



Cisco TelePresence Conductor on Virtual Machine

Installation Guide

First Published: July 2019

Last Updated: July 2019

XC4.3



Contents

Preface	5
Change History	5
Introduction	7
What's in This Guide	7
Getting Release Keys and License Keys	7
Installing a Virtual Machine	8
Before you Begin	8
Recommended Platform	8
Requirements	8
Specifications-Based System – Minimum Specification	8
Co-residency Support	9
Installation Process	10
Configuring the VM Host	10
Deploying OVA to Host Managed by vCenter	10
Configuring the VM Guest (vCenter)	15
Deploying OVA to Standalone ESXi Host	18
Configuring the VM Guest (ESXi Host)	20
Ordering and Entering Release and Option Keys	22
Task 1: Order the Keys	22
Task 2: Apply the Keys to the System	22
Creating a Backup of your System and Deleting Existing Snapshots	23
Creating Backups	23
Deleting Existing Snapshots	23
Hardware References	24
Serial Interface	24
Ethernet Interfaces (NICs)	24
Allocating a Virtual NIC to a Physical NIC Interface	24
Additional Information	27
Upgrading an Expressway VM	27
Clustering for Resilience and Capacity	27

Migrating from a Physical Appliance to a VM	27
Migrating the Host (use VMware VMotion)	27
SAN with Fibre Interconnect is Recommended	27
Unsupported Features	27
Licensing	28
Security Hardening	28
Appendix 1: Troubleshooting	29
Checking VMware Compatibility	29
VMware Checklist	29
Isolating a Possible Root Cause	29
Possible Issues	30
Analyzing the Cause of VMware Issues	31
Restoring the Default Configuration (Factory Reset)	32
Before You Begin	32
Prerequisites	32
Process to Reset to the Default Configuration	32
Resetting Your Administrator Password or Root Password	34
Appendix 2: VM TelePresence Conductor Activation Process	35
Appendix 3: Deploying Multiple Datastores	36
Appendix 4: Ensuring That 6GB of Memory Is Allocated for the VM TelePresence Conductor .	41
Cisco Legal Information	43
Cisco Trademark	43

Preface

Change History

Table 1 Cisco TelePresence Conductor on Virtual Machine Installation Guide Change History

Date	Change	Reason
July 2019	Clarify reserved CPU resource for Large VMs.	Clarification
May 2019	Clarify virtual machine name, hostname, and domain name must contain only ASCII characters.	Clarification
April 2019	Remove caveat that Small VM is for BE6000 platforms only, as now also supported on VMware ESXi platforms (subject to same minimum hardware specification as BE6000).	Update
January 2019	Updated for X12.5	X12.5
April 2016	Republished for XC4.2 release.	
December 2015	Republished for XC4.1 release.	
June 2015	Republished for XC4.0 release.	
January 2015	Republished for XC3.0 release.	
September 2014	Republished for XC2.4 release.	
April 2014	Republished for XC2.3 release.	
October 2013	Republished for new product activation process.	
August 2013	Republished for XC2.2 release.	
August 2013	Re-added the minimum specifications and modified the minimum processor specifications.	
May 2013	Added a link to Cisco docwiki for hardware requirements information. Clarified use of vMotion if a move is required. Restructured the "Additional information" section to contain details on upgrading, clustering and migrating from a physical appliance.	
February 2013	Information on .ova file usage and VM New Product Hold release process added.	
December 2012	Updated for XC2.0 release	
September 2012	Initial release.	

Introduction

IMPORTANT! New features in software version X12.5 and later are not supported for the Cisco TelePresence Video Communication Server product (VCS). They apply only to the Cisco Expressway Series product (Expressway). This software version is provided for the VCS for maintenance and bug fixing purposes only.

Cisco Expressway (Expressway) software supports flexible deployment options and is available as a virtualized application for VMware. This lets enterprises run Expressway on the 'company standard' Virtual Machine (VM) hardware platform for ease of management and deployment in an existing data center. With a suitably specified VM platform, Expressway running on VMware performs identically to Expressway running on its appliance hardware.

What's in This Guide

- VM platform requirements for Expressway
- How to load the Expressway .ova installation file
- How to install a VM
- Supported features
- Limitations of support for VMware features (see [Additional Information, page 27](#))
- Troubleshooting

Getting Release Keys and License Keys

Licenses can be obtained after the Expressway VM is installed, using the Expressway VM serial number (available from the **Option key** page and in the footer of the Expressway web interface). See [Ordering and Entering Release and Option Keys, page 22](#) for more information.

Installing a Virtual Machine

The sections below list the recommended platform and specifications-based system requirements, and describe the VM installation process. The requirements refer to the minimum requirements for TelePresence Conductor version XC4.3. The minimum requirements for future TelePresence Conductor software releases may differ and you should refer to the release notes or administrator guide to ensure that pre-requisites are met.

Before you Begin

This section has important information before you start the installation process.

Recommended Platform

See http://docwiki.cisco.com/wiki/Virtualization_for_Cisco_TelePresence_Conductor for the current list of supported UCS Tested Reference Configurations and specs-based supported platforms.

Requirements

WARNING: The Cisco VCS ova virtual appliances are designed to meet the minimum deployment requirements. Do not change the ova configuration after installation, as Cisco may no longer be able to support your deployment.

Make sure that the following requirements are in place:

- VT is enabled in the BIOS before you install VMware ESXi.
- The VM host “*Virtual Machine Startup/Shutdown*” setting is configured to “*Allow Virtual machines to start and stop automatically with the system*”, and the VM TelePresence Conductor has been moved to the Automatic startup section.

Use the VM .ova file for initial VM installation only

The VM TelePresence Conductor is licensed using information that is generated at the time of the .ova file installation. If the .ova was installed a second time, new licensing information would be created, and to use the new VM, new release and licence keys would need to be purchased. To upgrade a VM TelePresence Conductor, follow the procedure under [Upgrading an Expressway VM, page 27](#), using the .tar.gz version of the TelePresence Conductor software.

Take a backup after completion

After the VM installation is complete, we recommend that you take a backup of the configuration (described in [Creating a Backup of your System and Deleting Existing Snapshots, page 23](#)).

Caution: Do not take VMware snapshots of Cisco TelePresence Conductor systems. The process interferes with database timing and negatively impacts performance.

Specifications-Based System – Minimum Specification

If you use a UCS Tested Reference Configuration or specifications-based system, the minimum requirements are:

* **From X8.8:** With X8.8 and later versions, two Large Cisco VCS VMs can co-reside on a UCS server with two eight-core 3.2 GHz processors all dedicated to Expressway, when hyperthreading is enabled. To allow for hypervisor overhead, the CPU reservation is set to 16000 MHz, but the full allocation of 8x 3.2 GHz CPU cores must be made available to each Large Expressway VM.

This was not possible before because the previous higher reservation requirement, added to the CPU requirement for the hypervisor, exceeded the total processing power of the host. The reservation does not limit maximum Cisco VCS CPU speed, as the Cisco VCS can use the headroom provided by the higher specification host.

Installing a Virtual Machine

- VM host operational and running ESXi 5.5 (or later) or ESXi 6.0
- 6GB of RAM per VM TelePresence Conductor
- 132GB disk space per VM (for a 4GB virtual disk 1 and a 128GB virtual disk 2)
- 2 cores reserved per VM TelePresence Conductor; each core \geq 2.8GHz processor (5600MHz for 2 vCPUs)
- vCenter or vSphere operational

If using the vSphere client, configure the network properties through the console.

Co-residency Support

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

- No oversubscription of CPU. You need one-to-one allocation of vCPU to physical cores.
- No oversubscription of RAM. You need one-to-one allocation of vRAM to physical memory.
- Sharing disk storage subsystem is supported, subject to correct performance (latency, bandwidth) characteristics.

Installing a Virtual Machine

Installation Process

This process guides you through installing the TelePresence Conductor VM using vSphere client.

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 TelePresence Conductor.

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, 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**.

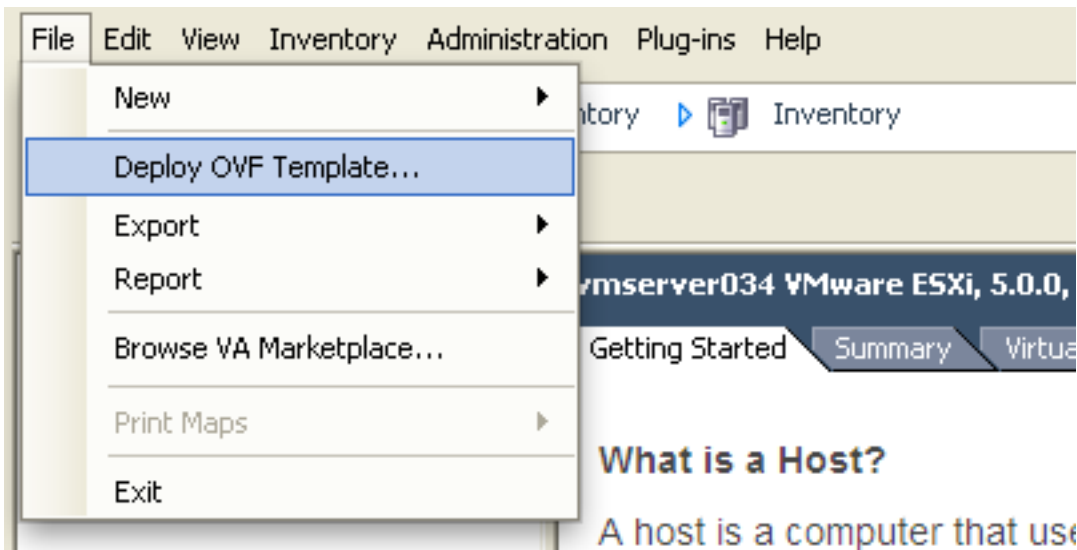
The following section describes how to deploy the ova to host using vSphere.

Deploying OVA to Host Managed by vCenter

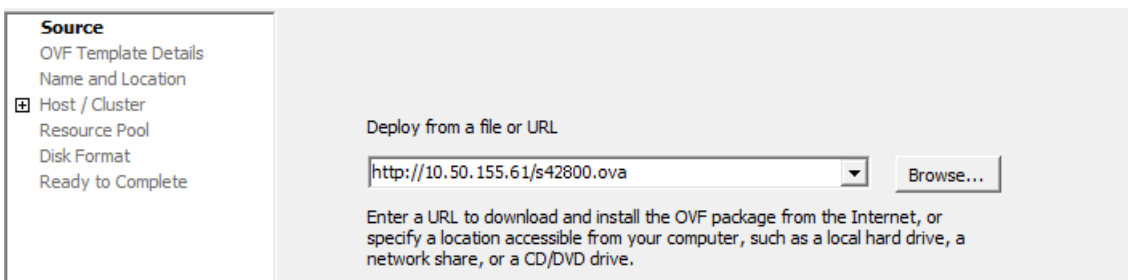
These instructions represent a typical installation. The Deploy OVF Template wizard dynamically changes to reflect host configuration.

1. If the .ova file is already preloaded onto the ESXi Host datastore (for example, in Cisco Business Edition 6000 deployments):
 - a. Using a web browser, go to <https://<VMwareHost>/folder> supplying any required credentials (typically the same username and password as used to log into vCenter).
 - b. Navigate through the index of datacenters to find the .ova file you want to deploy from the datastore.
 - c. Right click on the .ova file and select **Copy Link Location**.
(If the .ova file is not preloaded on the datastore, you can select and upload it in the following steps.)
2. Log in to vCenter to access the ESXi Host.

Installing a Virtual Machine

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

4. On the **Source** page, identify where the .ova file is located, and then click **Next**.
- If the .ova file is already preloaded onto the ESXi Host datastore, paste the URL you copied from step 1 above. You may have to re-enter username and password credentials so that vCenter can access the web server.
 - If the .ova file is not preloaded on the datastore, **Browse** to the location of the .ova file.



5. On the **OVF Template Details** page, check that the Publisher certificate is valid and click **Next**.
6. On the **End User License Agreement** page:
- a. Read the EULA
 - b. If you accept the EULA, click **Accept** then **Next**.

Installing a Virtual Machine

7. On the **Name and Location** page enter a **Name** for this TelePresence Conductor VM guest, for example "Virtual_Conductor" and click **Next**.

Important! The Cisco Expressway VM name must contain only ASCII characters. When deploying a VM to ESXi version 6.0 or later, you must not use a backslash or forward slash in the VM name as the characters are unsupported and it can cause errors during the deployment. You must remove the slash from the default name of Cisco Expressway/VCS Base.

The screenshot shows the 'Name and Location' configuration page. On the left, a navigation pane lists options: Source, OVF Template Details, End User License Agreement, Name and Location (selected), Deployment Configuration, Host / Cluster, Resource Pool, Disk Format, Properties, and Ready to Complete. The main area has a 'Name:' field with 'Virtual_Conductor' and a note: 'The name can contain up to 80 characters and it must be unique within the inventory folder.' Below is an 'Inventory Location:' tree with 'QA_datacenter' selected.

8. On the **Host / Cluster** page, select where you want to run the virtual TelePresence Conductor and click **Next**.

The screenshot shows the 'Host / Cluster' configuration page. The left navigation pane has 'Host / Cluster' selected. The main area shows a tree view where 'UCS_Cluster' is selected under 'QA_datacenter'. Below it are 'server1.example.com' and 'server2.example.com'.

9. On the **Resource Pool** page, select where you want to run the virtual TelePresence Conductor and click **Next**.

The screenshot shows the 'Resource Pool' configuration page. The left navigation pane has 'Resource Pool' selected. The main area has a heading: 'Select the resource pool within which you wish to deploy this template. Resource pools allow hierarchical management of computing resources within a host or cluster. Virtual machines and child pools share the resources of their parent pool.' Below is a tree view where 'production' is selected under 'UCS_Cluster'.

Installing a Virtual Machine

10. On the **Storage** page, select the location onto which the virtual TelePresence Conductor will be deployed and click **Next**.

Name	Drive Type	Capacity	Provisioned	Free	Type	Stora
qa_datastore		21.00 TB	18.63 TB	2.37 TB		Enab
datastore1	Non-SSD	460.25 GB	339.37 GB	413.78 GB	VMFS3	
datastore2	Non-SSD	132.00 GB	561.00 MB	131.45 GB	VMFS3	

11. On the **Disk Format** page, ensure that the default disk format of **Thick Provision Lazy Zeroed** is selected and then click **Next**.

Thin Provision is not supported as VM performance may degrade during resizing of a partition.

12. On the **Network Mapping** page, select the network mapping that applies to your infrastructure (the default is **VM Network**) and then click **Next**.

Source Networks	Destination Networks
VM Network	VM Network

Installing a Virtual Machine

13. On the **Properties** page, configure the network properties of the virtual TelePresence Conductor and click **Next**.

The properties you can set include the TelePresence Conductor's IPv4 settings. For automated deployments you can also enter an RSA SSH public key to securely set the root and admin passwords via SSH. If you do not enter a public key, you must set the passwords during the Install Wizard process.

Important! The hostname and domain name must contain only ASCII characters.

[Source](#)
[OVF Template Details](#)
[End User License Agreement](#)
[Name and Location](#)
[Deployment Configuration](#)
[Host / Cluster](#)
[Resource Pool](#)
[Storage](#)
[Disk Format](#)
[Network Mapping](#)
Properties
Ready to Complete

Network properties

IPv4 Enable

IPv4 Address
192 . 168 . 0 . 100

IPv4 Netmask
255 . 255 . 255 . 0

IPv4 Gateway
192 . 168 . 0 . 1

IPv6 Enable

IPv6 Address

IPv6 Gateway

System Hostname

System Domain Name
Hostname.Domain must match the DNS record for this system's FQDN

NTP Servers
Enter up to 5 comma-separated addresses

Installing a Virtual Machine

The screenshot shows a web-based installation wizard with the following sections:

- Default DNS Servers:** A text input field with the instruction "Enter up to 5 comma-separated addresses".
- System properties:**
 - SSH Enable:** A checked checkbox.
 - Web UI Enable:** A checked checkbox.
 - System TimeZone:** A text input field containing "UTC".
- Provisioning properties:**
 - SSH Public Key:** A text input field with the instruction "Enter a SSH public key. This allows for the completion of the installation wizard over SSH".

Below this is another screenshot of the "Network properties" section:

- Network properties:**
 - IPv4 Address:** 192.168.0.100
 - IPv4 Netmask:** 255.255.255.0
 - IPv4 Gateway:** 192.168.0.1

On the left side of the second screenshot, a navigation menu is visible with the following items:

- Source
- OVF Template Details
- End User License Agreement
- Name and Location
- Deployment Configuration
- Storage
- Disk Format
- Network Mapping
- Properties** (highlighted)
- Ready to Complete

14. On the **Ready to Complete** page:
 - a. Confirm the deployment settings.
 - b. Select the **Power on after deployment** check box.
 - c. Click **Finish**.

The installation process will begin and a progress bar will be displayed.

The TelePresence Conductor ova is now deployed as a Guest on the VM Host.

Configuring the VM Guest (vCenter)

These instructions describe how to set the root and admin password over SSH if you entered an RSA SSH public key in the VM **Properties** page – used primarily for automated deployments – or using the Install Wizard.

Note: You can ignore any floppy read errors that appear, as they are not relevant to this deployment mode.

Set the Root and Admin Password Using the Install Wizard

1. Select the VM guest and then select the **Console** tab.
2. You are taken to the Install Wizard.

Installing a Virtual Machine

3. Enter and confirm your root and admin password. You will also be prompted to set any properties you did not set in VMware.

```

Root password:
Please confirm the password:
Admin password:
Please confirm the password:

Installation wizard complete
Press Enter to continue the boot and apply the configuration _

```

4. Press **Enter** to apply the configuration.
5. The TelePresence Conductor will apply the configuration and reboot.

```

cisco login: Starting xmlapiadapter
Starting tandberg
Upgrade in process. Not starting crl_updater
Starting vmttoolsd
Fri Oct 7 11:54:57 UTC 2016 S98vmttoolsd startup Failed rc 1!
Starting migrate
<131>Oct 7 11:54:58 ttupgrade: UTCTime="2016-10-07-11:54:58" Event="upgrade" De
tail="Running 10-migrate"
<131>Oct 7 11:55:01 ttupgrade: UTCTime="2016-10-07-11:55:01" Event="upgrade" De
tail="Running 20-cdbtransforms-precuil.py"
<131>Oct 7 11:55:01 ttupgrade: UTCTime="2016-10-07-11:55:01" Event="upgrade" De
tail="Running 50-cdbtransforms.py"
<131>Oct 7 11:55:02 ttupgrade: UTCTime="2016-10-07-11:55:02" Event="upgrade" De
tail="Running 50-tandberg-update.php"
<131>Oct 7 11:55:22 ttupgrade: UTCTime="2016-10-07-11:55:22" Event="upgrade" De
tail="Running 80-cdbtransforms-postcuil.py"
<131>Oct 7 11:55:22 ttupgrade: UTCTime="2016-10-07-11:55:22" Event="upgrade" De
tail="Running 90-delete-upgrade-config"
<131>Oct 7 11:55:22 ttupgrade: UTCTime="2016-10-07-11:55:22" Event="upgrade" De
tail="Running 99-tidy-persistent-directory"
Starting restmanager
Starting svmttoolsd
-

```

You should now be able to access the TelePresence Conductor using a web browser.

You can now order your release or option keys; see [Ordering and Entering Release and Option Keys, page 22](#).

Set the Root and Admin Password Using SSH

1. The Install Wizard starts an SSH daemon, listening on port 5022, so you can set the root and admin password.
2. Connect as user "wizard" using an SSH client on port 5022 (for example: `ssh wizard@10.0.0.1 -p 5022`).

Installing a Virtual Machine

```
*****
Installation Wizard for Cisco Expressway/VCS Base

If you encounter issues or enter incorrect
information during the wizard you can press
Ctrl+D to restart

Some questions may also support Tab completion
*****
ip_tables: (C) 2000-2006 Netfilter Core Team
vmxnet3 0000:0b:00.0 eth0: intr type 3, mode 0, 3 vectors allocated
vmxnet3 0000:0b:00.0 eth0: NIC Link is Up 10000 Mbps
8021q: adding VLAN 0 to HW filter on device eth0

Starting SSH daemon on 10.50.156.150:5022 for automated deployment
Please connect as user 'wizard' to continue
e.g. ssh wizard@10.50.156.150 -p 5022
```

3. Follow the prompt to set `admin.password` and `root.password`.

```
>>> Installation Wizard for Cisco Expressway/VCS Base

This shell is intended for completing automated deployments and expects a
JSON encoded structure containing the remaining configuration that needs
to be set.

Example input: {"admin.password": "w6djqiAgmmAMbrH0", "root.password": "FkSZ95KL865Q15/T"}
Example response: {"status": "success", "detail": "Configuration complete"}

Required configuration keys: ['admin.password', 'root.password']

$ □
```

Installing a Virtual Machine

- The TelePresence Conductor will apply the configuration and reboot.

```
cisco login: Starting xmlapiadapter
Starting tandberg
Upgrade in process. Not starting crl_updater
Starting vmttoolsd
Fri Oct 7 11:54:57 UTC 2016 S98vmttoolsd startup Failed rc 1!
Starting migrate
<131>Oct 7 11:54:58 ttupgrade: UTCTime="2016-10-07-11:54:58" Event="upgrade" De
tail="Running 10-migrate"
<131>Oct 7 11:55:01 ttupgrade: UTCTime="2016-10-07-11:55:01" Event="upgrade" De
tail="Running 20-cdbtransforms-precuil.py"
<131>Oct 7 11:55:01 ttupgrade: UTCTime="2016-10-07-11:55:01" Event="upgrade" De
tail="Running 50-cdbtransforms.py"
<131>Oct 7 11:55:02 ttupgrade: UTCTime="2016-10-07-11:55:02" Event="upgrade" De
tail="Running 50-tandberg-update.php"
<131>Oct 7 11:55:22 ttupgrade: UTCTime="2016-10-07-11:55:22" Event="upgrade" De
tail="Running 80-cdbtransforms-postcuil.py"
<131>Oct 7 11:55:22 ttupgrade: UTCTime="2016-10-07-11:55:22" Event="upgrade" De
tail="Running 90-delete-upgrade-config"
<131>Oct 7 11:55:22 ttupgrade: UTCTime="2016-10-07-11:55:22" Event="upgrade" De
tail="Running 99-tidy-persistent-directory"
Starting restmanager
Starting svmttoolsd
-
```

You should now be able to access the TelePresence Conductor using a web browser.

You can now order your release or option keys; see [Ordering and Entering Release and Option Keys, page 22](#).

Deploying OVA to Standalone ESXi Host

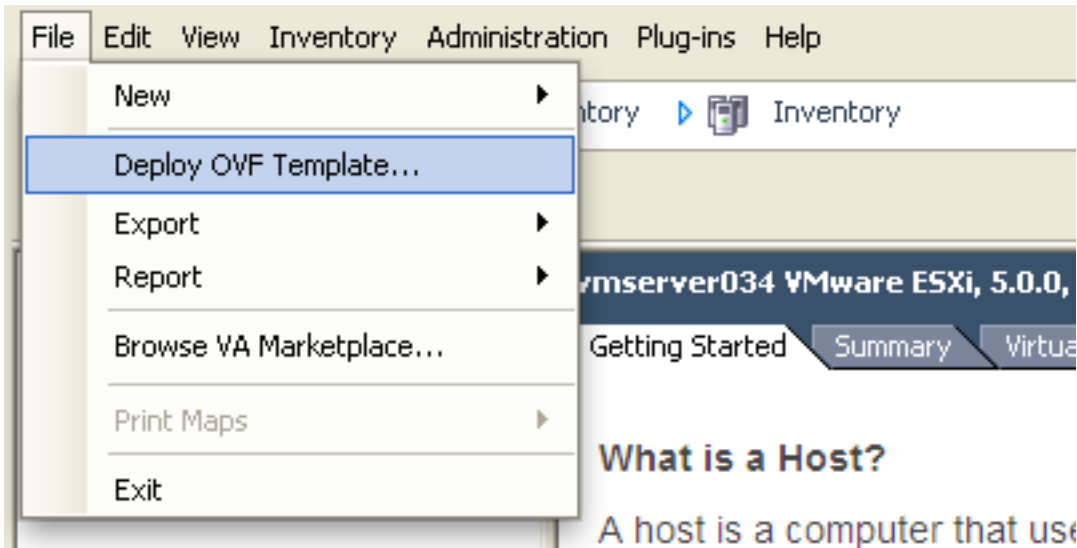
These instructions represent a typical installation. The Deploy OVF Template wizard dynamically changes to reflect host configuration.

Note: The desktop vSphere Client is not available from vSphere 6.5 and later.

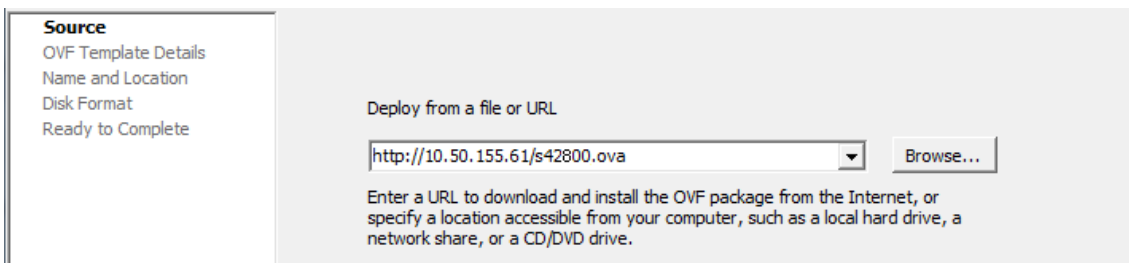
- If the .ova file is already preloaded onto the ESXi Host datastore (for example, in Cisco Business Edition 6000 deployments):
 - Using a web browser, go to <https://<VMwareHost>/folder> supplying any required credentials (typically the same username and password as used to log into the vSphere client).
 - Navigate through the index of datacenters to find the .ova file you want to deploy from the datastore.
 - Right click on the .ova file and select **Copy Link Location**.

(If the .ova file is not preloaded on the datastore, you can select and upload it in the following steps.)
- Log in to the vSphere client to access the ESXi Host.

Installing a Virtual Machine

3. Select **File > Deploy OVF Template**.4. On the **Source** page, identify where the .ova file is located, and then click **Next**.

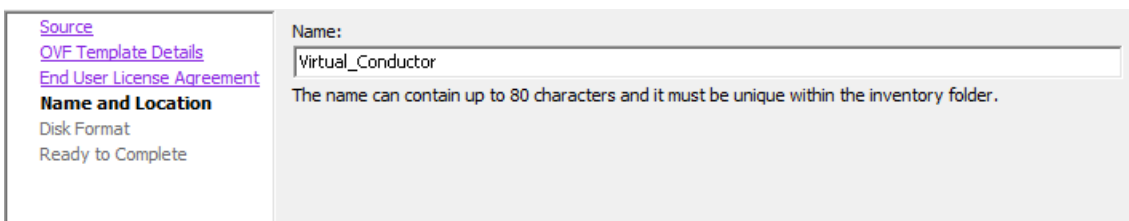
- If the .ova file is already preloaded onto the ESXi Host datastore, paste the URL you copied from step 1 above. You may have to re-enter username and password credentials so that the vSphere client can access the web server.
- If the .ova file is not preloaded on the datastore, **Browse** to the location of the .ova file.

5. On the **OVF Template Details** page, check that the Publisher certificate is valid and click **Next**.6. On the **End User License Agreement** page:

- a. Read the EULA
- b. If you accept the EULA, click **Accept** then **Next**.

7. On the **Name and Location** page enter a **Name** for this TelePresence Conductor VM guest, for example "Virtual_Conductor" and click **Next**.

Important! The Cisco Expressway VM name must contain only ASCII characters. When deploying a VM to ESXi version 6.0 or later, you must not use a backslash or forward slash in the VM name as the characters are unsupported and it can cause errors during the deployment. You must remove the slash from the default name of Cisco Expressway/VCS Base.



Installing a Virtual Machine

8. On the **Disk Format** page, ensure that the default disk format of **Thick Provision Lazy Zeroed** is selected and then click **Next**.

Thin Provision is not supported as VM performance may degrade during resizing of a partition.

9. On the **Ready to Complete** page:
 - a. Confirm the deployment settings.
 - b. Select the **Power on after deployment** check box.
 - c. Click **Finish**.

The installation process will begin and a progress bar will be displayed.

The TelePresence Conductor ova is now deployed as a guest on the VM Host.

Configuring the VM Guest (ESXi Host)

These instructions describe how to configure the VM Guest as a standalone host using the Install Wizard.

Note:

- If you encounter issues or enter incorrect information during the wizard you can press Ctrl+D to restart.
 - The pre-X8.9 default passwords of the admin and root accounts are well known. You must use strong passwords for these accounts. If your new system is on X8.9 or later, you must supply non-default passwords.
 - The default timezone is UTC but you can search for your desired timezone. You can also change it later in the web interface by going to **System > Time**.
 - The default values support tab completion.
 - The Install Wizard displays the serial number and release key, if available, for reference.
1. Select the VM guest and then select the **Console** tab.
The VM guest will take some time to boot, create its second hard disk partition and then reboot to the Install Wizard.
 2. Follow the prompts given by the Install Wizard to specify the following:
 - Whether you want to use IPv4, IPv6 or Both.
 - The LAN 1 IPv4 subnet mask of the TelePresence Conductor (if you have selected IPv4).
 - The IP address of the default gateway of the TelePresence Conductor.
 - The root password.
 - The admin password.
 - Whether you want to enable the web UI.
 - Whether you want to use SSH to administer the TelePresence Conductor.
 - The timezone.

Installing a Virtual Machine

3. After the wizard is finished the following message will appear:

```
Installation wizard complete  
Press Enter to continue the boot and apply the configuration.  
Press Enter.
```

4. After it has applied the configuration and rebooted, the TelePresence Conductor is ready to use. You should now be able to access the TelePresence Conductor using a web browser.

You can now order your release or option keys; see [Ordering and Entering Release and Option Keys, page 22](#).

Ordering and Entering Release and Option Keys

After the TelePresence Conductor ova has been deployed as a Guest on the VM Host, and you have set the *root* and *admin* passwords, you can access the TelePresence Conductor through a web browser and order your release key.

Task 1: Order the Keys

1. Log in to the TelePresence Conductor via a web browser as *admin*.
2. Get release key:
 - a. Go to the **Option keys** page (**Maintenance > Option keys**).
 - b. Copy the **Serial number**.
 - c. Use this serial number to order a release key for this VM TelePresence Conductor.

For full details on obtaining your release key, see [Appendix 2: VM TelePresence Conductor Activation Process, page 35](#).

Task 2: Apply the Keys to the System

When you have the release and option keys:

1. Log in to the TelePresence Conductor via a web browser as *admin*.
2. Enter the release and option keys:
 - a. Go to the **Option keys** page (**Maintenance > Option keys**).
 - b. Enter the release key provided in the **Release key** field.
 - c. Click **Set release key**.
 - d. For each option key provided, enter the key value in the **Add option key** field and click **Add option**.
3. Reboot the TelePresence Conductor to activate the licenses:
 - a. Go to the **Restart options** page (**Maintenance > Restart options**).
 - b. Click **Reboot**.
4. After the reboot, log in to the web interface and configure the TelePresence Conductor, including changing any default passwords, configuring DNS, NTP, conference configuration settings and so on as required.
Follow the relevant [Cisco TelePresence Conductor Deployment Guide](#) to guide you through configuring this VM TelePresence Conductor ready for operation.
5. After the TelePresence Conductor has been configured it is good practice to backup the TelePresence Conductor configuration using the TelePresence Conductor backup facility (see next section).

Creating a Backup of your System and Deleting Existing Snapshots

Caution: Do not take VMware snapshots of Cisco TelePresence Conductor systems. The process interferes with database timing and negatively impacts performance.

Creating Backups

After installation we instead recommend that you regularly create backups of your configuration, as follows.

1. Go to **Maintenance > Maintenance Mode** and switch **Maintenance Mode On**.
2. Go to **Maintenance > Backup and Restore**.
3. You can optionally add a password for your backup file.
4. Click *Create system backup file*.
5. Save the backup file.

Note: When you restore your system from a backup, it does not include Active Directory credentials. You will need to add them in order to access the Active Directory domain.

Deleting Existing Snapshots

1. Make a backup of your configuration.
2. Shutdown the Cisco VCS:
 - a. Go to **Maintenance > Restart Options** and click *Shutdown*.
 - b. Click *OK* to shut down the system.
3. Power off the VM.
4. Right-click on the VM and select *Manage Snapshots*.
5. In the **Snapshot Manager**, select *Delete All Snapshots*.
6. Click *Yes* in the confirmation dialog box.
7. Click *Close* to exit the Snapshot Manager.

Hardware References

Serial Interface

A VM TelePresence Conductor has no physical serial interface; the serial interface is accessible through the console tab of the VM guest.

You can use CTRL+ALT to exit from the Console window (this is identified in the bottom right corner of the vSphere Client window).

Ethernet Interfaces (NICs)

In VM TelePresence Conductor the LAN interfaces are Virtual NICs. Appropriate drivers are set up as VM TelePresence Conductor is installed; configuration of IP addresses is carried out through the standard TelePresence Conductor interface.

VM TelePresence Conductor allocates 3 virtual NICs:

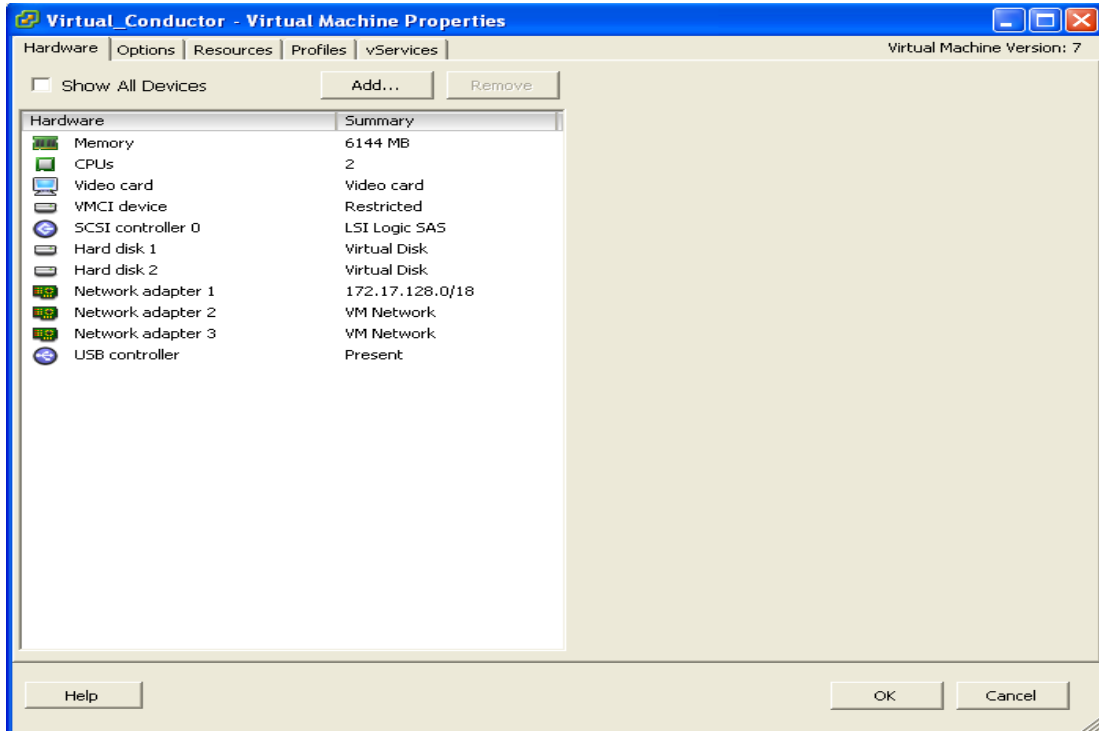
- the first is used for the standard LAN 1 interface
- the second and third are reserved for future use

Allocating a Virtual NIC to a Physical NIC Interface

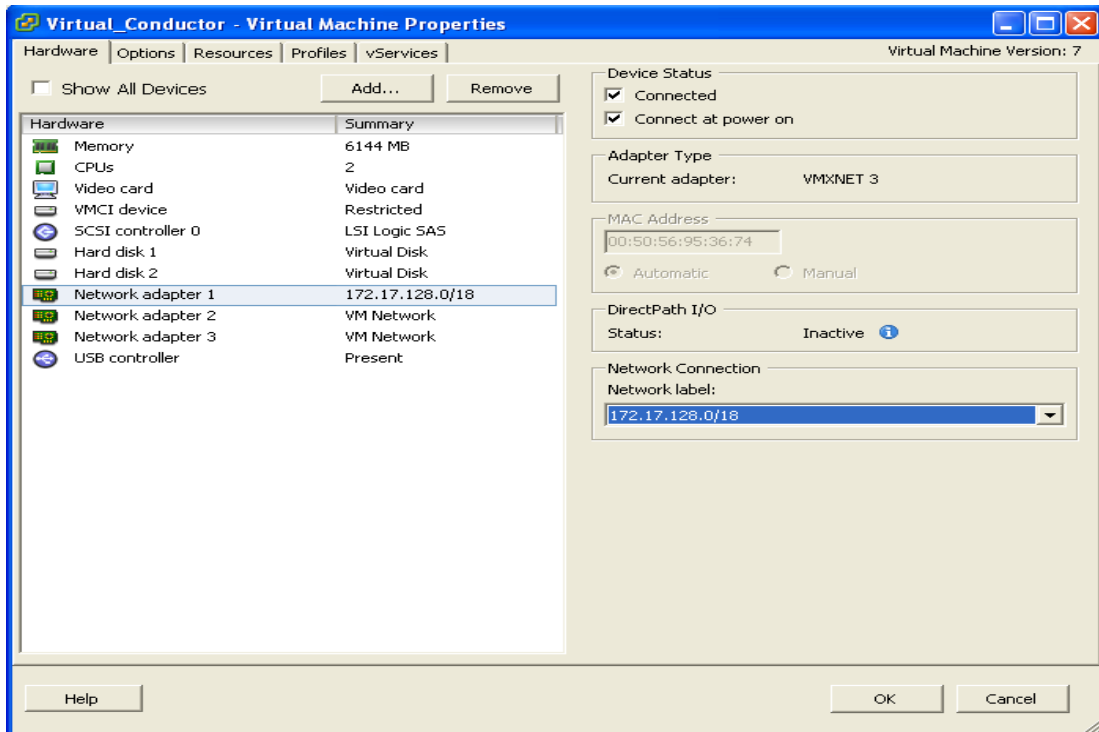
Virtual NICs can be assigned to physical interfaces as follows:

1. Ensure that the physical NIC on the VM host is connected and operational.
2. Set up or check that there are Virtual Switches (vNetwork Distributed Switches) for each physical NIC. (Select the host on which the VM TelePresence Conductor will run, select the **Configuration** tab and select **Networking**.)
3. Ensure that there is at least one Virtual Machine Port Group (with associated VLAN IDs) set up for each physical NIC.
To add a new Virtual Machine Port Group:
 - a. Click **Properties** on the appropriate Virtual Switch or vNetwork Distributed Switch.
 - b. Follow the network wizard.
4. Note the name of a Virtual Machine Port Group connecting to the required NIC.

5. Select the VM guest; right click it and select **Edit settings...**



6. Select the required network adaptor (Network adaptor 1 = LAN 1, Network adaptor 2 = LAN 2).



7. Select the appropriate Network label (Virtual Machine Port Group) to associate the TelePresence Conductor LAN interface with the required physical NIC.

Hardware References

8. After a few seconds the TelePresence Conductor will be able to communicate over the physical interface.

Additional Information

Upgrading an Expressway VM

Read this before you begin

- To avoid any performance degradation we recommend that you upgrade the TelePresence Conductor while the system is inactive.
- If the TelePresence Conductor is part of a cluster follow the relevant *Cisco TelePresence Conductor Clustering deployment guide* instead of this procedure.

Upgrade procedure

When upgrading a VM TelePresence Conductor you must use a .tar.gz file (available from the software download site), not an .ova file:

1. Log in to the TelePresence Conductor VM web interface as an administrator.
2. Backup the TelePresence Conductor from the **Backup** page (**Maintenance > Backup and restore**).
3. Upgrade the TelePresence Conductor from the **Upgrade** page (**Maintenance > Upgrade**).

Clustering for Resilience and Capacity

If you cluster Expressway VMs, we strongly advise you to use at least two physical hardware hosts. Hardware resilience requires TelePresence Conductor peers to run on at least two different hardware platforms.

Each and every TelePresence Conductor peer in a cluster must be within a 15ms hop (30ms round trip delay) of each and every other TelePresence Conductor in or to be added to the cluster.

For more information on clustering TelePresence Conductors, see the relevant [Cisco TelePresence Conductor Clustering Deployment Guide](#).

Migrating from a Physical Appliance to a VM

If you are migrating from a physical appliance to a VM, the backup/restore process (**Maintenance > Backup and restore**) can be used to transfer configuration between the two installations. You will receive a warning message, but you will be allowed to continue.

Migrating the Host (use VMware VMotion)

If you need to move TelePresence Conductor to a new host, you must use VMware VMotion to perform the host migration.

Before you start

We recommend that a VMotion move is carried out when there is low conference creation activity on the VM TelePresence Conductor.

SAN with Fibre Interconnect is Recommended

Use of a SAN with Fibre interconnect, rather than a NAS, is recommended in order to maximize the transfer speed.

Unsupported Features

VMware Fault Tolerant Mode

VMware fault tolerant mode is not supported (because the TelePresence Conductor uses multiple cores).

Additional Information

VMware HA

We do not support VMware High Availability. We recommend clustering for resilience. If you need to move a virtual TelePresence Conductor, you can use VMotion.

VMware Snapshots

We do not support VMware snapshots. We recommend you take regular backups of the TelePresence Conductor instead.

Licensing

If you copy the VM, the TelePresence Conductor serial number will change and the existing license keys will be invalidated. If you need to move TelePresence Conductor to a new host, you must use VMware VMotion to perform the host migration.

Security Hardening

Information on how to deploy and operate VMware products in a secure manner is available from the [VMware Security Hardening Guides](#).

Appendix 1: Troubleshooting

This section has information to help in troubleshooting system issues.

Checking VMware Compatibility

If you use third-party hardware to host the VM TelePresence Conductor application, check the hardware compatibility. You can do this with the VMware compatibility guide tool from <http://www.vmware.com/resources/compatibility/search.php>.

VMware Checklist

1. Check accessibility to the VM host server (by ping, physical console access, SSH remote access, KVM-over-IP console, and so on).
2. Check 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 have 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 VM host server utilization. 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. Or 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 iSCSI naming error, authentication error, and host convertibility error.
6. Verify that adequate disk space is available on the physical volume that stores the database files. Free up disk space if necessary.
7. Validate authentication to the vCenter Server database. The vCenter Server service may not be able to authenticate with the database if:
 - a. There are permission issues with the database when importing from one instance to another.
 - b. The password on the account you are using to authenticate to the database has changed but the password in the registry has not.
 - c. The vCenter Server database user is not granted correct permissions.

Isolating a Possible Root Cause

Potential issue area	What to look for
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: <ul style="list-style-type: none"> ■ 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.

Appendix 1: Troubleshooting

Potential issue area	What to look for
DNS	DNS server failures or communication failures between DNS and the VM server may cause the VMware application or the VM TelePresence Conductor application to fail.
vCenter Server	If vCenter is not operating properly, although the VM TelePresence Conductor application is still up and running, you may lose connection to the VM TelePresence Conductor 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

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 reinstall ESXi then load the .ova file.

TelePresence Conductor application fails to start

Look at the /tmp/hwfail file – its content indicates any violations in the installation.

For example, TelePresence Conductor reserves 3 virtual NICs – these are required in the TelePresence Conductor, do not try deleting one or more of them otherwise hwfail is created and the VM TelePresence Conductor will not run.

Configured NTP does not work

For NTP to work on TelePresence Conductor, the same NTP must also be configured on the VM host.

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

Web page/IP address unreachable after OVA deployment

This issue can be caused by a cache issue in the gateway switch.

To resolve, access vCenter, go to the console and ping the gateway: `ping <gateway_ip_address>`.

Clustering status incorrect after recreating a VM within a cluster

When recreating a VM within a cluster, the cluster must be broken and recreated for it to function correctly.

To resolve, take the following steps:

1. Back up the existing configuration from the original node you want to recreate.
2. Upgrade all nodes to XC4.3.
3. Shut down guest on the original node.
4. Start up a new VM using the XC4.3 .ova file and give it the same IP address as the original node.
5. Power on the new VM and assign it a new release key.
6. Restore the backup configuration from the original node onto the new VM.
7. Rebuild the cluster and add the cluster configuration on the other nodes.

Appendix 1: Troubleshooting

8. After approximately 10 minutes, clustering status on the **Status > Clustering page** should accurately indicate a normal status for the cluster.

Raid controller synchronization

If the VMware system is synchronizing its RAID disks, disk performance is seriously degraded. We strongly recommend that TelePresence Conductor is not installed or run on VM platforms where RAID disks are in a degraded or synchronizing state.

Analyzing the Cause of VMware Issues

If issues exist with VMware on the TelePresence Conductor host, we recommend that you collect logs from the host for analysis:

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

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=653.

Restoring the Default Configuration (Factory Reset)

Rarely, it may be necessary to run the “factory-reset” script on your system. This reinstalls the software image and resets the configuration to the default, functional minimum.

Before You Begin

If you've upgraded since the system was first set up, be aware that the reset reinstalls your latest software version.

The system uses the default configuration values that currently apply in the software version installed by the reset. These may differ from your previously configured values, especially if the system has been upgraded from an older version. (As described below, optionally it's possible to retain a few configuration values like option keys, SSH keys, and FIPS140 mode, but we recommend that you reset all these values.)

Prerequisites

- As the virtual machine console is required to complete this process, **you need appropriate VMware access in order to open the VM console.**
- The factory reset procedure described below rebuilds the system based on the most recent successfully installed software image. The following two files stored in the `/mnt/harddisk/factory-reset/` system folder, are used for the reinstallation. In some cases these files are not present on the system (most commonly with a fresh VM installation that has not been upgraded). If so, you must first put the files in place using SCP as root.
 - A text file containing just the 16-character Release Key, named **rk**
 - A file containing the software image in tar.gz format, named **tandberg-image.tar.gz**

Process to Reset to the Default Configuration

You must do this procedure from the console. Because the network settings are rewritten, all calls and any SSH session used to initiate the reset will be dropped and you won't be able to see the procedure output.

The process takes approximately 20 minutes.

1. Log in to the system as **root**.
2. Type `factory-reset`

Appendix 1: Troubleshooting

3. Answer the questions as required. The recommended responses will reset the system completely to a factory default state:

Prompt	Recommended response
Keep option keys [YES/NO]?	NO
Keep FIPS140 configuration [YES/NO]?	NO
Keep IP configuration [YES/NO]?	NO
Keep ssh keys [YES/NO]?	NO
Keep server certificate, associated key and CA trust store [YES/NO]?	NO
This option does <i>not</i> preserve SNI / domain certificates, which are always deleted regardless of what you respond. Only the server certificate and associated key and CA trust store are saved (if you respond YES).	
Keep root and admin passwords [YES/NO]?	NO
Save log files [YES/NO]?	NO

4. Confirm that you want to proceed.
5. After the VM boots, you are taken to the Install Wizard. You must complete the wizard through the VM console. Some of the questions in the wizard may be skipped depending on your responses in step 3, but even if you preserved the IP configuration and password, you still need to complete the Install Wizard through the VM console.

Note: If you were using FIPS140 and you want to enable it again, see the relevant section in the Administration Guide:

- [Expressway Administrator Guide](#)
- [VCS Administrator Guide](#)

Resetting Your Administrator Password or Root Password

If you have forgotten the password for either an administrator account or the **root** account and you are using a VM (Virtual Machine) TelePresence Conductor, you can reset it using the following procedure:

1. Open the vSphere client.
2. Click on the link **Launch Console**.
3. Reboot the TelePresence Conductor.
4. In the vSphere console log in with the username `pwrec`. No password is required.
5. When prompted, select the account (`root` or the username of the administrator account) whose password you want to change.
6. You will be prompted for a new password.

The **pwrec** account is only active for one minute following a reboot. After that time you will have to reboot the system again to reset the password.

Appendix 2: VM TelePresence Conductor Activation Process

After you install the Cisco TelePresence Conductor VM, you can use this procedure to activate your Cisco TelePresence Conductor software.

1. You will have received your Product Authorization Keys (PAKs) via email. The TelePresence Conductor software can be downloaded from <https://software.cisco.com/download/navigator.html>.
2. Register your software and feature PAKs at the customer licensing portal to retrieve your **Release** key and any relevant **Option** keys:
 - a. Go to www.cisco.com/go/license and sign in.
 - b. If necessary, click **Continue to Product License Registration**.
 - c. Follow the onscreen instructions to register your software PAK (with a part number prefix of LIC-SW-EXP or LIC-SW-VMVCS) using the product serial number obtained in the previous step.
 - d. Continue to register any applicable feature PAK.

You will shortly receive 2 emails containing your release key and option keys.

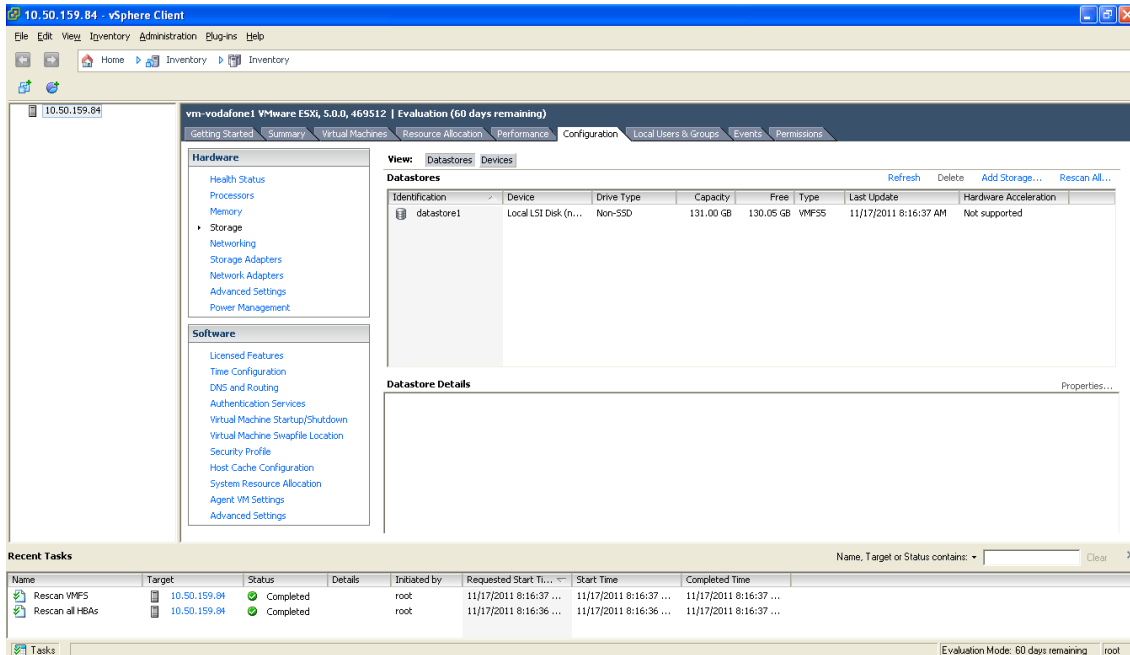
3. Enter your **Release key** and any **Option keys** on the **Option keys** page (**Maintenance > Option keys**) on the TelePresence Conductor web interface.
4. Restart the TelePresence Conductor (**Maintenance > Restart options**).

Only one restart is required after the release key and option keys have been entered.

Appendix 3: Deploying Multiple Datastores

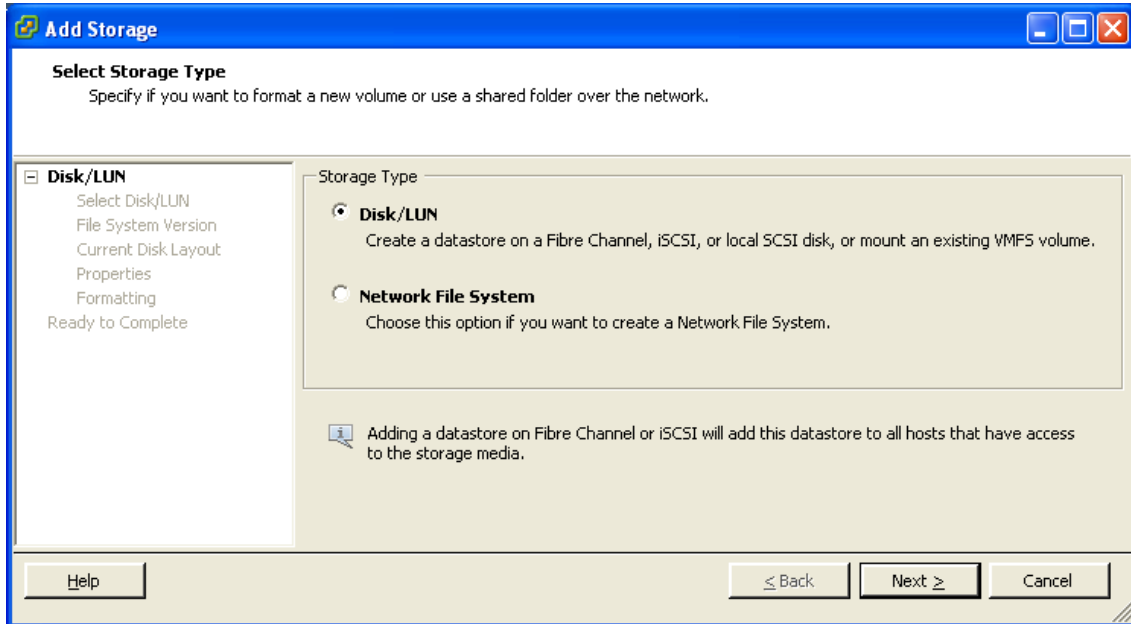
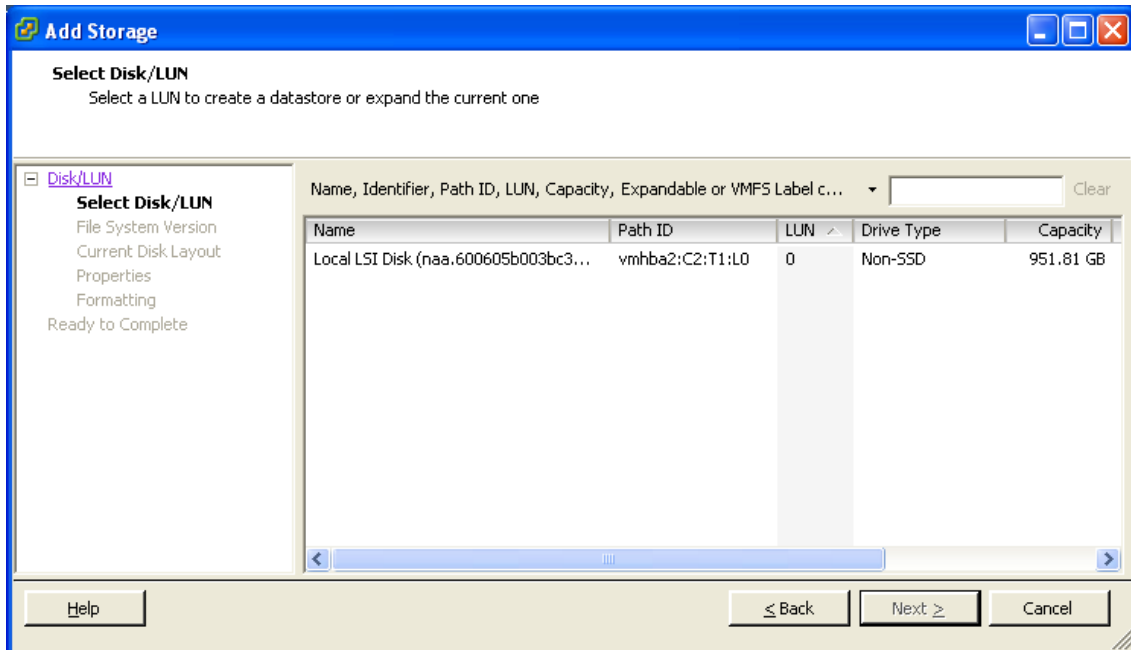
This process should be carried out during the initial build of the VM host, if the VM host has two or more RAID arrays of disk storage. This configuration enables vSphere / vCenter to know about all the datastores.

1. From vSphere or vCenter Inventory list select the relevant Host.
2. Select the **Configuration** tab.
3. Select **Storage**.



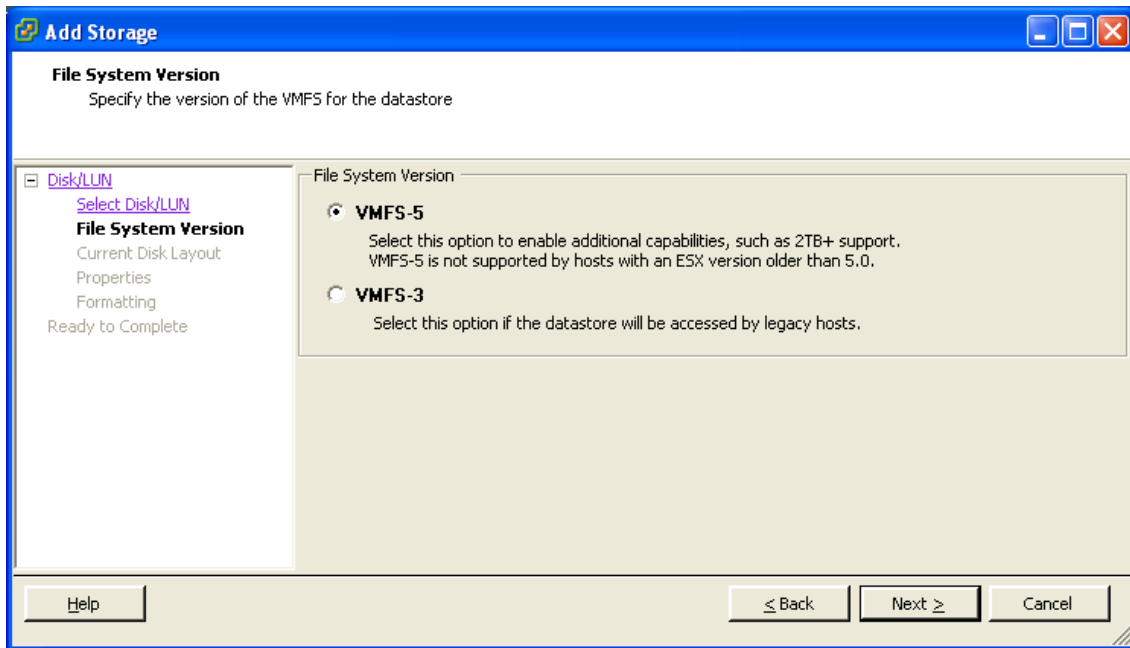
4. Select **Add Storage ...** (on the right hand side window).

Appendix 3: Deploying Multiple Datastores

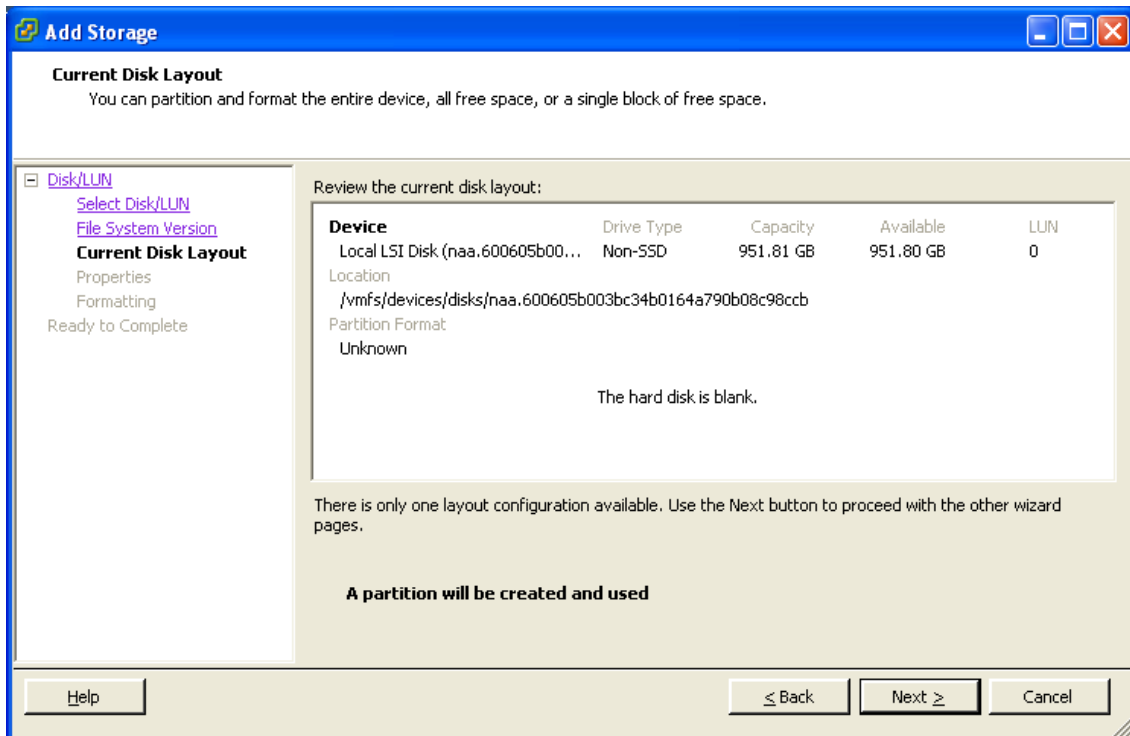
5. Select **Disk/LUN** and click **Next**.6. Under **Disk/LUN** select the required Disc/LUN from the list presented and click **Next**.

Appendix 3: Deploying Multiple Datastores

7. On the **File System Version** page select **VMFS-5** and then click **Next**.

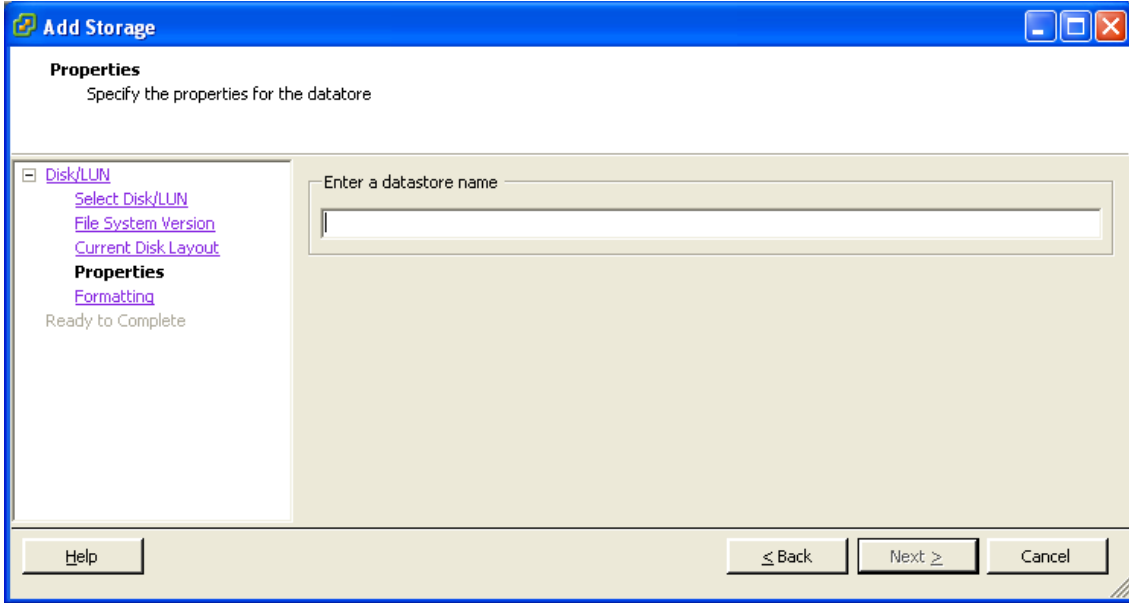


8. On the **Current Disk Layout** page verify the details and then click **Next**.

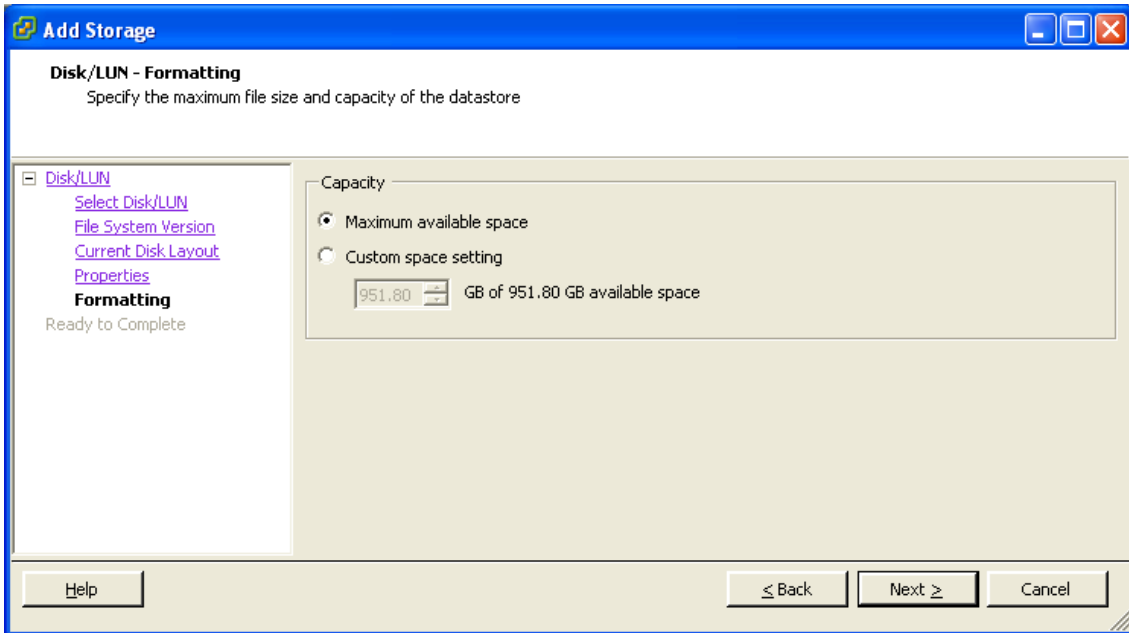


Appendix 3: Deploying Multiple Datastores

9. On the **Properties** page enter a name for the new datastore and then click **Next**.

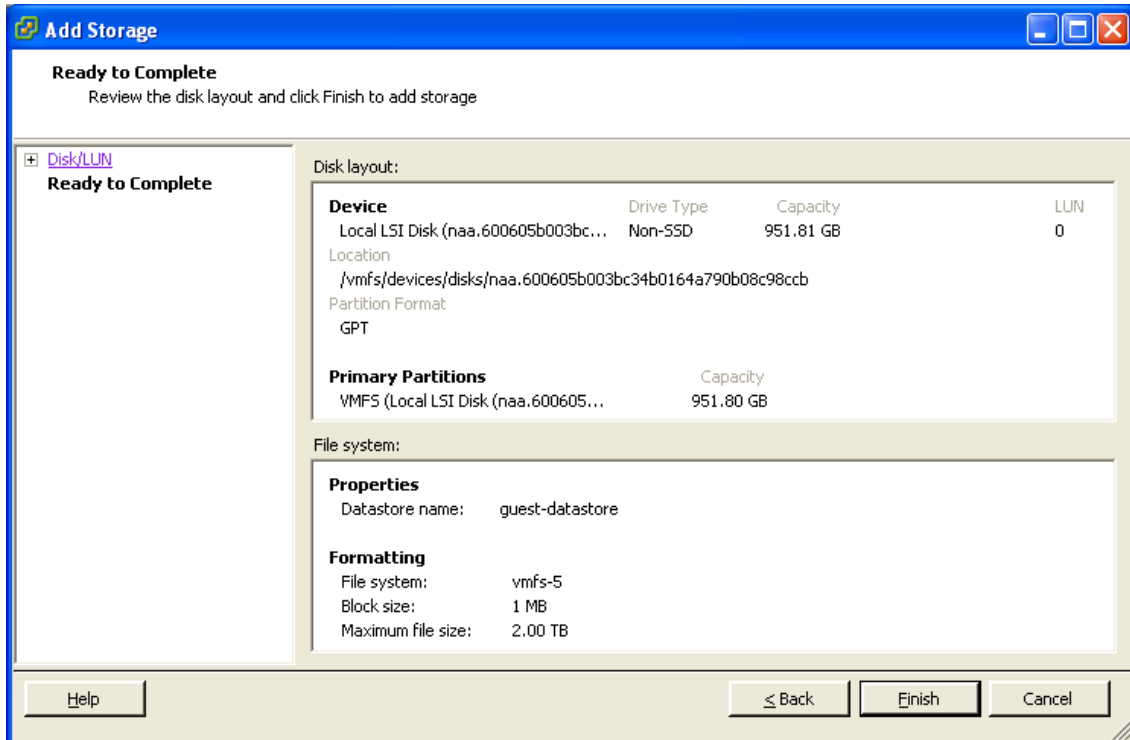


10. On the **Formatting** page select **Maximum available space** and then click **Next**.

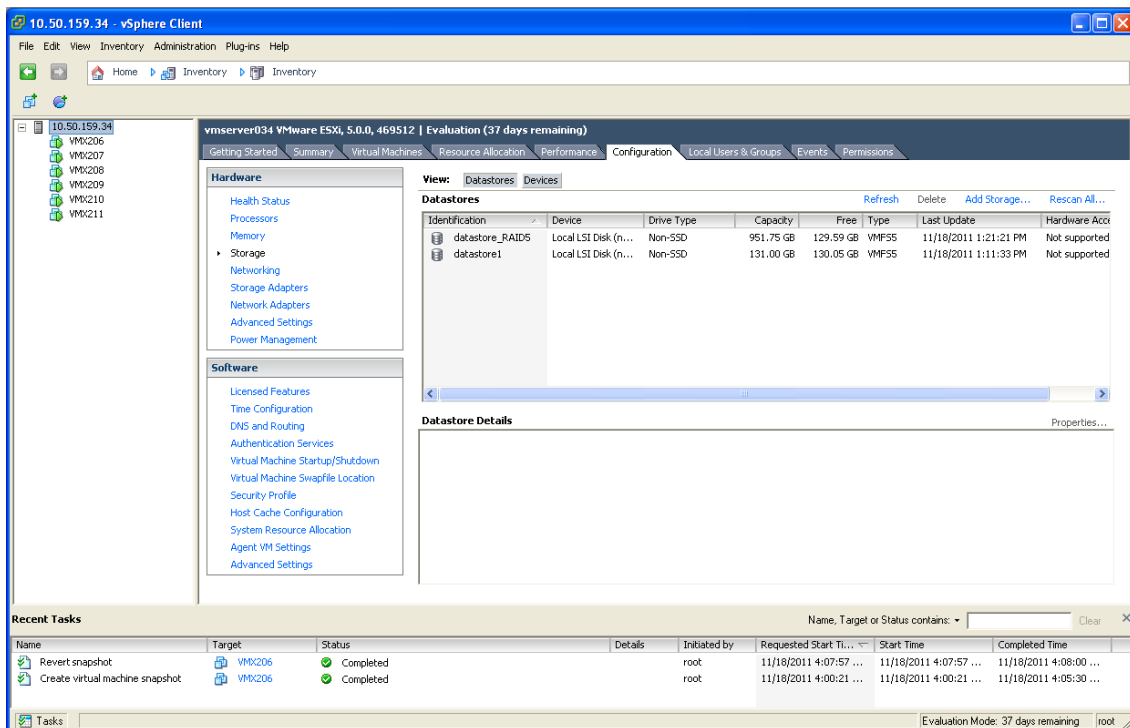


Appendix 3: Deploying Multiple Datastores

- On the **Ready to Complete** page verify the details and then click **Finish**.



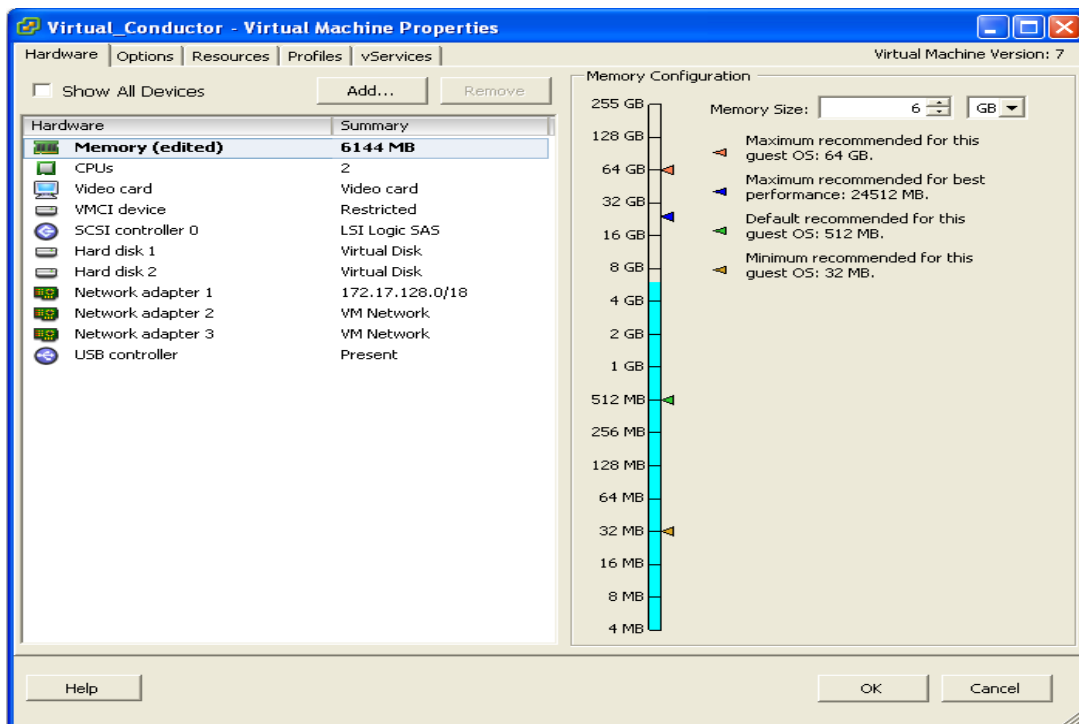
- Wait for the Create VMFS Datastore task to complete.
- On completion, the new datastore will be listed under the **Storage** section.



Appendix 4: Ensuring That 6GB of Memory Is Allocated for the VM TelePresence Conductor

If the wrong amount of memory has been allocated to the VM TelePresence Conductor, this can be corrected as follows:

1. Power off the guest:
 - a. Select TelePresence Conductor VM Guest.
 - b. Select the **Console** tab.
 - c. Right-click TelePresence Conductor VM Guest and select **Power > Shut Down Guest**.
 - d. Select to confirm shutdown.
 - e. Wait for Initiate guest OS shutdown to complete.
 - f. Wait for Console screen to go blank and the icon by TelePresence Conductor VM Guest to lose its green Power On indication.
2. When the guest is off, right-click the guest and select **Edit Settings**.
3. Select the **Hardware** tab.
4. Select **Memory**.
5. On the right side, ensure that Memory Size is set at 6GB – if not set it to 6GB and click **OK**.



6. Power on the guest.
 - a. Select TelePresence Conductor VM Guest.
 - b. Select the **Console** tab.
 - c. Right-click on the TelePresence Conductor VM Guest and select **Power > Power On**.
 - d. Wait for console to show the login: prompt.

Appendix 4: Ensuring That 6GB of Memory Is Allocated for the VM TelePresence Conductor

7. Check that other configuration requirements (for example, number of CPUs, disk space allocation, version of ESXi) are correct.

Cisco Legal Information

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

© 2019 Cisco Systems, Inc. All rights reserved.

Cisco Trademark

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

