General information

About Cisco TelePresence Server on Virtual Machine

The Cisco TelePresence Server on Virtual Machine is a technologically advanced media processing platform. With a supported hardware platform and the software application, provides ActivePresence high-definition video conferencing and the highest possible voice quality.

Licensing

For software licensing information, refer to the Cisco TelePresence on Virtual Machine datasheet, available from Cisco.

For information on the open source software used in Cisco TelePresence on Virtual Machine, refer to: Cisco TelePresence Server on Virtual Machine 3.1 Open Source Documentation.

Table 1: Screen Licenses per Participant

<table>
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<tr>
<th>Call type description</th>
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<th>Maximum calls by core size (with licenses providing 100% of capacity)</th>
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</thead>
<tbody>
<tr>
<td>Main video</td>
<td>Audio</td>
<td>Content</td>
</tr>
<tr>
<td>-</td>
<td>Mono</td>
<td>-</td>
</tr>
<tr>
<td>360p30†</td>
<td>Mono</td>
<td>In main video</td>
</tr>
<tr>
<td>480p30</td>
<td>Mono</td>
<td>In main video</td>
</tr>
<tr>
<td>480p30</td>
<td>Stereo</td>
<td>720p5</td>
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### General information

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<td></td>
<td></td>
<td>4 screen licenses 6 screen licenses</td>
</tr>
<tr>
<td>Main video</td>
<td>Audio Content</td>
<td>4 screen licenses 6 screen licenses</td>
</tr>
<tr>
<td>720p30</td>
<td>Stereo 720p30</td>
<td>1/2 8 12</td>
</tr>
<tr>
<td>720p30</td>
<td>Stereo 720p30</td>
<td>1 4 6</td>
</tr>
<tr>
<td>1080p30</td>
<td>Stereo 720p30</td>
<td>1 4 6</td>
</tr>
<tr>
<td>720p60</td>
<td>Stereo 720p30</td>
<td>1 4 6</td>
</tr>
<tr>
<td>1080p30</td>
<td>Stereo 720p30</td>
<td>1 1/2 2 4</td>
</tr>
<tr>
<td>Three-screen† 720p30</td>
<td>Multi channel 720p5</td>
<td>1½ 2 4</td>
</tr>
<tr>
<td>Three-screen† 720p30</td>
<td>Multi channel 720p30</td>
<td>2 2 3</td>
</tr>
<tr>
<td>1080p30</td>
<td>Stereo 1080p30</td>
<td>2 2 3</td>
</tr>
<tr>
<td>Dual-screen† 1080p30</td>
<td>Stereo 720p30</td>
<td>2 2 3</td>
</tr>
<tr>
<td>Three-screen† 1080p</td>
<td>Multi channel 720p30</td>
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</tr>
</tbody>
</table>

* 104 is the maximum number of calls that is possible on a TelePresence Server.
‡ The TelePresence Server needs the Third Party Interop feature key to host conferences with multi-screen endpoints that are not third party interoperable. This includes all multi-screen endpoints except the Cisco TelePresence System T3 and TIP-compatible endpoints.
† Requires TelePresence Conductor XC2.2 or later.

⚠️ The table above assumes that calls of one type are being used to reach these maximum values. To calculate the total number of licenses required for a variety of concurrent calls, sum the screen licenses required for each concurrent call.
Installing

Recommended Platform

Recommended hardware on which to run a TelePresence Server on Virtual Machine:

- Cisco UCS C240 running the tested reference configuration (TRC) as specified at the following location: http://docwiki.cisco.com/wiki/UC_Virtualization_Supported_Hardware#C240_M3S_.28SFF.29_TRC.231

Ensure that:

- VT is enabled in the BIOS before installing VMware ESXi
- VMware version is ESXi5.0 (Update 1) or 5.1
- the VM host “Virtual Machine Startup/Shutdown” is configured to “Allow Virtual machines to start and stop automatically with the system”, and that the TelePresence Server on Virtual Machine has been moved to the Automatic startup section
- your UCS system is configured with RAID 5
- Only one network interface is configured

Specifications-based System – Minimum Specification

If using a specifications-based system, the minimum requirements are:

- 2 x Intel Xeon processor E5-2600 series with 2.7GHz or equivalent processor.
- 48 GB RAM
- 60+ GB of local or SAN storage with minimum 20millisecond IOPS guaranteed
- 1 GigE NIC
- The OVA is pre-configured to have 16GB of RAM, either 20 vCPU (10 physical CPUs hyperthread enabled) or 16 vCPU (8 physical CPUs hyperthread enabled) and 60GB hard disk on datastore.
- No oversubscription of resources. Hyperthread enabled 10 physical cores map to 20 vCPUs or 8 physical cores map to 16 vCPUs, 1:1 mapping for RAM to vRAM.
- ESX 5.0 Update 1 Hypervisor
- vCenter and vSphere installed and accessible.
Co-residency Support

The TelePresence Server on Virtual Machine can co-reside with applications (any other VMs occupying same host) subject to the following conditions:

- no oversubscription of CPU: 1:1 allocation of vCPU to physical cores must be used (2 cores required per TelePresence Server on Virtual Machine)
- no oversubscription of RAM: 1:1 allocation of vRAM to physical memory
- sharing disk storage subsystem is supported subject to correct performance (latency, BW) characteristics
- Co-residency with Cisco TelePresence Conductor is supported

⚠️ In order to the scale of 1.2 HD/720p ports per physical CPU core, the current release has limited co-residency support with other Unified Communications applications. Future releases will provide ways of removing this limitation for customers seeking to deploy the application co-resident with other applications. For more information about Unified Communications virtualization guidelines, refer to the Cisco Unified Communications in a Virtualized Environment wiki site.

Before Installing TelePresence Server on Virtual Machine

Before deploying the TelePresence Server on Virtual Machine OVA, make sure your environment meets the following conditions:

- Your server is powered up
- Your server is connected to the network
- VMware is installed and running on your server
- Cisco_ts_VirtualMachine_<version>.ova is downloaded

Installation Process

This process guides you through installing the virtual machine (VM); it assumes that you are using vSphere.

Configuring the VM Host

Ensure that the VM host is configured with a valid NTP server – the same NTP server that will be specified in the TelePresence Server on Virtual Machine.
1. Select the host.
2. Go to the **Configuration** tab.
3. Select **Time configuration**.
4. Select **Properties**.
   If the date and time were red on the previous page, then set the date and time manually to the current time.
5. Click **Options**.
6. Select **NTP Settings**.
7. Click **Add**.
8. Enter the IP address of the NTP server.
9. Click **OK**.
10. Select the **Restart NTP service to apply changes** check box.
11. Click **OK**.
12. Click **OK**.

**Deploying OVA to Host**

These instructions represent a typical installation. The Deploy OVF Template wizard dynamically changes to reflect host configuration.

**8-core and 10-core Deployments**

The process of deploying the 8-core and 10-core virtual machines is identical, except for the option selected on the Deployment Configuration screen, which is noted in step 7 of the following section.
1 Log in to vSphere to access the ESXi Host.

2 Select **File > Deploy OVF Template**.

3 Click **Browse**, find the location of the .ova file, click **Open** and then click **Next**.
4 On the OVF Template Details page click Next.

5 If an End User License Agreement page appears, read the EULA, click Accept then Next.
6 On the Name and Location page, enter a Name for this TelePresence Server on Virtual Machine guest, for example “Cisco_ts_VirtualMachine” and the Inventory Location where the virtual machine will reside.
7. On the Deployment Configuration page, for a 10-core CPU virtual machine, select **Cisco_ts_VirtualMachine Hyperthread 20 Core OVA** or for an 8-core virtual machine, select **Cisco_ts_VirtualMachine Hyperthread 16 Core OVA** and then click **Next**.
8 On the Host / Cluster page, select the host or cluster you want to run the deployed virtual machine and click **Next**.
9 On the Resource Pool page, select the resource pool with which you want to run the deployed virtual machine and click **Next**.
10  On the Storage page, select the datastore onto which the TelePresence Server Virtual Machine Guest will be deployed and then click **Next**.
11 On the Disk Format page, ensure that the default disk format of Thick Provision Lazy Zeroed is selected and then click Next.

Note that Thin Provision is not supported as VM performance may degrade during resizing of a partition.
12 If listed, configure Network Mapping and select the network mapping that applies to your infrastructure and then click Next (default is VM Network).

13 On the Ready to Complete page confirm Deployment Settings.

14 Select the **Power on after deployment** check box.

15 Click Finish.

The TelePresence Server on Virtual Machine OVA is now deployed as a Guest on the VM Host.
Configuring the VM Guest

1. Either:
   - Select the VM guest and then select the ‘Console’ tab, or
   - Right-click on the VM guest and select ‘Open Console’.

2. The VM guest will take some time to boot, create its second hard disk partition and then reboot and the console of the Cisco Telepresence Server Virtual Machine is displayed.

   ![Console of the Cisco Telepresence Server Virtual Machine](image)

   When the TS: prompt appears, the TelePresence Server on virtual machine is ready for initial configuration.

3. Type the command: `help static` and press Enter.

   The three methods of configuring IP address are displayed on screen. Decide which one you want to use.

4. Configure a static IP address following the format shown in the console and press Enter.
For example, if you configure IPv4 with subnet mask, it would look like this:

```
static 192.168.1.2 255.255.255.1 192.168.1.1
```

⚠️ The above IP address is just an example. Make sure the IP address, default gateway, subnet mask or prefix length information you enter is correct for your network.

Complete the rest of the configuration by going to “Configuring TelePresence Server on Virtual Machine,” page 16.
Configuring

Requirements

The Cisco TelePresence Server on Virtual Machine application must operate in remotely managed mode. It must be administered through the Cisco TelePresence Conductor XC2.2 (or later), or a similar system, or through the TelePresence Server API. For more information about the TelePresence Server API, refer to the Cisco TelePresence Server API 3.0 Reference Guide.

TelePresence Conductor must be configured to run in Back-to-Back User Agent (B2BUA) mode, or policy server mode if SIP is configured. TelePresence Server cannot be used in an H.323-capable policy server Conductor deployment.

Log into the TelePresence Server

To log in to the web interface of your TelePresence Server, do the following:

1. Use your browser to navigate to the IP address or host name of the device.
2. Click Log in and enter the user name admin with no password.
   The Login information page is displayed.

   Cisco recommends that you change the admin account to use a password as soon as possible. To do that, click Change password on the Login information page or go to Users, click the admin link, and provide the required user information.

Add License Keys for Each Feature

Contact Cisco to get license keys for the features you have purchased.

To add license keys to your TelePresence Server do the following:

1. Go to Configuration > Upgrade.
2. In the Feature Management section, in the Activation Code field enter the activation code for a feature license and click Update features.
   The feature name and license key appears under License keys.
3. Repeat step 2 for each additional feature license.
Configure SIP Settings

To configure SIP settings, do the following:

1. Go to **Configure > SIP settings**
2. In the Outbound Call Configuration menu, select **Use trunk**.
3. In the Outbound Address field, enter the IP address of the Cisco TelePresence Conductor.
4. (Optional) For Outbound domain, enter domain name of Conductor, if used.
5. For Outbound transport, select **TLS**.

⚠️ An encryption key is required to use TLS.

Configure TelePresence Conductor Administration

In order for the TelePresence Server on Virtual Machine to be administered through TelePresence Conductor, you need to:

- Create a user that TelePresence Conductor will use to administer the device.
- Configure the device so that it can be administered by TelePresence Conductor.

For information on creating the user for TelePresence Conductor, and configuring the device to enable TelePresence Conductor to administer the device, refer to the steps provided in the appropriate TelePresence Conductor deployment guide.

In networks where Conductor is trunked to Cisco Unified CM refer to:

*Cisco TelePresence Conductor with Cisco Unified Communications Manager Deployment Guide, XC2.0, Unified CM 8.6.2 and 9.x, D14998.03.*

TelePresence Server on Virtual Machine requires Unified CM 8.6(2x) or 9.1 or later.

In networks where Conductor is trunked to Cisco VCS refer to:

*Cisco TelePresence Conductor with Cisco TelePresence Video Communication Server Deployment Guide, XC2.0, X6.0 and later, D14827.03.*

TelePresence Server on Virtual Machine requires VCS X7.2.2 or later.

Configure DNS Settings (Optional)

To configure DNS settings, do the following:
1. Go to **Network > DNS**
2. Add a Host Name and Name Server (if used) and then click **Update DNS configuration**.
Upgrading

Checking for Updates and Downloading Software

It is a good idea to regularly check for updates to the main software image on the Cisco web site. This section describes how to upgrade the device using the web.

To check for, and download, updates:

1. Log in to the web interface and go to Status > Status.
2. Make a note of the software version that is currently installed.
3. Go to the support section of Cisco.com and check if a more recent release is available.
4. If a more recent release is available, download it and save it locally.

Upgrading the Software

It is a good idea to regularly check for updates to the main software image on the Cisco web site. This section describes how to upgrade the device using the web.

The process for upgrading 8-core and 10-core CPU deployments is the same.

To upgrade the software:

1. Unzip the software release file that you downloaded.
2. Log in to the web interface and go to Configuration > Upgrade.
3. In the Main software image section, click Browse and locate the unzipped file.
4. Click Upload software image.
   The browser begins uploading the file to the device, and a new browser window opens to indicate the progress of the upload. When finished, the browser window refreshes and indicates that the software upgrade is complete.
5. Go to Configuration > Shutdown to shutdown and restart the device.

Shutting down the device will disconnect all participants.
Changing the Virtual Machine CPU from 10 cores to 8 cores

To change the Cisco TelePresence Server on Virtual Machine CPU from 10 cores to 8 cores, perform the following steps:

1. Open the VMware vSphere Client and log in to your ESXi host.
2. Right-click the TelePresence Server virtual machine and select **Power > Power Off**.
3. Right-click the TelePresence Server virtual machine and select **Edit Settings**....
4. In the Hardware list, click **CPUs**.
5. From the Number of cores per socket list, select **16** and click **OK**.

![Virtual Machine Properties](image)

Choosing 16 cores will map to 8 physical cores since hyperthreading is enabled.

6. Right-click the TelePresence Server virtual machine and select **Power > Power On**.
Troubleshooting

Using the Event Log to Help Solve a Problem

You can use the event log to produce debugging information to assist technical support in solving any problems. Event logging capture filter topics are set by default to Errors, warnings and information. Do not change the capture filter topic level without the guidance of technical support.

Getting Help

If you experience any problems when configuring or using the product, consult the online help available from the user interface. The online help explains how the individual features and settings work.

If you cannot find the answer you need, check the web site at http://www.cisco.com/cisco/web/support/index.html where you will be able to:

- Make sure that you are running the most up-to-date software.
- Find further relevant documentation, for example product user guides, printable versions of the online help, reference guides, and articles that cover many frequently asked questions.
- You or your reseller can get help from our support team by raising a case. Make sure you have the following information ready before raising a case:
  - The serial number and product model number of the unit (if applicable).
  - The software build number which can be found on the product user interface (if applicable).
  - Your contact email address or telephone number.
  - A full description of the problem.

Checking VMware Compatibility

If you are using third party hardware for hosting the TelePresence Server on Virtual Machine application, check the hardware compatibility. This can be done using the VMware compatibility guide tool available from http://www.vmware.com/resources/compatibility/search.php.
**VMware Checklist**

1. Check the accessibility to the VM host server (by ping, physical console access, ssh remote access, KVM-over-IP console, and so on).

2. Check the network connectivity of the VMkernel (by executing the vmkping command using Tech Support Mode to verify network connectivity from the VMkernel NIC level).

3. If you are having problems connecting to the vSphere Client management console, execute the command `/sbin/services.sh` from an SSH session to restart the ESXi management agent.

4. Check the utilization of the VM host server (CPU utilization, memory utilization, disk access speed, storage access speed, network access status, power utilization, and so on). If any specific application causes high utilization, stop or restart this application to isolate the overall VM host performance level. Alternatively execute the command `esxtop` from Tech Support Mode to list all system processes running on the ESXi host application.

5. Check the ESXi server file log (hostd.logs) under the folder `/var/log/vmware`. This log contains common error logs such as iSCI naming error, authentication error, host convertibility error, and so on.

   Verify that there is adequate disk space available on the volume that is storing the database files to ensure correct operation of the database. If there is not adequate space available on the physical volume that stores the database files, free up disk space.

   Validate the authentication to the vCenter Server database. The vCenter Server service may not be able to authenticate with the database if:

   i. There are permission issues with the database when importing from one instance to another.

   ii. The password on the account you are using to authenticate to the database has changed but the password in the registry has not changed as well.

   iii. The vCenter Server database user is not granted correct permissions.
Isolating a Possible Root Cause

Table 2: VMware Issues and Possible Root Causes

<table>
<thead>
<tr>
<th>Potential Issue Area</th>
<th>What to Look For</th>
</tr>
</thead>
</table>
| Storage              | Look for the VM store application image stored either on the local drive, SAN or NFS. VMs often freeze or hang up if the application failed to access the storage. Possible error messages are:  
  • vCenter Server does not start  
  • vCenter Server is slow to respond  
  • vCenter Server fails after an indefinite amount of time |
| Network              | Any network failure or locking causes a connection failure between the VM and the virtual network. Also, if using NFS or iSCSI, storage may cause application failures because the application cannot access the file system. |
| DNS                  | DNS server failures or communication failures between DNS and the VM server may cause the VMware application or the TelePresence Server on Virtual Machine application to fail. |
| vCenter Server       | If vCenter is not operating properly, even though the TelePresence Server on Virtual Machine application is still up and running, you may lose connection to the TelePresence Server on Virtual Machine application from the network. |
| Host application     | Check any critical alarms on the VM application for events on the host or application level (check the event information from vSphere Client). |
**Possible Issues**

The following section contains some common causes of issues using VMware.

**VM Image Fails to Boot**

If the VM image fails to boot, check the VT (Virtualization Technology) setting in BIOS. This needs to be enabled for hosting VMs. If it is not set, set it and re-install ESXi then load the .ova file.

**Guest console in vSphere 5 fails to run on some Microsoft platforms**

When attempting to open a console screen from vSphere for the VM:

- Error message: “The VMRC console has disconnected...attempting to reconnect.”
- Screen remains black

The following operating systems are at risk:

- Windows 7 64 bit – reported on VMware forum (http://communities.vmware.com/thread/333026)
- Windows Server 2008 R2 (64-bit) – found by use

**Raid Controller Synchronization**

If the VMware system is synchronizing its RAID disks, disk performance is seriously degraded. It is strongly recommended that TelePresence Server on Virtual Machine is not installed or run on VM platforms where RAID disks are in a degraded or synchronizing state.

**TelePresence Server Displays Different Serial Number/MAC address on Reboot**

This situation can occur if multiple network interfaces are configured. Only one network interface is supported.

**Analyzing the Cause of VMware Issues**

If VMware is causing problems on a TelePresence Server on Virtual Machine host, you are initially recommended to collect logs from the host for analysis:
Troubleshooting

1  Using the vSphere client (or the vCenter Server managing this ESXi host) connect to the ESXi host on which the TelePresence Server on Virtual Machine is running.

2  Go to File > Export > Export System logs, choose the appropriate ESXi host and go with the default settings.

After you have downloaded the logs analyze them, or have them analyzed to determine the issue.

More information on exporting logs can be found at:


Restoring Default Configuration (Factory Reset)

Very rarely, it may become necessary to run the “reset_config” script on a TelePresence Server. This resets the configuration of the TelePresence Server to its original default settings.

Performing a Reset to Default Configuration

The following procedure must be performed from the serial console within the first 30 seconds after reboot. This command removes the IP address and other network configurations, the installed licenses and the configured users.

To perform a reset of TelePresence Server, do the following:

1  Reboot the TelePresence Server virtual machine.

2  From the console, within 30 seconds after reboot, type `reset_config`.

The configuration reset is complete.
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