/c/en/us/td/docs/routers/access/4400/release/xe-16-rn/isr4k-rel-notes-xe-16_3.html)

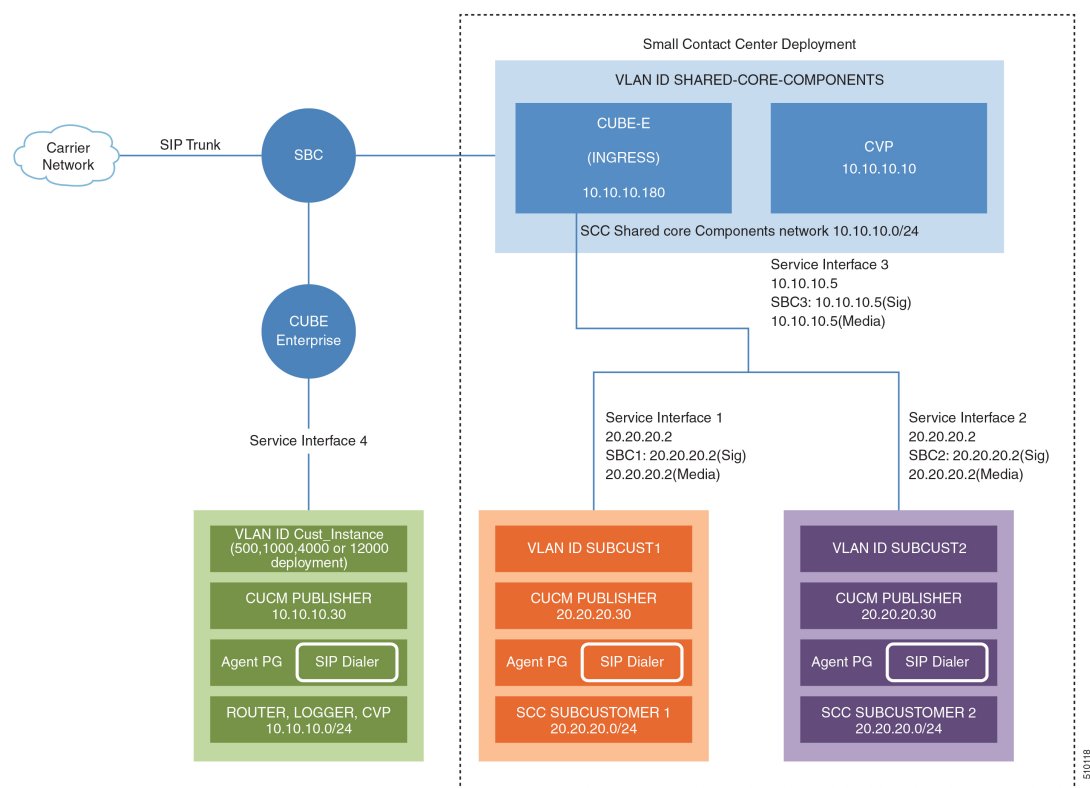
For information on Integrated Services Routers, see [https://www.cisco.com/c/en/us/td/docs/routers/access/4400/release/xe-16-rn/isr4k-rel-notes-xe-16\\_3.html](https://www.cisco.com/c/en/us/td/docs/routers/access/4400/release/xe-16-rn/isr4k-rel-notes-xe-16_3.html)



**Note** If the SBC supports CUBE Enterprise with Multi-VRF, you can send calls directly from the SBC to the CVP without a dedicated CUBE Enterprise for the HCS for Contact Center instances. However, using the aggregation SBC without a dedicated CUBE Enterprise affects performance and scalability.

The following figure shows the CUBE Enterprise topology for HCS deployment.

**Figure 2: CUBE Enterprise Topology for HCS Deployment Models**



## Configure Service Interface for Carrier Network

To create the service interface for carrier network, perform the following instructions.

```
interface GigabitEthernet1
ip address 192.168.10.2 255.255.255.0
negotiation auto
```

## Configure Codec List

To configure codec list, perform the following instructions.

```

voice class codec 1
codec preference 1 g711ulaw
codec preference 2 g729r8
codec preference 3 g729br8
codec preference 5 g711alaw

```



**Note** For Small Contact Center deployments, you may configure the carrier interface as a VRF.

## Golden Template Requirements

Contact center core components vary for each deployment model. The following table provides information about the golden templates for required core components.

**Table 1: Golden Templates for HCS for Contact Center Core Components**

Golden Templates	2000 Agents	4000 Agents	12000 Agents	24000 Agents	Small Contact Center
Unified CCE Rogger	Yes	Yes	—	—	Yes
Unified CCE Router	—	—	Yes	Yes	—
Unified CCE Logger	—	—	Yes	Yes	—
Unified CCE AW-HDS-DDS	Yes	Yes	—	—	Yes
Unified CCE AW-HDS	—	—	Yes	Yes	—
Unified CCE HDS-DDS	—	—	Yes	Yes	—
Unified CCE Agent PG	—	—	—	—	Yes
Unified CCE VRU PG	—	—	—	—	Yes
Unified CCE PG	Yes	Yes	Yes	Yes	—
Unified CVP Server	Yes	Yes	Yes	Yes	Yes
Unified CVP OAMP Server	Yes	Yes	Yes	Yes	Yes

Golden Templates	2000 Agents	4000 Agents	12000 Agents	24000 Agents	Small Contact Center
Unified CVP Reporting Server	Yes	Yes	Yes	Yes	Yes
Cisco Finesse	Yes	Yes	Yes	Yes	Yes
Cisco Unified Intelligence Center Coresident Deployment	Yes	—	—	—	—
Cisco Unified Intelligence Center	—	Yes	Yes	Yes	Yes
Live Data Reporting System	—	Yes	Yes	Yes	Yes
Cisco Identity Service	—	Yes	Yes	Yes	Yes
Cisco Unified Communications Manager	Yes	Yes	Yes	Yes	Yes

## Create Golden Template for Unified CCE Rogger

### Before you begin

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.



**Note** After you deploy OVA for 500 agents deployment (HCS for CC 2000 reference only), edit the settings and change the MHz reservation to 2500.

### Procedure

- Step 1** Create a virtual machine for Unified CCE Rogger using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install Microsoft SQL server.
- Step 5** Install Unified Contact Center Enterprise.
- Step 6** Convert the virtual machine to a golden template.

**Related Topics**

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Microsoft SQL Server](#), on page 19
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CCE Router

**Before you begin**

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

**Procedure**

---

- Step 1** Create a virtual machine for Unified CCE Router using the OVA.
  - Step 2** Install Microsoft Windows server.
  - Step 3** Install an anti-virus software.
  - Step 4** Install Unified Contact Center Enterprise.
  - Step 5** Convert the virtual machine to a template.
- 

**Related Topics**

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CCE Logger

**Before you begin**

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

**Procedure**

---

- Step 1** Create a virtual machine for Unified CCE Logger using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install Microsoft SQL server.
- Step 5** Install Unified Contact Center Enterprise.

**Step 6** Convert the virtual machine to a template.

---

**Related Topics**

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Microsoft SQL Server](#), on page 19
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CCE AW-HDS-DDS

**Before you begin**

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.



---

**Note** After you deploy OVA for 500 agents deployment (HCS for Contact Center 2000 reference only), edit the settings and change the Memory to 8GB and MHz Reservation to 3200.

---

**Procedure**

---

- Step 1** Create a virtual machine for Unified CCE AW-HDS-DDS using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install Microsoft SQL server.
- Step 5** Install Unified Contact Center Enterprise.
- Step 6** Convert the virtual machine to a golden template.

---

**Related Topics**

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Microsoft SQL Server](#), on page 19
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CCE AW-HDS

**Before you begin**

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

## Procedure

---

- Step 1** Create a virtual machine for Unified CCE AW-HDS using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install Microsoft SQL server.
- Step 5** Install Unified Contact Center Enterprise.
- Step 6** Convert the virtual machine to a golden template.

## Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Microsoft SQL Server](#), on page 19
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

# Create Golden template for Unified CCE HDS-DDS

## Before you begin

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

## Procedure

---

- Step 1** Create a virtual machine for Unified CCE HDS-DDS using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install Microsoft SQL server.
- Step 5** Install Unified Contact Center Enterprise.
- Step 6** Convert the virtual machine to a golden template.

## Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Microsoft SQL Server](#), on page 19
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CCE PG

### Before you begin

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.



---

**Note** For 500 agents deployment of the HCS for Contact Center 2000 agent reference, select the **Small PG** OVA.

---

### Procedure

---

- Step 1** Create a virtual machine for Unified CCE PG using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install Unified Contact Center Enterprise.
- Step 5** Convert the virtual machine to a golden template.

### Related Topics

---

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17
- [Install Unified Contact Center Enterprise](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CVP Server

### Before you begin

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

### Procedure

---

- Step 1** Create a virtual machine for Unified CVP Server using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install the Unified CVP Server.
- Step 5** Convert the virtual machine to a golden template.

### Related Topics

---

- [Create Virtual Machines](#), on page 14
- [Install Microsoft Windows Server](#), on page 15
- [Install Antivirus Software](#), on page 17



[Install Unified CVP Server](#)

[Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CVP OAMP Server

### Before you begin

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

### Procedure

---

- Step 1** Create a virtual machine for Unified CVP OAMP Server using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install the Unified CVP OAMP server.
- Step 5** Convert the virtual machine to a golden template.

### Related Topics

---

[Create Virtual Machines](#), on page 14

[Install Microsoft Windows Server](#), on page 15

[Install Antivirus Software](#), on page 17

[Install Unified CVP OAMP Server](#)

[Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Unified CVP Reporting Server

### Before you begin

Download the OVA files. Use [UCCE\\_12.5\\_Windows\\_vmv13\\_v1.0](#) to create the golden template.

### Procedure

---

- Step 1** Create a virtual machine for Unified CVP Reporting server using the OVA.
- Step 2** Install Microsoft Windows server.
- Step 3** Install an anti-virus software.
- Step 4** Install the Unified CVP Reporting server.
- Step 5** Convert the virtual machine to a golden template.

### Related Topics

---

[Create Virtual Machines](#), on page 14

[Install Microsoft Windows Server](#), on page 15

[Install Antivirus Software](#), on page 17

[Install Unified CVP Reporting Server](#)  
[Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Cisco Finesse

### Before you begin

Download the OVA files. Use [Finesse\\_12.5.1\\_VOS12.5.1\\_vmv13\\_v1.3](#) to create the golden template.



---

**Note** For Small Contact Center 100 agents dedicated sub-customer deployment and 500 agents deployment (HCS for Contact Center 2000 reference and Small Contact Center 500 agent deployment), select the Finesse **500 agents** OVA.

After you deploy OVA for 500 agents deployment (HCS for Contact Center 2000 reference and Small Contact Center 500 agent deployment) change the vCPU value to 4.

---

### Procedure

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- Step 1** Create a virtual machine for Cisco Finesse.
  - Step 2** Install **Cisco Finesse**.
  - Step 3** Convert the virtual machine to a golden template.
- 

### Related Topics

[Create Virtual Machines](#), on page 14  
[Install Voice OS-Based Applications](#)  
[Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Cisco Unified Intelligence Center Coresident Deployment

### Before you begin

Cisco Unified Intelligence Center coresident deployment includes Cisco Unified Intelligence Center, Live Data, and Identity Service components.

Download the OVA files. Use [CUIC\\_12.5.1\\_vmv13\\_v2.15](#) to create the golden template.



---

**Note** After you deploy OVA for 500 agents deployment (HCS for Contact Center 2000 reference only), edit the settings and change the memory to 12 GB.

---

### Procedure

---

- Step 1** Create a virtual machine for Cisco Unified Intelligence Center coresident deployment using the OVA.
- Step 2** To install **Cisco Unified Intelligence Center with Live Data and Ids**, follow the installation procedure in the **Install Voice OS based Application** and select **Cisco Unified Intelligence Center with Live Data and Ids** in the **Product Deployment Selection** page .
- Step 3** Convert the virtual machine to a golden template.
- 

### Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Voice OS-Based Applications](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Cisco Unified Intelligence Center

### Before you begin

Download the OVA files. Use [CUIC\\_12.5.1\\_vmv13\\_v2.15](#) to create the golden template.

### Procedure

---

- Step 1** Create a virtual machine for Cisco Unified Intelligence Center using the OVA.
- Step 2** To install **Cisco Unified Intelligence Center**, follow the installation procedure in the **Install Voice OS based Application** and select **Cisco Unified Intelligence Center** in the **Product Deployment Selection** page.
- Step 3** Convert the virtual machine to a golden template.
- 

### Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Voice OS-Based Applications](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Live Data Reporting System

### Before you begin

Download the OVA files. Use [UCCELD\\_12.5\\_VOS\\_vmv13\\_v1.0](#) to create the golden template.



---

**Note** See related links to run the steps.

---

### Procedure

---

- Step 1** Create a virtual machine for Live Data Reporting System using the OVA.
- Step 2** Select **Live Data** in the **Product Deployment Selection** page .
- Step 3** Convert the virtual machine to a golden template.

### Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Voice OS-Based Applications](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Cisco Identity Service

### Before you begin

Download the OVA files. Use [IDS\\_12.5.1\\_VOS\\_vmv13\\_v1.0](#) to create the golden template.

### Procedure

---

- Step 1** Create a virtual machine for Cisco Identity Service using the OVA.
- Step 2** To install **Cisco Identity Service (Ids)**, follow the installation procedure in the **Install Voice OS based Application** and select **Cisco Identity Service (Ids)** in the **Product Deployment Selection** page.
- Step 3** Convert the virtual machine to a golden template.

### Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Voice OS-Based Applications](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

## Create Golden Template for Cisco Unified Communications Manager

### Before you begin

Download the OVA files. Use [cucm\\_11.5\\_vmv8\\_v1.1](#) or [cucm\\_12.5\\_vmv13\\_v1.0](#) to create the golden template.



- Note** Select the **2500 agents** OVA for SCC 100 agents dedicated sub-customer deployment and 500 agents deployment (HCS for Contact Center 2000 reference and Small Contact Center 500 agent deployment). After you deploy the OVA edit the settings and change the vCPU value to 2.
-

## Procedure

---

- Step 1** Create a virtual machine for Cisco Unified Communications Manager using the OVA.
- Step 2** To install **Cisco Unified Communications Manager**, follow the installation procedure in the **Install Voice OS based Application** and select **Cisco Unified Communications Manager** in the **Product Deployment Selection** page.
- Step 3** Convert the virtual machine to a golden template.
- 

## Related Topics

- [Create Virtual Machines](#), on page 14
- [Install Voice OS-Based Applications](#)
- [Convert the Virtual Machine to a Golden Template](#), on page 23

# Common Procedures for Golden Templates

## Related Topics

- [Create Golden Template for Unified CCE Rogger](#), on page 4
- [Create Golden Template for Unified CCE Router](#), on page 5
- [Create Golden Template for Unified CCE Logger](#), on page 5
- [Create Golden Template for Unified CCE AW-HDS-DDS](#), on page 6
- [Create Golden Template for Unified CCE AW-HDS](#), on page 6
- [Create Golden template for Unified CCE HDS-DDS](#), on page 7
- [Create Golden Template for Unified CCE PG](#), on page 8
- [Create Golden Template for Unified CVP Server](#), on page 8
- [Create Golden Template for Unified CVP OAMP Server](#), on page 9
- [Create Golden Template for Unified CVP Reporting Server](#), on page 9
- [Create Golden Template for Cisco Finesse](#), on page 10
- [Create Golden Template for Cisco Unified Intelligence Center Coresident Deployment](#), on page 10
- [Create Golden Template for Cisco Unified Intelligence Center](#), on page 11
- [Create Golden Template for Cisco Identity Service](#), on page 12
- [Create Golden Template for Cisco Unified Communications Manager](#), on page 12

## Download OVA Files

Open Virtualization Format files (OVAs) are required for golden templates. Cisco HCS for Contact Center uses the OVAs that define the basic structure of the corresponding VMs that are created. The structure definition includes the CPU, RAM, disk space, reservation for CPU, and reservation for memory.



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**Note** The VMs and software components are optimized for Cisco HCS for Contact Center. You must use the OVAs for Cisco HCS for Contact Center.

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**Before you begin**

You must have a valid service contract associated with your Cisco.com profile

**Procedure**

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- Step 1** Go to the *Hosted Collaboration Solution for Contact Center* [Download Software](#) page on Cisco.com.
- Step 2** Select the required software type.
- Step 3** Click **Download** and save the OVA file to your local drive. When you create VMs, select the OVA required for the application.
- 

## Create Virtual Machines

**Procedure**

---

- Step 1** Launch the VMware vSphere client and select **File > Deploy OVF Template**.
- Step 2** Browse to the location on your local drive, where you have stored the OVA. Click **Open** to select the OVA file, click **Next**.
- Step 3** On the **OVF Template Details** page, click **Next**.
- Step 4** On the **Name and Location** page, in the **Name** field, enter the name of virtual machine, then click **Next**.
- Note** Enter a maximum of 32 characters; spaces and special characters are not allowed.
- Step 5** On the **Deployment Configuration** page, select the appropriate configuration from the drop-down list, click **Next**.
- Step 6** On the **Resource Pool** page, select the required resource pool, then click **Next**.
- Note** Skip this step if you do not have a resource pool allocated in the host server.
- Step 7** On the **Storage** page, select a data store you want to deploy in the new virtual machine, then click **Next**.
- Step 8** On the **Disk Format** page, select **Thick provisioned Lazy Zeroed**, then click **Next**.
- Note** Thin provision format is used for the template creation process, it is not supported for production use.
- Step 9** On the **Network Mapping** page, select the appropriate network from the **Destination Network** drop-down list, then click **Next**.
- Note** For Unified Contact Center Enterprise machines, confirm that **Network Mapping** page is correct:
- Public to Visible Network
  - Private to Private Network
- Step 10** Click **Finish**.
-

## Mount ISO Files

### Upload ISO image to data store:

1. Select the host in the vSphere client and click **Configuration**. Then click **Storage** in the left panel.
2. Select the datastore that will hold the ISO file.
3. Right click and select **Browse datastore**.
4. Click the **Upload** icon and select **Upload file**.
5. Browse to the location on your local drive where you saved the ISO file, and upload the ISO to the datastore.

### Mount the ISO image:

1. Right-click the VM in the vSphere client and select **Edit virtual machine settings**.
2. Click **Hardware** and select **CD/DVD Drive 1**.
3. Check **Connect at power on** (Device status panel upper right).
4. Click the **Datastore ISO File** radio button and then click **Browse**.
5. Navigate to the data store where you uploaded the file.
6. Select the ISO file and click **OK**.

## Unmount ISO File

### Procedure

---

- Step 1** Right-click the virtual machine in the vSphere client and select **Edit virtual machine settings**.
- Step 2** Click **Hardware** and select **CD/DVD Drive 1**.
- Step 3** Select **Client Device** and click **OK**.
- 

## Install Microsoft Windows Server

Complete the following procedure to install Microsoft Windows Server on the virtual machines deployed.



- Note** Deploying VM with Guest Operating System ‘Microsoft Windows Server 2019’ on ESXi 7.0 using CCE OVA template displays a warning message “The configured guest OS (Microsoft Windows Server 2016 or later (64-bit)) for this virtual machine does not match the guest that is currently running (Microsoft Windows Server 2019 (64-bit)). You should specify the correct guest OS to allow for guest-specific optimization”. This warning message is informational only and has no detrimental effect on the system. This warning message is displayed only once and can be dismissed.
-



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**Note** Before installing 12.5(1) ICM on SQL Server 2019, make sure to install ODBC Driver 13 for SQL Server® manually.

---

### Procedure

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- Step 1** Mount the Microsoft Windows Server ISO image to the virtual machine.  
Check the **Connect at power on** check box when mounting the ISO.
- Step 2** Power on the VM.
- Step 3** Enter the Language, Time and Currency Format, and Keyboard settings. Click **Next**.
- Step 4** Click **Install Now**.
- Step 5** If prompted, enter the product key for Windows Server and click **Next**.
- Step 6** Select the Desktop Experience option for the Windows Server and click **Next**.
- Step 7** Accept the license terms and click **Next**.
- Step 8** Select **Custom: Install Windows only (advanced)**, select **Drive 0** to install Microsoft Windows Server, and then click **Next**.
- The installation begins. After the installation is complete, the system restarts without prompting.
- Step 9** Enter and confirm the password for the administrator account, and then click **Finish**.
- Step 10** Enable Remote Desktop connections as follows:
- Navigate to **Control Panel > System and Security > System**.
  - Click **Remote Settings**.
  - Click the **Remote** tab.
  - Select the **Allow remote connections to this computer** radio button. The Remote Desktop Connection dialog displays a notification that the Remote Desktop Firewall exception is enabled. Click **OK**.
- Step 11** Open the **Network and Sharing Center**, and in the View your basic network info and set up connections section, click **Ethernet**.
- Step 12** In the Ethernet Status window, click **Properties**.
- Step 13** In the **Ethernet Properties** dialog box, configure the network settings and the Domain Name System (DNS) data:
- Uncheck **Internet Protocol Version 6 (TCP/IPv6)**.
  - Select Internet Protocol Version 4 (TCP/IPv4) and click **Properties**.
  - Select **Use the following IP Address**.
  - Enter the IP address, subnet mask, and default gateway.
  - Select **Use the following DNS Server Address**.
  - Enter the preferred DNS server address, and click **OK**.
- Step 14** Navigate to **Control Panel > System and Security > System**. Follow the instructions:
- Click **Change Settings**.
  - In Computer name tab, click **Change**.
  - Change the name of the computer from the name randomly generated during Microsoft Windows Server installation. The name does not contain underscores or spaces.



- d) Select **Domain** radio button to change the member from Workgroup to Domain.
- e) Enter qualified domain name and click **OK**.
- f) In the Windows security dialog, validate the domain credentials and click **OK**.
- g) On successful authentication, click **OK**.
- h) Reboot the server and sign in with domain credentials.

Restart your system for the change to take effect.



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**Note** If you want to install Unified CCE on a multilingual version of Windows Server, refer to Microsoft documentation for details in installing Microsoft Windows Server Multilingual language packs.

If Unified CCE language pack is applied on Chinese Windows OS machine, set the screen resolution to 1600 x 1200.

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## Install VMware Tools for Windows

### Procedure

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- Step 1** From the vSphere Client, right-click the virtual machine, select **Power**, and click **Power On**.
- Step 2** Click the **Summary** tab.
- In the General section, the VMware Tools field indicates whether VMware Tools are:
- installed and current
  - installed and not current
  - not installed
- Step 3** Click the **Console** tab to make sure that the guest operating system starts successfully. Log in if prompted.
- Step 4** Right-click the virtual machine, select **Guest OS**, and then click **Install/Upgrade VMware Tools**. The **Install/Upgrade VMware Tools** window appears with the option - Interactive Tools Upgrade and Automatic Tools Upgrade.
- a) To install/upgrade the VMware tools manually, select the **Interactive Tools Upgrade** option, and click **OK**. Follow the on-screen instructions to install/upgrade the VMware tools, and restart the virtual machine when prompted.
  - b) To install/upgrade the VMware tools automatically, select the **Automatic Tools Upgrade** option, and click **OK**. This process takes a few minutes to complete, and restart the virtual machine when prompted.
- 

## Install Antivirus Software

Perform this procedure for both golden-template and for direct-install options.

Install any of the antivirus software products supported by HCS for CC for Contact Center.

For more information on the antivirus software and versions supported by HCS for CC for Contact Center, see *Contact Center Enterprise Compatibility Matrix* at <https://www.cisco.com/c/en/us/support/unified-communications/hosted-collaboration-solution-contact-center/products-device-support-tables-list.html>.

Install any of the antivirus software products supported by Enterprise Chat and Email. For more information on the antivirus software and versions supported by Enterprise Chat and Email, see the *System Requirements for Enterprise Chat and Email* at <https://www.cisco.com/c/en/us/support/customer-collaboration/cisco-enterprise-chat-email/products-implementation-design-guides-list.htm>.




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**Important** Update antivirus software, manually - do not enable automatic updates.

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**Tip** To allow required access to installation program files or folders, perform file-blocking exclusions in the antivirus product file-and-folder protection rules. To do this in McAfee VirusScan:

- Launch the VirusScan console.
- Right-click **Access Protection**, then select **Properties**.
- In the **Anti-virus Standard Protection** category, make sure that the Prevent IRC communication check box is unchecked in the **Block** column.

---




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**Important** HCS for CC for Contact Center supports Symantec Endpoint Protection.

Be aware that in the firewall component of Symantec Endpoint Protection 12.1, the Network Threat Protection feature, must be disabled. If it remains enabled, which is the default, both sides of the duplexed router shows up in simplex mode, thus blocking communications between each side of the router. This blocking impacts all deployment types.

If you retain the default (enabled) start services on side A and B of the router, a Symantec message pops up in the system tray indicating: The client will block traffic from IP address [side A router address] for the next 600 seconds(s). This message also appears in the client management security log. The Symantec Network Threat Protection traffic log indicates that a default firewall rule called “Block\_all” was dynamically enabled. The result in both sides of the router come up in simplex mode.

To avoid the issue, you must disable the **Symantec** firewall and restart both sides of the router. To do this, double click the Symantec icon in the system tray and select **Change Settings**. Then configure settings for Network Threat Protection and uncheck the **Enable Firewall** check box at the top of the Firewall tab.

---

## Disable Port Blocking

If you have installed Unified CVP Server components on a computer that has antivirus software configured to block ports, exclude Unified CVP processes and Tomcat executable files.



**Note** Exclude the following folders from on-access scanning configuration of the AV program for all Antivirus scans:

```
c:\Cisco, c:\Temp, c:\tmp, c:\db, c:\IFMXDATA
```

It is the customer's responsibility to deploy the VXML applications after the Antivirus scans. This also applies to the custom `java/jar/class` files deployed in the shared path.

For more information on the Virus Scan guidelines, refer to the following sections of the UCCE documentation:

The Virus Protection section of UCCE Design Guide at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-implementation-design-guides-list.html>.

The General Antivirus Guidelines section of the Security Guide for Cisco Unified ICM/Contact Center Enterprise at <https://www.cisco.com/c/en/us/support/customer-collaboration/unified-contact-center-enterprise/products-installation-and-configuration-guides-list.html>

## Install Microsoft SQL Server

Install Microsoft SQL Server and store the SQL Server log and temporary files on the same vDisk as the operating system when using **default** (two) vDisk design. If you choose to use more than two virtual disks, then the tempDB cannot be on the same vDisk as the solution database.

For further information about the database placement and performance tuning the SQL installation, see the Microsoft documentation.

### Before you begin



**Note** Microsoft SQL Server does not contain SQL Server Management Studio in the default toolkit. To rerun the SQL Server setup to install Management Studio, navigate to: **SQL Selection Center > Installation > Install SQL Server Management Tools**. If your computer has no internet connection, download and install SQL Server Management Studio manually.

VC++ 2017 `build# 14.12.25810` is not compatible with the Cisco Contact Center Enterprise, ensure that it is not installed.

### Procedure

- Step 1** Mount the Microsoft SQL Server ISO image to the virtual machine. For more information, see [Mount ISO Files, on page 15](#).
- Step 2** Select **Installation** in the left pane and then click **New SQL Server stand-alone installation or add features to an existing installation**. Click **OK**.
- Step 3** On the **Product Key** page, enter the product key and then click **Next**.
- Step 4** Accept the **License Terms** and then click **Next**.
- Step 5** Optional: On the **Microsoft Update** page, check the **Use Microsoft Update to check for updates** check box, and then click **Next**.

**Note** If you do not check the **Use Microsoft Update to check for updates** option, click **Next** on the **Product Updates** page.

**Step 6** On the **Install Rules** page, click **Next**.

In this step, the installation program checks to see that your system meets the hardware and software requirements. If there are any issues, warnings or errors appear in the **Status** column. Click the links for more information about the issues.

**Step 7** On the **Feature Selection** page, select only the following, and click **Next**:

- **Database Engine Services**
- **Client Tools Connectivity**
- **Client Tools Backwards Compatibility**
- **Client Tools SDK**
- **SQL Client Connectivity SDK**

**Step 8** On the **Instance Configuration** page, select **Default Instance** and click **Next**.

**Step 9** On the **Server Configuration** page, click the **Services Account** tab.

a) Associate the SQL services with the virtual account.

- For the SQL Server Database Engine, in the Account Name field, select **NT Service\MSSQLSERVER**.

**Note** While you can use the Network or Local Services account instead of the Virtual account, using the Virtual account provides security.

b) For the remaining services, accept the default values.

c) In the **Start Up Type** column, for the **SQL Server Agent service** account, select **Automatic** from the list.

d) Enable **Grant Perform Volume Maintenance Task privilege to SQL Server Database Engine Service**.

**Note** Unified ICM Installer automatically enables the **Grant Perform Volume Maintenance Task** for the NT service account. If it is not enabled automatically then you must enable **Grant Perform Volume Maintenance Task privilege to SQL Server Database Engine Service** manually on the SQL server.

**Step 10** On the **Server Configuration** page, click the **Collation** tab.

a) In the Database Engine section, click **Customize**.

b) Select the **Windows Collation designator and sort order** radio button.

c) Select the appropriate collation. Typically, you choose the SQL Server collation that supports the Windows system locale most commonly used by your organization; for example, "Latin1\_General" for English.

The database entry is related to the collation that you select. For example, if you set the collation for Latin1\_General, but you select Chinese language at sign-in. When you enter field values in Chinese, the application displays the `unsupported character` error, because the database does not support the characters.

**Important** It is critical to select the correct collation setting for the language display on your system. If you do not select the correct collation during installation, you must uninstall and reinstall Microsoft SQL Server.

- d) Check the **Binary** check box.
- e) Click **OK**, and then click **Next**.

**Step 11** On the **Database Engine Configuration** page:

- a) On the Server Configuration tab, click the **Mixed Mode** radio button.
- b) Enter the password for the SQL Server system administrator account, and confirm by reentering it.
- c) Click **Add Current User** to add the user who is installing the SQL Server as an administrator.
- d) On the **TempDB** tab, set the **Initial size** and **Autogrowth** for Rogger, Logger, AW-HDS-DDS, AW-HDS, and HDS-DDS. For information about values for respective components [Increase Database and Log File Size for TempDB, on page 23](#).

For more information about the SQL Server TempDB Database and its use, see the Microsoft SQL Server documentation.

- e) On the **MaxDOP** tab, choose the value of MaxDOP as half the value of logical CPU cores detected on the computer which is displayed just above the MaxDOP configuration. For example, if the logical CPU cores are detected as 4, then MaxDOP should be configured as 2.

**Note** SQL Server installation automatically recommends the MaxDOP server configuration based on the number of processors available. This feature is introduced in SQL Server 2019 and later. In SQL Server 2017, you can configure MaxDOP post installation. To configure MaxDOP, do the following:

1. In **Object Explorer**, right-click the database instance and select **Properties**.
2. Select **Advanced**.
3. In the **Max Degree of Parallelism** box, configure the number of processors as recommended above.

- f) Click **Next**.

**Step 12** On the **Ready to Install** page, click **Install**.

**Step 13** On the **Complete** page, click **Close**.

**Step 14** Enable Named Pipes and set the sort order as follows:

- a) Open the SQL Server Configuration Manager.
- b) In the left pane, navigate to **SQL Native Client 11.0 Configuration (32bit) > Client Protocols**.
- c) In the right pane, confirm that **Named Pipes** is **Enabled**.
- d) Right-click **Client Protocols** and select **Properties**.
- e) In the **Enabled Protocols** section of the **Client Protocols Properties** window, use the arrow buttons to arrange the protocols in the following order:
  1. Named Pipes
  2. TCP/IP
- f) Check the **Enable Shared Memory Protocol** and then click **OK**.
- g) In the left pane, navigate to **SQL Server Network Configuration > Protocols for MSSQLSERVER**.
- h) In the right pane, right-click **Named Pipes** and select **Enable**.

**Note** By default, Microsoft SQL Server dynamically resizes its memory. The SQL Server reserves the memory based on process demand. The SQL Server frees its memory when other processes request it, and it raises alerts about the memory monitoring tool.

Cisco supports the Microsoft validation to dynamically manage the SQL Server memory. If your solution raises too many memory alerts, you can manually limit SQL Server's memory usage. Set the maximum and minimum limit of the SQL memory using the **maximum memory usage** settings in the **SQL Server Properties** menu.

For more information about the SQL Server memory settings and its use, see the Microsoft SQL Server documentation.

- Step 15** Set the SQL Server's default language to English as follows:
- Launch SQL Server Management Studio.
  - In the left pane, right-click the server and select **Properties**.
  - Click **Advanced**.
  - In the **Miscellaneous** section, set the **Default Language** to **English**.
  - Click **OK**.

**Important** Set the SQL Server default language to English because Cisco Unified Contact Center Enterprise requires a US date format (MDY). Many European languages use the European date format (DMY) instead. This mismatch causes queries such as `select * from table where date = '2012-04-08 00:00:00'` to return data for the wrong date. Handle localization in the client application, such as Cisco Unified Intelligence Center.

- Step 16** Restart the SQL Server service as follows:
- Navigate to the **Windows Services** tool.
  - Right-click **SQL Server (MSSQLSERVER)** and click **Stop**.
  - Right-click **SQL Server (MSSQLSERVER)** and click **Start**.

- Step 17** Ensure that the SQL Server Browser is started, as follows:
- Navigate to the **Windows Services** tool.
  - Navigate to the SQL Server Browser.
  - Right-click to open the **Properties** window.
  - Enable the service, change the startup type to **Automatic**, and click **Apply**.
  - To start the service, click **Start**, and then click **OK**.

---

### What to do next



**Note** Before installing 12.5(1) ICM on SQL Server 2019, make sure to install ODBC Driver 13 for SQL Server® manually.



**Caution** Do not change the SQL port number. Retain the default port numbers as 1433 for TCP and 1434 for UDP connections. In case you change the port numbers, the applications like CCEAdmin will not work.

---

## Increase Database and Log File Size for TempDB

To get the benefits of TempDB multiple data files support in CCE components, configure the following values as suggested for respective components.

CCE Component	vCPU	TempDB Data Files			TempDB Transaction Log File	
		Number of Files	Initial Size	Autogrowth	Initial Size	Autogrowth
Rogger	4	4	800MB	100MB	600MB	10MB
Logger	4	4	800MB	100MB	600MB	10MB
AW-HDS-DDS	4	4	800MB	100MB	600MB	10MB
AW-HDS	8	8	400MB	100MB	600MB	10MB
HDS-DDS	8	8	400MB	100MB	600MB	10MB

## Convert the Virtual Machine to a Golden Template

Perform this procedure for the golden-template install option.



**Note** VMware uses the term *Template*. HCS for Contact Center uses the term *Golden Template* for templates consisting of application and operating systems that are used for HCS for Contact Center.

### Before you begin

Ensure that the Windows-based template virtual machine is in the WORKGROUP.

### Procedure

- 
- Step 1** If the VM is not already powered off, from the **VM** menu, select **Power > Shut down the guest**.
- Step 2** From the VMware vCenter **Inventory** menu, right-click the virtual machine and choose **Template > Convert to Template**.
- 

## Verification of the Downloaded ISO

Perform the following procedure to validate the downloaded ISO signed by Cisco, to ensure that it is authorized.

### Procedure

- 
- Step 1** Install **OpenSSL** on Microsoft Windows.
- Step 2** Add the OpenSSL installation path to **System variables** in the **Environment Variables** of the system.

**Step 3** Add the downloaded ISO Image , ISO Image signature file and the Public key.der file in the same folder for the specific product component.

**Step 4** Launch **Command Prompt** on the system.

**Step 5** Run the following CLI (Command Line Interface) command to verify the files:

```
openssl dgst -sha512 -keyform der -verify <PUBLIC key.der> -signature  
<ISO Image.iso.signature <ISO Image
```

The system displays `Verified OK` on successful verification and `Verification failed` on verification failure.

**Note** If the verification fails do not proceed with the installation, contact Cisco Support for a valid ISO

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