

Citrix® XenConvert™ Guide

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Contents

Chapter 1	Introduction	
	About This Document	5
	Related Information	5
	About XenConvert	6
	About Compatible Products	6
	XenServer	6
	Provisioning Services	7
	About Virtualization Formats	7
	About XVA	7
	About OVF	8
	About Converting	8
	Choosing the Source	9
	Choosing the Destination	9
	Starting XenConvert	10
	Reviewing the Log File	10
Chapter 2	Release Notes	
	What's New in This Release	13
	Interoperability	13
	Known Limitations	14
	Windows Basic Disk	14
	Proxy Server	14
	Remote Desktop Connection to Windows 2000	14
	Extensible Firmware Interface (EFI) Systems	14
	GUID Partition Table (GPT) Disk	14
	Open Files	14
	File Systems	15
	Known Issues	15
	Network Drives	15
	Problem Ejecting Citrix Virtual Hard Disk Messages	16

Chapter 3	Installing XenConvert	
	System Requirements	17
	Host Machine Requirements	18
	Virtual Machine or Virtual Disk Requirements	20
	Installing XenConvert Programs	21
	Uninstalling XenConvert Programs	22
Chapter 4	Configuring XenConvert	
	XenConvert File Format	23
	Exclude	23
	Mode	23
	Parameters	24
Chapter 5	Using XenConvert	
	Converting From a Physical Machine	25
	Preparing the Source Machine	26
	Choosing Volumes	26
	Physical Machine to Provisioning Services vDisk	29
	Physical Machine to VHD	30
	Physical Machine to XenServer	31
	Physical Machine to OVF Package	32
	Converting From VMware	34
	Converting From VMware using OVF	34
	Converting From VMware like a Physical Machine	34
	Converting From VMware using VMDK	35
	VMDK to XenServer	35
	VMDK to VHD	36
	Converting From an OVF Package	37
	Converting From an OVF Package to XenServer	37
	Converting from a VHD	39
	VHD to OVF	39
	VHD to XenServer	40
	Converting From XVA V2 to an OVF Package	41
	Converting a Single Volume	42

Chapter 6

Troubleshooting a Conversion

Windows AutoPlay	45
Windows Automount	45
Security Services	46
Failed to Discover Volume	46

Introduction

This chapter provides an introduction to XenConvert, which includes the following information:

- “About This Document”
- “About XenConvert”
- “About Virtualization Formats”
- “About Converting”

About This Document

This document provides instructions on installing and using Citrix XenConvert software. This document is organized as follows:

- “Release Notes” highlights new features and identifies known issues.
- “Installing XenConvert” describes how to install the XenConvert software.
- “Using XenConvert” describes how to use XenConvert to convert a workload from one format to another that is compatible with Citrix XenServer, and Provisioning Services.

This document is intended for XenServer and Provisioning Services system administrators and software installers. It is assumed that readers are familiar with basic installation and system management tasks for Microsoft Windows operating systems.

Related Information

Additional information about Citrix XenServer and Citrix Provisioning Services may also be required during installation and use of this product. This information can be found at the following locations:

- XenServer: <http://support.citrix.com/product/xens/>
- Provisioning Services: <http://support.citrix.com/product/provsvr/>

About XenConvert

Citrix XenConvert is both a physical-to-virtual (P2V) and virtual-to-virtual (V2V) conversion tool.

As a P2V tool, XenConvert can convert a server or desktop workload from an online physical machine running Windows, to a virtual machine for use with XenServer or a virtual disk for use with Provisioning Services.

As a V2V tool, XenConvert can convert a server or desktop workload from an virtual appliance or disk, containing any guest operating systems including Windows and Linux, to a XenServer virtual machine.

Installing the Provisioning Services Target Device software before converting enables the provisioning of a workload for streaming to a physical machine or XenServer virtual machine.

About Compatible Products

The following Citrix products are compatible with XenConvert:

- “XenServer”
- “Provisioning Services”

XenServer

Citrix® XenServer™ is a complete server virtualization platform, optimized for both Windows and Linux virtual servers, with all the capabilities required to create and manage a virtual infrastructure. XenServer is, essentially, a control program or *hypervisor*, that runs on the physical or host server to provide a simulated computer environment. XenServer works by virtualizing the hardware. Hardware virtualization abstracts characteristics, such as hard drives, resources, or ports, of the system from the hardware and allocates it to the virtualized computer(s) running on it. These virtualized "computers," are known as *virtual machines*. They run operating systems and applications that are often referred to as *guest software*.

XenServer lets you create virtual machines (VMs), take VM disk snapshots, and manage VM workloads. XenServer runs directly on server hardware without requiring an additional underlying operating system. XenServer can be managed through XenCenter, a Windows administration tool, or via a command line interface (CLI) running on Linux or Windows.

Provisioning Services

The Provisioning-Services solution's infrastructure is based on software-streaming technology. Using Provisioning Services, administrators prepare a device (master target device) for imaging by installing any required software on that device. A vDisk (virtual disk image) is then created from the master target device's hard drive and saved to the network (on a Provisioning Server or storage device). After the vDisk is available from the network, the target device no longer needs its local hard drive to operate; it boots directly across the network. The Provisioning Server streams the contents of the vDisk to the target device on demand, in real time. The target device behaves as if it is running from its local drive. Unlike thin-client technology, processing takes place on the target device.

About Virtualization Formats

This section provides an introduction to the following virtualization formats supported by XenConvert:

- “About XVA”
- “About OVF”

About XVA

XVA is the original format of a Xen Virtual Appliance. There are two versions of XVA, which are referred to as XVA V1 and XVA V2 in this document. XVA V1 includes the following files and folders.

- `ova.xml`; meta-data file defining the properties of a Xen VM
- `hda`; folder containing one or more compressed ‘chunks’ of a virtual hard disk.

XVA 2 format is a single file archive of files that comprise a Xen Virtual Appliance. XenCenter can import both formats but only exports in XVA V2. XenConvert can convert XVA V2 to OVF.

About OVF

OVF is the Open Virtualization Format. It is a standard defined by the Distributed Management Task Force (DMTF) that describes virtual machines in the form of an OVF Package or Open Virtualization Appliance (OVA) Package.

An OVF Package consists of a descriptor file (*.ovf) and any other files representing the following attributes of the package:

Signature

Digital signature used by a public key certificate in the X.509 format to authenticate the producer of the package.

Manifest

SHA-1 digest of every file in the package to verify its contents by detecting any corruption.

Virtual disks

Files comprising virtual disks in the format defined by the virtualization product that exported the virtual disks. VMware products export a virtual disk in the Stream-Optimized VMDK format for an OVF Package. XenServer products export a virtual disk in the Dynamic VHD format for an OVF Package..

Note A virtual disk can contain a Windows or Linux operating system.

An OVA package is a single archive file, in the Tape Archive (tar) format, containing the files that comprise an OVF Package.

Refer to the following documents for more information about OVF:

- *Overview of the Open Virtualization Format* (<http://support.citrix.com/article/CTX121652>)
- *Open Virtualization Format Specification* (http://www.dmtf.org/sites/default/files/standards/documents/DSP0243_1.1.0.pdf)

About Converting

Converting with XenConvert consists of the following steps:

1. “Choosing the Source”
2. “Choosing the Destination”
3. “Starting XenConvert”
4. “Reviewing the Log File”

The combination of source and destination types comprise a conversion type.

Choosing the Source

The choice of source depends on the form in which your workload exists:

- Physical machine
- OVF
- VHD
- VMDK
- XVA V2

Choosing the Destination

The destination for the conversion depends on the source type and your environment, including connectivity to your XenServer or Provisioning Server and the features of another virtualization platform.

Since the source type is known, the following table organizes conversions by destination type.

Destination	Summary	Choose when...
XenServer	A virtual machine that includes one virtual disk on a XenServer.	XenServer is <i>reachable</i> from the machine that is or contains the source.
OVF Package	A virtual machine that includes one virtual disk in the OVF residing on the local system.	XenServer is <i>unreachable</i> from the machine that is or contains the source. Publishing a virtual appliance.
VHD	A virtual disk in the VHD file format on the local system.	XenServer is <i>unreachable</i> from the machine that is or contains the source. All other methods were unsuccessful.
Provisioning Services vDisk	A virtual disk used with Citrix Provisioning Services.	Using XenConvert on a source machine with an active connection to Provisioning Services.

Converting to any destination other than Provisioning Services vDisk requires sufficient disk space for a workspace to store intermediate files. For best performance, choose a local hard disk that has the fastest interface, doesn't include the source, and is not a network drive.

Starting XenConvert

To start XenConvert in attended mode using the wizard, from the Windows Start menu, click **All Programs > Citrix > XenConvert**. The Citrix XenConvert Welcome screen appears. Refer to "Using XenConvert" chapter for details.

To start XenConvert in an unattended mode from a console shell, from the XenConvert installation directory, type `XenConvert .exe` followed by the name, parameters, and options of a conversion in the following order:

```
start /b /wait XenConvert <Conversion Name> <Parameters>
[<Options>]
```

To show the names, parameters, and options specific to a conversion:

```
XenConvert /?
```

Note Only one instance of the XenConvert wizard can run at a time. More than one instance of XenConvert can run at a time when started from the command line. However, it is impractical to run more than one conversion from a physical machine at a time. This is especially true on Windows Vista and Server 2008 and later because XenConvert uses snapshots.

Reviewing the Log File

XenConvert logs informational, warning, and error messages to its log file, `XenConvert.txt`. XenConvert also logs usage errors to its log file when run as a console program. XenConvert returns an exit code of zero for success and non-zero for failure.

After the conversion process completes, you can view the results by opening the log file:

On Windows XP, Windows Server 2003, Windows Server 2003 R2, the location of the log file is: `%ALLUSERSPROFILE%\Application Data\Citrix\XenConvert` (for example: `C:\Documents and Settings\All Users\Application Data\Citrix\XenConvert\XenConvert.txt`).

On Windows Vista, Windows Server 2008, Windows 7, and Windows Server 2008 R2, the location of the log file is:

```
%PROGRAMDATA%\Citrix\XenConvert\XenConvert.txt.
```


Release Notes

This chapter contains information relevant to this release of XenConvert software. This information includes:

- “What’s New in This Release”
- “Known Limitations”
- “Known Issues”

What’s New in This Release

This release adds new conversion features.

Interoperability

This release of XenConvert works with XenServer 5.6, XenServer 5.6 FP1, Provisioning Services 5.6, and Provisioning Services 5.6 SP1.

Note: XenConvert 2.3 encodes the OVF file in UTF-16. However, the XenServer 5.6 Appliance Import feature only decodes an OVF file in UTF-8. To import an OVF file produced by XenConvert 2.3 into XenServer 5.6, first change the encoding from UTF-16 to UTF-8. One method that can be used includes the following:

1. Open the OVF file in Notepad.
2. Edit the file to change the encoding attribute from `utf-16` to `utf-8`.
3. Select **Save As...** from the File menu.
4. Select **UTF-8** from the Encoding pull down menu.
5. Click **Save**.

Support for Windows 2000 is deprecated in this release

Known Limitations

This section describes known limitations for XenConvert.

Windows Basic Disk

XenConvert can only convert volumes on primary partitions on a disk configured as a Windows Basic Disk, and not a Windows Dynamic Disk.

Proxy Server

XenConvert communicates with a XenServer using HTTP, a web protocol. However, it cannot communicate through a proxy server. To work around this limitation, disable the use of a proxy server on the machine that is running XenConvert before converting to XenServer.

Remote Desktop Connection to Windows 2000

XenConvert cannot run from a Terminal Services session when the Terminal Server is a Windows 2000 operating system because Windows 2000 does not expose all devices created by XenConvert to a Terminal Session. Mounting a VHD either fails after several minutes or does not appear to finish. This issue does not occur when connecting using Virtual Network Computing (VNC).

Extensible Firmware Interface (EFI) Systems

XenConvert cannot convert from Windows on an EFI system.

GUID Partition Table (GPT) Disk

XenConvert cannot convert a Windows System Volume from a Windows GPT Disk.

Open Files

XenConvert cannot copy a file in use by another application or service on Windows 2000, Windows XP and Windows Server 2003. To ensure that the file is included in the conversion, stop the respective service before starting the conversion. It is not recommended to convert a workload executing a critical service that keeps critical files open that cannot be stopped (such as a Domain Controller with Active Directory service).

File Systems

XenConvert only supports converting from a volume formatted with NTFS. However, XenConvert does not reproduce the following optional attributes of a file from its source volume to the target volume.

Data Streams

XenConvert converts only the default data streams but not named data streams.

Hard Links

XenConvert does not create hard links on the target volume. Instead, it reproduces the file(s) referenced by the hard link. Consequently, the target volume may require more free space than the source volume.

Compression

XenConvert does not configure NTFS to compress a file on the target volume that had the compression attribute on the source volume. Consequently, the target volume may require more free space than the source volume.

Encryption

XenConvert does not configure NTFS to encrypt a file on the target volume that had the encryption attribute on the source volume.

Known Issues

This section describes known issues for XenConvert. Wherever possible, a workaround for the problem is included.

Network Drives

XenConvert cannot mount a VHD when a network drive was mapped to the next available drive letter after the last local drive.

To workaround this limitation, remap the network drive to a drive letter other than the lowest one available. For information about a similar issue, see <http://support.microsoft.com/kb/297694/>. While this article pertains to Windows XP, the problem also affects Windows Server 2003 when automount is enabled.

Problem Ejecting Citrix Virtual Hard Disk Messages

The following messages might appear during any conversion that creates an intermediate VHD:

- Problem Ejecting Citrix Virtual Hard Disk: The device 'Generic volume' cannot be stopped right now. Try stopping the device again later.
- Problem Ejecting Citrix Virtual Hard Disk: The device 'Citrix Virtual Hard Disk' cannot be stopped because of an unknown error. Since the device is still being used, do not remove it.

These messages may appear if applications or services, such as a virus scan or the Windows Autoplay feature, open a file on the mounted VHD. This is because the open file prevents a dismount.

Issue # 7308

Installing XenConvert

Download the XenConvert installer from the download page for XenServer or from the download page for Provisioning Services (<http://www.citrix.com>).

System Requirements

The tables that follow provide the system requirements for:

- Host machine used to perform conversions (“Host Machine Requirements”).
- Virtual machine or virtual disk being converted (“Virtual Machine or Virtual Disk Requirements”).

Host Machine Requirements

The table that follows lists the minimum requirements for installing XenConvert on the machine used for conversions.

Component	Conversion	Requirement
Operating System used to create virtual disks for use with Provisioning Services, XenServer	Provisioning Services (vDisk) 5.1 SP 1, 2 and 3 5.6, 5.6 SP1	Microsoft Windows 32 and 64-bit Windows Server 2003 SP1; all editions Windows Server 2003 R2; all editions Windows Server 2008; all editions Windows XP Professional Edition Window Vista: - Business Edition - Enterprise Edition - Ultimate Edition with retail licensing Windows 7; all editions <i>Windows Server 2008 R2 (experimental only)</i>
	XenServer Version 5.0 (with updates 1, 2 and 3), 5.5, *5.6, 5.6 FP1 <i>*Note: If using an OVF Package produced by XenConvert 2.3 with XenServer 5.6, refer to "Interoperability".</i>	Microsoft Windows 32-bit and 64-bit Windows Server 2003 SP1 - Standard - Enterprise Windows Server 2003 R2 - Standard - Enterprise Windows Small Business Server 2003 SP1 Windows Small Business Server 2003 R2 Windows Small Business Server 2008 Windows Server 2008 - Standard - Enterprise Windows XP Professional Edition Windows 2000 SP4 with Security Update Version 835732 - Professional - Server - Advanced Server Windows Vista Windows 7; all editions Windows Server 2008 R2 (64-bit only)
.Net Framework	All	.Net Framework 2.0 SP2 <i>Note: If necessary, XenConvert installs .Net Framework 2.0 SP2</i>

Component	Conversion	Requirement
Disk Space	For XenConvert	4 MB XenConvert x32 6 MB XenConvert x64
	For .Net Framework	1 GB Recommended 610 MB required for Net Framework x64 280 MB .required for Net Framework x86
	For XVA to OVF	Free disk space must be at least 200% of the XVA size.

Virtual Machine or Virtual Disk Requirements

The following table lists the requirements of a virtual machine or virtual disk to convert.

Requirements for a Virtual Machine or Virtual Disk to Convert	
Supported Windows Guest	<p>64-bit Windows Server 2003; Standard, Enterprise SP1/SP2 Windows Server 2003 R2; Standard, Enterprise SP1/SP2 Windows XP SP1/SP2/SP3 Windows Server 2008; SP1/SP2 Windows Vista; SP1/SP2 Windows Server 2008 R2: - Standard - Enterprise Windows 7</p> <p>32-bit Windows Server 2003; Standard, Enterprise SP1/SP2 Windows Server 2003 R2; Standard, Enterprise SP1/SP2 Windows Small Business Server 2003 SP1/SP2 Windows XP SP1/SP2/SP3 Windows 2000 SP4 Windows Server 2008; SP1/SP2 Windows Vista; SP1/SP2 Windows 7</p>
Supported Linux Guests	<p>64-bit CentOS 5.2 Oracle Enterprise Linux 5.0 Red Hat Enterprise Linux Server 5.2 Novell SUSE Enterprise Linux 10 SP1/SP2</p> <p>32-bit CentOS 5.2 Oracle Enterprise Linux 5.0 Red Hat Enterprise Linux Server 5.2 Suse Linux Enterprise Server 5.2 Novell SUSE Enterprise Server 9 SP2/SP3/SP4 Novell SUSE Enterprise Server 10 SP1 Debian 4.0</p>

Requirements for a Virtual Machine or Virtual Disk to Convert	
VHD Formats (*.vhd)	Fixed and Dynamic VHD from Microsoft Virtual Server 2005 R2 SP1 Fixed and Dynamic VHD from HyperV
VMDK Formats (*.vmdk)	Stream-optimized VMDK Flat Monolithic VMDK Sparse Monolithic VMDK Flat Extent VMDK Sparse Extent VMDK
Virtual Machine Formats	OVF (*.ovf) XVA (*.xva)

Note When converting a virtual machine or virtual disk, the version of Windows on the XenConvert host must be later than the version of Windows in the virtual machine or virtual disk.

Installing XenConvert Programs

- Remove any previously installed versions of XenConvert.

Note: For Windows 2000, the Microsoft Security Patch must be installed (refer to KB 835732).
- Start the appropriate installation wizard:
 - XenConvert_Install.exe*
 - XenConvert_Install_64.exe*
- Click **Next** on the Welcome page. The License Agreement screen appears.
- Click to select any of the following options:
 - Print** (optional) to print a copy of the License Agreement.
 - I accept.....** , then **Next** to continue the installation.
 - I do not accept** to terminate the installation.

The Destination Folder screen appears.
- Click **Next** to install XenConvert in the default directory or click **Change** to change the directory.
- Click **Next**. The Ready to Install the Program screen appears.

7. Click **Install**. The Installing XenConvert screen displays, showing the installation progress.
8. After the InstallShield Wizard Complete screen appears, click **Finish**.

For details on using the XenConvert Wizard, refer to the chapter titled “Using XenConvert”.

Uninstalling XenConvert Programs

On Windows XP and Windows Server 2003

- 1) Open the Control Panel, then select **Add or Remove Programs**.
- 2) Select Citrix XenConvert, then click **Remove**.

On Windows 2000, Windows Vista, Windows Server 2008, Windows 7, and Windows Server 2008 R2

- 1) Open the Control Panel, then select **Programs and Features**.
- 2) Select Citrix XenConvert, then click **Uninstall**.

Configuring XenConvert

Change the default behavior of XenConvert by changing a parameter in its configuration file, `XenConvert.ini`, which is located in the installation folder.

XenConvert File Format

The format of `XenConvert.ini` is the format of a INI file commonly used in Windows. XenConvert recognizes the following sections:

- "Exclude"
- "Mode"
- "Parameters"

Exclude

The `exclude` section is a list of files to exclude from the conversion.

Mode

The `mode` section affects the lists of source and destination types shown in the wizard. To limit the types only applicable to Provisioning Services, add the following line to the mode section:

```
PVS=
```

Parameters

The `parameters` section can contain zero or more of the parameters shown in the following table:

Name	Description
AutoDismountTimeoutAsMs	Number of milliseconds to wait before retrying to automatically dismount a VHD. Default is 60 seconds. Default is 60000 (60 seconds).
VhdPluginTimeoutAsMs	Number of milliseconds to wait for a VHD to mount. Default is 600000 (10 minutes).
PartitionOffsetBase	The absolute offset, measured in bytes, to place the first partition. Use this parameter to align the first partition on a boundary that is optimal for a storage device. For example, for some SANs, virtual disk access is optimal when the offset is 1 MB. For Provisioning Services, an offset that is a multiple of the cluster size of the NTFS that stores a Provisioning Services virtual disk. Default is 258048 (63 * 4096) bytes for use with Provisioning Services virtual disks on an NTFS with a 4096 cluster size.
ServerClusterSize	The number of bytes in a file system cluster on the system serving a vDisk. Set this parameter to optimize access of the vDisk by a system serving the vDisk from a simple file, such as Provisioning Services. For example: If a vDisk resides in a Provisioning Services store that is located on an NTFS volume with a cluster size of 16384, set the ServerClusterSize to 16384. Set the value to zero to disable optimization. Default is 4095.
WindowsFreePercentage	The percentage of free space to reserve in the volume on the vDisk that will contain the Windows operating system. Default is 25%.

Using XenConvert

This chapter describes how to convert a workload from the following sources:

- “Converting From a Physical Machine”
- “Converting From VMware”
- “Converting From an OVF Package”
- “Converting from a VHD”
- “Converting From XVA V2 to an OVF Package”
- “Converting a Single Volume”

Important The following Windows security privileges are required to convert successfully.

- Backup files and directories
 - Restore files and directories
 - Manage auditing and security log
 - Take ownership of files and other objects
-

Converting From a Physical Machine

Convert a physical machine, including up to four volumes, to one of the following destinations:

- “Physical Machine to Provisioning Services vDisk”
- “Physical Machine to VHD”
- “Physical Machine to XenServer”
- “Physical Machine to OVF Package”

All conversions from a physical machine have the following steps in common.

- “Preparing the Source Machine”
- “Choosing Volumes”

Preparing the Source Machine

Before Converting From a Physical Machine:

- Enable Windows Automount on Windows Server operating systems.
- Disable Windows Autoplay.
- Remove any virtualization software before performing a conversion.
- Verify adequate free space exists on the destination, which is approximately 101% of used space on the source volumes.
- Remove any network interface team because it is not applicable to a virtual machine.

Choosing Volumes

When converting from a physical machine to a virtual machine or virtual disk, XenConvert provides the options to:

- Select up to four volumes to include
- Resize those volumes in the virtual disk by changing the amount of free space.
- Resize the entire virtual disk by changing the unallocated space (for conversions to destinations other than Provisioning Services)

These options become available after the wizard’s Welcome page displays.

The tables that follow describe the properties and options of source and destination volumes.

Source

Source Volume	<p>A volume on the physical machine identified by its drive letter and label.</p> <p>Choose up to four source volumes to include in the conversion to primary partitions on the virtual disk in the order shown.</p> <p>Choose None to remove a volume from the conversion.</p>
Used Space	The amount of space used by existing files on the selected volume, which is required on the virtual disk volume being created (displays in MB and as a percentage of volume capacity).
Free Space	The amount of file space that is available for use on the selected volume (displays in MB and as a percentage of volume capacity).
Capacity	Maximum space of the original volume selected (Used Space + Free Space).
File System	File system format. Must be NTFS.

Destination

Destination Volume	A volume on the virtual disk identified by drive letter and label, taken from the source volume, to assign after conversion.
Used Space	The amount of space used by existing files on the selected volume, which is required on the virtual disk volume being created (displays in MB and as a percentage of volume capacity).

Destination Volume	A volume on the virtual disk identified by drive letter and label, taken from the source volume, to assign after conversion.
Free Space	The amount of space available to new files. To resize the volume, change its free space. To change the free space to a specific value, type the number of megabytes. To increment the free space by one megabyte, click the up arrow button. To decrement the free space by one megabyte, click the down arrow button. To change the free space to match the source volume, click the reset button..
Capacity	The maximum space on the original volume (Used Space + Free Space). This amount automatically changes when the free space changes.
File System	Type of file system associated with the selected volume. Must be NTFS.

Disk

Allocated Space	The amount of space allocated to used and free space for all selected volumes.
Unallocated Space	<p>The amount of space not allocated to used or free space of any volume.</p> <p>To reserve space on the virtual disk for creating or extending volumes later, change the unallocated space.</p> <p>To change the unallocated space to a specific value, type the number of megabytes.</p> <p>To increment the unallocated space by one megabyte, click the up arrow button.</p> <p>To decrement the unallocated space by one megabyte, click the down arrow button.</p> <p>To change the unallocated space to zero megabytes, click the reset button.</p>
Capacity	The total amount of space for the virtual disk being created (MB).

Note During the conversion process, if the Windows boot volume (contains the Windows folder) and Windows system volume (contains the boot configuration data) reside on separate partitions, XenConvert combines them onto the same partition. Refer to <http://support.microsoft.com/kb/314470> for the definitions of the Windows boot and system volumes.

Note Windows Vista and later, will display a format dialog for every partition being created. Cancel all format dialogs requests. XenConvert will automatically format each partition.

Physical Machine to Provisioning Services vDisk

Use this method to convert a physical machine to a connected Provisioning Services vDisk.

1. Start the XenConvert Wizard.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

This Machine (*your-computername*)

To

Provisioning Services vDisk

3. Choose the volumes to include in the conversion from the drop-down menus. For details, refer to “Choosing Volumes”
4. Optional: check the **Log copied files** checkbox to log the name of each copied file to `XenConvert.txt`.
5. If the vDisk image is going to be used by multiple target devices in Standard Image mode, click the **Optimize** button. Optimizer does not need to be run on Private Image vDisks.
6. Click **Next**.
7. Verify that the conversion information entered is correct, then click **Convert**.
8. On the warning message that displays, click **Yes** to confirm the conversion. The conversion is complete when the progress bar reaches 100% and the Status field indicates if the conversion is successful or not.
9. After the conversion completes, click **Finish** to exit XenConvert, or click **Log** to display the conversion log file in Notepad.

Physical Machine to VHD

Convert up to four volumes from any local disk on the machine to a single virtual disk compatible with XenServer.

1. Start the XenConvert Wizard.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:
From
This Machine (*your-computername*)
To
XenServer Virtual Hard Disk (VHD)
3. Choose the volumes to include in this conversion from the drop-down menu. For details, refer to “Choosing Volumes”.
4. Optional.
Note: To also use this VHD with Provisioning Services, install the Provisioning Services target device software before converting.
 - A. In the Destination Volume section, under **Free Space**, change the amount of free space using one or more of the following methods:
 - Type a number in MB.

- Click a spin button to increment or decrement by 1 MB.
 - Click the **Reset** button to match the size of the respective source volume.
- B. In the Disk section, under **Unallocated Space**, change the size of the entire virtual disk by changing the amount of unallocated space.
5. Click **Next**.
 6. Type or browse for the folder location where this virtual disk will be stored, then click **Next**.
 7. Optional. Check the **Log name of converted files** checkbox to log the name of each converted file to `XenConvert.txt`
 8. Verify that the source and destination conversion information is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates if the conversion completed successfully or not.
 9. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click Log to display the conversion log file in Notepad.

Physical Machine to XenServer

Convert a machine, including up to four volumes, from any disk to a virtual machine containing a single virtual disk on a XenServer. Store its virtual disk in the default storage repository.

XenConvert captures the properties of the source machine and adds the resulting virtual disk to an intermediate OVF Package that is not encrypted, compressed, or signed.

1. Start the XenConvert Wizard.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

This Machine (*your-computername*)

To

XenServer
3. Choose the volumes to include in this conversion from the drop-down menu. For details, refer to “Choosing Volumes”
4. Click **Next**.
5. Provide information about the XenServer that will receive the VM:

Hostname

Simple host name, fully qualified domain name, or IP address of a standalone XenServer or the XenServer Pool Master.

User name

Name of the account with import privileges. Consult the XenServer product documentation for information on account requirements.

Password

The password that is associated with **User name**.

Workspace

Path of the folder to store intermediate files such as OVF and VHD files.

6. Click **Next**
7. Optional. Check the **Log name of converted files** checkbox to log the name of each copied file to `XenConvert.txt`
8. Verify that the source and destination conversion information is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the **Status** field indicates if the conversion was successful or not.
9. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Physical Machine to OVF Package

Convert a physical machine to an OVF Package that is optionally encrypted, compressed, and/or signed.

1. Start the XenConvert Wizard (for details, refer to “Converting From a Physical Machine”.)
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

This Machine (*your-computername*)

To

Open Virtualization Format (OVF) Package

3. Choose the volumes to include in this conversion from the drop-down menu. For details, refer to “Choosing Volumes”
4. Click **Next**.

5. Choose a folder to store the OVF Package by typing or browsing for the appropriate location.
6. Optional. Choose a EULA to include in the OVF Package by typing or browsing for the appropriate location.
7. Optional, check:

Create Open Virtual Appliance (OVA)

Check this box to create an OVA Package from the OVF Package for distribution.

Compress Open Virtual Appliance (OVA)

Check this box to reduce the size of the OVA. This option is only available if the **Create Open Virtual Appliance** box is checked.

Encrypt

Select this option to encrypt the OVF Package. If the **Create Open Virtual Appliance (OVA)** is selected, encryption occurs before creating the OVA. Enter the passphrase with which to encrypt, in the **Passphrase** text box. Confirm the passphrase by entering it again in the **Confirm** text box.

Sign with Certificate

Check this box to sign this OVF Package with a certificate in the X.509 format.

- Browse for the appropriate file to include using the **File...** button
- Enter the password in the **Password** textbox.
- Click **View** to view certificate information.

8. Click **Next**.
9. Optional. Edit the name of your new VM in the **Name** textbox. The OVF Package will be given the same name as the VM.
10. Click **Next**.
11. Optional. Check the **Log name of converted files** checkbox to log the name of each copied file to `XenConvert.txt`
12. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates that if conversion was successful or not.
13. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Converting From VMware

Important Remove all virtualization software from the source machine before performing a conversion.

To convert from VMware, consider the following strategies in the order shown.

- “Converting From VMware using OVF”
- “Converting From VMware like a Physical Machine”
- “Converting From VMware using VMDK”

OVF is preferred because it is faster and can be simpler for a workloads consisting of multiple virtual disks. You’ll need a tool, such as one of the following, to create an OVF from VMware.

- Virtual Center 2.5 / ESX 3.5 Update 3
- VMware Workstation 6.5
- VMware Converter 3.0.3
- Ovftool
- VMware Studio 1.0

Converting From VMware using OVF

To create an OVF from a VMware, refer to “Converting From an OVF Package”.

Note If the selected XenServer is configured with bonded network interfaces, you may need to reconfigure the NIC(s) of your new VM.

Converting From VMware like a Physical Machine

Treat a VMware VM like a physical machine. Remove any virtualization tool programs from the VM and follow the steps in “Converting From a Physical Machine”.

Converting From VMware using VMDK

Convert only the virtual disk from a VMware VM. This method is the simplest but involves more manual steps for a VM consisting of multiple virtual disks. The following conversions are supported:

- “VMDK to XenServer”
- “VMDK to VHD”

Note When selecting a VMDK descriptor file for conversion, do not select files that include flat, dddd, or dddd in the file name. For example:

example-flat.vmdk
*example-**dddd**.vmdk*
*example-**dddd**.vmdk*

VMDK to XenServer

Select this method to convert a single VMDK to XenServer.

1. Start XenConvert.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

VMware Virtual Hard Drive (VMDK)

To

XenServer

3. Browse for the VMDK descriptor file to include in this conversion, then click **Next**.
4. Provide the following conversion information, then click **Next**:

Hostname

Simple host name, fully qualified domain name, or IP address of the XenServer.

User name

Name of the account with import privileges. Consult the XenServer product documentation for information on account requirements.

Password

The password that is associated with **User name**.

Workspace

Type or browse for the folder in which intermediate files should be stored.

5. Optional. Edit the name of your new XenServer VM in the **Name** textbox.
6. Click **Next**.
7. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates that the conversion was successful.
8. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

VMDK to VHD

Select this method to convert a single VMDK to a VHD.

1. Start XenConvert.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

VMware Virtual Hard Disk (VMDK)

To

XenServer Virtual Hard Disk (VHD)

3. Browse for the VMDK file that contains the descriptor. Since some VMDK types can consist of multiple files with the same `.vmdk` extension, it isn't obvious which file contains the descriptor. The following table lists the types of VMDKs that can be converted, the number of files that comprise those types, and their respective naming convention, which follow the general convention: `DiskName[-suffix].vmdk`. The file without a suffix in its name is usually the descriptor file:

Type	Files	File Naming Convention
Monolithic Sparse	1	<i>DiskName.vmdk</i>
Monolithic Flat	2	<i>DiskName.vmdk</i> <i>DiskName-flat.vmdk</i>

Type	Files	File Naming Convention
Extent Sparse	>=2	<i>DiskName.vmdk</i> <i>DiskName-s001.vmdk</i> <i>DiskName-snnn.vmdk</i>
Extent Flat	>=2	<i>DiskName.vmdk</i> <i>DiskName-f001.vmdk</i> <i>DiskName-fnnn.vmdk</i>
Stream Optimized	1	<i>DiskName.vmdk</i>

Click **Next**:

4. Enter or browse for the folder where this VHD is to be stored, then click **Next**.
5. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates that if the conversion was successful or not.
6. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Converting From an OVF Package

Important Remove all virtualization software from the source machine before exporting it to an OVF Package.

When converting from an OVF Package, the following conversions are supported:

- “Converting From an OVF Package to XenServer”

Converting From an OVF Package to XenServer

Convert an OVF Package to XenServer. If the package contains a virtual disk in the VMDK format, then XenConvert will first convert the virtual disk to the Dynamic VHD format.

Important Remove all virtualization software from the source machine before performing a conversion.

1. Start the XenConvert Wizard.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:
From
Open Virtualization Format (OVF) Package
To
XenServer
3. Browse for the OVF Package to include in this conversion.
4. Optional. Select for the following checkbox options:
Verify Content
To verify the content in the manifest at conversion time, check this checkbox.
Verify Author
To verify the author is the source of the manifest at conversion time, check this checkbox.
If the manifest or source can not be found, a message displays and allows you to select **Yes** to continue, or **No** to return to the previous dialog.
5. Click **Next**. After clicking Next, XenConvert must always check if the package was encrypted. The amount of time to check for encryption is proportional to the size of the package. If the OVF Package was found to be encrypted, please enter the encryption passphrase in the text box in order to continue.
6. Provide the following conversion information, then click **Next**:
Hostname
Simple host name, fully qualified domain name, or IP address of a standalone XenServer or the XenServer Pool Master.
User name
Name of the account with import privileges. Consult the XenServer product documentation for information on account requirements.
Password
The password that is associated with **User name**.
7. Click **Next**.

8. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates if the conversion was successful or not.
9. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Note If the selected XenServer is configured with bonded network interfaces, it may be necessary to reconfigure the Virtual Network Interface Card(s) for the new Virtual Machine.

Converting from a VHD

When converting from a VHD, the following conversions are supported:

- “VHD to OVF”
- “VHD to XenServer”

VHD to OVF

Select this method to convert a single VHD to an OVF Package.

1. Start the XenConvert Wizard
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

Microsoft Virtual Hard Disk (VHD)

To

Open Virtualization Format (OVF)

3. Browse for the VHD to include in this conversion, then click **Next**.
4. Optional. Choose a EULA to include in the OVF Package by typing or browsing for the appropriate location.
5. Optional, check:

Create Open Virtual Appliance (OVA)

Check this box to create an OVA Package from the OVF Package for distribution.

Compress Open Virtual Appliance (OVA)

Check this box to reduce the size of the OVA. This option is only available if the **Create Open Virtual Appliance** box is checked.

Encrypt

Select this option to encrypt the OVF Package. If the **Create Open Virtual Appliance (OVA)** is selected, encryption occurs before creating the OVA. Enter the passphrase with which to encrypt, in the **Passphrase** text box. Confirm the passphrase by entering it again in the **Confirm** text box.

Sign with Certificate

Check this box to sign this OVF Package with a certificate in the X.509 format.

- Browse for the appropriate file to include using the **File...** button
 - Enter the password in the **Password** textbox.
 - Click **View** to view certificate information.
6. Optional. Edit the name of your new XenServer VM in the **Name** textbox. The OVF Package is given the same name as the XenServer VM.
 7. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates if the conversion was successful or not.
 8. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

VHD to XenServer

Convert a single VHD to a XenServer. This conversion requires a XenServer accessible on the network and a valid account on that XenServer. The conversion creates an intermediate OVF that remains on the host.

1. Start the XenConvert Wizard.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

Microsoft Virtual Hard Disk

To

XenServer

3. Browse for the VHD to include in this conversion, then click **Next**.
4. Provide the following conversion information, then click **Next**:

Hostname

Simple host name, fully qualified domain name, or IP address of a standalone XenServer or XenServer Pool Master.

User name

Name of the account with import privileges. Consult the XenServer product documentation for information on account requirements.

Password

The password that is associated with **User name**.

5. Optional. Edit the name of your new XenServer VM in the **Name** textbox.
6. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates that the conversion was successful.
7. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Converting From XVA V2 to an OVF Package

Convert an XVA V2 package to an OVF Package.

1. Start the XenConvert Wizard.
2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:

From

Xen Virtual Appliance

To

Open Virtualization Format (OVF) Package

3. Browse for the XVA to include in this conversion, then click **Next**.
4. Choose a folder to store the OVF Package by typing or browsing for the appropriate location. Optional. Choose a EULA to include in the OVF Package by typing or browsing for the appropriate location.

Create Open Virtual Appliance (OVA)

Check this textbox to create an OVA Package from the OVF Package for distribution.

Compress Open Virtual Appliance (OVA)

Check this box to reduce the size of the OVA. This option is only available if the **Create Open Virtual Appliance** box is checked.

Sign with Certificate

Check this textbox to sign this OVF Package with a certificate in the X.509 format.

- Browse for the appropriate file to include using the **File...** button
- Enter the password in the **Password** textbox.
- Click **View** to view certificate information.

Encrypt

Select this option to encrypt the OVF Package. If the **Create Open Virtual Appliance (OVA)** is selected, encryption occurs before creating the OVA.

Enter the passphrase with which to encrypt in the **Passphrase** text box. Confirm the passphrase by entering it again in the **Confirm** text box.

5. Click **Next**.
6. Optionally edit the name of your new XenServer VM in the **Name** textbox.
7. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates if the conversion was successful or not.
8. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Converting a Single Volume

Use this conversion method to convert a single volume to another volume. Typically the source and destination volumes are on different disks. The source volume can be a Windows boot volume (the volume containing the WINDOWS directory) or an ordinary volume.

Note The active Windows Boot Volume cannot be the destination volume.

When the source volume is a Windows boot volume, the destination volume is configured as a Windows boot volume.

1. Start the XenConvert Wizard.

2. On the Welcome to Citrix XenConvert dialog, choose the following conversion options, then click **Next**:
From
Volume
To
Volume
3. Choose the source volume from the drop-down menu, then click **Next**.
4. Choose the destination volume from the drop-down menu, then click **Next**.
5. Optional. Check the **Log name of converted files** checkbox to log the name of each copied file to `XenConvert.txt`
6. Verify that the conversion information entered is correct, then click **Convert**. The conversion is complete when the progress bar reaches 100% and the Status field indicates if the conversion was successful or not.
7. Click **Finish** to exit XenConvert (this button displays after the conversion completes or after cancelling the conversion process), or click **Log** to display the conversion log file in Notepad.

Troubleshooting a Conversion

Some features, such as those that follow, of Windows and other software can interfere with a conversion.

Windows AutoPlay

Windows AutoPlay (also termed AutoRun), can prevent XenConvert from dismounting a VHD or formatting a volume that it creates.

Consider disabling AutoPlay before converting. This procedure can vary by Windows versions. Please refer to the Microsoft article for details:

Article ID: 967715 - Last Review: May 6, 2009 - Revision: 3.0

How to disable the autorun functionality in Windows

Windows Automount

The Windows Automount feature must be enabled for XenConvert to discover volumes that it creates on a VHD and Provisioning Services vDisk. This feature is disabled by default on the Enterprise Edition of Windows Server 2003, Windows Server 2008, and Windows Server 2008 R2.

To Enable Automount

On Windows Server, enable the Windows Automount feature.

- Enter the following command at a command shell prompt:

```
DISKPART
```

- Enter the following command at the DISKPART prompt:

```
automount enable
```

Automount will be enabled in the VM or Provisioning Services vDisk created using XenConvert. Automount can be disabled within the VM or when booted from a Provisioning Services vDisk that is in Private Image mode.

Security Services

Security software such as antivirus and endpoint protection services can sometimes interfere with a conversion. If disabling Windows AutoPlay does not resolve the problem when XenConvert fails to dismount a VHD or format a volume that it creates, consider stopping the security software.

Before stopping security services, you should also disconnect from the network, unless converting to XenServer, which requires the network.

Failed to Discover Volume

During some conversions, XenConvert creates a VHD, mounts it as a Windows disk, partitions it, formats those partitions, and then waits to discover the volumes on the partitions. Sometimes the disk will not come online in time. Other times, XenConvert will not discover the volumes in time.

Symptoms include a message similar to the following in the log file:

```
Failed to discover 1 of 2 volumes on the destination
disk!
```

Try any of following possible solutions:

- Enable Automount on Windows Server.
- Disconnect Network Drive from lowest available drive letter.
- Bring the disk online using Windows Disk Management while the message `Discovering Volumes...` appears in the XenConvert Status box.
- Another workaround is to manually familiarize Windows with the VHD and its volumes as follows.
 - A. Close XenConvert.
 - B. Open a command window.
 - C. Change to the XenConvert installation folder.
 - D. Mount the VHD:

```
cvhdmount -p 1 <VHD file path>
cvhdmount -p 1 Vm.vhd
```
 - E. Open Windows Disk Management, then wait for the disk to appear online in Windows Disk Management.
 - F. If necessary, bring the disk online using Windows Disk Management.
 - G. Verify that the volumes are accessible.
 - H. Dismount the VHD:

```
cvhdmount -e 1
```

- I. Retry the original conversion with XenConvert.

