

Administration Guide

Update 2 Release for
Converter Enterprise for VirtualCenter 2.5

VMware Converter Enterprise for VirtualCenter 2.5

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About This Book

The *Converter Enterprise Administration Guide* provides information about installing and using VMware® Converter Enterprise for VirtualCenter 2.5.

Converter Enterprise Administration Guide covers both ESX Server 3.5 and ESX Server 3i version 3.5. For ease of discussion, this book uses the following product naming conventions:

- For topics specific to ESX Server 3i version 3.5, this book uses the term “ESX Server 3i.”
- For topics common to both products, this book uses the term “ESX Server.”

Intended Audience

This book is intended for users who are installing, upgrading, or using VMware Converter Enterprise. Converter Enterprise users are typically software developers, QA engineers, trainers, salespeople who run demos, and anyone who wants to create virtual machines. Another set of users include those who need to nonintrusively copy and transform physical machines into VMware virtual machines managed by VMware VirtualCenter.

Document Feedback

VMware welcomes your suggestions for improving our documentation. If you have comments, send your feedback to:

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VMware Converter Enterprise Documentation

The VMware Converter Enterprise documentation consists of this administration guide, online help integrated with the VMware Infrastructure Client plug-in, and release notes.

For more information about VMware Infrastructure, see the VMware VirtualCenter and ESX Server documentation set.

Technical Support and Education Resources

The following sections describe the available technical support resources. You can access the most current versions of this Guide and other books at

<http://www.vmware.com/support/pubs>

Online and Telephone Support

Use online support to submit technical support requests, view your product and contract information, and register your products. Go to <http://www.vmware.com/support>.

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Introduction to VMware Converter Enterprise

1

This chapter describes the capabilities of VMware Converter Enterprise for VirtualCenter 2.5. It also provides information about the Converter Enterprise components and introduces important concepts.

This chapter includes the following sections:

- [“Migration with VMware Converter Enterprise”](#) on page 9
- [“VMware Converter Enterprise Components”](#) on page 9
- [“Cloning and System Reconfiguration of Physical Machines”](#) on page 11
- [“Migrating Existing Virtual Machines and System Images”](#) on page 15
- [“Scheduling Recurring Tasks”](#) on page 17
- [“System Settings Affected by Conversion”](#) on page 18

Migration with VMware Converter Enterprise

Migration with Converter Enterprise involves cloning the source and exporting it to a destination. Converter Enterprise enables you to convert a wide variety of sources into virtual machines and import those virtual machines for use with VMware VirtualCenter 2.5. You can also convert virtual machines managed by VirtualCenter to different VMware virtual machine formats and export those virtual machines for use with other VMware products. You can use Converter Enterprise to perform the following tasks:

- Convert physical machines to virtual machines and import the virtual machines to VirtualCenter.
- Convert and import virtual machines, such as VMware Workstation, VMware GSX Server, or Microsoft Virtual Server 2005, to VirtualCenter.
- Convert third-party backup or disk images to VirtualCenter virtual machines.
- Restore VMware Consolidated Backup (VCB) images to VirtualCenter virtual machines.
- Export VirtualCenter virtual machines to other VMware virtual machine formats.
- Reconfigure VirtualCenter virtual machines so that they are bootable.
- Customize VirtualCenter machines (for example, change the host name or network settings).

VMware Converter Enterprise Components

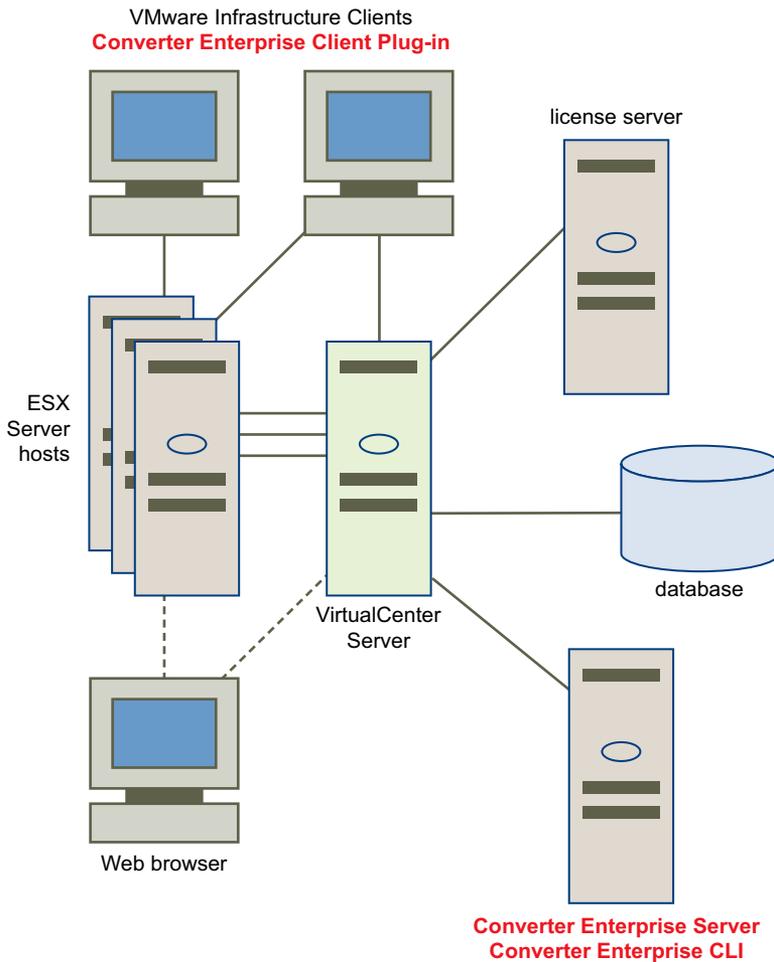
Converter Enterprise includes the following components:

- **Converter Enterprise server** – Enables the import and export of virtual machines using the VMware Infrastructure Client or the Converter Enterprise command line interface (CLI). Install the Converter Enterprise server on VirtualCenter Server or on an independent machine with access to a VirtualCenter Server.

- **Converter Enterprise CLI** – Provides a command-line interface to operate the Converter Enterprise server. You can install the Converter Enterprise CLI on the same machine as Converter Enterprise server or on another machine that has access to a Converter Enterprise server.
- **Converter Enterprise agent** – Prepares a physical machine for import from a remote machine running a Converter Enterprise server. The Converter Enterprise server installs the agent on physical machines only to import them as virtual machines. You can choose to automatically remove the Converter Enterprise agent from the physical machine after the import is complete.
- Converter Enterprise works with the Converter Enterprise client. [Figure 1-1](#) shows an example of a Converter Enterprise component installation in a VirtualCenter environment. The Converter Enterprise client component consists of the Converter Enterprise client plug-in, which provides access to the Converter Enterprise Import, Export, and Reconfigure wizards from within a VI Client.
- **VMware Converter Enterprise Boot CD** – Enables cold cloning of physical machines. The boot CD is available with standalone Converter Enterprise.

Install the Converter Enterprise Client plug-in from the VMware Infrastructure Client **Plugins** menu. After you install the client, the Converter Enterprise Online Help is available from the Help menu.

Figure 1-1. A Typical Installation of VMware Converter Enterprise Components in a VirtualCenter Environment



Cloning and System Reconfiguration of Physical Machines

When you import a physical system, Converter Enterprise uses cloning and system reconfiguration to create a virtual machine that is compatible with VirtualCenter. The migration process is nondestructive, so you can continue to use the original source machine after the import completes.

Cloning is the process of creating a cloned disk, where the cloned disk is a virtual disk that is an exact copy of the source physical disk. Cloning involves copying the data on the source machine's hard disk and transferring that data to the new.

System reconfiguration adjusts the migrated operating system to enable it to function on virtual hardware. This adjustment is performed on the cloned disk and enables the cloned disk to function as a bootable system disk in a virtual machine.

If you plan to run an imported virtual machine on the same network as the source physical machine, you must modify the network name and IP address on one of the machines, so that the physical and virtual machines can coexist.

Hot and Cold Cloning

Converter Enterprise supports hot cloning and cold cloning. Hot cloning, also called live cloning or online cloning, clones the source machine while the operating system is running. Cold cloning, also called offline cloning, clones the source machine when the operating system is not running. With cold cloning, you reboot the source machine using a CD that has the operating system and Converter Enterprise application on it. Cold cloning does not leave any software on the source machine.

NOTE When hot cloning dual boot systems, you can only clone the default operating system to which **boot.ini** points. To clone the nondefault operating system, change **boot.ini** to point to the other operating system then reboot the system. After you are booted into the other operating system, you can use Converter Enterprise to hot clone it.

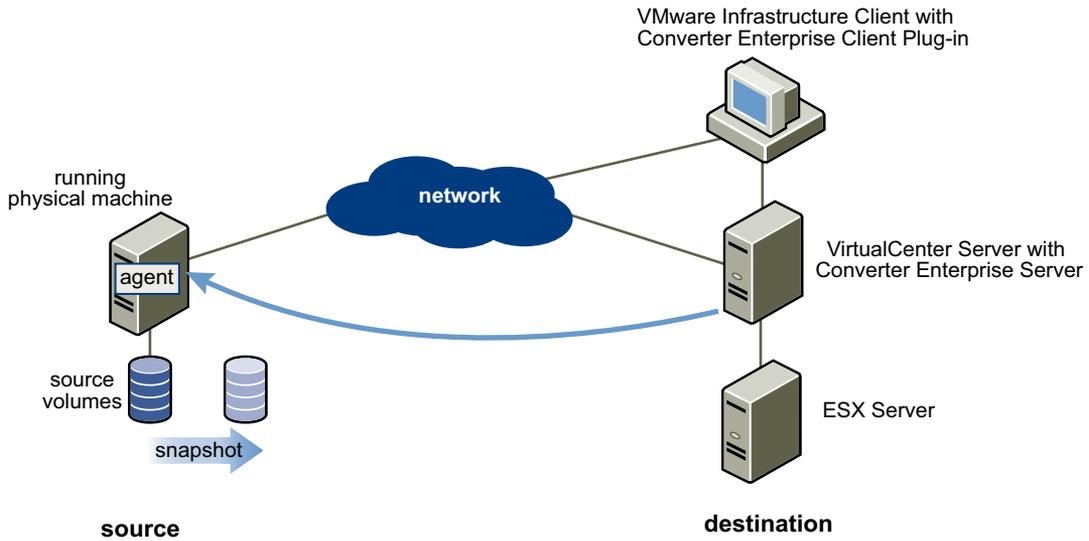
Remote and Local Cloning

With remote cloning, you can access the source machine remotely, as long as it is running and accessible to the network. With local cloning, Converter Enterprise runs on the source machine to perform the migration.

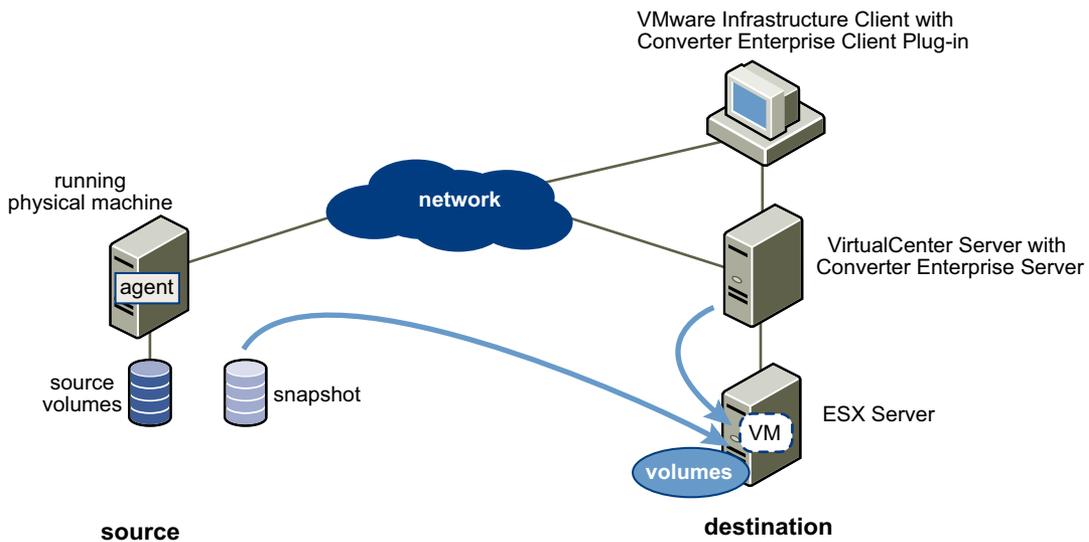
Remote Hot Cloning of a Physical Machine

The following workflow is an example of remote hot cloning, during which the physical machine being cloned experiences no downtime. You use the Converter Enterprise wizard to set up a migration task, and Converter Enterprise automatically performs the cloning tasks.

- 1 The Converter Enterprise server installs the Converter Enterprise agent on the source machine. The agent takes a snapshot of the source volumes.

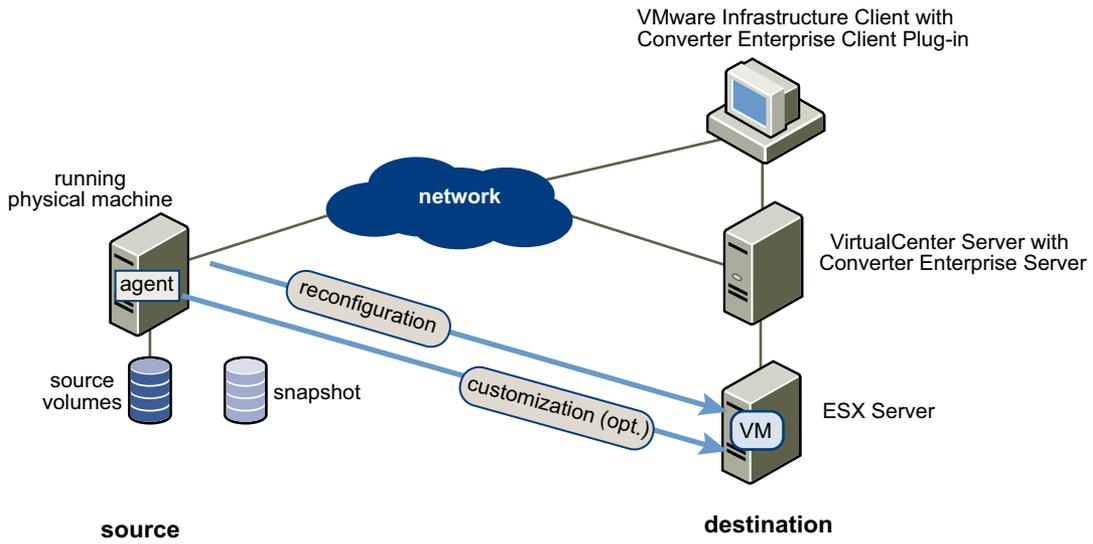


- 2 Converter Enterprise prepares the virtual machine on the destination machine. The server creates a new virtual machine on the destination machine and the agent copies volumes from the source machine to the destination machine.

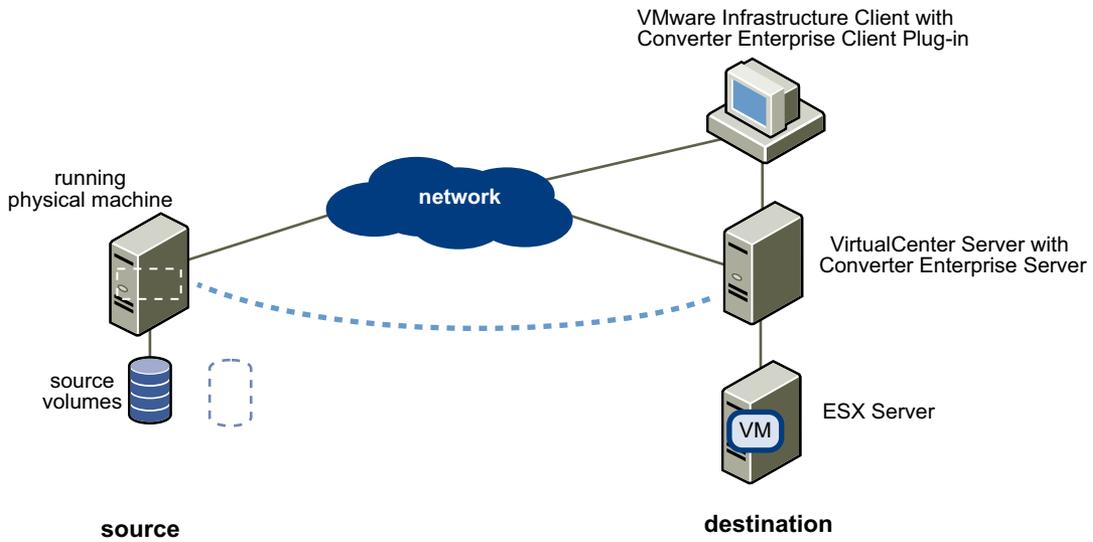


3 Converter Enterprise completes the conversion process.

The agent installs the required drivers to allow the operating system to boot in a virtual machine and the agent customizes the virtual machine (for example, changing the IP information).



4 Converter Enterprise Server removes all traces from the source machine.



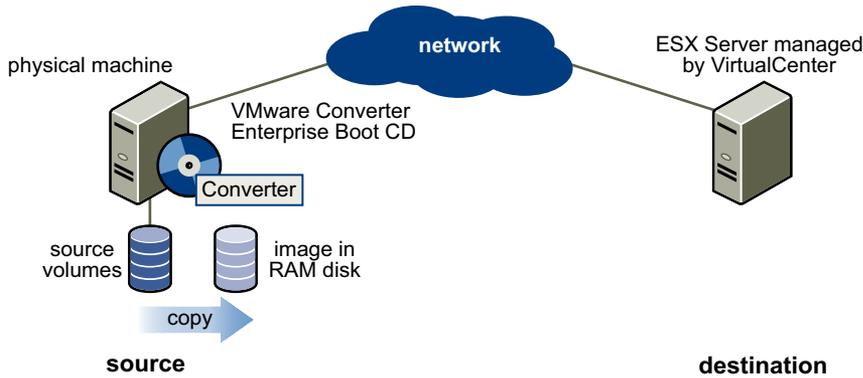
The virtual machine is ready to run on the destination machine.

Local Cold Cloning Workflow of a Physical Machine

For cold cloning, you use the VMware Converter Enterprise Boot CD. The following workflow is an example of cold cloning the source machine when the operating system is not running. You set up a migration by using the Converter wizard on the boot CD.

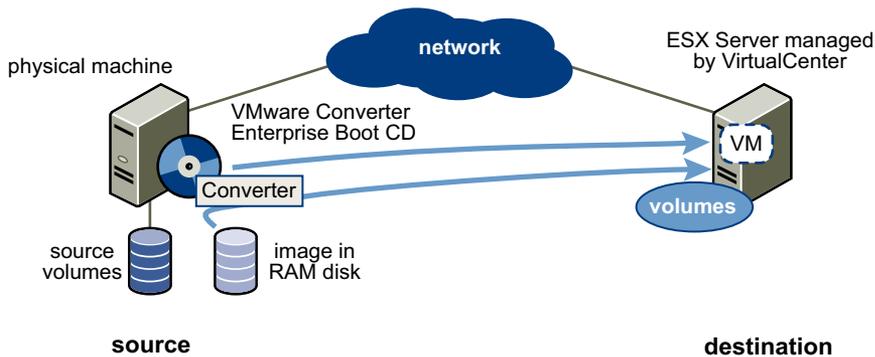
- 1 Converter Enterprise prepares the source machine image.

Boot the source machine from the VMware Converter Enterprise Boot CD and use Converter to define and start the migration. Converter Enterprise copies the source volumes into a RAM disk.



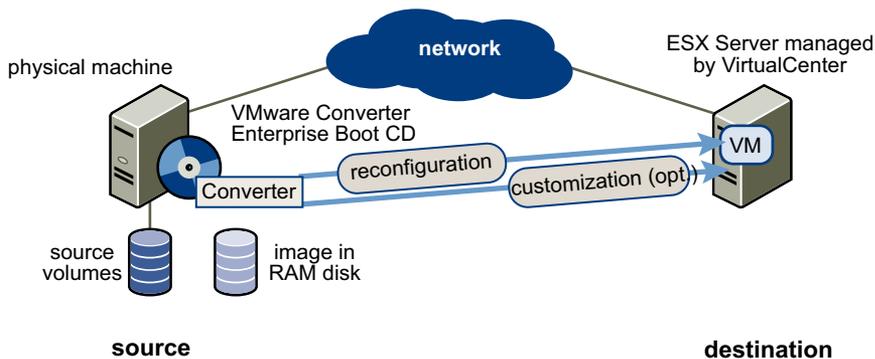
- 2 Standalone Converter Enterprise prepares the virtual machine on the destination machine.

Converter Enterprise creates a new virtual machine on the destination machine and copies volumes from the source machine to the destination machine.



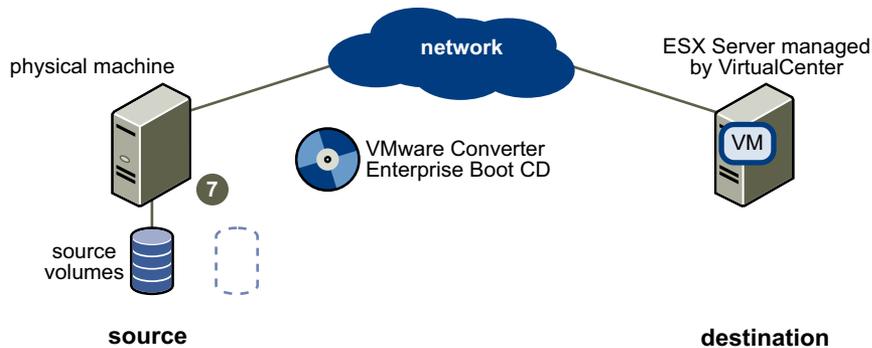
- 3 Converter Enterprise completes the conversion process.

Standalone Converter Enterprise installs the required drivers to allow the operating system to boot in a virtual machine and personalizes the virtual machine (for example, changing the IP information).



4 Converter Enterprise cleans up.

Remove the boot CD and reboot the source physical machine to return to its own operating system.



The virtual machine is ready to run on the destination machine

Cloning Modes

Converter Enterprise supports two cloning modes: disk-based cloning and volume-based cloning.

Volume-based Cloning

Converter Enterprise supports volume-based cloning for hot and cold cloning and for importing existing virtual machines. In volume-based cloning, all volumes in the destination virtual machine are basic volumes, regardless of the type in the corresponding source volume. File-level or block-level volume-based cloning is performed, depending on your size selections:

- **File-level cloning** – Performed when a size smaller than the original volume is specified.
- **Block-level cloning** – Performed when the same or a larger volume size is specified.

Depending on the cloning mode, some types of source volumes might not be supported as follows:

- Cold cloning (Converter Enterprise Boot CD) supports all types of dynamic volumes, but does not support Windows NT 4 fault-tolerant volumes. It does support Windows NT 4 with mirrored volumes.
- Virtual machine importing supports basic volumes and all types of dynamic volumes, except RAID. It does not support Windows NT 4 fault-tolerant volumes. It does support Windows NT 4 with mirrored volumes. Only master boot record (MBR) disks are supported. GUID partition table (GPT) disks are not supported.
- Hot cloning supports all types of source volumes recognized by Windows, except Windows NT 4 fault-tolerant volumes. It supports Windows NT 4 with mirrored volumes.

Disk-based Cloning

Converter Enterprise supports disk-based cloning for cold cloning and for importing existing virtual machines. Disk-based cloning transfers all sectors from all disks, preserving all volume metadata. The destination virtual machine receives the same volumes of the same type as those of the source virtual machine. Disk-based cloning supports all basic and dynamic disks.

Migrating Existing Virtual Machines and System Images

Converter Enterprise outputs a new VMware virtual machine based on the source virtual machine or system image. The migration process is nondestructive, so you can continue to use the source virtual machine or system image with the product used to create it. To run an imported VMware virtual machine on the same network as the source virtual machine, you must modify the network name and IP address on one of the virtual machines so that the original and new virtual machines can coexist.

Converting Virtual Machines

Converter Enterprise lets you move VMware virtual machines between VMware Workstation, VMware Fusion, VMware Player, VMware ACE, VMware ESX Server, ESX Server 3i Embedded, ESX Server 3i Installable, VMware GSX Server, and VMware Server. It also imports virtual machines from Microsoft Virtual Server and Virtual PC.

If the VMware virtual machines have disks that have been populated using a backup of a physical host or some other direct means of copying, Converter Enterprise prepares the image to run on VMware virtual hardware.

Whenever you use one of the Converter Enterprise wizards to import, export, or reconfigure a virtual machine, you are creating a task. Differences in the way you manage immediate and scheduled tasks are noted in the sections that follow.

You cannot schedule reconfiguration tasks.

Restoring VCB Images

VCB enables you to back up entire ESX Server virtual machines and store the backup by using Workstation disks, a .vmx file, and a catalog file. Converter Enterprise can restore VCB images of any guest operating system type on ESX Servers managed by VirtualCenter.

For the operating systems listed in “[System Requirements](#)” on page 19, you can select and resize volumes and customize the identity of the restored virtual machine. For all other guest operating systems, Converter Enterprise only supports restoring the disks.

Converter Enterprise does not maintain the .nvram file or the VMware log files. Only disks are preserved.

Converter Enterprise does not read the original location settings and display name from the catalog file. To restore to the same location, you must look up information such as datastore, host name, folder name, and resource pool in the catalog file and enter it in the Import wizard. In addition, Converter Enterprise does not read the original display name from the catalog file. If you want to use the same name and don't remember it, you can look it up in the catalog file. You can read the catalog file as a plain text file.

Information Not Preserved When Importing VCB Images

When restoring VCB images, Converter Enterprise does not preserve certain hardware backing information from the original image, but rather substitutes default settings. The following are the affected areas:

- **CDROM** – Defaults to device type: host device.
- **Floppy** – Defaults to device type: host device
- **Network adapters** – Defaults to the list of network adapters in the GUI. The MAC address is not preserved. It is regenerated by the destination host.
- **Serial port** – Defaults to the physical serial port on destination host machine.
- **Parallel port** – Defaults to the physical parallel port on destination host machine.

When restoring VCB images, Converter Enterprise does not preserve certain other virtual machine properties from the original image. The following are the affected areas:

- **UUID** – The BIOS and location of the virtual machine, identified by `uuid.bios` and `uuid.location`, are not preserved, but are regenerated by the host machine.
- **Disk resource allocation** – Defaults to the values available on the host when the virtual machine is created.

Scheduling Recurring Tasks

You can schedule an unlimited number of physical to virtual recurring tasks and specify how the existing virtual machines are to be retained. This functionality allows you to create a virtual machine that is a periodic backup of a physical system, which streamlines the backup process. Instead of restoring the backup image to the original system before you can recover it, you can immediately recover the image by powering on the backup virtual machine.

For recurring tasks, the agent must be installed permanently on the source machine. You can specify the frequency at which to run the task and how many virtual machines to keep.

Keeping an Unlimited Number of Virtual Machines

Recurring cloning tasks produce multiple copies of the same source system. The Converter Enterprise naming schema enables you to identify the latest virtual machine and the order in which the virtual machines were created. Virtual machines are time and date stamped to prevent overwriting of existing machines. This approach requires additional disk space but guarantees that you always have a valid backup.

Handling Multiple Resultant Virtual Machines

To keep a limited number of virtual machines as backups to an existing machine, specify the number on the Schedule Task page of the Import or Export wizard. To prevent overwriting of existing virtual machines, Converter Enterprise verifies that the managed or hosted target virtual machine does not exist, and time and date stamps are applied to the existing virtual machine.

Converter Enterprise generates sequential virtual machine names and deletes old names.

In the managed environment, the virtual machine name is the unique identifier of the virtual machine and no additional steps are required.

In the hosted environment, a directory is created for each virtual machine. The name of the directory must match the virtual machine name.

If the existing target virtual machine cannot be renamed, for example if it is running, the clone stops and the temporary virtual machine is removed to save disk space.

When you schedule an import or export to run at a specific time, you must specify a retention policy. If the retention policy is set to keep multiple virtual machines (a specific number or unlimited), the target virtual machine name is used as a template. The new virtual machine names have time stamps attached to them. Virtual machine names have an 80-character limit. However, VMware recommends a maximum of 60 characters, because the time stamp might make the name exceed the limit.

Retention Policy for Virtual Machine Backup Images

You can keep an unlimited number of cloned virtual machines. For example, if disk space is not an issue, you might prefer to keep all backup virtual machines, especially if backups are scheduled to run infrequently, such as once a month.

You can specify one of the following conditions for a retention policy:

- Overwrite one virtual machine each time you run a task.
- Create a virtual machine with each run and specify the number of previous images to keep.
- Create a virtual machine with each run and keep all images.

Available choices depend on the frequency you select to run the task. For example, if you select to run a task only once, you can choose to overwrite the target virtual machine.

If you schedule to overwrite one target virtual machine each time a conversion task is run,

- After cloning succeeds, the old virtual machine is renamed to a unique name.
- The new virtual machine is renamed to the target name.
- The old virtual machine is deleted.

System Settings Affected by Conversion

A VMware virtual machine created by Converter Enterprise contains an exact copy of the disk state of the source physical machine, virtual machine, or system image, with the exception of some hardware-dependent drivers (and sometimes the mapped drive letters). The following settings source computer settings remain identical:

- Operating system configuration (computer name, security ID, user accounts, profiles and preferences, and so on)
- Applications and data files
- Volume serial number for each disk partition

Because the target and the source virtual machines or system images have the same identities (name, SID, and so on), running them on the same network can result in conflicts. To redeploy the source virtual machine or system image, make sure that you do not run both the source and target images or virtual machines on the same network at the same time.

For example, if you use Converter Enterprise to test the viability of running a Virtual PC virtual machine as a VMware virtual machine without first decommissioning the original Virtual PC machine, you must first resolve the duplicate ID problem. You can resolve this problem by customizing the virtual machines in the Import, Export, and Reconfigure wizards.

Changes to Virtual Hardware

Most applications function correctly on the VMware virtual machine because their configuration and data files have the same location as on the source virtual machine. However, applications might not work if they depend on specific characteristics of the underlying hardware, such as the serial number or the device manufacturer.

When you troubleshoot a virtual machine after it is migrated, notice the following potential hardware changes:

- CPU model and serial numbers, if they are activated, can be different. They correspond to the physical computer hosting the VMware virtual machine.
- Ethernet adapters can be different (AMD PCNet or VMXnet) with a different MAC address. The IP address of each interface must be individually reconfigured.
- Graphics cards can be different (VMware SVGA card).
- The number of disks and partitions are the same, but each disk device can have a different model and different manufacturer strings.
- Primary disk controllers can be different from the source machine.
- Applications might not work if they depend on devices that are not available within a virtual machine.

System Requirements

This chapter describes the requirements for using VMware Converter Enterprise for VirtualCenter and Converter Enterprise client. It also describes the compatibilities and interoperabilities among the systems on which it works.

The chapter includes the following sections:

- [“Operating System Compatibility and Installation File Size Requirements”](#) on page 19
- [“Converter Enterprise Client Requirements”](#) on page 20
- [“Memory Requirements for Hot and Cold Cloning”](#) on page 20
- [“Supported Sources for Importing”](#) on page 21
- [“Supported Destinations for Exporting”](#) on page 22
- [“Supported Sources for Reconfiguration”](#) on page 23
- [“Required TCP/IP Ports for Conversion”](#) on page 23
- [“Remote Hot Cloning for Windows XP Operating Systems”](#) on page 23

Operating System Compatibility and Installation File Size Requirements

Converter Enterprise requires a connection to a VirtualCenter 2.5 or later server. Each Converter Enterprise server that is installed as part of Converter Enterprise must be associated with one VirtualCenter server.

You can install Converter Enterprise on the same computer as VirtualCenter server or on another computer that has access to a VirtualCenter server.

You can install Converter Enterprise on the following Microsoft Windows operating systems:

- Windows 2000 Server SP4 with Update Rollup 1
- Windows XP Professional SP2 (32 bit and 64 bit)
- Windows 2003 Server SP1 (32 bit and 64 bit)
- Windows 2003 Server R2 (32 bit and 64 bit)

You can install the Converter Enterprise CLI on Linux computers. See [“Install the Converter Enterprise CLI on a Linux Computer”](#) on page 62.

[Table 2-1](#) lists the space requirements for the various components.

Table 2-1. Installation Space Requirements

Installation Component	Size
Installer	43MB
Converter Enterprise server files	74MB
Converter Enterprise CLI files	36MB
Converter Enterprise agent files	37MB

The operating system on which you install Converter Enterprise server determines which virtual machines and third-party images you can import, export, and reconfigure. [Table 2-2](#) displays operating system compatibility information.

Table 2-2. Operating System Compatibility for Importing, Exporting, and Reconfiguring Virtual Machines and Third-Party Images

Operating System on Which Converter Enterprise Server Is Installed	Compatible Source Virtual Machine or Third-Party Image Operating Systems				
	Windows NT	Windows 2000	Windows XP	Windows 2003	Windows Vista
Windows 2000	X	X			
Windows XP	X	X	X	X	X
Windows 2003	X	X	X	X	X

Converter Enterprise Client Requirements

The Converter Enterprise client is installed as a plug-in for VI Client. You can install the plug-in on multiple VI Client machines. The Converter Enterprise client can be installed on 32-bit operating systems only.

You can install the Converter Enterprise client on the following Microsoft Windows operating systems:

- Windows 2000 Pro SP4
- Windows 2000 Server SP4 with Update Rollup 1
- Windows XP Pro SP2
- Windows 2003 SP1
- Windows 2003 Server R2
- Windows Vista Business
- Windows Vista Enterprise

The following space is required for installation:

- Installer – 21MB
- Converter Enterprise client files – 48MB

Memory Requirements for Hot and Cold Cloning

For hot cloning, Converter Enterprise requires 350MB of free space on the source physical machine.

For cold cloning with the VMware Converter Enterprise Boot CD, the source physical machine must also meet the memory requirements as listed in [Table 2-3](#).

To run VMware Converter Enterprise Boot CD requires 264MB of memory on the source physical machine. The recommended memory is 364MB.

Table 2-3. Memory Requirements for Cold Cloning with the Boot CD

If the Source Physical Machine's Memory (<i>m</i>) Is	Then the Boot CD
Less than 264MB	Cannot perform a cold clone.
Greater than or equal to 264MB but less than 296MB	Can perform a cold clone, but cannot use a RAM disk.
Greater than or equal to 296MB but less than 364MB	Can perform a cold clone with a RAM disk, although using a network share is suggested. The RAM disk size is <i>m</i> minus 264MB.
Greater than or equal to 364MB	Can perform a cold clone with a RAM disk. The RAM disk size is <i>m</i> minus 264MB, up to a limit of 124MB.

Supported Sources for Importing

Converter Enterprise can import physical machines, as well as virtual machines and system images, into virtual machines managed by VirtualCenter.

Physical Machines That Can Be Imported

Converter Enterprise can import any physical machine running one of the following operating systems:

- Windows NT 4 Workstation/Server SP4+
- Windows 2000 Professional/Server/Advanced
- Windows XP Home (cold cloning only)
- Windows XP Professional (32 bit and 64 bit)
- Windows 2003 Standard/Web/Enterprise (32 bit and 64 bit)
- Windows Vista (34 bit and 64 bit)

Virtual Machines That Can Be Imported

Converter Enterprise can import virtual machines created with the following products and system images:

- VMware ESX Server 3.x (including ESX Server 3i)
- VMware ESX Server 2.5. 3.x (including ESX Server 3i) managed by VMware VirtualCenter 2.x
- VMware Workstation 4.5.x, 5.x, 6.x
- VMware Player 1.x,2.x
- VMware Server 1.x
- VMware ACE 1.x/2.x
- VMware Fusion 1.x
- VMware GSX Server 3.x standalone
- Microsoft Virtual PC 2004 and later
- Virtual Server 2005 R2 and later (.vmc)

Importing virtual machines has the following requirements.

- Virtual machines must be powered off before you import them. You cannot import suspended virtual machines.
- Virtual machines from Macintosh versions of Virtual PC are not supported.
- You can import hosted virtual machines (Workstation, Player, VMware Server, VMware ACE, Fusion, and GSX Server) and system images only if they reside on an accessible network mounted share.

- The operating system on Virtual PC or Virtual Server virtual machines must be a Windows guest operating system supported by VirtualCenter 2.5. See the *Guest Operating System Installation Guide* for a list of supported operating systems.

Converter Enterprise supports Virtual PC and Virtual Server virtual machines with most Windows operating systems preceding Windows NT 4.0 for cloning only. It does not support configuring for machines with earlier Windows operating systems.

- Virtual PC and Virtual Server virtual machines with non-Windows guest operating systems (for example, Linux and DOS) are not compatible with Converter Enterprise. This is true even when VirtualCenter 2.5 otherwise supports the guest operating system.

System Images that can be Imported

Converter Enterprise can import system images from the following sources:

- Norton Ghost 9.0, 10.0, 12.0
- Symantec LiveState 3.0, 6.0
- Symantec Backup Exec System Recovery 6.5, 7.0 (.sv2i)
- StorageCraft ShadowProtect (.spf)
- Acronis True Image 9, 10 (.tib)
- VCB full backup images

Converter Enterprise can convert ShadowProtect and Backup Exec System Recovery images, with the following limitations:

- Dynamic disks are not supported.
- All images for the backup of a machine must be in a single folder, with no other images placed in the folder.
- For volume-based cloning, you must have backed up all volumes on the disk up to the active and system volumes. For example, if a disk has four partitions, 1– 4, with partition 2 as the active volume and partition 3 as the system volume, the backup must include 1 through 3.
- If it is an incremental image, up to 16 incremental backups are supported.
- Images of systems with logical drives are not supported if the logical drive is also a system or active volume (ShadowProtect only).

Supported Destinations for Exporting

Converter Enterprise can export virtual machines managed by VirtualCenter to the following destinations:

- VMware ESX Server 3.x (including ESX Server 3i) standalone
- VMware ESX Server 2.5/3.x (including ESX Server 3i) managed by VMware VirtualCenter 2.x
- VMware Workstation 4.5.x, 5.x, 6.x
- VMware Player 1.x, 2.x
- VMware Server 1.x
- VMware ACE 1.x, 2.x
- VMware Fusion 1.x
- VMware GSX Server 3.x standalone

Hosted virtual machines (Workstation, Player, VMware Server, VMware ACE, Fusion, and GSX Server standalone) must be exported to an accessible network mounted share.

Supported Sources for Reconfiguration

Converter Enterprise can reconfigure any Windows virtual machine managed by VirtualCenter.

Required TCP/IP Ports for Conversion

Table 2-4 lists the ports that Converter Enterprise uses in the conversion process.

Table 2-4. Ports Required by Converter Enterprise

Communication Paths	Port
Converter Enterprise server to remote physical machine	TCP– 445, 139 UDP– 137, 138
Converter Enterprise server to VirtualCenter Server	443
Converter Enterprise client to Converter Enterprise server	443
Physical machine to VirtualCenter Server	443
Physical Machine to ESX Server	902

Remote Hot Cloning for Windows XP Operating Systems

To ensure successful remote hot cloning of Windows platforms, make sure that Simple File Sharing is turned off and ensure that file and printer sharing is not blocked by Windows Firewall.

Turn off Simple File Sharing on Windows XP Professional

To control permissions for individual users, you must turn off Simple File Sharing. Turning Simple File Sharing off does not turn off the Shared Documents feature. Use the Simple File Sharing UI, located in the folder's properties, to configure share and file permissions.

For Windows XP Professional operating systems joined to a workgroup, the Simple File Sharing UI is turned on by default. Windows XP Professional operating systems joined to a domain use the classic file sharing and security interface only.

To turn off Simple File Sharing in Windows XP Professional

- 1 Choose **Start > Settings > Control Panel > Folder Options**.
- 2 Click the **View** tab and deselect **Use Simple File Sharing (Recommended)**.

For additional information about turning simple file sharing on or off, see the Microsoft TechNet Web site.

Ensure that File and Printer Sharing Is Not Blocked by Windows Firewall

If Converter Enterprise fails to connect to a remote Windows XP machine and issues a **bad username/password** error message, ensure that file and printer sharing is not blocked by Windows Firewall.

To check the Windows Firewall blocks

- 1 Choose **Start > Settings > Control Panel > Administrative Tools > Local Security Policy**.
- 2 Select **Network access: Sharing and Security model for local accounts**.
- 3 Make sure that **Classic – local users authenticate as themselves** is selected.

For troubleshooting information about file and printer sharing, see the Microsoft TechNet Web site.

Installing

This chapter describes the basic steps for installing and uninstalling Converter Enterprise and Converter Enterprise client.

This chapter includes the following sections:

- [“Install Converter Enterprise”](#) on page 25
- [“Uninstall, Modifying, or Repairing Converter Enterprise”](#) on page 26
- [“Install the Converter Enterprise Client”](#) on page 27
- [“Uninstall or Repair Converter Enterprise Client”](#) on page 28

Install Converter Enterprise

VMware Converter Enterprise is installed as part of the installation process for VirtualCenter. If you have an established VMware Infrastructure environment, you can use the same installer, or use the Converter Enterprise installer to add Converter Enterprise functionality.

The process for installing using the VMware Converter Enterprise installer is described here. The process for installing Converter Enterprise as part of the VirtualCenter installation process is described in the *Installation Guide* for VMware Infrastructure 3.

You can install the Converter Enterprise CLI on multiple machines to access a VirtualCenter server with an associated Converter Enterprise server. You can install the Converter Enterprise CLI on the same machine as Converter Enterprise server, or on a different machine.

To install the Converter Enterprise CLI on a Linux computer, see [“Install the Converter Enterprise CLI on a Linux Computer”](#) on page 62.

Before installing confirm the following items:

- **System requirements** – Make sure your hardware meets the Converter Enterprise system requirements. See [“Operating System Compatibility and Installation File Size Requirements”](#) on page 19.
- **VirtualCenter Server login information** – Converter Enterprise requires a connection to VirtualCenter Server (2.5 or later). Make sure that the VirtualCenter Server is powered on and that you have login credentials to enter during the installation process.

To install Converter Enterprise

- 1 Log in to the computer as a user with administrative privileges.
- 2 Insert the VMware Infrastructure Management installation CD.

If the VMware Infrastructure Management Installer screen appears, click **Cancel**, and click **Yes** to confirm, and click **Finish** to exit the installer.

- 3 In the `converter` folder on the CD, double-click the `VMware-Converter.exe` file and click **Next**.

If a dialog box appears with **Modify**, **Repair**, or **Remove**, the installer has detected a previous Converter Enterprise installation.

- 4 On the End-User License Agreement page, select **I accept the terms in the License Agreement** and click **Next**.
- 5 Select the location folder for Converter Enterprise on the Destination Folder page and click **Next**.
The default location is C:\Program Files\VMware\Infrastructure\Converter Enterprise and installs the files there. To install to another location, click **Change** and browse for the new location.
- 6 Select the type of installation and click **Next**.
 - Select **Typical** to install the Converter Enterprise server and the Converter Enterprise CLI.
 - Select **Custom** to specify a Converter Enterprise server, Converter Enterprise CLI, or Converter Enterprise agent installation.
If your selection does not include Converter Enterprise server, when the wizard displays the Installation Completed page, click **Finish**.
- 7 Select a VirtualCenter Server to connect to and click **Next**.
Enter the host name or IP address of the server and the **User Name** and **Password**. If the default port (443) is already in use, specify an alternate port.
Each installation of Converter Enterprise server must be associated with only one VirtualCenter server.
- 8 Specify the Virtual Infrastructure Web service ports or use the default ports and click **Next**.
 - HTTPS (default is 443).
 - HTTP (default is 80).
 - SOAP (default is 9085).
 - Web (default is 9086).

These ports allow communication between Converter Enterprise components. If the default ports are in use by other applications, enter alternate ports.
- 9 Specify a host name, IP address, or DNS name to identify Converter Enterprise Server on the network.
This information is used to enable communication between Converter Enterprise Server and VirtualCenter Server.
- 10 On the Ready to Install the Program page, click **Install**.
If you click **Cancel** during the installation, the installed files are rolled back and the operating system is returned to its original state.
- 11 When the wizard displays the Installation Completed page, click **Finish**.
If you installed the Converter Enterprise agent on a Windows 2000 or Windows NT machine, Windows prompts you to restart your system.

Uninstall, Modifying, or Repairing Converter Enterprise

You can uninstall Converter Enterprise components using the Windows Add or Remove Programs utility from the Control Panel. Use the following procedure for each component you want to uninstall.

To uninstall Converter Enterprise

- 1 Log in as an Administrator to the Windows computer on which Converter Enterprise is installed.
- 2 Choose **Start > Settings > Control Panel > Add or Remove Programs**.
- 3 Select a Converter Enterprise component and click **Remove**.
- 4 Click **Yes** to confirm that you want to remove the program and click **Finish**.

In addition to being able to use the Microsoft Windows Add or Remove Programs utility from the Control Panel to uninstall VMware Converter Enterprise for VirtualCenter, you can also remove it using the installation wizard.

The installer wizard also allows you to modify or repair VMware Converter Enterprise for VirtualCenter.

To uninstall, modify, or repair VMware Converter Enterprise for VirtualCenter

- 1 To start the VMware Converter Enterprise for VirtualCenter installer, go to the folder that contains the installer file and double-click the file: `VMware-converter-4.0.0-<xxxx>.exe`

In this example, <xxxx> is the build number. This file is on the application CD or in the local directory to which you downloaded the installer.

The installation wizard opens with a Welcome page.

- 2 Click **Next**.
- 3 In the Program Maintenance page, select **Modify**, **Repair**, or **Remove** and click **Next**.
 - Select **Modify** to change the installed components of VMware Converter Enterprise for VirtualCenter. This takes you to the Custom Setup page of the wizard, where you can make changes. See [Step 6 in “To install Converter Enterprise”](#) on page 25.
 - Select **Repair** to have the wizard verify and reinstall any damaged components of VMware Converter Enterprise for VirtualCenter.
 - Select **Remove** to uninstall VMware Converter Enterprise for VirtualCenter.
- 4 In the Remove the Program page, you can remove all related files and registry entries created by VMware Converter Enterprise for VirtualCenter. Click **Remove**.

Alternatively, if you are modifying or repairing VMware Converter Enterprise for VirtualCenter, the page that appears is the Ready to Modify the Program or the Ready to Repair the Program page, without any mention of file deletion.

When the wizard finishes modifying or repairing, you might have to restart your system before you can use VMware Converter Enterprise for VirtualCenter. If so, a dialog box appears.

You have finished modifying, repairing, or removing VMware Converter Enterprise for VirtualCenter.

Install the Converter Enterprise Client

Before installing the Converter Enterprise client, make sure that your hardware meets the Converter Enterprise client system requirements, then install VMWare Converter Enterprise for VirtualCenter.

See [“Converter Enterprise Client Requirements”](#) on page 20.

To install the Converter Enterprise client

- 1 Start the VI Client and connect to the VirtualCenter Server associated with Converter Enterprise.
You specified the associated VirtualCenter Server when you installed Converter Enterprise for VirtualCenter.
- 2 On the VI Client menu, select **Plugins > Manage Plugins**.
- 3 Click the **Available** tab and select **VMware Converter Enterprise Client**.
- 4 Click **Download and install** and click **Next**.
- 5 Click **Install** and click **Finish**.
- 6 In the Plugin Manager, click the **Installed** tab, then click the **Enabled** box and click **OK**.

You can now launch the Converter Enterprise online help from the **Help** menu.

Uninstall or Repair Converter Enterprise Client

You can uninstall Converter Enterprise Client using the Windows Add or Remove Programs utility in the Control Panel.

To uninstall the Converter Enterprise client

- 1 Log in as an Administrator to the Windows computer on which the Converter Enterprise client is installed.
- 2 Choose **Start > Settings > Control Panel > Add or Remove Programs**.
- 3 Select **VMware Converter Enterprise Client** and click **Remove**.
- 4 Click **Yes** to confirm that you want to remove the program and click **Finish**.

In addition to being able to use the Microsoft Windows Add or Remove Programs utility from the Control Panel to uninstall VMware Converter Enterprise Client, you can remove it using the VMware Converter Enterprise Client installation wizard.

The installer wizard also allows you to repair Converter Enterprise Client.

To uninstall or repair Converter Enterprise Client

- 1 To start the VMware Converter Enterprise Client installer, go to the folder that contains the installer file and double-click the file: `VMConverter Client.exe`

The default location is `C:\Program Files\VMware\Infrastructure\Virtual Infrastructure Client\Plugins`.

The Converter Enterprise Client installation wizard opens with a Welcome page.

- 2 Click **Next**.
- 3 In the Program Maintenance page, select **Repair** or **Remove** and click **Next**.
 - Select **Repair** to have the wizard verify and reinstall any damaged components of Converter Enterprise Client.
 - Select **Remove** to uninstall Converter Enterprise Client.
- 4 In the Remove the Program page, you can remove all related files and registry entries created by VMware Converter Enterprise Client. Click **Remove**.

Alternatively, if you are repairing VMware Converter Enterprise Client, the page that appears is the Ready to Repair the Program page, without any mention of file deletion. When the wizard finishes repairing Converter Enterprise Client, you might have to restart your system before you can use the plug-in. If so a dialog box appears.

You have finished repairing or removing VMware Converter Enterprise Client.

Importing Machines

This chapter describes how to import physical machines, virtual machines, and system images into virtual machines managed by VirtualCenter.

This chapter includes the following sections:

- [“Preparing for the Conversion Process”](#) on page 29
- [“Start the Import Wizard”](#) on page 30
- [“Choosing a Source”](#) on page 31
- [“Choose a Destination for a New Virtual Machine”](#) on page 34
- [“Customize the Guest Operating System of the New Virtual Machine”](#) on page 34
- [“Schedule an Import Task”](#) on page 36
- [“Complete the Import ”](#) on page 37

To import physical machines that are not running, use the VMware Converter Enterprise Boot CD, which is available with the standalone VMware Converter Enterprise application. See [Chapter 8, “VMware Converter Enterprise Boot CD,”](#) on page 53.

Preparing for the Conversion Process

Before you begin creating a virtual machine, you must determine the type of machine you are converting and the destination of the new virtual machine. The source and destination options are as follows:

- **Source** – Physical computer, VMware Infrastructure virtual machine (ESX Server), or standalone virtual machine
- **Destination** – ESX Server, ESX Server that VirtualCenter manages, or VMware standalone virtual machine

Standalone virtual machines include Workstation, VMware Server, and VCB, Acronis True Image 9, Microsoft Virtual PC and Virtual Server, Symantec Backup Exec Server Recovery (formerly LiveState Recovery) 6.5 and 7.0, and LiveState Recovery 3.0 and 6.0, as well as Norton Ghost 9, 10, and 12 (.sv2i only) images.

You can also choose the type of disk conversion, depending on your source and destination machines:

- **Convert all disks and maintain size** – Converts all disks unchanged. This is the only choice if the virtual machine you are converting has a Linux guest operating system.
- **Select volumes and resize to save or add space** – Allows you to specify a specific size.
- **Create a separate disk for each volume** – Creates a separate disk for each volume. (The active and system volumes are not separated if they reside on the same disk.) You can then migrate disks across independent datastores.

Create a Separate Disk for Each Volume

To ease storage management, you can migrate all volumes except the active and system volumes to separate disks. The active and system volumes are not separated if they reside on the same disk. Converting individual volumes to corresponding virtual disks and placing the individual disks across separate datastores gives you more direct control over storage limitations.

You can create separate disks for any source machine. The destination can be a VMware Infrastructure (ESX Server or ESX Server managed by VirtualCenter) or a hosted destination (Workstation). For hosted destinations, all disks are stored in the same location.

When you select **Create a separate disk for each volume**, the Advanced Datastore page lists the new disks in the order in which the volumes on the Source Data page are displayed. The active and system disks are always listed first and can be on the same or on different disks, depending on their original configuration. To verify the new disk to which a volume is assigned, compare the new size for each volume on the Source Data page with the disk size on the Advanced Datastore page.

To migrate volumes across independent datastores on VMware Infrastructure virtual machines

- 1 On the Source Data page, select the volumes to convert and specify their size.
- 2 Select **Create a separate disk for each volume** and click **Next**.
- 3 Type the IP address of the VirtualCenter server or the host where you want to store your virtual machine.
- 4 Log in as administrator, enter your administrator password, and click **Next**.
- 5 Type a name for the new machine, select the folder location for the new machine, and click **Next**.
- 6 On the Host or Cluster page, select a host, cluster, or resource pool from which the virtual machine is to run and click **Next**.
- 7 On the Advanced Datastore page, select the appropriate datastore for storing each disk and click **Next**.

Start the Import Wizard

The Import wizard is context-sensitive. The information you need to provide depends on the location from which you launch the wizard. For example, if you launch the Import wizard from a host, the imported virtual machine will be located on that host, and the wizard does not ask you for a destination. If you launch the wizard from the Scheduled Tasks view, the wizard asks you to specify a host.

To start the wizard

- 1 Go to **Start > Programs > VMware > VMware Infrastructure Client**.
- 2 Type the host name or IP address of the VirtualCenter Server associated with Converter Enterprise.
- 3 Type an appropriate Windows domain user name and password, and click **Login**.
- 4 To start the Import wizard, do one of the following:
 - On the main VI Client menu, select **Inventory > host, cluster, or resource pool > Import Machine**.
 - In the **Hosts & Clusters** view, right click a host, cluster, or resource pool, and select **Import Machine**.
 - In the **Virtual Machines and Templates** view, right-click a folder and select **Import Machine**.
 - In the **Scheduled Tasks** view, select **File > New > Scheduled Task**. In the drop-down menu, select **Import a machine**.

The Source page introduces the Table of Contents pane, displaying the four-step conversion process.

The **Log Info** button on each page of the wizard extends the page to show the location of the temporary Converter Enterprise log files. Retrieve the log files as soon as needed.

Choosing a Source

You can choose one of the following source machine types:

- **Physical computer** – Any computer on a network
- **VMware Infrastructure Virtual Machine** – ESX Server, ESX Server 3 or ESX Server and ESX Server 3i managed by VirtualCenter
- **Other** – A standalone virtual machine or backup image, such as Workstation, VCB images, or third-party virtual machines or disk images

Select a Physical Machine Source

Use this procedure if your source is a remote physical machine. The remote physical machine must be running, and you must have administrative privileges for the machine.

If the source machine is a Windows NT computer, it must have Windows Installer 2.1 or greater.

To select a source physical computer

- 1 On the Source page, click **Next** to go to the Source Type page.
- 2 Select **Physical computer** from the drop-down menu and click **Next**.
- 3 Type the host name or IP address of the remote physical machine you want to import, or choose a machine from the drop-down menu.
- 4 Type the DOMAIN\user name and password for the specified machine and click **Next**.

If Converter Enterprise needs to install the Converter Enterprise agent on the remote machine, a warning dialog box displays.

- 5 On the Source Data page, deselect any volumes you do not want to import.

For hot cloning of a physical computer, you can only use volume-based cloning.

If you deselect the system volume or active volume, a warning appears before you go to the next page.

- 6 If you are performing volume-based cloning, select **Ignore page file and hibernation file** to exclude these files.

The destination virtual machine has more free space if you exclude these files. You can choose to include these files.

- 7 Specify the volume size for each volume in the **New Disk Space** drop-down menus and click **Next**:

Option	Description
Maintain Size	Keeps the original size volume.
Min Size	Converts just the used portion from the volume, with a small amount of space added.
<Type Size in GB>	Enter a specific size in gigabytes.
<Type Size in MB>	Enter a specific size in megabytes.

- 8 (Optional) To convert individual volumes to corresponding virtual disks, select **Create a separate disk for each volume**.

Select an ESX Server or VirtualCenter Virtual Machine Source

Use this procedure if your source system is ESX Server, ESX Server 3i, or a VirtualCenter virtual machine.

The source virtual machine must be shut down and powered off.

To select a source ESX Server or VirtualCenter virtual machine and choose the disks to import

- 1 On the Source page, click **Next** to go to the Source Type page.
- 2 Select **VMware Infrastructure Virtual Machine** in the drop-down menu and click **Next**.
- 3 On the Source Login page, specify the ESX Server or VirtualCenter server containing the virtual machine you want to import and enter your user name and password.

The **ESX/VC Server** drop-down menu is populated with the identifiers or locations of the last 10 systems accessed. Enter a new identifier.

Server	Action
ESX Server	Choose the virtual machine you want to convert from the list of those found on the ESX Server machine you accessed.
ESX Server managed by VirtualCenter	Specify the source for your virtual machine in the VirtualCenter virtual machine inventory browser and click Next . In the View drop-down menu, search the browser through one of two views of the inventory: the default Hosts & Clusters view or the Virtual Machines & Templates view.

- 4 Click **Next**.
- 5 Select a virtual machine to import and click **Next**.
- 6 To import all disks unchanged, make sure that **Import all disks and maintain size** is selected on the Source Data page and click **Next**.

Import all disks and maintain size is the only choice if the virtual machine you are importing has a Linux guest operating system.

Otherwise, select **Select volumes and resize to save or add space**. Page and Hibernation files are ignored during volume-based cloning.

- 7 Deselect any volumes you do not want to import.
If you deselect the system volume or active volume, a warning appears before you go to the next page.
- 8 Specify the volume size you want in the **New Disk Space** drop-down menus and click **Next**.

Option	Description
Maintain Size	Keeps the original size volume.
Min Size	Converts just the used portion from the volume, with a small amount of space added.
<Type Size in GB>	Enter a specific size in gigabytes.
<Type Size in MB>	Enter a specific size in megabytes.

- 9 (Optional) To convert individual volumes to corresponding virtual disks, select **Create a separate disk for each volume**.

Select a Standalone Virtual Machine, Backup Image, or Disk Image Source

Use this procedure if your source system is a standalone virtual machine, backup image, or disk image.

To select the source standalone virtual machine and choose the disks to import

- 1 On the Source page, click **Next** to go to the Source Type page.
- 2 Select **Other** in the drop-down menu and click **Next**.
- 3 Specify the UNC path and filename for the source virtual machine or image.
- 4 Enter the DOMAIN\user name and password and click **Next**.

If you are importing a VCB image, go to [Step 8](#).

- 5 If the New Virtual Machine Reconfiguration page appears, you must select the required files from service packs or hot fixes.

The wizard shows which files are required. The **Next** button remains disabled until every item has a check beside it.

- a Select one or more items from the list, click **Folder Location**, and enter the full UNC path to the folder that contains the selected files.

For example, enter \\serverName\folderName.

- b Enter the credentials to access the specified location.

Repeat these steps for each required file, and when finished, click **Next**.

- 6 (Microsoft Windows NT only) A warning message advises you that the import process will upgrade any NTFS partitions in the resulting virtual machine to a newer version of the NTFS file system. To avoid upgrading your file system, click **No** in the dialog box and click **Cancel** on the wizard page to end the import.
- 7 If the source you selected is password-protected, the Virtual Machine Login page appears. Type the password and click **Next**.

If the source is not password-protected, the wizard skips this page and presents the Source Data page.

- 8 To import all disks unchanged, make sure that **Import all disks and maintain size** is selected on the Source Data page and click **Next**.

Import all disks and maintain size is the only choice if the virtual machine you are importing has a Linux guest operating system.

Otherwise, select the **Select volumes and resize to save or add space** radio button and follow the remaining steps in this procedure.

- 9 Deselect any volumes you do not want to import.

If you deselect the system volume or active volume, a warning appears before you go to the next page.

The following options are available:

Option	Description
Convert disks when the virtual machine you are converting has a Linux guest OS.	Select Import all disks and maintain size .
Resize the volumes. Page and Hibernation files are ignored during volume-based cloning.	Click Select volumes and resize to save or add space .
Convert individual volumes to corresponding disks.	Select Create a separate disk for each volume . For additional information, see “Create a Separate Disk for Each Volume” on page 30.

- Specify the volume size in the **New Disk Space** drop-down combo box and click **Next**.

Option	Description
Maintain Size	Keeps the original size volume.
Min Size	Converts just the used portion from the volume, with a small amount of space added.
<Type Size in GB>	Enter a specific size in gigabytes.
<Type Size in MB>	Enter a specific size in megabytes.

Choose a Destination for a New Virtual Machine

Use this procedure to import the virtual machine to run in an ESX Server managed by VirtualCenter.

To select the destination for your converted virtual machine

- On the Destination page, click **Next** to go to the Virtual Machine Name and Folder page.
- Name the virtual machine and choose a destination folder within the VirtualCenter inventory, and click **Next**.
- Depending on how you launched the wizard and your specific VirtualCenter environment and settings, the following steps might be required:
 - On the Host or Cluster page, select the host, cluster, or resource pool from which you want to run the imported virtual machine and click **Next**.
 - On the Host page, select a host and click **Next**.
 - On the Resource Pool page, select a resource pool and click **Next**.
- Specify the datastore for the virtual machine's configuration files and disks and click **Next**.
All datastores and their available space appear in the Datastore list. You must choose a datastore or datastores large enough to contain the selected disks.
- To distribute the disks over several datastores, click **Advanced**. Choose the datastore for each disk and file from the drop-down menus.
- On the Networks page, map the virtual machine's network adapters to a VirtualCenter network. You can also specify the number of adapters to map. Click **Next**.

Customize the Guest Operating System of the New Virtual Machine

On the Import wizard Customization page, you can choose to install VMware Tools, customize a guest operating system, remove System Restore checkpoints, or any combination of these options, depending on the guest operating system.

Converter Enterprise does not support customization for Windows NT.

To skip the options on the Customization page

Deselect all check boxes and click **Next**.

To complete the import, see ["Complete the Import"](#) on page 37.

Install VMware Tools

Installing VMware Tools is applicable only for ESX Server, VirtualCenter, Workstation 6, VMware Fusion 1, VMware Player 2, and ACE 2 destinations.

To install VMWare Tools

- 1 On the Customization page, ensure that **Install VMware Tools** is selected.
- 2 Click **Next** or select **Customize the identity of the virtual machine** to continue with customization.

Customize the Identity of the New Virtual Machine

Use this procedure to customize the identity of the new virtual machine.

If the **Customize** option is unavailable, you must install the Microsoft Sysprep tools on your VirtualCenter server machine in the appropriate location. For example, C:\Documents and Settings\All Users\Application Data\VMware\VMware VirtualCenter\sysprep\.

You can customize the following fields:

- Change the computer information for identifying a virtual machine on a network.
- Enter server license information.
- Change the time zone for a virtual machine.
- Modify the properties for each network interface.

To customize the identity of the new virtual machine

- 1 On the Customization page, select **Customize the identity of the virtual machine** and click **Next**.
The table of contents expands to show the topics in this section of installation.
- 2 On the Computer Information page, customize any of these fields:
 - **Computer Name** – A unique name to identify the virtual machine on the network. Valid characters include A-Z, a-z, 0-9, and the hyphen. Underscore is nonstandard, but VMware permits its use. The computer name cannot consist only of numerals.
 - **Owner Name** – Valid characters include all printable characters. The limit is 63-characters.
 - **Organization** – Valid characters include all printable characters. The limit is 63-characters.
 - **Generate New Security ID (SID)** – Select to generate a new security identifier. By default, the security ID is preselected for Windows Vista systems.
- 3 Click **Next**.
- 4 On the Windows License page, enter the Windows licensing information for this virtual machine, if necessary, and click **Next**.

You can leave the **Product ID** field blank and move to the next page.

The **Include Server License Information** check box only applies to Microsoft Windows 2000 Server and Microsoft Windows 2003 Server operating systems. The **Server License Mode** buttons are disabled if the check box is not selected. This action does not apply to Windows Vista.

- 5 Choose a time zone from the drop-down menu on the Time Zone page and click **Next**.
If network interfaces need to be set, the Network Interface Settings page appears.
- 6 (Optional) To customize your network adapter settings, choose the adapter on the Network Interface Settings page and click **Customize**.

The **Reset All** button is enabled if one or more network adapters have been modified. Click this button to return all settings for all adapters to the default.

By default, every network adapter obtains the IP address and DNS server address from the Dynamic Host Configuration Protocol (DHCP). If you prefer to use the default settings, click **Next**.

- 7 (Optional) On the Network Properties dialog box, modify the properties of any network adapters.

Field	Description
General	Use this tab only to manually enter the IP address and DNS server address.
DNS	Specify the DNS connections by entering DNS suffixes. <ul style="list-style-type: none"> ■ For each DNS suffix you enter, click Add. ■ If you are entering multiple DNS suffixes, use Move Up and Move Down to specify the order in which a virtual machine is to use the connections.
WINS	Specify the primary and secondary WINS addresses by typing the IP addresses in the entry boxes.

- 8 Click **OK** to return to the Network Interface Settings page and click **Next**.
- 9 On the Workgroup or Domain page, select how the virtual machine participates in a network.
- **Workgroup** – Valid characters include A-Z, a-z, 0-9, space, and the hyphen. Maximum length is 15 characters.
 - **Windows Server Domain** – The text box must have a value. Valid characters include A-Z, a-z, 0-9, space, period (dot), and the hyphen. Each label delineated by a dot can be 63 characters, and the entire text string can be up to 254 characters. A user name and password are also required.
- 10 Click **Next**.

Remove System Restore Check points

VMware recommends that you remove all System Restore check points, regardless of the cloning mode, unless you want the target virtual machine to be a replica of the source system.

System Restore is enabled on Windows Vista and Windows XP systems by default. For Windows Vista, the following conditions exist:

- For volume-based file-level cloning, System Restore check points are automatically removed from the target virtual machine.
- For disk-based cloning, or volume-level block-based cloning, when you deselect the option, the System Restore check points remain in the target virtual machine.

Removing all System Restore check points prevents the target machine from reverting to a preconversion state. Restoring a check point in the target virtual machine that was created before cloning the source machine can damage the system and cause the target virtual machine to become unbootable.

To remove all System Restore checkpoints for Windows Vista, Windows XP, and Windows 2003

On the Customization page, select **Remove all system restore checkpoints**.

For more information about cloning modes, see [“Cloning Modes”](#) on page 15.

Schedule an Import Task

On the Schedule Task page of the Import wizard, you can set a task to run immediately or schedule it to run at a later date. You can also schedule the frequency at which to run the task.

If you start the Import Wizard from VirtualCenter, you must schedule the task.

To run a task immediately

On the Schedule Task page, select **Immediately** and click **Next**.

To schedule a task to run at a specific time

- 1 On the Schedule Task page, select **Later**.
- 2 Enter a display name for the task.
- 3 Enter a description of the task.
- 4 Specify the start time and start date and click **Next**.

To schedule the frequency of a task

- 1 On the Schedule Task page, click the **Schedule the task** button.
- 1 Enter a task name.
- 2 Enter a task description.
- 3 In the Frequency drop-down menu, select the frequency at which to run the task.
- 4 Specify the start and end dates.

You can leave the task open-ended by selecting **No end date** or you can specify a set number of occurrences after which the task should end.

- 5 (Optional) In the **Retention Policy** drop-down menu, you can specify how many copies of the virtual machine to keep.

Complete the Import

The final page in the Import wizard is the Ready to Complete page.

To complete the import

- 1 Review the summary of the settings for the new virtual machine.
- 2 Specify whether you want VirtualCenter to power on the resultant virtual machine after it is created.
- 3 Click **Finish** to close the wizard and display the **Task View** with the import job in the task list.

If you scheduled the task to run immediately, it appears in **Recent Tasks** as well as on the **Tasks & Events** tab. A status bar indicates the percent complete. When the import is done, the status field reports “Completed.”

If you scheduled a task to run at a later time, it appears on the Scheduled Tasks page.

After you create an import task, you can monitor and manage it in the VI Client like any task. See [“Managing Converter Enterprise Tasks”](#) on page 49.

Exporting Machines

This chapter describes how to export virtual machines managed by VirtualCenter. You can export virtual machines to managed formats (ESX Server or ESX Server managed by VirtualCenter) or hosted formats (for example, Workstation or GSX Server). The export process converts the source to a virtual machine in the format you specify.

This chapter includes the following sections:

- [“Start the Export Wizard”](#) on page 39
- [“Select Your Source”](#) on page 40
- [“Selecting a Destination for the New Virtual Machine”](#) on page 40
- [“Customize the Guest Operating System of the New Virtual Machine”](#) on page 42
- [“Schedule an Export Task”](#) on page 44
- [“Complete the Export ”](#) on page 44

Start the Export Wizard

The Export wizard is context-sensitive. The information you need to provide depends on the location from which you launch the wizard. For example, if you launch the Import wizard from a host, the imported virtual machine will be located on that host, and the wizard does not ask you for a destination. If you launch the wizard from the Scheduled Tasks view, the wizard asks you to specify a host.

To start the wizard

- 1 Go to **Start > Programs > VMware > VMware Infrastructure Client**.
- 2 Type the host name or IP address of the VirtualCenter Server associated with Converter Enterprise.
- 3 Type an appropriate Windows domain user name and password, and click **Login**.
- 4 To start the Export wizard, do one of the following:
 - In the **Virtual Machine and Templates** Inventory view, right-click a virtual machine and select **Export**.
 - Right-click a virtual machine name in any view and select **Export**.
 - In the **Scheduled Tasks** view, select **File > New > Scheduled Task**. In the drop-down menu, select **Export a machine**.

The Source page displays the four-step export process.

Select Your Source

In most cases, you select the virtual machine that you want to export before starting the Export wizard. If you started the wizard by creating a new scheduled task, you must specify the source virtual machine.

To select the source virtual machine to export

- 1 On the Source page, click **Next**.
If you have already selected the virtual machine you want to export, it is listed as the source.
- 2 Specify the source virtual machine in the VirtualCenter virtual machine inventory browser and click **Next**.
You can search the browser through one of two views of the inventory.
The **Hosts & Clusters** view is selected by default. You can also choose the **Virtual Machines & Templates** view from the drop-down menu.
- 3 On the Source Data page, do one of the following:
 - Click the **Export all disks and maintain size** button to export all disks unchanged and click **Next**.
 - Click the **Select volumes and resize to save or add space** button and follow the remaining steps in this procedure.
- 4 If you are exporting specific volumes, deselect any volumes that you do not want to export.
Do not deselect the system or active volumes.
- 5 If you are performing volume-based cloning, select **Ignore page file and hibernation file** to exclude these files.
The destination virtual machine has more free space if you exclude these files. You can choose to include these files.
- 6 Specify the volume size you want in the **New Disk Space** drop-down menus and click **Next**.

Option	Description
Maintain Size	Keeps the original size volume.
Min Size	Converts just the used portion from the volume, with a small amount of space added.
<Type Size in GB>	Enter a specific size in gigabytes.
<Type Size in MB>	Enter a specific size in megabytes.

Selecting a Destination for the New Virtual Machine

You can export your source machine to the following destinations:

- **Managed destination** – ESX Server or ESX Server managed by VirtualCenter
- **Hosted destination** – Workstation, GSX Server, or similar

Select a Managed Destination

Use this procedure to export the virtual machine for use with ESX Server or ESX Server managed by VirtualCenter.

To select a managed destination

- 1 Click **Next** on the Destination page to go to the Destination Type page.
- 2 Select **VMware Infrastructure Virtual Machine** from the drop-down menu and click **Next**.

- 3 Type or choose the ESX Server or VirtualCenter server to export the virtual machine to.
The **ESX / VC Server** drop-down menu is populated with the identifiers or locations of the last 10 systems logged in to. You can type in a new identifier.
- 4 Enter a user name and password and click **Next**.
- 5 On the Virtual Machine Name and Folder page, enter the name you want to assign to the virtual machine, and choose a destination folder from the VirtualCenter inventory list, and click **Next**.
- 6 On the Host or Cluster page, specify the host, cluster, or resource pool from which you want to run the exported virtual machine and click **Next**.
- 7 Depending on the selection you made in the previous step, one of the following steps might be required.
 - On the Host page, select a host and click **Next**.
 - On the Resource Pool page, select a resource pool and click **Next**.
- 8 Specify the datastore for the virtual machine's configuration files and disks and click **Next**.
All datastores and their available space appear in this panel. You must choose a datastore large enough to contain the selected disks.
- 9 To distribute the disks over several datastores, click **Advanced** to see the list of disks and the virtual machine configuration file. Choose a datastore for each disk and file from the drop-down menus.
- 10 On the Networks page, map the virtual machine network adapters to a VirtualCenter network and click **Next**.
The Networks panel has drop-down menus containing the networks that are available at the destination location. You can also set the number of adapters.

Select a Hosted Destination

Use this procedure to export the virtual machine for use with Workstation, Fusion, VMware Server, Player, VMware ACE, or GSX Server.

To select a hosted destination

- 1 Click **Next** on the Destination page to go to the Destination Type page.
- 2 Select **Other VMware Virtual Machine** from the drop-down menu and click **Next**.
- 3 Type the name you want to assign to the virtual machine and specify a destination location.
The location must be a UNC path accessible to the Converter Enterprise server.
- 4 Type the DOMAIN\user name and password for the specified location.
- 5 Choose the type of virtual machine to create and click **Next**.
- 6 On the VM Options page, specify the options for the virtual disks:
 - Choose **Allocate all disk space now for better performance** to provide the exported virtual machine with all the space allocated to the source virtual machine. This option provides somewhat better performance for the virtual machine.
 - Choose **Allow virtual disk files to grow** to start out with small virtual disks files that can grow as needed, until they reach the size of the source disks.
 - To support virtual disks on FAT file systems, select the **Split disk into 2 GB files** box.
- 7 On the Networks page, map the virtual machine's network adapters to a bridged, host-only, or NAT network and click **Next**.

Customize the Guest Operating System of the New Virtual Machine

On the Export wizard Customization page, you can choose to install VMware Tools, customize a guest operating system, remove System Restore checkpoints, or any combination of these options, depending on the guest operating system.

Converter Enterprise does not support customization for Windows NT.

To skip the options on the Customization page and go to the Ready to Complete page

- 1 Deselect all check boxes and click **Next**.
- 2 To complete the export, see [“Complete the Export”](#) on page 44.

Install VMware Tools

Installing VMware Tools is applicable only for ESX Server, VirtualCenter, Workstation 6, VMware Fusion 1, VMware Player 2, and ACE 2 destinations.

To install VMWare Tools

- 1 On the Customization page, ensure that **Install VMware Tools** is selected.
- 2 Click **Next** or select **Customize the identity of the virtual machine** to continue with customization.

Customizing the Identity of the New Virtual Machine

Use this procedure to customize the identity of the new virtual machine.

If the **Customize** option is unavailable, you must install the Microsoft Sysprep tools on your VirtualCenter server machine in the appropriate location. For example, C:\Documents and Settings\All Users\Application Data\VMware\VMware VirtualCenter\sysprep\.

You can customize the following fields:

- Change the computer information for identifying a virtual machine on a network.
- Enter server license information.
- Change the time zone for a virtual machine.
- Modify the properties for each network interface.

To customize the identity of the new virtual machine

- 1 On the Customization page, select **Customize the identity of the virtual machine** and click **Next**.

The table of contents expands to show the topics in this section of installation.

- 2 On the Computer Information page, customize any of these fields:
 - **Computer Name** – A unique name to identify the virtual machine on the network. Valid characters include A-Z, a-z, 0-9, and the hyphen. Underscore is nonstandard, but VMware Converter permits its use. There is a 63-character limit. The Computer Name cannot consist only of numerals.
 - **Owner Name** – Valid characters include all printable characters. The limit is 63-characters.
 - **Organization** – Valid characters include all printable characters. The limit is 63-characters.
 - **Generate New Security ID (SID)** – Select to generate a new security identifier. By default, the security ID is preselected for Windows Vista systems.
- 3 Click **Next**.

- 4 On the Windows License page, enter the Windows licensing information for this virtual machine, if necessary, and click **Next**.

You can leave the **Product ID** field blank and move to the next page.

The **Include Server License Information** check box only applies to Microsoft Windows 2000 Server and Microsoft Windows 2003 Server operating systems. The **Server License Mode** buttons are disabled if the check box is not selected. This action does not apply to Windows Vista.

- 5 Choose a time zone from the drop-down menu on the Time Zone page and click **Next**.

If network interfaces need to be set, the Network Interface Settings page appears.

- 6 (Optional) To customize your network adapter settings, choose the adapter on the Network Interface Settings page and click **Customize**.

The **Reset All** button is enabled if one or more network adapters have been modified. Click this button to return all settings for all adapters to the default.

By default, every network adapter obtains the IP address and DNS server address from the Dynamic Host Configuration Protocol (DHCP). If you prefer to use the default settings, click **Next**.

- 7 (Optional) On the Network Properties dialog box, modify the properties of any network adapters.

Field	Description
General	Use this tab only to manually enter the IP address and DNS server address.
DNS	Specify the DNS connections by entering DNS suffixes. <ul style="list-style-type: none"> ■ For each DNS suffix you enter, click Add. ■ If you are entering multiple DNS suffixes, use Move Up and Move Down to specify the order in which a virtual machine is to use the connections.
WINS	Specify the primary and secondary WINS addresses by typing the IP addresses in the entry boxes.

- 8 Click **OK** to return to the Network Interface Settings page and click **Next**.
- 9 On the Workgroup or Domain page, select how the virtual machine participates in a network.
- **Workgroup** – Valid characters include A-Z, a-z, 0-9, space, and the hyphen. Maximum length is 15 characters.
 - **Windows Server Domain** – The text box must have a value. Valid characters include A-Z, a-z, 0-9, space, period (dot), and the hyphen. Each label delineated by a dot can be 63 characters, and the entire text string can be up to 254 characters. A user name and password are required.
- 10 Click **Next**.

Remove System Restore Check points

VMware recommends that you remove all System Restore check points, regardless of the cloning mode, unless you want the target virtual machine to be a replica of the source system.

System Restore is enabled on Windows Vista and Windows XP systems by default. For Windows Vista, the following conditions exist:

- For volume-based file-level cloning, System Restore check points are automatically removed from the target virtual machine.
- For disk-based cloning, or volume-level block-based cloning, when you deselect the option, the System Restore check points remain in the target virtual machine.

Removing all System Restore check points prevents the target machine from reverting to a preconversion state. Restoring a check point in the target virtual machine that was created before cloning the source machine can damage the system and cause the target virtual machine to become unbootable.

To remove all System Restore checkpoints for Windows Vista, Windows XP, and Windows 2003

On the Customization page, select **Remove all system restore checkpoints**.

For more information about cloning modes, see [“Cloning Modes”](#) on page 15.

Schedule an Export Task

On the Schedule Task page of the Export wizard, you can set a task to run immediately or schedule it to run at a later time. You can also schedule the frequency at which to run the task.

To run a task immediately

On the Schedule Task page, select **Immediately** and click **Next**.

To schedule a task to run at a specific time

- 1 On the Schedule Task page, select **Later**.
- 2 Enter a display name for the task.
- 3 Enter a description of the task.
- 4 Specify the start time and start date and click **Next**.

To schedule the frequency of a task

- 1 On the Schedule Task page, click the **Schedule the task** button.
- 1 Enter a task name.
- 2 Enter a task description.
- 3 In the Frequency drop-down menu, select the frequency at which to run the task.
- 4 Specify the start and end dates.

You can leave the task open-ended by selecting **No end date** or you can specify a set number of occurrences after which the task should end.
- 5 (Optional) In the **Retention Policy** drop-down menu, you can specify how many copies of the virtual machine to keep.

Complete the Export

The final page in the Export wizard is the Ready to Complete page.

To complete the export task

- 1 Review the summary of the settings for the new virtual machine.
- 2 Click **Finish** to close the wizard and display the Task View with the export job in the task list.

If you scheduled the task to run immediately, it appears in Recent Tasks, as well as on the **Tasks & Events** page. You can view the progress in the **Task Progress** tab.

If you scheduled a task to run at a later time, it appears on the **Scheduled Tasks** page.

After you create an export task, you can monitor and manage it in the VMware Infrastructure Client like any task. See [“Managing Converter Enterprise Tasks”](#) on page 49.

Reconfiguring Machines

This chapter describes how to reconfigure virtual machines managed by VirtualCenter. You can use the Reconfigure wizard to install VMware Tools on a virtual machine and customize the identity of the new virtual machine.

You can reconfigure Windows virtual machines only. However, Converter Enterprise does not support customization for Windows NT.

This chapter includes the following sections:

- [“Start the Reconfigure Wizard”](#) on page 45
- [“Customize the Guest Operating System of the New Virtual Machine”](#) on page 45
- [“Complete the Reconfiguration”](#) on page 48

Start the Reconfigure Wizard

Use this procedure to start the VMware Converter Enterprise reconfigure wizard.

To start the wizard

- 1 Go to **Start > Programs > VMware > VMware Infrastructure Client**.
- 2 Type the host name or IP address of the VirtualCenter Server associated with Converter Enterprise.
- 3 Type an appropriate Windows domain user name and password and click **Log In**.
- 4 Start the Reconfigure wizard by doing one of the following:
 - Select a virtual machine and on the main VI Client menu, select **Inventory > Virtual Machine > Reconfigure**.
 - Right-click a virtual machine in any inventory or task view and select **Reconfigure**.

Customize the Guest Operating System of the New Virtual Machine

On the Reconfigure wizard Customization page, you can choose to install VMware Tools, customize a guest operating system, remove System Restore checkpoints, or any combination of these options, depending on the guest operating system.

To skip the options on the Customization page and go to the Ready to Complete page

Deselect all check boxes and click **Next**.

To complete the reconfiguration, see [“Complete the Reconfiguration”](#) on page 48.

Install VMware Tools

Installing VMware Tools is applicable only for ESX Server, VirtualCenter, Workstation 6, VMware Fusion 1, VMware Player 2, and ACE 2 destinations.

To install VMWare Tools

- 1 On the Customization page, ensure that **Install VMware Tools** is selected.
- 2 Click **Next** or select **Customize the identity of the virtual machine** to continue with customization.

Customize the Identity of the New Virtual Machine

Use this procedure to customize the identity of the new virtual machine.

If the **Customize** option is unavailable, you must install the Microsoft Sysprep tools on your VirtualCenter server machine in the appropriate location. For example, C:\Documents and Settings\All Users\Application Data\VMware\VMware VirtualCenter\sysprep\.

You can customize the following fields:

- Change the computer information for identifying a virtual machine on a network.
- Enter server license information.
- Change the time zone for a virtual machine.
- Modify the properties for each network interface.

To customize the identity of the new virtual machine

- 1 On the Customization page, select **Customize the identity of the virtual machine** and click **Next**.

The table of contents expands to show the topics in this section of installation.

- 2 On the Computer Information page, customize any of these fields:
 - **Computer Name** – A unique name to identify the virtual machine on the network. Valid characters include A-Z, a-z, 0-9, and the hyphen. Underscore is nonstandard, but VMware Converter permits its use. There is a 63-character limit. The Computer Name cannot consist only of numerals.
 - **Owner Name** – Valid characters include all printable characters. The limit is 63-characters.
 - **Organization** – Valid characters include all printable characters. The limit is 63-characters.
 - **Generate New Security ID (SID)** – Select to generate a new security identifier. By default, the security ID is preselected for Windows Vista systems.

- 3 Click **Next**.

- 4 On the Windows License page, enter the Windows licensing information for this virtual machine, if necessary, and click **Next**.

You can leave the **Product ID** field blank and move to the next page.

The **Include Server License Information** check box only applies to Microsoft Windows 2000 Server and Microsoft Windows 2003 Server operating systems. The **Server License Mode** buttons are disabled if the check box is not selected. This action does not apply to Windows Vista.

- 5 Choose a time zone from the drop-down menu on the Time Zone page and click **Next**.

If network interfaces need to be set, the Network Interface Settings page appears.

- 6 (Optional) To customize your network adapter settings, choose the adapter on the Network Interface Settings page and click **Customize**.

The **Reset All** button is enabled if one or more network adapters have been modified. Click this button to return all settings for all adapters to the default.

By default, every network adapter obtains the IP address and DNS server address from the Dynamic Host Configuration Protocol (DHCP). If you prefer to use the default settings, click **Next**.

- 7 (Optional) On the Network Properties dialog box, modify the properties of any network adapters.

Field	Description
General	Use this tab only to manually enter the IP address and DNS server address.
DNS	Specify the DNS connections by entering DNS suffixes. <ul style="list-style-type: none"> ■ For each DNS suffix you enter, click Add. ■ If you are entering multiple DNS suffixes, use Move Up and Move Down to specify the order in which a virtual machine is to use the connections.
WINS	Specify the primary and secondary WINS addresses by typing the IP addresses in the entry boxes.

- 8 Click **OK** to return to the Network Interface Settings page and click **Next**.
- 9 On the Workgroup or Domain page, select how the virtual machine participates in a network.
- **Workgroup** – Valid characters include A-Z, a-z, 0-9, space, and the hyphen. Maximum length is 15 characters.
 - **Windows Server Domain** – The text box must have a value. Valid characters include A-Z, a-z, 0-9, space, period (dot), and the hyphen. Each label delineated by a dot can be 63 characters, and the entire text string can be up to 254 characters. A user name and password are also required.
- 10 Click **Next**.

Remove System Restore Check points

VMware recommends that you remove all System Restore check points, regardless of the cloning mode, unless you want the target virtual machine to be a replica of the source system.

System Restore is enabled on Windows Vista and Windows XP systems by default. For Windows Vista, the following conditions exist:

- For volume-based file-level cloning, System Restore check points are automatically removed from the target virtual machine.
- For disk-based cloning, or volume-level block-based cloning, when you deselect the option, the System Restore check points remain in the target virtual machine.

Removing all System Restore check points prevents the target machine from reverting to a preconversion state. Restoring a check point in the target virtual machine that was created before cloning the source machine can damage the system and cause the target virtual machine to become unbootable.

To remove all System Restore checkpoints for Windows Vista, Windows XP, and Windows 2003

On the Customization page, select **Remove all system restore checkpoints**.

For more information about cloning modes, see [“Cloning Modes”](#) on page 15.

Complete the Reconfiguration

The final page in the Reconfigure wizard is the Ready to Complete page.

To complete the reconfiguration

- 1 Review the summary of the settings for the new virtual machine.
- 2 Click **Finish** to close the wizard and display the **Task View** with the reconfiguration job in the task list.

If you scheduled the task to run immediately, it appears in **Recent Tasks** as well as on the **Tasks & Events** tab. You can view the progress on the **Task Progress** tab.

If you scheduled a task to run at a later time, it appears on the Scheduled Tasks page.

After you create a reconfiguration task, you can monitor and manage it in the VI Client like any task. See [“Managing Converter Enterprise Tasks”](#) on page 49.

Managing Converter Enterprise Tasks

This chapter describes how to use the VI Client to manage Converter Enterprise tasks. Whenever you use one of the Converter Enterprise wizards to import or export a virtual machine, you are creating a task. You cannot schedule reconfiguration tasks. Managing Converter Enterprise tasks is similar to managing other VirtualCenter tasks. For general information about task management, see the *Basic System Administration* documentation.

This chapter includes the following sections:

- [“View a Task List”](#) on page 49
- [“View Task Details”](#) on page 50
- [“Cancel a Task”](#) on page 50
- [“Copy a Task”](#) on page 50
- [“Edit a Scheduled Task Immediately”](#) on page 51
- [“Run a Scheduled Task”](#) on page 51
- [“Remove a Scheduled Task”](#) on page 51

View a Task List

The VI Client provides the following ways to view current, completed, or scheduled tasks:

- The **Tasks** view on the **Tasks & Events** tab displays a list of current and completed tasks for the selected inventory object.
- The **Recent Tasks** panel displays a list of current and recently completed tasks for all inventory objects.
- The **Scheduled Tasks** view displays a list of scheduled tasks for all inventory objects.

To view completed or current tasks for a specific inventory object

- 1 Start VI Client and connect to the VirtualCenter Server associated with Converter Enterprise.
- 2 Click the **Inventory** button in the navigation bar and select the **Hosts & Clusters** view.
- 3 Select an inventory object (for example, a host) and click the **Tasks & Events** tab.
- 4 Click the **Tasks** button.

The tasks status is indicated by one of the following icons:

-  – Task completed successfully.
-  – Task failed. Review the task details for more information.
-  – Task is queued or in progress. Tasks are queued when system resources are heavily loaded. Queued tasks run when adequate system resources become available. Tasks that are in progress include a status bar that displays the percent completed.

To view recently completed or current tasks for all inventory objects

- 1 Start VI Client and connect to the VirtualCenter Server associated with Converter Enterprise.
- 2 If the **Recent Tasks** panel is not displayed, click the **Tasks** button in the status bar.

The **Recent Tasks** panel displays information about recently completed or current tasks for all inventory objects.

-  – Task completed successfully.
-  – Task failed. Review the task details for more information.
-  – Task is queued or in progress. Tasks are queued when system resources are heavily loaded. Queued tasks run when adequate system resources become available. Tasks that are in progress include a status bar that displays the percent completed.

To view scheduled tasks for all inventory objects

- 1 Start VI Client and connect to the VirtualCenter Server associated with Converter Enterprise.
- 2 Click the **Scheduled Tasks** button in the navigation bar to see which tasks are scheduled and when each task last ran.

View Task Details

You can view detailed information about specific tasks in the **Task Details** pane or the **Task Summary** dialog box.

The **Task Details** pane displays information about the task and related events. When a task fails, this pane includes information about the location of logs files that might help troubleshoot the issue. Log files are temporary, so you should access them as soon as possible after a failure.

To view detailed information about a specific task

- Select a task in the **Tasks & Events** task list.
- Right-click a task in the **Recent Tasks** panel or the **Tasks & Events** task list and choose **View Summary**.

Cancel a Task

You can cancel tasks labeled **In Progress**. Canceled tasks are labeled as **failed**, with a message indicating that the task was canceled by a user.

To cancel a task

- 1 Right-click on the task and select **Cancel**.
- 2 Click **Yes** in the confirmation dialog box.

Copy a Task

You create a new task based on any task that is not queued or in progress by copying the original task. You can also copy scheduled tasks. Copying tasks allows you to reuse and modify information from the original task without having to re-enter it into the wizard.

To copy a task

Right-click a task and select **Copy As New**.

The wizard associated with the original task is started (for example, if the original task is an export task, the Export wizard is started) so that you can modify its settings to create a new task.

Edit a Scheduled Task Immediately

You edit a scheduled task to modify its settings before it runs.

To edit a scheduled task

- 1 Click the **Scheduled Tasks** button in the navigation bar.
- 2 Right-click a task and select **Properties**.

The wizard associated with the original task is started (for example, if the original task is an export task, the Export wizard is started) so that you can modify its settings.

Run a Scheduled Task

Scheduled tasks are designed to run at a specified date and time. However, you can also choose to run a scheduled task immediately. Running a scheduled task does not affect the original schedule you specified.

To run a scheduled task

- 1 Click the **Scheduled Tasks** button in the navigation bar.
- 2 Right-click a task and select **Run**.

The task is run immediately, or queued until resources are available to run it.

Remove a Scheduled Task

You can remove tasks from the scheduled tasks list at any time.

To remove a scheduled task

- 1 Click the **Scheduled Tasks** button in the navigation bar.
- 2 Right-click a task and select **Remove**.
- 3 Click **Yes** in the confirmation dialog box.

VMware Converter Enterprise Boot CD

8

This chapter describes how to cold clone a local physical machine to a variety of destinations. Cold cloning, also called offline cloning, involves cloning the source machine when it is not running its operating system. In cold cloning, you reboot the source machine from a CD that has its own operating system and also includes the Converter Enterprise application.

This chapter includes the following sections:

- [“Create the VMware Converter Enterprise Boot CD”](#) on page 53
- [“Configure the Network”](#) on page 54
- [“Start the Import Wizard”](#) on page 54
- [“Select Your Source Data”](#) on page 54
- [“Choosing a Destination for the New Virtual Machine”](#) on page 55
- [“Customizing the Guest Operating System of the New Virtual Machine”](#) on page 57
- [“Complete the Import ”](#) on page 59
- [“Use peTool to Modify the VMware Converter Enterprise Boot CD”](#) on page 59

Create the VMware Converter Enterprise Boot CD

Before you can use the VMware Converter Enterprise Boot CD, you must download the ISO file and create the CD.

Before launching the Converter Enterprise application, you can modify the network settings of the operating system on the CD. This procedure is optional. However, after the Converter Enterprise application is launched, you cannot modify the network settings.

To download and boot the VMware Converter Enterprise Boot CD (SEE UPDATE)

- 1 Go to the **Downloads** link on the VMware Web page and click the **Download** link for VMware Infrastructure 3.
- 2 Click **Download Now** under VMware VirtualCenter 2.5 Update 2.
- 3 Enter your login credentials and on the End-User License Agreement page, read the agreement, then select **I accept the terms in the License Agreement** and click **OK**.
- 4 Next to the entry for VMware Converter Enterprise Boot CD for VirtualCenter, click **ZIP image** to download the file.

The file name is `VMware-convertercd-4.0.1-<xxxx>.zip` (<xxxx> indicates the build number).

- 5 Extract the `colclone.iso` file and use the software of your choice to create the VMware Converter Enterprise Boot CD from the image file.
- 6 Insert a blank CD in the source machine and restart the computer.

- 7 Within 10 seconds of restart, press F12 (or equivalent) to access the boot device menu.
- 8 Select the CD drive containing the boot CD and press any key to continue.
- 9 (Optional) In the Network Configuration dialog box, change the location for the temporary files, including the logs. By default, temporary files are stored in RAM.
- 10 (Optional) Click **Advanced** and set a value for the **Speed & Duplex** property of each network adapter.
- 11 The Converter Enterprise application launches.

Configure the Network

You must specify a static IP address and map the network drives to the network share.

To specify a static IP address and map network drives

- 1 On the VMware Converter Enterprise application main menu, choose **Administration > Network Configuration**.
- 2 Click the appropriate button on the **Network Properties** tab to enter the static IP addresses and click **Apply**.
- 3 Click the **Network Drives** tab and map the drives to the network share.
- 4 Click **Connect**.

If necessary, enter the DOMAIN/user name and password to connect to a specific network share and click **OK**.

- 5 Click **OK**.

Start the Import Wizard

Use this procedure to start the Converter Enterprise Import Wizard. Using the wizard is a three-step process of selecting the source volumes, the destination for the virtual machine, and customizing the virtual machine.

You can monitor the import task and manage the import task in the VMware Infrastructure Client, like any other task. See [Chapter 7, "Managing Converter Enterprise Tasks,"](#) on page 49.

To start the wizard

- 1 On the Converter Enterprise application main menu, click **Import Machine**.
- 2 Click **Next**.

Select Your Source Data

Choose which of the source machine volumes to import and specify their size in the new virtual machine. You can also import all disks unchanged.

To choose the disks or volumes to import

- 1 On the Source page, click **Next** to move on to the Source Data page.
- 2 Specify whether to change or maintain the imported disks.

To import all disks unchanged, make sure that **Import all disks and maintain size** is selected and click **Next**. This is the only choice if the virtual machine you are importing has a Linux guest operating system.

- 3 To resize the converted disks, click **Select volumes and resize to save or add space**.

- 4 Deselect any volumes that you do not want to import.
- 5 Specify the volume size you want in the **New Disk Space** drop-down menu and click **Next**.

Option	Description
Maintain Size	Uses the same size as the original volume.
Min Size	Converts only the used portion of the volume and adds a small amount of space.
<Type Size in GB>	Specify a size in gigabytes.
<Type Size in MB>	Specify a size in megabytes.

Choosing a Destination for the New Virtual Machine

Your destination virtual machine can be one of the following categories:

- **VirtualCenter Virtual Machine** – See “[Choose a VirtualCenter Virtual Machine Destination](#)” on page 55
- **ESX Server** – See “[Choose an ESX Server Virtual Machine Destination](#)” on page 56
- **Workstation** – See “[Choose a Standalone Virtual Machine or Backup Image Destination](#)” on page 56

Choose a VirtualCenter Virtual Machine Destination

Use this procedure to import the virtual machine to run in an ESX Server managed by VirtualCenter.

Converter Enterprise does not support clusters in which the DRS is set to partially automated or fully automated as destinations. To have a cluster as the destination, you must set the cluster VMware DRS settings to manual.

To select a VirtualCenter destination

- 1 On the Destination page, click **Next** to move to the Destination Type page.
- 2 Select **VMware Infrastructure Virtual Machine** from the drop-down menu and click **Next**.
- 3 On the Destination Login page, choose the destination server in the drop-down menu or type the name of the server if it is not listed.
- 4 Type the administrator user name and password for the destination server and click **Next**.
- 5 On the Virtual Machine Name and Folder page, assign a name to the virtual machine.
- 6 In the Virtual Machine Inventory Location pane, choose a destination folder within the VirtualCenter inventory and click **Next**.
- 7 On the Host or Cluster page, select the host, cluster, or resource pool within a host or cluster from which to run the imported virtual machine.
- 8 If you select a cluster in manual mode, on the Host page choose the specific host for the virtual machine.
- 9 (Optional) To distribute disks over several datastores or to place the virtual machine configuration file and each disk on a separate datastore, do the following:
 - a Click **Advanced** to see the list of disks and the virtual machine configuration file.
 - b Choose the datastore for each disk and file from the drop-down menus.
- 10 On the Networks page, map the virtual machine network adapters to a network and click **Next**.

The Networks panel has drop-down menus containing the networks available at the destination location. The number of adapters to map can be set in a drop-down menu and you can choose whether to connect the networks when the virtual machine is powered on.

Choose an ESX Server Virtual Machine Destination

Use this procedure if you are importing the virtual machine to run in an ESX Server that is not managed by VirtualCenter.

Depending on your source, you can select one or more datastores for the virtual machine configuration files and disks.

To select an ESX Server destination

- 1 On the Destination page, click **Next** to move to the Destination Type page.
- 2 Select **VMware Infrastructure Virtual Machine** from the drop-down menu and click **Next**.
- 3 On the Destination Login page, choose the destination server in the drop-down menu or type the name of the server if it is not listed.
- 4 Type the administrator user name and password for the destination server and click **Next**.
- 5 On the Virtual Machine Name page, enter a unique name to assign to the virtual machine and click **Next**.
- 6 On the Host page, choose the host for the virtual machine and click **Next**.
- 7 Specify the datastore for the virtual machine configuration files and disks and click **Next**.

All datastores and their available space are shown. You must choose a datastore large enough to contain the selected disks.

- 8 (Optional) To distribute disks over several datastores or to place the virtual machine configuration file and each disk on a separate datastore, do the following:
 - a Click **Advanced** to see the list of disks and the virtual machine configuration file.
 - b Choose the datastore for each disk and file from the drop-down menus.
- 9 On the Networks page, map the network adapters to networks on the destination ESX Server and click **Next**.

The Networks panel has drop-down menus containing the networks available at the destination location. The number of adapters to map can be set in a drop-down menu as well.

Choose a Standalone Virtual Machine or Backup Image Destination

Use this procedure to import a virtual machine to run as a Workstation virtual machine.

The **Allocate all disk space now for better performance** option creates a disk file that can be larger than the used space of the source. For example, the source disk might be a 16GB disk of which only 2GB is used for the file, but importing the file with the **Allocate** option creates a 16GB disk. Before you import, take this into account when you look at free space.

To select a standalone virtual machine destination

- 1 On the Destination page, click **Next** to move to the Destination Type page.
- 2 Select **Other Virtual Machine** from the drop-down menu and click **Next**.
- 3 On the Virtual Machine Name and Location page, type a name for the converted virtual machine and browse to enter the destination location.
- 4 Select a type of virtual machine to create and click **Next**.

- 5 Select the import options for a full clone.

Depending on the type of source and destination, you might have options in how you allocate disk space for the new virtual machine:

- To allocate all the disk space for this clone, select **Allocate all disk space now for better performance**. This option gives somewhat better performance for your virtual machine.
- If you select **Allow virtual disk files to expand**, the virtual disk's files start small and grow as needed, until they reach the size of the source disks from which they were cloned.
- To support virtual disks on FAT file systems, ensure that the **Split disk into 2 GB files** check has been selected.

- 6 Click **Next**.

- 7 On the Destination Name and Location page, assign a unique name to the virtual machine.

The name can be 80 characters long and is case sensitive. It can contain alphanumeric characters and the underscore (_) and hyphen (-).

- 8 Browse to or type the path of the location where you want to create the virtual machine and click **Next**.

- 9 On the Networks page, map the virtual machine network adapters to a bridged, host-only, or NAT network and click **Next**.

Customizing the Guest Operating System of the New Virtual Machine

On the Import wizard Customization page, you can choose to install VMware Tools, customize a guest operating system, remove System Restore checkpoints, or any combination of these options, depending on the guest operating system.

Converter does not support customization for Windows NT.

To skip the options on the Customization page and go to the Ready to Complete page

Deselect all check boxes and click **Next**.

Continue with ["Complete the Import"](#) on page 59.

Install VMware Tools

You can install VMware Tools only for ESX Server, VirtualCenter, Workstation 6, VMware Fusion 1, VMware Player 2, and ACE 2 destinations.

- 1 On the Customization page, select **Install VMware Tools**.
- 2 Click **Next** or select **Customize the identity of the virtual machine** to continue with customization.

Customize the Identity of the Virtual Machine

Use this procedure to customize the identity of the virtual machine.

If the **Customize** option is unavailable, you must install the Microsoft Sysprep tools on your VirtualCenter server machine in the appropriate location. For example, C:\Documents and Settings\All Users\Application Data\VMware\VMware VirtualCenter\sysprep\.

You can customize the following information:

- Identity of the virtual machine on a network
- Time zone
- Server license information
- Properties for each network interface

To customize the identity of the virtual machine

- 1 On the Customization page, select **Customize the identity of the new virtual machine** and click **Next**.
- 2 On the Computer Information page, customize any of these items and click **Next**.
 - **Computer Name** – A unique name to identify the virtual machine on the network. Valid characters include A-Z, a-z, 0-9, and the hyphen. Underscore is nonstandard, but Converter Enterprise permits its use. The Computer Name cannot have more than 63 characters or consist only of numerals.
 - **Owner Name** – Valid characters include all printable characters. The limit is 63 characters.
 - **Organization** – Valid characters include all printable characters. The limit is 63 characters.
 - **Generate New Security ID (SID)** – Select to generate a new security identifier. By default, the Security ID is preselected for Windows Vista systems.
 - **Location of Sysprep Files** – If this field is empty, you must specify a valid location. In it not necessary to specify a location for Windows Vista systems.

- 3 On the Windows License page, enter the Windows licensing information for this virtual machine, if necessary.

You can leave the **Product ID** field blank and move to the next page.

The **Include Server License Information** check box applies only to Microsoft Windows 2000 Server and Microsoft Windows 2003 Server operating systems. The **Server License Mode** radio buttons are disabled if the check box is not selected.

- 4 Click **Next**.
- 5 On the Time Zone page, choose a time zone from the drop-down menu and click **Next**.
- 6 (Optional) To customize the network adapter settings, choose the adapter on the Network Interface Settings page and click **Customize**.

Click **Reset All** to return to the default.

By default, every network adapter obtains the IP address and DNS server address from the Dynamic Host Configuration Protocol (DHCP). If you prefer to use the default settings, click **Next**.

- 7 (Optional) On the Network Properties dialog box, modify the properties of any network adapters.

Field	Description
General	Use this tab to manually enter the IP address and DNS server address.
DNS	Specify the DNS connections by entering DNS suffixes. <ul style="list-style-type: none"> ■ For each DNS suffix you enter, click Add. ■ If you are entering multiple DNS suffixes, use Move Up and Move Down to specify the order in which a virtual machine is to use the connections.
WINS	Specify the primary and secondary WINS addresses by typing the IP addresses in the entry boxes.

- 8 Click **OK** to return to the Network Interface Settings page, and click **Next**.
- 9 On the Workgroup or Domain page select how the virtual machine participates in a network:
 - **Workgroup** – Valid characters include A-Z, a-z, 0-9, space, and the hyphen. Maximum length is 15 characters.
 - **Windows Server Domain** – Valid characters include A-Z, a-z, 0-9, space, period (dot), and the hyphen. Each label delineated by a dot can be 63 characters, and the entire text string can be up to 254 characters. A user name and password are required.
- 10 Click **Next**.

Remove System Restore Checkpoints

VMware recommends that you remove all System Restore check points, regardless of the cloning mode, unless you want the target virtual machine to be a replica of the source system.

System Restore is enabled on Windows Vista and Windows XP systems by default. For Windows Vista, the following conditions exist:

- For volume-based file-level cloning, System Restore check points are automatically removed from the target virtual machine.
- For disk-based cloning, or volume-level block-based cloning, when you deselect the option, the System Restore check points remain in the target virtual machine.

Removing all System Restore check points prevents the target machine from reverting to a preconversion state. Restoring a check point in the target virtual machine that was created before cloning the source machine can damage the system and cause the target virtual machine to become unbootable.

To remove all System Restore checkpoints for Windows Vista, Windows XP, and Windows 2003

On the Customization page, select **Remove all system restore checkpoints**.

For more information about cloning modes, see [“Cloning Modes”](#) on page 15.

Complete the Import

The final page of the Conversion wizard is the Ready to Complete page. Use this procedure to review a summary of the new virtual machine settings and to power on the machine after creation for an ESX Server destination.

To complete the conversion task

- 1 Review the summary of the settings for the new virtual machine.
- 2 If Windows discovers new hardware and asks you to reboot, select **No** so that customization settings are applied.

If you customized the new virtual machine, after it is powered on, you must wait for it to automatically reboot twice before the customization settings are applied and you can safely log in. Customization settings are not applied to your virtual machine if you manually restart it.

- 3 Click **Finish**.

The import starts immediately. You can view the progress in the **Task Progress** tab.

Because the Boot CD does not support concurrent imports, you can import only one machine at a time.

- 4 When the task is complete, choose **File > Exit** to reboot the source computer.

Use peTool to Modify the VMware Converter Enterprise Boot CD

You can use the VMware peTool to add Windows storage and network device drivers and make other modifications to the boot CD ISO image.

To use peTool

- 1 Download `VMware-convertercd-4.0.1-<xxxx>.zip` (**<xxxx>** indicates the build number) from the VirtualCenter 2.5 page that you access from the VMware Infrastructure 3 Download page on the VMware Web site.
- 2 Extract `peTool.exe` from the zip file.
- 3 To add a new network driver to the ISO image, use the following syntax:

```
peTool -i <Conv_boot_cd.iso> -n <driver_folder_path>
```

You can add executable binary files and VNC packages and perform other actions listed in [Table 8-1](#).

Table 8-1. peTool Options

Option	Action
-h [--help]	Displays help messages
-i [--image]	Specify image file. Specifies the WinPE CD image to be modified. An example: -i c:\colclone.iso. The original of the ISO image is saved with a .bak extension. In this example, it is saved as colclone.iso.bak.
-b [--binary]	Adds binary files. For adding executable binaries. Must be followed by one or more full paths and names of binary files. The binary file is copied to the \Programs directory.
-B [--start_binary]	Adds binary files and automatically start. Similar to -b, except that the added binaries execute automatically when WinPE boots up the system.
-v [--vnc]	Adds VNC package. Specifies a VNC package to be added. It is followed by an executable binary with the VNC package you want to start up (%<relative_path&filename>, the same format as described in -P), and, optionally, followed by a %<predefined_VNC_password>. For example, -v c:\RealVNC\vnc4.exe%123. This copies the VNC package at c:\RealVNC and starts the vnc4.exe under the RealVNC directory after boot up. The password for VNC is 123. If you set this option, the firewall will be turned off, and the "press any key to boot from CD" option during bootup will be removed.
-p [--package]	Adds software packages. This must be followed by one or more full paths and names of software packages. The packages are copied to the \Programs directory.
-P [--start_package]	Adds software packages and automatically start. Specifies an executable binary, inside the package, that you want to start after boot up. The format is -P <software_package_directory>%<relative_path&filename>. For example, if the package you add is inside a directory called c:\RealVNC and the executable binary you want to start up is vnc4.exe under the RealVNC directory, specify -P c:\RealVNC\vnc4.exe.
-f [--disable_firewall]	Disables firewall. Disables the firewall after WinPE boots up.
-d [--storage_driver]	Adds storage device drivers. Must be followed by one or more full directory paths that contain the target device drivers. The original VMware Converter Enterprise Boot CD ISO image does not contain these drivers. Use this option to specify the drivers from ones you already have.
-n [--network_driver]	Adds network device drivers. Must be followed by one or more full directory paths that contain the target device drivers.
-t [--tmp]	Specifies the temporary directory for peTool. If the directory does not exist, peTool creates it. If a temporary directory is not specified, peTool uses the default temp file indicated by Windows.

Appendix: Migration with converter-tool Command-Line Interface

This appendix describes the capabilities of the Converter Enterprise converter-tool. VMware provides converter-tool for migrating physical and virtual source machines with a command-line interface (CLI). The Converter Enterprise CLI provides access to VMware Converter Enterprise functionality without requiring the VI Client plug-in. You invoke the Converter Enterprise CLI by starting `converter-tool.exe` from a command prompt, then use the converter-tool to submit import, export, and reconfigure jobs to a VirtualCenter server with an associated Converter Enterprise server. Jobs are described in XML files based on the XML schema, `p2v.xsd`.

- [“Converter Enterprise CLI System Requirements”](#) on page 61
- [“Install and Run the Converter Enterprise CLI on a Windows Computer”](#) on page 62
- [“Install the Converter Enterprise CLI on a Linux Computer”](#) on page 62
- [“Import XML Input File Examples”](#) on page 67
- [“Export XML Input File Example”](#) on page 69
- [“Reconfiguration XML Input File Example”](#) on page 70
- [“-jI \[--jobSourceInspect\] Option XML Output File Example”](#) on page 71

Converter Enterprise CLI System Requirements

The Converter Enterprise CLI can run on both Windows and Linux computers. Whether you run converter-tool from Windows or Linux, you must have a Converter Enterprise Server installed to use the CLI. See [“Install Converter Enterprise”](#) on page 25.

Windows System Requirements

You can install the Converter Enterprise CLI on the following Microsoft Windows operating systems:

- Windows 2000
- Windows 2003 (32-bit and 64-bit)
- Windows XP Professional (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Space information and requirements for installation:

Converter Enterprise CLI installed files – 36MB

Linux System Requirements

You can install the Converter Enterprise CLI on the following Linux operating systems:

- SUSE Linux Enterprise Server 10
- Red Hat Enterprise Linux 5.0

Space information and requirements for installation:

- Converter Enterprise CLI installed files – 195MB

Install and Run the Converter Enterprise CLI on a Windows Computer

By default, both the VMware Infrastructure Management installer and the VMware Converter Enterprise installer install the Converter Enterprise CLI. The Converter Enterprise CLI is installed in the same location as Converter Enterprise server. You can also use the VMware Converter Enterprise installer to perform a custom installation of the Converter Enterprise CLI on other computers.

See [“Install Converter Enterprise”](#) on page 25.

By default, the `converter-tool.exe` file is installed in the following location:

`C:\Program Files\VMware\Infrastructure\Converter Enterprise`

Sample XML files, based on `p2v.xsd`, are installed in this location:

`C:\Program Files\VMware\Infrastructure\Converter Enterprise\Documentation`

To run converter-tool on Windows

Open a command prompt and type `converter-tool`, followed by the options.

Install the Converter Enterprise CLI on a Linux Computer

The VMware Converter Enterprise installer does not support Linux. Therefore, you must download the latest version of the Linux installer.

To install and run the Converter Enterprise CLI for Linux

- 1 Download the latest version of the Linux installer from the VirtualCenter 2.5 page, which is accessible from the VMware Infrastructure 3 Download page on the VMware Web site.
- 2 Extract the contents of `VMware-converter-4.0.1-<xxxx>.tar.gz` to a location of your choice.
In this example, `<xxxx>` is the build number.
- 3 To run `converter-tool` on Linux, open a terminal window and type `converter-tool.sh`, followed by the options.

Syntax and Options

You can use `converter-tool` to perform migrations by using either a short or long format. For example, to import machines described in the XML file `jobDescription.xml`, type one of the following commands:

- **Short format** – `converter-tool --vH [vcserver] --vC [username:password] --jS [jobDescription.xml]`
- **Long format** – `converter-tool --vCHost [vcserver] --vCCreds [username:password] --jobSubmit [jobDescription.xml]`

Only one action option can be specified for each execution or command line, as follows:

- `--query`
- `--verify`
- `--import`
- `--postprocess`

In addition, you can specify only one of the `--job*` options for each execution or command line. If no options are specified, `converter-tool` runs as if `--help` was specified.

Up to 10 instances of `converter-tool` can run simultaneously.

You can perform the actions identified by the options listed in [Table A-1](#).

Table A-1. `converter-tool` Options

Option	Action
<code>-? [--help]</code>	Produce help message— Lists the options for the <code>converter-tool</code> command line interface.
<code>--vH, --vCHost</code> [http://]hostname[.dns.domain.com] [:port]	Specify a VirtualCenter host— Specifies connection options for a VirtualCenter Server with an associated Converter Enterprise Server. See the description of the <code>--vCCreds</code> option below.
<code>--vC, --vCCreds</code> Username[:Password]	Specify credentials for a VirtualCenter host— Only valid in conjunction with the <code>--vCHost</code> parameter. Specifies credentials for logging in to the VirtualCenter Server specified with the <code>--vCHost</code> parameter. If this option is not specified or the optional password is not specified, the user is prompted to provide the missing information. When the VirtualCenter Server specified with <code>--vH</code> or <code>--vCHost</code> also appears in the <code>jobDescription.xml</code> file, the credentials specified with this option override the credentials for that server as specified in the XML file.
<code>--oF, --ovrOutputFile</code> output.xml	Redirects command output to a file instead of the console— Directs output to the specified file (XML except in the case of the <code>--jobSubmit</code> option).
<code>--oS, --ovrSourceCreds</code> Username[:Password]	Specify credentials for an import source— Specifies appropriate credentials for the import or post-processing source that will override any credentials specified in the <code>jobDescription.xml</code> file. This option is only valid when used in conjunction with <code>--jobSubmit</code> , <code>--jobExec</code> , <code>--jobSourceInspect</code> , or <code>--jobValidate</code> .
<code>--oT, --ovrTargetCreds</code> Username[:Password]	Specify credentials for an import target— Specifies appropriate credentials for the import target that will override any credentials specified in the <code>jobDescription.xml</code> file. This option is only valid when used in conjunction with <code>--jobSubmit</code> or <code>--jobExec</code> .
<code>--oD, --ovrDomainAdminCreds</code> Username[:Password]	Specify credentials for a windows domain administrator— Specifies appropriate credentials of a windows domain administrator for customization of the target machine after the import completes that will override any credentials specified in the <code>jobDescription.xml</code> file. This option is only valid when used in conjunction with <code>--jobSubmit</code> or <code>--jobExec</code> .

Table A-1. converter-tool Options (Continued)

Option	Action
--jS, --jobSubmit jobDescription.xml	<p>Submit a job for asynchronous execution to a Converter Enterprise Server—</p> <p>Submits the job to the Converter Enterprise Server and returns immediately with a <code>jobId</code> to the console. The job is executed asynchronously by the Converter Enterprise Server.</p> <p>The input format for <code>jobDescription.xml</code> is specified in <code>p2v.xsd</code>.</p> <p>A return value other than 0 indicates a failure to connect, a failure in submitting the job, or that the job description XML file is invalid.</p> <p>If the <code>jobDescription.xml</code> contains invalid XML, the offending portion of the XML is identified in an appropriate error message.</p>
--jE, --jobExec jobDescription.xml	<p>Execute a job synchronously—</p> <p>Runs the specified job synchronously and returns a continuous stream of output to the console that reflects the progress of the job. When the job completes, the output described in <code>P2vOutput.xsd</code> is output followed by the output described in <code>P2VStatus.xsd</code> or an appropriate error message.</p> <p>The input format for <code>jobDescription.xml</code> is specified in <code>p2v.xsd</code>.</p> <p>A return value other than 0 indicates a failure to connect, a failure to start the job, or that the job description XML file is invalid.</p> <p>If the job description file contains invalid XML, the offending portion of the XML is identified in an appropriate error message.</p>
--jI, --jobSourceInspect jobDescription.xml	<p>Retrieve information about the source in the file—</p> <p>Returns detailed information about the source machine specified in the XML file. Information in the file other than the specification of the source machine is ignored.</p> <p>The input format is described in <code>p2v.xsd</code>.</p> <p>The XML output format is specified in <code>p2vOutput.xsd</code>.</p>
--jV, --jobValidate jobDescription.xml	<p>Validate a job description without executing it—</p> <p>Performs validation checks on the <code>jobDescription.xml</code> argument. This validates the XML and performs additional checks to verify the validity of the values that are specified in the job. Messages regarding any problems that are found are output to the console.</p> <p>The input format for <code>jobDescription.xml</code> is specified in <code>p2v.xsd</code>.</p> <p>A return value other than 0 is only returned on a failure to connect to VirtualCenter or the Converter Enterprise Server. Any errors that are found in the <code>jobDescription.xml</code>, including any failures to connect to the machines specified in the XML, return appropriate messages to the console and a return value of 0.</p>
--jC, --jobCancel jobId	<p>Cancel submitted job—</p> <p>Halts execution of a job if it is running and removes the job from the queue. Information on the job is maintained and can still be retrieved with <code>--jobQuery</code>.</p> <p>Returns the string <code>Job canceled</code> or an appropriate error message to the console.</p> <p>A return value other than 0 indicates a failure to connect, or that the <code>jobId</code> is invalid, already canceled, or cannot be canceled.</p>
--jQ, --jobQuery jobId	<p>Query the status of a submitted job—</p> <p>Returns all import parameters for the specified job, with the exception of passwords as specified in <code>P2vOutput.xsd</code> (which includes <code>P2VInput.xsd</code>), followed by the execution status specified in <code>P2VStatus.xsd</code>.</p> <p>A return value other than 0 indicates a failure to connect or that the <code>JobId</code> is invalid.</p>

Table A-1. converter-tool Options (Continued)

Option	Action
<code>--jW, --jobWait jobId</code>	<p>Wait for a submitted job to complete—</p> <p>Waits until the <code>jobId</code> completes, fails or is canceled before returning. If <code>converter-tool</code> is interrupted while waiting for a job, it only interrupts the <code>--jobWait</code> but does not interrupt the execution of the <code>jobId</code> that is being waited on.</p> <p>Returns nothing to the console other than any appropriate error messages. A return value other than 0 indicates a failure to communicate with the Converter Enterprise Server or an invalid <code>jobId</code>.</p>
<code>--jG, --jobGetAll [jobState]</code>	<p>Return a list of all jobs started by this user—</p> <p>Returns a list of all <code>jobIds</code> running on the Converter Enterprise Server to the console. Optionally, a <code>jobState</code> may be specified in which case only jobs with the specified state will be returned. <code>jobState</code> must be one of: "Queued", "Running", "Canceled", "Success" or "Failed". The output format is specified in <code>P2VJobList.xsd</code>.</p> <p>A return value other than 0 indicates a failure to communicate with the Converter Enterprise Server or an invalid <code>jobState</code> parameter.</p>

NOTE If you do not provide the user name or password for accessing a source or destination in the `jobDescription.xml` file, `converter-tool` prompts for the name or password.

Source Machines and Destination Machines

The `converter-tool` supports the same sources and destinations as Converter Enterprise. See:

- [“Supported Sources for Importing”](#) on page 21
- [“Supported Destinations for Exporting”](#) on page 22
- [“Supported Sources for Reconfiguration”](#) on page 23

There are three types of source machines: Live, Hosted, and Managed; and two types of destination machines: Hosted and Managed. Not all Converter Enterprise CLI tasks support all types of sources and destinations. See [Table A-2](#).

Table A-2. Supported Source and Destination Types for Converter Enterprise CLI Tasks

	Importing	Exporting	Reconfiguring
Sources	Live, Hosted, Managed	Managed only	Managed only
Destinations	Managed only	Managed, Hosted	NA

- Live (can only be a source)
 - Can be a physical machine or a virtual machine accessible to the Converter Enterprise CLI.
 - Does a “live” import that avoids having to shut down the source machine.
 - Must be powered-on at the time of import.
- Hosted (can be a source or destination)
 - A “flat-file” virtual machine, typically from a Workstation product or a supported backup format.
 - Must be on a network share that is accessible from the Converter Enterprise Server.
 - If used as a source, the virtual machine must be powered off at the time of import.

- Managed (can be a source or destination)
 - Virtual machines running on an ESX Server machine.
 - The server could be specified as an ESX Server machine or the VirtualCenter server that is managing it.
 - If used as a source, the virtual machine must be powered off at the time of the import.

In all cases, either the source, the destination, or both, must be managed by a VirtualCenter Server with an associated Converter Enterprise Server.

You can use p2vTool to migrate volumes to separate disks. Set the `separateDisk="true"` attribute in the `volumeCloneInfo` node for each volume you want to place on a separate disk. Do not set this attribute for active or system volumes. See [Example A-1, "Importing a Live Local Machine to a Managed Destination,"](#) on page 67 and [Example A-5, "XML Output for the converter -tool --jI \[--jobSourceInspect\] Option,"](#) on page 71.

Restoring VMware Consolidated Backup Images

VMware Consolidated Backup enables its users to back up entire ESX Server virtual machines, storing the backup using Workstation disks, a `.vmx` file, and a catalog file. The `converter-tool` can restore Consolidated Backup images into ESX Servers managed by VirtualCenter.

The `converter-tool` does not preserve certain virtual machine properties unless settings for the attributes that can preserve the properties are included in the input XML file. [Table A-3](#) shows the attribute settings that preserve these properties.

Table A-3. Settings to Preserve Properties

Node	Attribute	Settings
ImportParams	<code>keepIdentity</code>	Default is <code>false</code> . Set to <code>true</code> to preserve the virtual machine identity
	<code>preserveDeviceBackingInfo</code>	Default is <code>false</code> . Set to <code>true</code> to preserve the device backing information for CD-ROM, floppy, serial port, and parallel port.
NicMappings	<code>preserveNicsInfo</code>	Default is <code>false</code> . Set to <code>true</code> to use the network adapter information from the source.

Information in the catalog file is not extracted. To restore to the same location, you have to look at the original catalog file and include that information in the input XML file.

Import XML Input File Examples

When you install the Converter Enterprise CLI, it includes sample job description XML files that you can modify for your own import jobs.

Example A-1. Importing a Live Local Machine to a Managed Destination

```
<?xml version="1.0" encoding="UTF-8" ?>
<p2v version="1.0" xmlns="http://www.vmware.com/v2/sysimage/p2v"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2v.xsd"
      uninstallAgentOnSuccess="0">
  <source>
    <liveSpec>
      <creds host="source-machine" username="Administrator" password="password" />
    </liveSpec>
  </source>
  <dest>
    <managedSpec vmName="destination-vm">
      <!-- The VirtualCenter Server specified below must be the same one specified
           with the command line parameter --vchost. The VirtualCenter
           Server must have an associated Converter Enterprise Server.-->
      <creds host="destination-vc" username="Administrator" password="password" />
    </managedSpec>
  </dest>
  <importParams targetProductVersion="PRODUCT_MANAGED" />
  <!--The converter-tool --jI [--jobSourceInspect] option retrieves source information, and
       its XML output contains the volumeID. See Example A-5. -->
  <volumesToClone>
    <volumeCloneInfo separateDisk="false"
                    volumeId="{computer={4f81c5e3b1e98fbcac551f6dce8952769562e323},1}"
                    />
    <volumeCloneInfo separateDisk="true"
                    volumeId="{computer={4f81c5e3b1e98fbcac551f6dce8952769562e323},2}"
                    />
    <volumeCloneInfo separateDisk="true"
                    volumeId="{computer={4f81c5e3b1e98fbcac551f6dce8952769562e323},3}"
                    />
  </volumesToClone>
  <postProcessingParams>
    <reconfigParams />
  </postProcessingParams>
</p2v>
```

Example A-2. Import of a Managed Source to a Managed Destination

```

<?xml version="1.0" encoding="UTF-8" ?>
<p2v version="1.0" xmlns="http://www.vmware.com/v2/sysimage/p2v"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2v.xsd">
  <source>
    <managedSpec vmId="source-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line, then
           Converter Enterprise Server will use the credentials specified from
           the command line. Otherwise, you will be interactively prompted for
           credentials -->
      <creds host="source-vc" username="Administrator" password="password" />
    </managedSpec>
  </source>
  <dest>
    <managedSpec vmName="destination-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line, then
           Converter Enterprise Server will use the credentials specified from
           the command line. Otherwise, you will be interactively prompted for
           credentials -->
      <creds host="destination-vc" username="Administrator" password="password" />
    </managedSpec>
  </dest>
  <importParams targetProductVersion="PRODUCT_MANAGED" />
  <postProcessingParams>
    <reconfigParams />
  </postProcessingParams>
</p2v>

```

Import of a hosted source to a managed destination:

```

<?xml version="1.0" encoding="UTF-8" ?>
<p2v version="1.0" xmlns="http://www.vmware.com/v2/sysimage/p2v"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2v.xsd">
  <source>
    <!-- the "password" attribute is only used for Symantec's SV2I format sources and can be
           omitted for other types of sources. The networkUsername should be of the
           form "machine\username" -->
    <hostedSpec path="\\source-machine\My Virtual Machines\winXP\winXPPro.vmx" password=""
               networkUsername="domain\username" networkPassword="password" />
  </source>
  <dest>
    <managedSpec vmName="destination-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line,
           Converter Enterprise Server uses the credentials specified from the
           command line. Otherwise, you are interactively prompted for
           credentials -->
      <creds host="destination-vc" username="Administrator" password="password" />
    </managedSpec>
  </dest>
  <importParams targetProductVersion="PRODUCT_MANAGED" />
  <postProcessingParams>
    <reconfigParams />
  </postProcessingParams>
</p2v>

```

Export XML Input File Example

When you install the Converter Enterprise CLI, it includes sample job description XML files that you can modify for your own export jobs.

Example A-3. Export of a Managed Source to a Hosted Destination

```
<?xml version="1.0" encoding="UTF-8" ?>
<p2v version="1.0" xmlns="http://www.vmware.com/v2/sysimage/p2v"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2v.xsd">
  <source>
    <managedSpec vmId="source-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line, then
           Converter Enterprise Server will use the credentials specified from
           the command line. Otherwise, you will be interactively prompted for
           credentials -->
      <creds host="source-vc" username="Administrator" password="password" />
    </managedSpec>
  </source>
  <dest>
    <!-- The networkUsername should be of the form "machine\username" -->
    <hostedSpec vmName="destination-vm" path="\\destination-machine\My Virtual Machines"
              networkUsername="dest-machine\Administrator" networkPassword="password"
              />
  </dest>
  <importParams targetProductVersion="PRODUCT_WS_5X" />
  <postProcessingParams>
    <reconfigParams />
  </postProcessingParams>
</p2v>
```

Export of a managed source to a managed destination:

```
<?xml version="1.0" encoding="UTF-8" ?>
<p2v version="1.0" xmlns="http://www.vmware.com/v2/sysimage/p2v"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2v.xsd">
  <source>
    <managedSpec vmId="source-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line, then
           Converter Enterprise Server will use the credentials specified from
           the command line. Otherwise, you will be interactively prompted for
           credentials -->
      <creds host="source-vc" username="Administrator" password="password" />
    </managedSpec>
  </source>
  <dest>
    <managedSpec vmName="destination-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line, then
           Converter Enterprise Server will use the credentials specified from
           the command line. Otherwise, you will be interactively prompted for
           credentials -->
      <creds host="destination-vc" username="Administrator" password="password" />
    </managedSpec>
  </dest>
  <importParams targetProductVersion="PRODUCT_MANAGED" />
  <postProcessingParams>
    <reconfigParams />
  </postProcessingParams>
</p2v>
```

Reconfiguration XML Input File Example

When you install the Converter Enterprise CLI, it includes a sample job description XML file that you can modify for your own reconfigure jobs.

Example A-4. Reconfiguring a Managed Source

```
<?xml version="1.0" encoding="UTF-8" ?>
<p2v version="1.0" xmlns="http://www.vmware.com/v2/sysimage/p2v"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2v.xsd">
  <source>
    <managedSpec vmId="reconfig-target-vm">
      <!-- username and password may be omitted. If the VirtualCenter Server specified
           here is the same as the one specified from the command line, then
           Converter Enterprise Server will use the credentials specified from
           the command line. Otherwise, you will be interactively prompted for
           credentials -->
      <creds host="target-vc" username="Administrator" password="password" />
    </managedSpec>
  </source>
  <postProcessingParams>
  <reconfigParams />
</postProcessingParams>
</p2v>
```

--jI [--jobSourceInspect] Option XML Output File Example

This example shows an XML output file for importing a live source to a managed destination.

Example A-5. XML Output for the converter -tool --jI [--jobSourceInspect] Option

```
<p2v uninstallAgentOnSuccess="1" version="2.2" xmlns="http://www.vmware.com/v2/sysimage/p2v"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.vmware.com/v2/sysimage/p2v p2vOutput.xsd"
  xsi:type="P2VOutput">
  <source>
    <liveSpec>
      <creds host="10.18.127.117" password="" port="0" username="Administrator"/>
    </liveSpec>
  </source>
  <dest>
    <managedSpec datastore="#datastore-1245" folder="#group-v3" host="#host-1242"
      resourcePool="" vmName="ag-nt4-test-tool">
      <creds host="10.17.166.43" port="0" type="sessionId" username="Administrator"/>
    </managedSpec>
  </dest>
  <importParams diskType="VMFS" preserveHWInfo="true" removeSystemRestore="true"
    targetProductVersion="PRODUCT_MANAGED"/>
  <postProcessingParams removeSystemRestore="true">
    <reconfigParams/>
  </postProcessingParams>
  <sourceInfo>
    <osInfo displayName="Windows NT 4" edition="Server" guestOsId="winNTGuest"
      is64Bit="false" majorVersion="4" minorVersion="0" osFamily="WINDOWS"
      splLevel="6" vendor="Microsoft"/>
    <disks>
      <diskInfo capacity="2106720256" deviceNumber="0"
        id="disk={9ba2498e79b590fd75d62d8b65fa945c367c0fea}"/>
    </disks>
    <volumes>
      <volumeInfo capacity="2099232768" diskDeviceNumber="0" drive="C:"
        id="attVol={computer={4f81c5e3b1e98fbcac551f6dce8952769562e323},1}"
        isActiveVolume="true" isFilesystemUnderstood="true"
        isSystemVolume="true" used="1847039488"/>
    </volumes>
    <nics>
      <nicInfo network=""/>
    </nics>
  </sourceInfo>
  <compatibilityReport>
    <compatibility compatibilityWarning="IMPORT_OK_NO_CUSTOMIZE"/>
    <compatibility compatibilityWarning="IMPORT_OK_NO_INSTALL_TOOLS"/>
  </compatibilityReport>
</p2v>
```

Glossary

B **BIOS (basic input/output system)**

Firmware that controls machine startup and manages communication between the CPU and other devices, such as the keyboard, monitor, printers, and disk drives.

bridged networking

In hosted products, a type of network connection between a virtual machine and the host's physical network. With bridged networking, a virtual machine appears to be an additional computer on the same physical Ethernet network as the host. *See also* [custom networking](#), [host-only networking](#), [NAT \(network address translation\)](#).

C **clone**

(n.) A duplicate of a virtual machine. (v.) To make a copy of a virtual machine. When a clone is created, VirtualCenter provides an option for customizing the guest operating system of that virtual machine. Hosted products distinguish between full clones and linked clones. *See also* [full clone](#), [linked clone](#).

cluster

A server group in the virtual environment. Clusters enable a high availability solution.

cold cloning

Cloning a local physical machine while it is running in WinPE from the VMware Converter Enterprise Boot CD, not from its own operating system. *See also* [hot cloning](#).

configuration

See [virtual machine configuration](#).

customization

The process of applying new characteristic values to a virtual machine as it is being deployed from a template, cloned from another existing virtual machine, exported, or reconfigured. Customization options include changing the new virtual machine identification and network information.

custom networking

In hosted products, any type of network connection between virtual machines and the host that does not use the default bridged, host-only, or network address translation (NAT) configurations. For instance, virtual machines can be connected to the host by separate networks or connected to each other and not to the host. *See also* [bridged networking](#), [host-only networking](#), [NAT \(network address translation\)](#).

D **datacenter**

A required structure under which hosts and their associated virtual machines are added to the VirtualCenter Server. VirtualCenter Server supports multiple datacenters. A host can be managed under only one datacenter.

datacenter folder

An optional inventory grouping structure contained within the datacenter structure. A VirtualCenter Server supports multiple datacenter folders. Datacenter folders can contain only datacenters and other datacenter folders.

datastore

Virtual representations of combinations of underlying physical storage resources in the datacenter. A datastore is the storage location (for example, a physical disk, a RAID, or a SAN) for virtual machine files.

destination

In Converter Enterprise, the machine to which a virtual machine is imported whether migrated or converted from a physical machine.

destination virtual machine

In Converter Enterprise, the migrated virtual machine at its final location.

DHCP (Dynamic Host Configuration Protocol)

A communications protocol that enables dynamic addressing. The software relieves administrators of the task of assigning an IP address to each device that connects to a network.

disk mode

A property of a virtual disk that defines its external behavior (how the virtualization layer treats its data) but is completely invisible to the guest operating system. Available modes vary by product and include persistent mode (changes to the disk are always preserved across sessions), nonpersistent mode (changes are never preserved), undoable mode (changes are preserved at the user's discretion), and append mode (similar to undoable, but the changes are preserved until a system administrator deletes the redo-log file).

DNS (Domain Name System)

An Internet data query service that translates host names into IP addresses. Also called "Domain Name Server" or "Domain Name Service."

E Ethernet switch

A physical switch that manages network traffic between machines. A switch has multiple ports, each of which can be connected to a machine or to another switch on the network. *See also* [virtual switch](#).

EULA (end user license agreement)

The software license that details any restrictions placed on users.

event

An action that is of interest to VirtualCenter. Each event triggers an event message. Event messages are archived in the VirtualCenter database and appear in two locations in the user interface: the **Events** option in the navigation bar and the **Events** tab for an object under the **Inventory** button.

F FAT

Acronym for file allocation table.

file

A container for raw data, such as text or an image.

folder

A managed entity used to group other managed entities. Folder types are determined by the kinds of entities they contain.

full clone

A complete copy of the original virtual machine, including all associated virtual disks. *See also* [linked clone](#).

- G**
- growable disk**
A type of virtual disk in which the disk space is not preallocated to its full size. Its files start out small in size and grow as data is written to the disk. *See also* [preallocated disk](#).
- guest operating system**
An operating system that runs inside a virtual machine. *See also* [host operating system](#).
- H**
- host**
A computer that uses virtualization software to run virtual machines. Also called the “host machine” or “host computer.”
- host agent**
Software that performs actions on behalf of a remote client when installed on a virtual machine host.
- host-based licensing**
In ESX Server software, one of two modes for licensing VMware software. License files reside on the host and feature availability is tied strictly to the host in which the file resides. *See also* [server-based licensing](#).
- hosted products**
VMware products (including Workstation, Fusion, VMware Player, VMware Server, VMware ACE, and Lab Manager) that run as applications on physical machines with operating systems such as Microsoft Windows or Linux.
- host-only networking**
In hosted products, a type of network connection between a virtual machine and the host. With host-only networking, a virtual machine is connected to the host on a private network, which normally is not visible outside the host. Multiple virtual machines configured with host-only networking on the same host are on the same network. *See also* [bridged networking](#), [custom networking](#), [NAT \(network address translation\)](#).
- host operating system**
An operating system that runs on the host machine. *See also* [guest operating system](#).
- hot cloning**
In Converter Enterprise, cloning a local or remote physical machine while it is running in its own operating system. *See also* [cold cloning](#).
- hot fix**
An installable file that resets a user’s password, renews an expired virtual machine, or enables a copy-protected virtual machine to run from a new location.
- I**
- inventory**
A hierarchical structure used by the VirtualCenter Server or the host agent to organize managed entities. This hierarchy is presented as a list that provides a view of all the monitored objects in VirtualCenter.
- L**
- legacy virtual machine**
A virtual machine supported by the product in use but not current for that product. For example, in Workstation 5, you can use and create virtual machines for use in Workstation 4.x, GSX Server 3.x, or ESX Server 2.x, but new Workstation 5 features (such as clones, multiple snapshots, and teams) are not compatible with the legacy virtual machines.
- license file**
A text file determining the license mode and entitlement to licensed features.
- license key**
An encrypted block of text within a license file, determining entitlement to one specific licensed feature.

license mode

The method used for licensing VMware software. A license file can be located on an ESX Server host or on a license server. VirtualCenter Server uses server-based licensing. ESX Server licensing can be server-based or host-based at the option of the system administrator. *See also* [host-based licensing](#), [server-based licensing](#).

linked clone

A copy of the original virtual machine that must have access to the parent virtual machine's virtual disks. The linked clone stores changes to the virtual disks in a separate set of files. *See also* [full clone](#).

local cloning

Making a copy of a virtual machine residing in the system on which Converter Enterprise is running, or converting the physical machine on which standalone Converter Enterprise is running into a virtual machine. *See also* [remote cloning](#).

LUN (logical unit number)

An identifier for a disk volume in a storage array.

M**migration**

Moving a virtual machine between hosts. Unless VMware VMotion™ is used, the virtual machine must be powered off when you migrate it. *See also* [migration with VMotion](#), [migration with VMware Converter Enterprise](#).

migration with VMotion

Moving a virtual machine that is powered on and has met selected requirements, including the activation of VMotion on both the source and target hosts. When you migrate a virtual machine using VMotion, the operations of the virtual machine can continue without interruption. *See also* [migration with VMware Converter Enterprise](#).

migration with VMware Converter Enterprise

Moving a virtual machine that is powered off from a local or remote host, while reconfiguring the file format, if necessary, to accommodate the destination machine. *See also* [migration with VMotion](#).

N**NAT (network address translation)**

In hosted networking, a type of network connection that enables you to connect your virtual machines to an external network when you have only one IP network address and the host computer uses that address. If you use NAT, your virtual machine does not have its own IP address on the external network. Instead, a separate private network is set up on the host computer. Your virtual machine gets an address on that network from the VMware virtual DHCP server. The VMware NAT device passes network data between one or more virtual machines and the external network. It identifies incoming data packets intended for each virtual machine and sends them to the correct destination. *See also* [bridged networking](#), [custom networking](#), [host-only networking](#).

NIC (network interface card)

An expansion board that provides a dedicated connection between a computer and a network. Also called a "network adapter."

NTFS (new technology file system)**NVRAM (nonvolatile RAM)**

The file name used for storing BIOS settings belonging to a virtual machine.

P**physical disk**

In hosted products, a hard disk in a virtual machine that is mapped to a physical disk drive or partition on the host machine. A virtual machine's disk can be stored as a file on the host file system or on a local hard disk. When a virtual machine is configured to use a physical disk, VirtualCenter directly accesses the local disk or partition as a raw device (not as a file on a file system). *See also* [virtual disk](#).

physical network

A network of physical machines (plus cabling, switches, routers, and so on) that are connected so that they can send data to and receive data from each other. *See also* [virtual network](#).

preallocated disk

A type of virtual disk where all disk space for the virtual machine is allocated at the time the disk is created. This is the default type of virtual disk created by GSX Server.

provisioning

Creating a functioning virtual machine by assigning resources such as CPU, memory, and virtual hardware and then deploying a system image.

R**RAID**

Acronym for redundant array of independent (or inexpensive) disks.

raw disk

See [physical disk](#).

registry

In Microsoft Windows, a database repository for information about a computer's configuration. The registry contains data that Windows continually references during operation, such as installed hardware and software, user profiles, and active ports.

remote cloning

Making a copy of a virtual machine or a physical machine accessed over the network by VMware Converter Enterprise. *See also* [local cloning](#).

resource pool

A division of computing resources used to manage allocations between virtual machines.

S**SAN (storage area network)**

A large-capacity network storage device that can be shared among multiple VMware ESX Server hosts. A SAN is required for VMotion.

scheduled task

A VirtualCenter activity that is configured to occur at designated times. The **Tasks** pane displays a list of selected activities and a means to schedule them.

server

(1) A system capable of managing and running virtual machines. (2) A process capable of accepting and executing instructions from another process.

server-based licensing

A mode of licensing VMware software in which all license keys are administered by a license server, which manages a central license pool. Feature entitlement is checked out and returned on demand. *See also* [host-based licensing](#).

source

In Converter Enterprise, the machine from which one imports or creates a virtual machine, the machine one exports, or the machine one reconfigures.

source virtual machine

In Converter Enterprise, the virtual machine to be imported, exported, or reconfigured, at its original location.

standalone virtual machine

A virtual machine that runs in VMware Workstation, VMware Player, VMware Server, VMware ACE, VMware Fusion, or VMware GSX Server. VMware Consolidated Backup, Microsoft Virtual PC and Virtual Server, Symantec Backup Exec Server Recovery, Symantec Ghost, Symantec LiveState, StorageCraft ShadowProtect, and Acronis True Image sources are also considered standalones. *See also [source virtual machine](#).*

T task

A managed object representing the state of a long-running operation.

TCP (Transmission Control Protocol)

A reliable transfer protocol used between two endpoints on a network. TCP is built on top of the Internet Protocol (IP). *See also [TCP/IP \(Transmission Control Protocol/Internet Protocol\)](#).*

TCP/IP (Transmission Control Protocol/Internet Protocol)

A set of protocols that is the *de facto* language of the Internet, designed to enable communication between networks regardless of the computing technologies that they use. TCP connects hosts and provides a reliable exchange of data streams with guaranteed delivery. IP specifies the format of packets and handles addressing. *See also [UDP \(User Datagram Protocol\)](#).*

template

A master image of a virtual machine. This typically includes a specified operating system and a configuration that provides virtual counterparts to hardware components. Optionally, a template can include an installed guest operating system and a set of applications. Setting a virtual machine as a template protects any linked clones or snapshots that depend on the template from being disabled inadvertently. Templates are used by VirtualCenter to create new virtual machines. *See also [linked clone](#).*

U UDP (User Datagram Protocol)

One of the core protocols in the Internet protocol suite. UDP enables a program to send packets (datagrams) to other programs on remote machines. UDP does not require a connection and does not guarantee reliable communication, but it is quick and efficient for broadcasting messages over a network. *See also [TCP/IP \(Transmission Control Protocol/Internet Protocol\)](#).*

UUID (universally unique identifier)

A number used to uniquely identify some object or entity. The UUID is either assigned by VMware Infrastructure (in the case of virtual machines) or is hardware-assigned (in the case of SCSI LUNs). VirtualCenter tries to ensure that the UUIDs of all virtual machines being managed are unique, changing the UUIDs of conflicting virtual machines if necessary. Rarely (for instance, if you have made a manual copy of a virtual machine), you might have two virtual machines with the same UUID.

V VirtualCenter administrator

A role in which the user is allowed to set the user+role permissions and control VirtualCenter licensing.

virtual disk

A file or set of files that appears as a physical disk drive to a guest operating system. These files can be on the host machine or on a remote file system. *See also [growable disk](#), [physical disk](#), [preallocated disk](#).*

virtual hardware

The devices that make up a virtual machine. The virtual hardware includes the virtual disk, removable devices such as the DVD-ROM/CD-ROM, and the virtual Ethernet adapter.

virtual machine

A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. Multiple virtual machines can operate on the same host system concurrently.

virtual machine configuration

The specification of which virtual devices, such as disks and memory, are present in a virtual machine and how they are mapped to host files and devices. In Converter Enterprise, VMware virtual machines whose disks have been populated by restoring from a backup or by some other direct means of copying undergo configuration to enable them to boot in VMware products. *See also* [virtual machine](#).

virtual machine configuration file

A file containing a virtual machine configuration. This `.vmx` file is created when you create the virtual machine. It is used to identify and run a specific virtual machine.

virtual memory

An extension of a system's physical memory, enabled by the declaration of a page file.

virtual network

A network connecting virtual machines that does not depend on physical hardware connections. For example, you can create a virtual network between a virtual machine and a host that has no external network connections. You can also create a LAN segment for communication between virtual machines on a team.

Virtual SMP

The technology that enables a virtual machine to do symmetric multiprocessing. VMware Virtual SMP™ enables you to assign two virtual processors to a virtual machine on any host machine that has at least two logical processors.

virtual switch

A virtualized network switch used by ESX Server to manage traffic between virtual machines, the service console, and the physical network adapters on the ESX Server machine.

W WINS (Windows Internet Naming Service)

Windows software that dynamically maps machine names to IP addresses.

X XML (Extensible Markup Language)

A text-based markup language (a subset of SGML) designed for structured Web documents. XML enables users to define their own tags that encode information with meaningful structure and semantics.

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Updates for the Administration Guide for VMware Converter Enterprise for VirtualCenter 2.5

Last Updated: June 25, 2009

This document provides updates to the Converter Enterprise 1.0 Update 2 Release of the *Administration Guide for VMware Converter Enterprise for VirtualCenter 2.5*. Updated descriptions, procedures, and graphics are organized by page number so that you can easily locate the areas of the guide that have changes. If the change spans multiple sequential pages, this document provides the starting page number only.

The following is an update to the *Administration Guide for VMware Converter Enterprise for VirtualCenter 2.5*:

[Updates for the To download and boot the VMware Converter Enterprise Boot CD Procedure on Page 53](#)

Updates for the To download and boot the VMware Converter Enterprise Boot CD Procedure on [Page 53](#)

The [To download and boot the VMware Converter Enterprise Boot CD](#) procedure contains a step that asks the user to insert a blank CD. Instead, the procedure should be the following.

To download and boot the VMware Converter Enterprise Boot CD

- 1 Go to the **Downloads** page on the VMware Web site and click the **Download** link for VMware Infrastructure 3.
- 2 Click **Download** under VMware vCenter Server 2.5 Update 2.
- 3 Enter your login credentials and click **Login**.
- 4 On the End-User License Agreement page, read the agreement, then select **I accept the terms in the License Agreement** and click **OK**.
- 5 Next to the entry for VMware Converter Enterprise Boot CD for VirtualCenter, click **ZIP image** to download the file.
The filename is `VMware-convertercd-4.0.1-<xxxxx>.zip` (<xxxxx> indicates the build number).
- 6 Extract the `colclone.iso` file and use the software of your choice to create the VMware Converter Enterprise Boot CD from the image file.
- 7 Insert a VMware Converter Enterprise Boot CD in the source machine and restart the computer.
- 8 Within 10 seconds of restart, press F12 (or equivalent) to access the boot device menu.
- 9 Select the CD drive containing the boot CD and press any key to continue.
- 10 (Optional) In the Network Configuration dialog box, change the location for the temporary files, including the logs. By default, temporary files are stored in RAM.
- 11 (Optional) Click **Advanced** and set a value for the **Speed & Duplex** property of each network adapter.
- 12 The Converter Enterprise application launches.

