

Parallels® Image Tool

User's Guide

ISBN: N/A
Parallels Holdings, Ltd.
c/o Parallels Software, Inc.
13755 Sunrise Valley Drive
Suite 600
Herndon, VA 20171
USA
Tel: +1 (703) 815 5670
Fax: +1 (703) 815 5675

Copyright © 1999-2009 Parallels Holdings, Ltd. and its affiliates. All rights reserved.

Parallels, Coherence, Parallels Transporter, Parallels Compressor, Parallels Desktop, and Parallels Explorer are registered trademarks of Parallels Software International, Inc. Virtuozzo, Plesk, HSPcomplete, and corresponding logos are trademarks of Parallels Holdings, Ltd. The Parallels logo is a trademark of Parallels Holdings, Ltd.

This product is based on a technology that is the subject matter of a number of patent pending applications. Virtuozzo is a patented virtualization technology protected by U.S. patents 7,099,948; 7,076,633; 6,961,868 and having patents pending in the U.S.

Plesk and HSPcomplete are patented hosting technologies protected by U.S. patents 7,099,948; 7,076,633 and having patents pending in the U.S.

Distribution of this work or derivative of this work in any form is prohibited unless prior written permission is obtained from the copyright holder.

Apple, Bonjour, Finder, Mac, Macintosh, and Mac OS are trademarks of Apple Inc. Microsoft, Windows, Microsoft Windows, MS-DOS, Windows NT, Windows 95, Windows 98, Windows 2000, Windows XP, Windows Server 2003, Windows Vista, Windows Server 2008, Microsoft SQL Server, Microsoft Desktop Engine (MSDE), and Microsoft Management Console are trademarks or registered trademarks of Microsoft Corporation.

Linux is a registered trademark of Linus Torvalds.

Red Hat is a registered trademark of Red Hat Software, Inc.

SUSE is a registered trademark of Novell, Inc.

Solaris is a registered trademark of Sun Microsystems, Inc.

X Window System is a registered trademark of X Consortium, Inc.

UNIX is a registered trademark of The Open Group.

IBM DB2 is a registered trademark of International Business Machines Corp.

SSH and Secure Shell are trademarks of SSH Communications Security, Inc.

MegaRAID is a registered trademark of American Megatrends, Inc.

PowerEdge is a trademark of Dell Computer Corporation.

eComStation is a trademark of Serenity Systems International.

FreeBSD is a registered trademark of the FreeBSD Foundation.

Intel, Pentium, Celeron, and Intel Core are trademarks or registered trademarks of Intel Corporation.

OS/2 Warp is a registered trademark of International Business Machines Corporation.

VMware is a registered trademark of VMware, Inc.

All other marks and names mentioned herein may be trademarks of their respective owners.

Contents

Introduction	4
About Parallels Image Tool	4
About This Guide	5
Organization of This Guide	5
Documentation Conventions	6
Getting Help	7
Feedback	7
Getting Started	8
System Requirements	9
Installing Parallels Image Tool	10
Launching Parallels Image Tool	10
Uninstalling Parallels Image Tool	10
Using Parallels Image Tool	11
Increasing the Virtual Hard Disk Capacity	12
Managing the Virtual Hard Disk Properties	14
Changing the Virtual Hard Disk Format.....	16
Reducing the Virtual Hard Disk Size.....	18
Merging Snapshots	20
Troubleshooting	21
Using the Added Space	22
Creating a New Partition in Windows	23
Creating a New Partition in Linux	24
Expanding an Existing Partition	25
Virtual Hard Disk Types	26
Glossary	27
Index	31

CHAPTER 1

Introduction

Virtual machines use virtual hard disks that actually are hard disk image files. After using your virtual machine for some time, you may find that your virtual machine hard disk does not fit your needs anymore, and you want to increase its capacity, reduce its size, or change its type and properties. Parallels has developed a special utility for increasing the virtual hard disk capacity and managing its properties - Parallels Image Tool.

In This Chapter

About Parallels Image Tool	4
About This Guide	5
Getting Help	7
Feedback	7

About Parallels Image Tool

Parallels Image Tool is a special utility that enables you to increase the capacity, change the type and format of your virtual hard disks, reduce their size, or merge snapshots of virtual machines that use these virtual hard disks. This utility is a part of the Parallels Desktop, Parallels Workstation, or Parallels Server package and is automatically installed during the corresponding product installation.

About This Guide

The present guide is aimed at a wide range of users who want to increase the capacity, change the type, or merge snapshots of hard disks used by their virtual machines with the help of Parallels Image Tool.

Abbreviations used in the text


In the present guide the following abbreviations are used:

- *OS* is used instead of *operating system* in long sentences where using it will not change the meaning of the sentence.
- *VM* is used instead of *virtual machine* in long sentences where using it will not change the meaning of the sentence.

Help Usage Tips

Use the icons in the upper part of the help window to:

- go to the online documentation page
- watch an online video tutorial
- contact the Parallels support team

To print a help page, click on the **Print** icon . If this doesn't work, right-click the **Print** icon and choose **Print Frame**.

Organization of This Guide

The structure of the present guide is quite transparent and consists of the following elements:

- The **Introduction** chapter (p. 4) provides basic information about the product and this guide.
- The **Getting Started** chapter (p. 8) provides information on how to install and uninstall Parallels Image Tool. It also contains the information about the system requirements the computer should meet to ensure successful installation and work of the product.
- The **Using Parallels Image Tool** chapter (p. 11) provides Parallels Image Tool usage guidelines for accessing and modifying the contents of your virtual machines without starting them.
- The **Using the Added Space** chapter (p. 22) provides instructions on how to create a new partition in Windows and Linux operating systems.
- The **Virtual Hard Disk Types** chapter (p. 26) provides basic information on the types of virtual hard disks used in Parallels virtual machines.

Documentation Conventions

Before you start using this guide, it is important to understand the documentation conventions used in it.

The table below presents the existing formatting conventions.


Formatting convention	Type of Information	Example
Special Bold	Items you must select, such as menu options, command buttons, or items in a list.	Go to the Resources tab.
	Titles of chapters, sections, and subsections.	Read the Basic Administration chapter.
Italics	Used to emphasize the importance of a point, to introduce a term or to designate a command line placeholder, which is to be replaced with a real name or value.	These are the so-called <i>EZ templates</i> . To destroy a Container, type <code>vzctl destroy <i>ctid</i></code> .
Monospace	The names of commands, files, and directories.	Use <code>vzctl start</code> to start a Container.
Preformatted	On-screen computer output in your command-line sessions; source code in XML, C++, or other programming languages.	Saved parameters for Container 101
Monospace Bold	What you type, as contrasted with on-screen computer output.	# rpm -V virtuoizzo-release
Key+Key	Key combinations for which the user must press and hold down one key and then press another.	Ctrl+P, Alt+F4

Besides the formatting conventions, you should also know about the document organization convention applied to Parallels documents: chapters in all guides are divided into sections, which, in their turn, are subdivided into subsections. For example, **About This Guide** is a section, and **Documentation Conventions** is a subsection.

Getting Help

Parallels Image Tool offers several options for accessing necessary information.

For all host OSs:

- Help buttons. Click the  Help button at the bottom of the Image Tool window to open a corresponding help page.
- Parallels Image Tool User's Guide. This document contains extensive information about the product, its usage, and troubleshooting. The PDF version of this guide can be accessed from the Parallels Workstation **Help** menu > **Online Documentation**.
- The Parallels web site (<http://www.parallels.com>). Explore the Support web page that includes product help files and FAQ section.
- Parallels Knowledge Base (<http://kb.parallels.com/>). This online resource comprises valuable articles about using Parallels Workstation and other Parallels products.

For Mac OS X:

- Help files for Parallels Image Tool available through **Help** menu > **Parallels Image Tool Help**.

Feedback

If you spot a typo in this guide, or if you have thought of a way to make this guide better, we would love to hear from you!

The ideal place for your comments and suggestions is the Parallels documentation feedback page (<http://www.parallels.com/en/support/usersdoc/>).

CHAPTER 2

Getting Started

This chapter provides the information on how to install and uninstall Parallels Image Tool.

In This Chapter

System Requirements.....	9
Installing Parallels Image Tool	10
Launching Parallels Image Tool	10
Uninstalling Parallels Image Tool.....	10

System Requirements

Parallels Image Tool is a part of the Parallels Desktop, Parallels Workstation, or Parallels Server package, and the system requirements for installing and using it are the same as for the corresponding product.

System requirements for Mac

Hardware Requirements:

- Any Macintosh computer with an Intel processor (1.66 GHz or greater). To run 64-bit operating systems in virtual machines, an Intel Core 2 or later processor is required.
- Minimum 1 GB of memory, 2 GB of memory is recommended.

Note: Your Mac must have enough memory to run Mac OS X and your Mac applications, plus the memory required for the virtual machine's operating system and the applications installed in it.

- About 300 MB of disk space on the boot volume for the program installation.
- About 15 GB of disk space for each virtual machine.

Software Requirements:

- Mac OS X Leopard v10.5.2 or later
- Mac OS X Tiger v10.4.11 or later

To check your Mac OS X version number, choose **Apple > About This Mac** on the menu bar.

System requirements for Windows and Linux host computers

Hardware Requirements:

- Minimum 1.66 GHz x86 (32-bit) or x64 (64-bit) CPU with Intel VT-x or AMD-V hardware virtualization technology support.

Note: The number of physical CPUs must be equal to or greater than the number of virtual CPUs used by any of the virtual machines.

- 2 GB RAM minimum. 4 GB RAM or more is recommended.

Note: The recommended amount of memory assigned to a virtual machine is 1-2 GB (8 GB is a maximum).

- 200 MB of hard disk space for the Parallels Workstation installation.
- About 30 GB of hard disk space for each virtual machine.

Note: To store a virtual machine's temporary files, you need to have twice as much free disk space as the overall amount of this virtual machine's memory (memory + video memory) +150 MB.

- CD-ROM or DVD-ROM drive (optional).
- Ethernet network adapter.

Software Requirements:

Parallels Workstation supports host computers with the following operating systems installed.

Note: You can run virtual machines with 64-bit operating systems only on host computers with 64-bit operating systems installed.

32-bit operating systems:

- Windows XP Home Edition SP2, SP3
- Windows XP Professional Edition SP2, SP3
- Red Hat Enterprise Linux 5.x
- Fedora 9

64-bit operating systems:

- Windows XP Professional Edition SP2
- Red Hat Enterprise Linux 5.x
- Fedora 9

Installing Parallels Image Tool

Image Tool is installed automatically during the Parallels Workstation installation. For the detailed installation instructions, see *Parallels Workstation User's Guide*.

Launching Parallels Image Tool

To start Parallels Image Tool in Mac OS X:

- 1 In the Finder, go to **Applications > Parallels**.
- 2 In the Parallels folder, double-click the Parallels Image Tool icon.

To start Parallels Image Tool in Windows:

- From the Windows **Start** menu, choose **Programs > Parallels > Parallels Workstation > Parallels Image Tool**.

To start Parallels Image Tool in Linux:

- From the **Applications** menu, choose **System Tools > Parallels Image Tool**.

Uninstalling Parallels Image Tool

Parallels Image Tool is uninstalled automatically when you uninstall Parallels Workstation from your computer.

CHAPTER 3

Using Parallels Image Tool

With Parallels Image Tool, you can increase the capacity, reduce the size, or change properties or format of an existing virtual hard disk image that is not used by any running virtual machine. To learn more about the virtual hard disks types and formats, refer to **Virtual Hard Disks Types** (p. 26).

The virtual hard disk file can be found inside the virtual machine's PVM bundle. PVM bundles are stored by default:

- in the /<Username>/Documents/Parallels/ folder in Mac OS X.
- in the C:\Documents and Settings\<Username>\My Documents\Parallels\ folder in the Windows primary OS.
- in the /<username>/parallels directory in the Linux primary OS.

In This Chapter

Increasing the Virtual Hard Disk Capacity	12
Managing the Virtual Hard Disk Properties	14
Changing the Virtual Hard Disk Format.....	16
Reducing the Virtual Hard Disk Size.....	18
Merging Snapshots.....	20
Troubleshooting	21

Increasing the Virtual Hard Disk Capacity

If you find that the capacity of your virtual machine's hard disk does not fit your needs anymore, you can increase it using Parallels Image Tool.

To increase the capacity of the virtual hard disk:

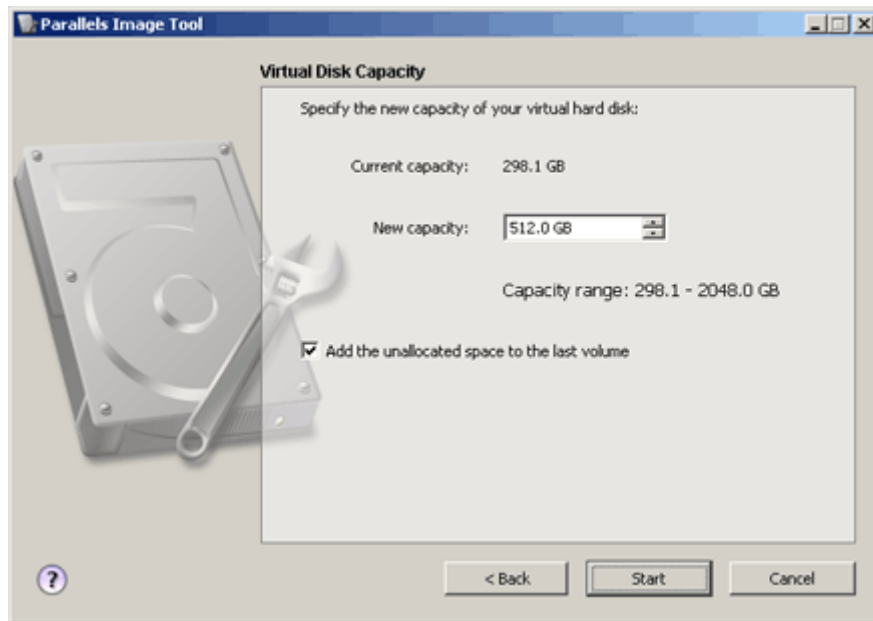
- 1 Launch Parallels Image Tool.
- 2 In the **Introduction** window, click **Continue**.
- 3 Specify the source virtual disk image file with the `.hdd` extension in the **Source Virtual Disk** window. You may type the path and file name or use the **Choose** button to locate the file. The virtual hard disk image file can be found inside the virtual machine's PVM bundle. PVM bundles are stored by default:
 - in the `/<Username>/Documents/Parallels/` folder in Mac OS X.
 - in the `C:\Documents and Settings\<Username>\My Documents\Parallels\` folder in the Windows primary OS.
 - in the `/<username>/parallels` directory in the Linux primary OS.

Note: The virtual machine using this virtual hard disk should be stopped before proceeding.

- 4 Select the **Increase the disk capacity** option in the **Select Action** window.
- 5 Specify the new capacity for the disk. The **Add the unallocated space to the last volume** check box, which is selected by default, means that the additional disk space will be added to the last volume. If you clear it, the added space will appear as unallocated space. To allocate this space, you can either create a new partition or expand an existing partition. For instructions on allocating the added space, see the **Using the Added Space** section (p. 22) of *Parallels Image Tool User's Guide*.

Note: If you choose a hard disk used by a virtual machine that has snapshots, all snapshots, except the last one, will be deleted.

To start the process of increasing the disk capacity, click **Start**. You can view the operation progress in the **Processing the File** window. Clicking **Cancel** terminates the operation.



Note: If the virtual hard disk image file you specified is in the *old* format, it will be automatically converted to the *new* format.

- 6 After the disk image has been successfully modified, the **Execution is Completed** window appears. Click **Finish** to close Parallels Image Tool.

Managing the Virtual Hard Disk Properties

With Parallels Image Tool, you can manage the properties of your virtual machine hard disk. You can change the virtual hard disk type from *plain* to *expanding* and vice versa, split or merge the disk parts, or merge snapshots of the virtual machine that uses this virtual hard disk.

To change the type of the virtual hard disk:

- 1 Launch Parallels Image Tool.
- 2 In the **Introduction** window, click **Continue**.
- 3 Specify the source image file of the virtual hard disk in the **Source Virtual Disk Image File** window. You may type the path and file name or use the **Choose** button to locate the file. The virtual hard disk image file can be found inside the virtual machine's PVM bundle. PVM bundles are stored by default:
 - in the /<Username>/Documents/Parallels/ folder in Mac OS X.
 - in the C:\Documents and Settings\<Username>\My Documents\Parallels\ folder in the Windows primary OS.
 - in the /<username>/parallels directory in the Linux primary OS.

Note: The virtual machine using this virtual hard disk should be stopped before proceeding.

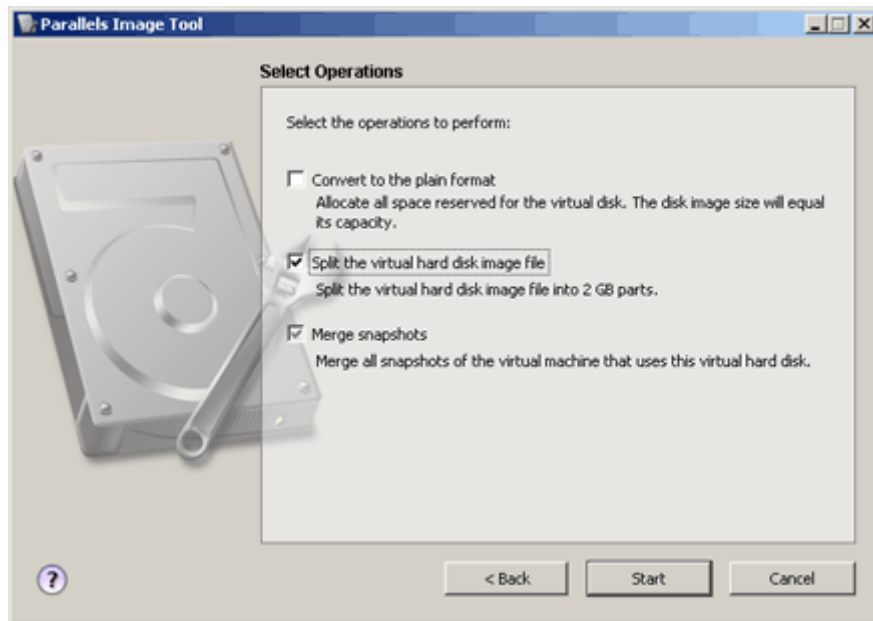
- 4 Select the **Manage disk properties** option in the **Select Action** window.
- 5 In the **Select Operations** window, choose one or several of the following operations to perform on the disk and click **Start**:

Note: The operations with the virtual hard disk are irreversible.

- If the virtual hard disk image you specified is an *expanding* virtual hard disk, the **Split virtual hard disk image file** option is selected by default.
- If it is an *expanding* disk, you can select the **Convert to Plain** option.
- If it is a *plain* disk, the **Convert to Expanding** option is selected by default.
- If the hard disk image you selected has snapshots, the **Merge snapshots** option is selected by default. You cannot clear this option.

Note: The merging process deletes all the snapshots, except the last one.

Parallels Image Tool needs to merge all the snapshots of the current virtual hard disk before performing any actions with it. The information from all the snapshots will be merged to the last one, and all the other snapshots will be deleted. Parallels Image Tool does not change the snapshots tree in Snapshot Manager, so if you attempt to revert to any snapshot of the tree, it will be no longer accessible, and you can remove it manually.



Note: If the virtual hard disk image file you specified is in the *old* format, it will be automatically converted to the *new* format.

You can view the operation progress in the **Processing the File** window. Clicking **Cancel** terminates the operation

- 6 After the disk image has been successfully modified, the **Execution is Completed** window appears. Click **Finish** to close Parallels Image Tool.

Changing the Virtual Hard Disk Format

If you want to use your virtual machine with an earlier version of Parallels Workstation, use Parallels Image Tool to convert its hard disk image file to the old format. Image Tool can be also used to convert virtual hard disk image files created with Parallels Desktop 2.5 or Parallels Workstation 2.2 to the new format, supported by Parallels Desktop 4 and Parallels Workstation 4.0 Extreme.

Warning: If you have Parallels Tools installed on your virtual hard disk, remove them before processing the disk.

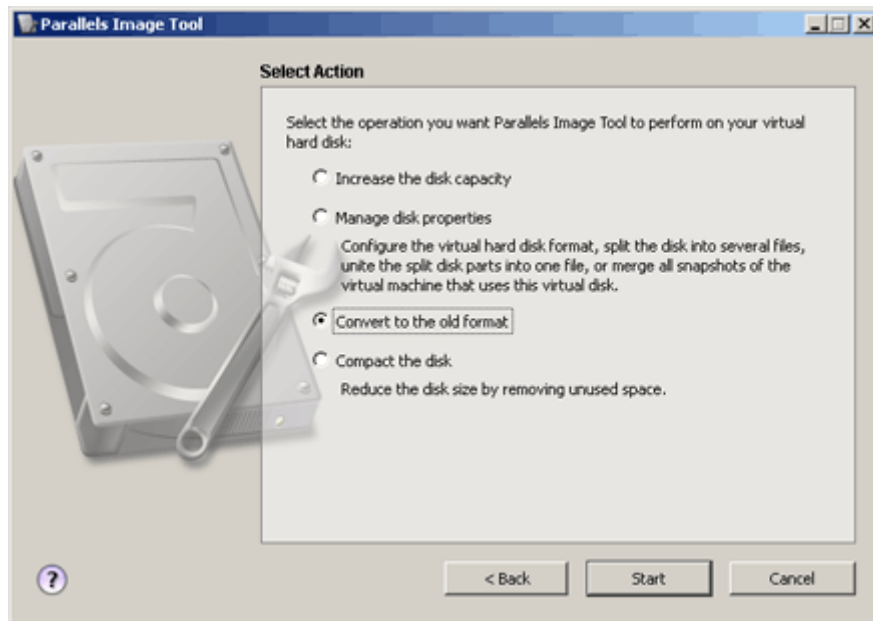
To change the format of your virtual hard disk image file:

- 1 Launch Parallels Image Tool.
- 2 In the **Introduction** window, click **Continue**.
- 3 Specify the source image file of the virtual hard disk in the **Source Virtual Disk Image File** window. You may type the path and file name or use the **Choose** button to locate the file. The virtual hard disk image file can be found inside the virtual machine's PVM bundle. PVM bundles are stored by default:
 - in the /<Username>/Documents/Parallels/ folder in Mac OS X.
 - in the C:\Documents and Settings\<Username>\My Documents\Parallels\ folder in the Windows primary OS.
 - in the /<username>/parallels directory in the Linux primary OS.

Note: The virtual machine using this virtual hard disk should be stopped before proceeding.

- 4 In the **Select Action** window, select:
 - **Convert to the old format** if your hard disk image file is in the Parallels Workstation newer version format and click **Start**. In this case, the hard disk will be converted into the Parallels Workstation older version format.
 - **Convert to the new format** if your hard disk image file is in the Parallels Workstation older version format and click **Start**. In this case, the hard disk will be converted into the Parallels Workstation newer version format.

Note: If you are converting the disk to the old format, you may need to reconfigure the guest OS installed on it. To do that, you will need the installation media for the guest OS installed on the disk. You may insert it into the CD/DVD-ROM drive of your computer or select the installation media to use in the **More Options** area. When finished, click **Start**.



You can view the operation progress in the **Processing the File** window. Clicking **Cancel** terminates the operation.

- 5 After the disk image has been successfully modified, the **Execution is Completed** window appears. Click **Finish** to close Parallels Image Tool.

Reducing the Virtual Hard Disk Size

With Parallels Image Tool, you can manage the properties of your virtual machine hard disk.

If you have an expanding virtual hard disk and need to reduce its size by removing unused space on the disk, you can compact it.

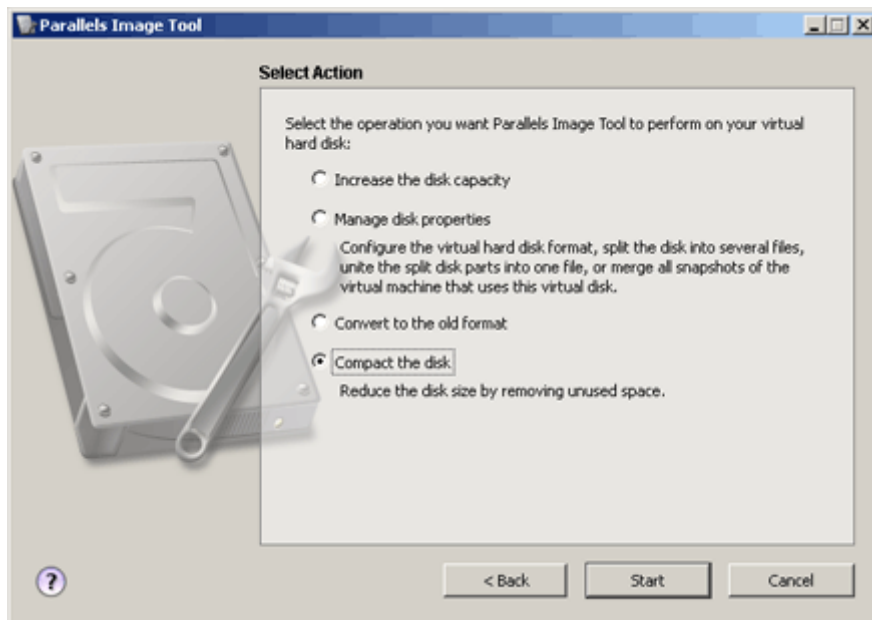
Note: A plain virtual hard disk cannot be compacted.

To reduce the virtual hard disks size:

- 1 Launch Parallels Image Tool.
- 2 In the **Introduction** window, click **Continue**.
- 3 Specify the source image file of the virtual hard disk in the **Source Virtual Disk Image File** window. You may type the path and file name or use the **Choose** button to locate the file. The virtual hard disk image file can be found inside the virtual machine's PVM bundle. PVM bundles are stored by default:
 - in the /<Username>/Documents/Parallels/ folder in Mac OS X.
 - in the C:\Documents and Settings\<Username>\My Documents\Parallels\ folder in the Windows primary OS.
 - in the /<username>/parallels directory in the Linux primary OS.

Note: The virtual machine using this virtual hard disk should be stopped before proceeding.

- 4 Select the **Compact the disk** option in the **Select Action** window and click **Start**.



Note: If the virtual hard disk has one or several snapshots, Parallels Image Tool needs to merge them before performing the required action with the disk. The information from all snapshots will be merged to the last one, and all the rest will be deleted. Parallels Image Tool does not change the snapshots tree in Snapshot Manager, so if you attempt to revert to any snapshot of the tree, it will be no longer accessible, and you can remove it manually.

The disk compacting procedure starts.

4. Click **Finish** in the **Execution is Completed** window to exit Parallels Image Tool.

Merging Snapshots

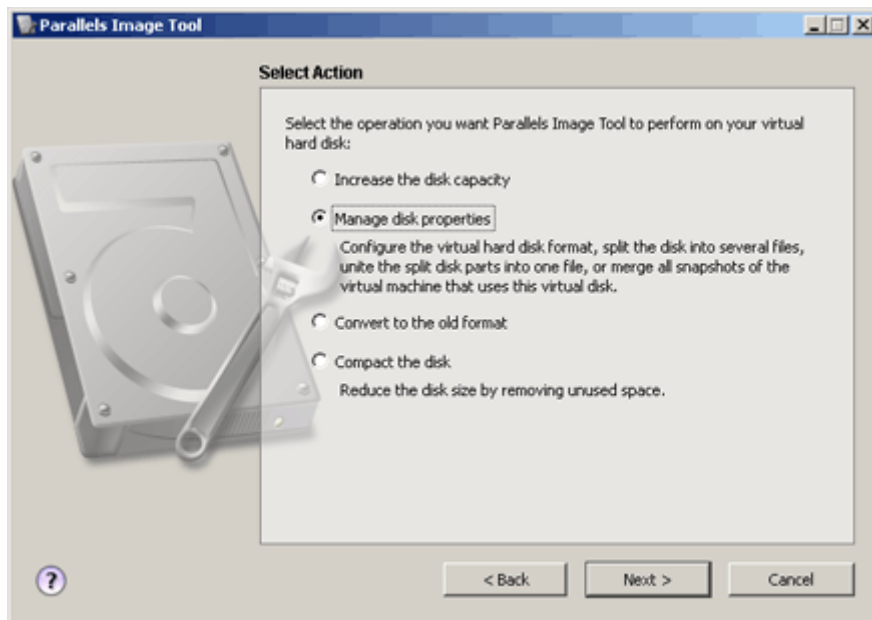
If your virtual machine has several snapshots, and you want to delete all except the last one, Parallels Image Tool provides the simplest way to merge them.

To merge snapshots of a virtual machine:

- 1 Start Parallels Image Tool.
- 2 In the **Introduction** window, click **Continue**.
- 3 In the **Source Virtual Disk Image File** window, specify the hard disk image file used by the virtual machine whose snapshots you want to merge, and click **Continue**. You may type the path and file name or use the **Choose** button to locate the file. The virtual hard disk image file can be found inside the virtual machine's PVM bundle. PVM bundles are stored by default:
 - in the /<Username>/Documents/Parallels/ folder in Mac OS X.
 - in the C:\Documents and Settings\<Username>\My Documents\Parallels\ folder in the Windows primary OS.
 - in the /<username>/parallels directory in the Linux primary OS.

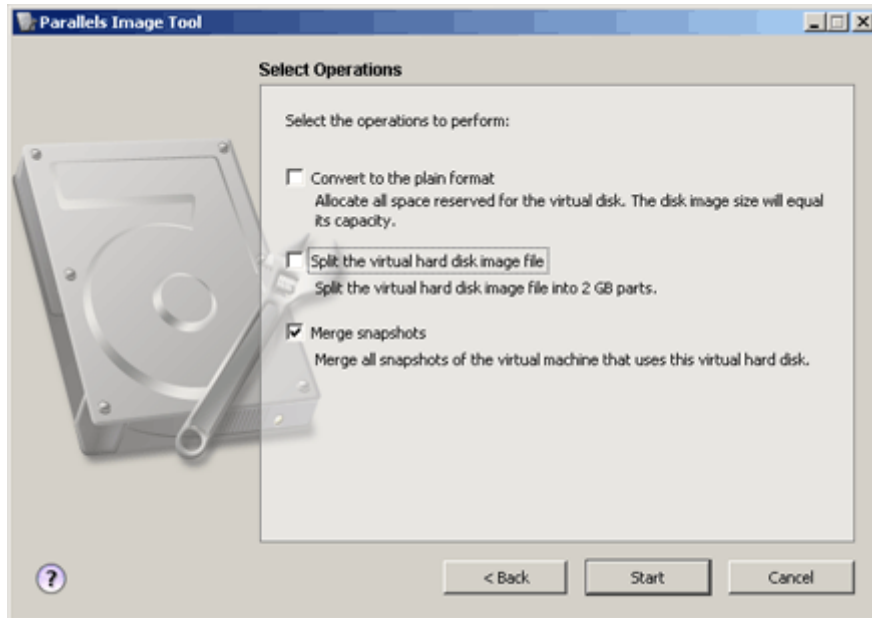
Note: The virtual machine using this virtual hard disk should be stopped before proceeding.

- 4 In the **Select Action** window, choose **Manage disk properties**, and click **Continue**.



- 5 In the **Select Operations** window, select **Merge snapshots** and click **Start**. You can select other options as well.

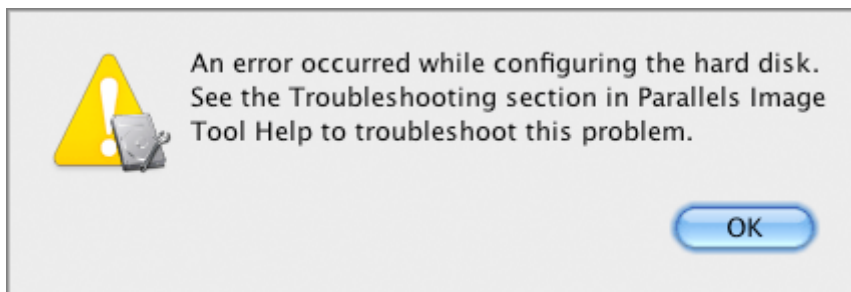
The information from all the snapshots will be merged to the last one, and all the other snapshots will be deleted. Parallels Image Tool does not change the snapshots tree in Snapshot Manager, so if you attempt to revert to any snapshot of the tree, it will be no longer accessible, and you can remove it manually.



- 6 You can view the operation progress in the **Processing the File** window. The operation cannot be cancelled.
- 7 After the snapshots are merged, the **Execution is Completed** window appears. Click **Finish** to close the assistant.

Troubleshooting

If you see the following message when Image Tool is processing a Windows virtual hard disk, check this disk using the `chkdsk` utility in the Windows guest OS.



CHAPTER 4

Using the Added Space

If you increase the capacity of your virtual hard disk with the **Add the unallocated space to the last volume** check box selected, the additional space is added to the last volume. If not, the added space appears in the virtual machine as an unallocated space. To use this additional unallocated space, you can either create a new partition on this unallocated space, or expand one of the partitions you already have. The way of allocating partitions is different for Windows and Linux guest operating systems.

This chapter provides some general guidelines on creating a new partition in Windows and Linux guest operating systems.

In This Chapter

Creating a New Partition in Windows	23
Creating a New Partition in Linux	24
Expanding an Existing Partition.....	25

Creating a New Partition in Windows

To create a new partition on the unallocated space of your virtual hard disk, you can use Disk Management, a Windows build-in utility for partitioning hard disks. The steps below provide instructions on partitioning the added space in Windows XP. For other Windows operating systems, the procedure will be very similar to this one.

To create a new partition on Windows XP

- 1 Start the virtual machine that uses the enlarged virtual disk.
- 2 To start the Disk Management utility, choose **Control Panel** from the **Start** menu. Double-click **Administrative Tools** and open **Computer Management**. In the **Storage** section, select **Disk Management**
or
choose **Run** from the **Start** menu and type:
`diskmgmt.msc`
Click **OK**.
- 3 In the Disk Management window, right-click **Unallocated Capacity** and choose **New Partition** from the shortcut menu.
- 4 In the New Partition wizard **Introduction** window, click **Next**.
- 5 In the **Select Partition Type** window, select **Primary partition** and click **Next**.
- 6 Specify the partition size and click **Next**.
- 7 Assign a drive letter for the new partition and click **Next**.
- 8 In the **Format partition** window, select **Format partition with the following settings**. Set **File system** to **NTFS** and **Allocation unit size** to **Default**. Type the volume name in the **Volume label** field and click **Next**.
- 9 Carefully review the settings and click **Finish** to start formatting.

When the operation is completed, the new volume appears in the **Computer Management** window and in **My Computer**.

Creating a New Partition in Linux

In most Linux systems, you can use the `fdisk` utility to create a new partition and to do other disk management operations.

Note: To be able to execute the commands necessary to create a new partition on Linux, you must have the `root` privileges.

As a tool with a text interface, `fdisk` requires typing the commands on the `fdisk` command line. The following `fdisk` commands may be helpful:

Options	Description
m	Displays the available commands.
p	Displays the list of existing partitions on your <code>hda</code> drive. Unpartitioned space is not listed.
n	Creates a new partition.
q	Exits <code>fdisk</code> without saving your changes.
l	Lists partition types.
w	Writes changes to the partition table.

To create a new partition on Linux

- 1 Start a terminal.
- 2 Start `fdisk` using the following command:

```
/sbin/fdisk /dev/hda
```

where `/dev/hda` stands for the hard drive that you want to partition.

- 3 In `fdisk`, to create a new partition, type the following command:

```
n
```

- When prompted to specify the **Partition type**, type `p` to create a primary partition or `e` to create an extended one. There may be up to four primary partitions. If you want to create more than four partitions, make the last partition extended, and it will be a container for other logical partitions.
- When prompted for the **Number**, in most cases, type 3 because a *typical* Linux virtual machine has two partitions by default.
- When prompted for the **Start cylinder**, type a starting cylinder number or press **Return** to use the first cylinder available.
- When prompted for the **Last cylinder**, press **Return** to allocate all the available space or specify the size of a new partition in cylinders if you do not want to use all the available space.

By default, `fdisk` creates a partition with a **System ID** of 83. If you're unsure of the partition's **System ID**, use the

```
l
```

command to check it.

4 Use the

```
w
```

command to write the changes to the partition table.

5 Restart the virtual machine by entering the

```
reboot
```

command.

6 When restarted, create a file system on the new partition. We recommend that you use the same file system as on the other partitions. In most cases it will be either the Ext3 or ReiserFS file system. For example, to create the Ext3 file system, enter the following command:

```
/sbin/mkfs -t ext3 /dev/hda3
```

7 Create a directory that will be a mount point for the new partition. For example, to name it data, enter:

```
mkdir /data
```

8 Mount the new partition to the directory you have just created by using the following command:

```
mount /dev/hda3 /data
```

9 Make changes in your static file system information by editing the `/etc/fstab` file in any of the available text editors. For example, add the following string to this file:

```
/dev/hda3 /data ext3 defaults 0 0
```

In this string `/dev/hda3` is the partition you have just created, `/data` is a mount point for the new partition, `Ext3` is the file type of the new partition. For the exact meaning of other items in this string, consult the Linux documentation for the `mount` and `fstab` commands.

10 Save the `/etc/fstab` file.

Expanding an Existing Partition

If you want to add the unallocated space to a partition that is not the last on this virtual hard disk, you can use third-party applications designed to easily reorganize the hard disk drive without losing the data on it (for example, you can use Acronis® Disk Director Suite).

Note: Acronis Disk Director Suite is provided free of charge for registered users of Parallels Desktop 4 for Mac. You can download the application from the Download Parallels Desktop page.

CHAPTER 5

Virtual Hard Disk Types

This chapter provides basic information on the types of virtual hard disks used in Parallels virtual machines.

Expanding Disks

An *expanding* disk is small initially and grows as you add applications and data to the virtual hard disk in the guest OS. The size specified when the disk was created is the maximum size of the disk. Using disks in this format saves space on the hard disk of the host computer.

Note: When the data occupies all space available on your expanding virtual hard disk, you can reduce the disks size or increase this disk's capacity using Parallels Image Tool. For more information, refer to [Using Parallels Image Tool](#).

Plain Disks

The file that stores an image of a *plain* virtual disk resides in the primary operating system, and has constant size from the moment it is created. You can create a *plain* disk when creating a virtual machine in the custom mode.

Split disks

Both *plain* and *expanding* virtual hard disks can be single-piece disks or split disks. A split disk is cut into 2 GB pieces, but is stored as a single HDD file. *Split* disks allow you to transfer the data stored on a split disk piece by piece using a USB drive or other media that has limited space and cannot store a large image file.

Disks in the Old Format

Disks in the *old* format are created and used in other Parallels virtualization products.

Disks in the New Format

Disks in the *new* format are created and used in Parallels Workstation.

Glossary

This glossary defines terms and spells out abbreviations used in Parallels Workstation documentation. References to terms defined elsewhere in the glossary appear in *italics*.

Administrator. A user with administration privileges.

Activation key. A unique set of symbols that activates the Parallels Workstation application on the host computer and lets you use the Parallels Workstation functionality to its full extent.

Active operating system. The operating system where Parallels Transporter Agent is launched.

Active volume: The volume of the physical source computer that is used as a *boot volume* for the active operating system.

Bootable hard disk. A disk used by the operating system to boot from, usually a disk that has an operating system installed.

Boot Volume. A hard disk partition from which the operating system boots.

Boot Camp partition. A partition on the hard disk of the host computer that can be used for installing a Windows operating system on it (for Mac host computers only).

Bridged networking. Virtual machine network connection mode that enables the virtual machine to appear as any other computer on the network, with its own IP address and network name.

Configuration file. A file specifies the virtual machine's hardware configuration, the devices it uses, and other settings. It is created automatically when you create a new virtual machine. See also *PVS file*.

CPU. Stands for central processing unit. It is an internal part of the computer. See also *Processor*.

Disks in the old format. Disks of virtual machines that were created in Parallels Desktop 2.5 and earlier or Parallels Workstation 2.2.

Disks in the new format. Disks of virtual machines that were created or used in Parallels Desktop 3.0 and 4 or Parallels Workstation 4.0.

Expanding format. A virtual hard disk format. An expanding virtual hard disk image file resides on your host computer and is small initially. Its size grows as you add applications and data to the *virtual machine*.

FireWire connection. A wired connection that enables a high-speed data transmission between computers.

Guest operating system (guest OS). An operating system installed inside your virtual machine.

Host computer. The computer that is used to run virtual machines. In case of Parallels Desktop, it is your Mac. In case of Parallels Workstation, it is the Windows or Linux physical computer where Parallels Workstation is installed. In the Parallels Transporter documentation, this term may define the computer that hosts the result of *migration*.

Hot key. A user-defined key or combination of keys that provides quick access to applications and commands. See also *Shortcut*.

HDD file. During the creation, the *virtual machine* acquires a virtual hard disk file with the *.hdd* extension. See also *virtual hard disk file*.

Host-only networking. Virtual machine network connection mode that creates a private network between the host computer and its virtual machines, which makes the virtual machines available from the host computer only.

ISO Image. A special file that contains the entire contents of a CD or DVD disc commonly used to install an operating system.

Image file. A single file containing the complete contents and structure of a data storage medium or device, such as a hard disk drive, CD, or DVD.

IP address. A unique address that is assigned to a physical computer or a virtual machine that participates in computer networking.

Linux computer. A physical computer that has a Linux operating system installed.

Merged disk. A *split* disk whose parts were merged into a single disk.

Migration. The process of transferring data from a physical computer or a third-party virtual machine into a Parallels virtual machine or virtual disk.

OS. An operating system.

Parallels Desktop. An application that enables you to create, manage, and use *virtual machines* on your Mac.

Parallels Explorer. An application that enables you to browse and manage the contents of your *virtual machines* without starting them.

Parallels Image Tool. An application that enables you to manage the capacity and properties of your *virtual machine's* hard disk.

Parallels Mounter. An application that enables you to to browse the contents of your *virtual machines* and *virtual hard disks* directly in Mac OS X Finder.

Parallels Tools. A set of Parallels utilities that ensures a high level of integration between the *primary* and the *guest* operating systems.

Parallels Transporter. An application that uses data of a physical or virtual computer for creating a Parallels virtual clone of this physical or virtual computer. The resulting virtual machines can be used with Parallels Workstation.

Parallels Transporter Agent. An application that collects data on a physical computer and transfers it to Parallels Transporter installed on the host computer.

Parallels Workstation. An application that enables you to create, manage, and use *virtual machines* on a Windows or Linux computer.

PCIe device. A video or network adapter corresponding to the PCI Express computer expansion card standard introduced by Intel in 2004.

Plain format. A virtual hard disk format. A plain virtual hard disk image file resides on the *host computer* and has a fixed size that cannot be changed.

Preboot Execution Environment (PXE). An environment to boot computers using a network interface independently of available data storage devices (like hard disks) or installed operating systems.

Primary operating system (primary OS). Operating system that controls the I/O devices of the computer and that is loaded when the physical computer is turned on. It is the operating system of the physical computer where the Parallels Workstation application is installed.

Processor. The central processing unit, or *CPU*. It is an internal part of the computer.

PVS file. A virtual machine *configuration file* that contains information about the virtual machine resources, devices and other settings.

Shared networking. Virtual machine network connection mode that allows the *virtual machine* to use the *host computer* network connections. In this mode, the virtual machine is invisible to other computers on the network the host computer belongs to.

Shortcut. A user-defined key or combination of keys that provides quick access to applications and commands. See also *Hot key*.

Snapshot. A copy of the virtual machine state at a particular point of time. The files related to snapshots are stored in a special subfolder in the virtual machine's folder.

Source computer or source operating system: The computer that you are going to migrate data from. On physical source computers, Parallels Transporter Agent should be installed.

System disk. A floppy disk that allows your computer to load the operating system.

Split disk. A split disk is cut into 2 GB pieces, but is stored as a single *HDD file*. Split disks allow you to transfer the data stored on a split disk piece by piece using a USB drive or other media that have limited space and cannot store a large virtual hard disk image file.

Terminal. In Mac OS and GNU/Linux operating systems, a utility that enables you to access the command line.

Virtual hard disk (virtual disk). A file or group of files that emulates the virtual machine's hard disk.

Virtual machine. The computer emulated using Parallels Workstation. A virtual machine has its own virtual hardware and requires an operating system to control its hardware. The installed operating system and its applications are isolated inside the virtual machine and share physical hardware resources of the *host computer*.

Third-party virtual machine. A virtual machine created in a third-party virtualization product, that can be converted to Parallels virtual machines with the help of Parallels Transporter.

Virtual Machine Configuration. Like any physical computer, a *virtual machine* has its own configuration which is set during the creation and can be later modified. The virtual machine configuration settings are stored in a *PVS file*.

Virtual machine files. Files stored in a *virtual machine* folder. A virtual machine has at least two files: *configuration file* and *virtual hard disk file*.

Virtual hard disk file. During the creation, the *virtual machine* acquires a virtual hard disk file with the *.hdd* extension. This file performs the functions of a real hard disk. See also *HDD file*.

Virtual machine template. A virtual machine that can be cloned to multiple virtual machines that will have the same configuration and data that the virtual machine template had.

VM. See *Virtual Machine*.

Windows computer. A physical computer that has a Windows operating system installed.

Index

A

- About Parallels Image Tool • 4
- Activation key • 27
- Active operating system • 27
- Active volume • 27
- Administrator • 27

B

- Bootable hard disk • 27
- Bridged Ethernet networking • 27

C

- Changing hard disk format • 16
- Compacting virtual hard disk • 14, 18
- Configuration file • 27
- Creating new partition
 - in Linux • 24
 - in Windows • 23

D

- Documentation feedback page • 7

E

- Expanding partition • 25

F

- Files
 - HDD file • 27
 - PVS file • 27

G

- Guest operating system
 - definition • 27

H

- HDD file • 27
- Help menu • 7
- Host computer
 - definition • 27
 - hardware requirements • 9
 - software requirements • 9
- Host-only networking • 27
- Hot keys • 27

I

- Increasing hard disk capacity • 12
- Installing
 - Parallels Image Tool • 10

L

- Launching
 - Parallels Image Tool • 10
- Linux
 - creating new partition • 24

M

- Managing hard disk properties • 14

P

- Parallels Image Tool
 - changing hard disk format • 16
 - creating new partition • 23, 24
 - increasing hard disk capacity • 12
 - installing • 10
 - launching • 10
 - managing hard disk properties • 14
 - uninstalling • 10
 - using • 11
- Partition
 - creating new in Linux • 24
 - creating new in Windows • 23
 - expanding existing partition • 25
- Primary operating system
 - definition • 27

R

- Reducing virtual disk size • 18
- Removing
 - Parallels Image Tool • 10

- Requirements
 - system • 9

S

- Shared networking (NAT) • 27
- Supported file formats and systems • 26
- System requirements • 9

T

- Troubleshooting • 21

U

Unallocated space

creating partition • 22

V

Virtual hard disk

changing format • 16

disk formats • 26

expanding virtual hard disk • 26

HDD file • 27

increasing capacity • 12

managing properties • 14

plain virtual hard disk • 26

reducing virtual hard disk size • 18

split hard disk • 26

types of disk • 26