Parallels™ Desktop for Mac

User Guide

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Parallels Desktop for Mac

Table of Contents

1

INTRODUCTION

With Parallels™ Desktop you can run Windows® XP or other operating systems along side Mac OS® X on your Intel®-based Macintosh® computer. You can switch between the different operating systems and run programs simultaneously in both systems. In addition to Parallels Desktop, you also get Parallels Tools and Parallels Compressor to enhance your experience of running more than one operating system on your Macintosh computer.

This chapter provides an overview of the programs and covers other important introductory information.

Chapter 1 at a glance:

Welcome

Welcome to Parallels Desktop. With Parallels Desktop you can create one or more virtual machines on your Intel-based Macintosh computer. A Parallels Desktop virtual machine is just like a real, standalone computer, but it's a section of your computer's hard disk into which you may install an operating system that will use your computer's hardware. This virtual machine is set up in such a way that you can have a non-Macintosh operating system running on your computer while you have Mac OS X running. You can easily switch back and forth between the two operating systems and work in both environments.

For example, you may need to run a Windows program on your Macintosh computer. With Parallels Desktop, you can create a virtual machine and install Windows XP. You'll then install the Windows program in the Windows XP virtual machine and work with it just as you would on any other Intel-based computer — including all the speed advantages.

The Parallels Desktop CD also includes Parallels Tools and Parallels Compressor that, when installed, give your virtual machines even more functionality.

Parallels Desktop

If you're interested in the technical background for Parallels Desktop, see *Chapter 2: Technical Overview*.

To run a non-Mac OS operating system natively on your Intel-based Macintosh computer, you have to go through several steps:

1. Install Parallels Desktop on your computer. For installation instructions, see *Chapter 3: Installing Parallels Desktop*.
2. Once you have Parallels Desktop installed, you use that software to create a virtual machine for the other operating system. See the beginning of *Chapter 4: Creating a Virtual Machine* for information. You may also want to read *Chapter 7: Interface Basics*, which has information about the Parallels Desktop and gives you information about working with its various views.

3 With the virtual machine open in Parallels Desktop, you then install the other operating system. For details see *Installing a Guest OS* at the end of *Chapter 4: Creating a Virtual Machine*.

4 Next, while not absolutely necessary, you should install Parallels Tools. See the next section, *Parallels Tools*, and *Chapter 5: Installing Parallels Tools*.

Once you've installed the operating system, you can start working in Windows (or other operating system) just as you would if it were installed on a standalone system. For information about starting up and switching between Mac OS X and another operating system see *Chapter 6: Running a Virtual Machine*.

To make configuration changes from the default values for a virtual machine, view the customization procedures in *Chapter 8: Managing Virtual Machines*.

Parallels Tools

Parallel Tools are a group of tools available that will help you use your virtual machines efficiently. After installing these tools you can do such things as share folders and the Clipboard, use the time settings from Mac OS X in the virtual machine and have smoother mouse movements when working in the virtual machine. For a complete list of tools for each operating system and instructions for installing the tools, see *Chapter 5: Installing Parallels Tools*. The Parallels Desktop package includes a special tool for creating and supporting images: the Parallels Image tool. To learn how to work with image files with this tool, see *Chapter 10: Using the Parallels Image Tool*.

Parallels Compressor

If you're running Windows 2000, Windows XP or Windows Server 2003, you can use Parallels Compressor to clean up disk space on the virtual machine, to reduce the size of virtual hard disks, to use the real hard disk more efficiently and to share smaller virtual disks. For information about installing and using Parallels Compressor see *Chapter 9: Using Parallels Compressor*.

Registering Parallels Desktop

Before you start using Parallels Desktop, please take a moment to register by going to www.novareg.com and entering code 83264. Once you do, you'll be eligible for free technical support.

Technical Support

Don't panic! Our friendly technical support staff is ready to help. After registration, to submit a FREE support request, visit:
www.parallels.com/en/support/

To view FAQs, visit:
http://www.parallels.com/en/support/faq/

To discuss your problem online, visit:
http://forums.parallels.com/

Telephone support is available on a per incident fee basis. Please visit http://www.parallels.com/en/support for details.

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Using Parallels Help

If you choose **Contents** from the **Help** menu in the Parallels Desktop, you'll open a PDF version of this manual.

To open the PDF file to a topic that directly relates to the current Parallels Desktop view, press **F1** on your keyboard.

Some dialog boxes, such as *Configuration Editor* dialog box and the *Preferences* dialog box, contain **Help** buttons that open the appropriate topic in the PDF file.

Conventions in This Quick Start Guide

- **Bold** text is for keys, buttons, check boxes, radio buttons, menus or menu commands, and text that you are directed to type.
- *Italicized* text refers to names for folders, files, disks or discs, windows, and dialog boxes. It's also used for new terms, chapter or section references, and important ideas.
- *Control, Shift, Option* or *Cmd* followed by a letter means hold down that key while pressing the letter. For example, Cmd+S means hold down the **Command** key, (⌘), while pressing the 'S' key.
- *Click* means click the left mouse button. *Double-click* means click the left mouse button twice in quick succession. Right-click means to click the right mouse button on a multi-button mouse. *Control-click* means to press the **Control** key as you click the mouse button. (If you have a multi-button mouse, you can click the right mouse button instead.) *Shift-click* means hold down the **Shift** key while clicking the left mouse button.
- A shortcut menu is the menu that appears when you right-click or Control-click when the pointer is over an object.
- Warnings, notes and tips look like this:

> **Note:** *Always keep a good backup of your files.*

2

TECHNICAL OVERVIEW

If you're a developer or have a technical background, you may want to learn more about how Parallels Desktop works. You'll find information in this chapter about the Intel Virtualization Technology and the standard features of virtual machines with this technology.

Chapter 2 at a glance:

Virtual Machine Technology Overview

Virtual machine (VM) technology provides the following main features:

- Enables multiple guest operating systems (OSes) and their applications to simultaneously run on a single computer.
- Creates a number of virtual machines, each with a full set of standard virtual hardware. Operating systems and applications are isolated inside these virtual machines and share physical hardware resources.
- Offers an opportunity to switch between operating systems without rebooting and to consolidate and virtualize a computing environment, resulting in reduced hardware costs, lower operating expenses, and increased productivity.

"Primary operating system" (primary OS) denotes the operating system that controls the I/O devices of the computer and that loads when the real computer is turned on. For example, the primary OS on your computer is Mac OS X.

"Guest operating system" (guest OS) is an operating system that runs under virtual machine control. One primary OS and multiple guest OSes can be run at the same time on a single real computer. For example, a guest OS on your computer could be Windows XP or Red Hat Linux.

About Parallels Desktop

Parallels Desktop is the most powerful, easy-to-use, cost-effective desktop virtualization solution available today. It empowers any user, from experienced professional developers to sales executives and casual home users, with the ability to create completely networked, totally secure independent virtual machines on a single physical machine.

Parallels Desktop is powered by a lightweight hypervisor, a thin layer of software that is between part of the host computer's hardware and the primary operating system. The lightweight hypervisor controls some of the host computer's hardware resources, resulting in dramatically more stable, more secure, and higher-performing virtual machines.

Parallels Desktop's sophisticated virtualization engine enables each virtual machine to operate identically to a stand-alone computer. Each virtual machine works with its own processor, RAM, floppy, CD and DVD drives, I/O devices, and hard disk – everything a physical computer contains. See *Inside a Virtual Machine* for the full list of Parallels virtual machine devices.

Intel virtualization technology (VT-x) is fully supported by Parallels Desktop. See *Intel Virtualization Technology (VT-x) Support*.

Parallels Desktop has a set of special tools (utilities and drivers) that enhances the performance and functionality of your guest operating system (mouse synchronization tool, clipboard synchronization tool, etc.). See *Parallels Tools Overview* in *Chapter 3 Installing Parallels Tools* for the full list of tools and their descriptions.

Intel Virtualization Technology (VT-x) Support

Intel Virtualization Technology (VT-x), which is incorporated in the newest Intel processors, provides enhancements implemented into processor architecture that are specially designed for platforms running multiple operating systems. VT-enabled processors facilitate more efficient virtual machine partitioning and more precise virtual processor simulation. An extended set of processor instructions performs on a hardware level tasks previously realized programmatically, thus reducing virtualization overhead and improving virtual machine performance, security and stability. To learn more about Virtualization Technology see the Intel site http://www.intel.com/technology/computing/vptech/.

Intel Virtualization Technology is fully supported by Parallels Desktop. If Parallels Desktop detects a VT-enabled CPU, support is automatically turned on if it is not blocked in BIOS. VT-x support can be manually enabled or disabled through a virtual machine configuration setting available in the VM Flags section of **General Options**. If you run a guest OS with VT-x enabled, the **Virtualization mode** flag in the **About Parallels Desktop Screen** shows *Intel VT-x*. See *Chapter 8: Managing Virtual Machines* for details about the flags.

Inside a Virtual Machine

Each virtual machine works like a standalone computer and has the following specifications:

- Intel Pentium CPU
- Generic motherboard compatible with Intel i815 chipset
- Up to 1500 MB RAM
- VGA and SVGA with VESA 3.0 support
- 1.44 MB floppy drive mapped to an image file
- Up to four IDE devices. These may be either virtual hard drives (from 20 MB up to 128 GB each, mapped to image file), CD/DVD-ROM drives (mapped to a physical drive or to an image file) or both hard drives and CD/DVD-ROM drives
- Ethernet virtual network card compatible with RTL8029 that supports bridging to wireless network adapters
- Up to four serial (COM) ports (mapped to a socket or to an output file)
- Up to three bi-directional parallel (LPT) ports (mapped to an output file)
- 2-port USB 1.1 controller
- AC97-compatible sound card with sound recording supported
- Standard PC keyboard
- PS/2 mouse with scroll wheel

Supported Guest Operating Systems

This version of Parallels Desktop supports the following guest operating systems.

Microsoft Windows:

- Windows Server 2003 Standard Edition SP0/SP1
- Windows Server 2003 Enterprise Edition SP0/SP1

- Windows Server 2003 Web Edition SP0/SP1
- Windows XP Pro SP0/SP1/SP2
- Windows XP Home SP0/SP1/SP2
- Windows 2000 Pro SP4
- Windows 2000 Server SP4/Advanced Server SP4
- Windows NT Workstation/Server 4.0 SP6
- Windows ME
- Windows 98
- Windows 95
- Windows 3.1, 3.11

Linux:

- Red Hat Enterprise Linux WS4/WS3, AS4, ES4/ES3
- Red Hat Linux 9, 8, 7.3
- Debian Linux 3.1
- Fedora Core Linux 4, 3
- SUSE Linux 10, 9.3, 9.2, 9.1, 9.0
- Mandriva Linux 10.1, 10, 9.2

FreeBSD:

- FreeBSD 5.4, 5.3, 4.5, 4.1

OS/2:

- OS/2 warp 4.5, 4, 3

eComStation:

- eComStation 1.2, 1.1

Sun Solaris:

- Solaris 10, 9

MS-DOS:

- MS-DOS 6.22

Understanding a Virtual Machine's Configuration

Each virtual machine hardware configuration is defined by a special Parallels Desktop configuration file having the .pvs extension. It contains all of the information about virtual devices attached to the virtual machine and files connected to it. In general, two files make up a virtual machine, a configuration file and a hard disk image file (several virtual hard disks can be attached). Other files may not be attached.

The following table explains all file types that may be related to a virtual machine:

.pvs	This is a virtual machine configuration file. One configuration file defines one virtual machine. One instance of Parallels Desktop can run only one opened configuration file, i.e. only one virtual machine. To run several virtual machines, you should launch several instances of Parallels Desktop. Typical configuration file can be easily generated using the New Virtual Machine Wizard.
.sav	This is a virtual machine saved state file. This file is created when you suspend a virtual machine and contains the state of the guest OS and its applications in the moment when suspend was invoked. See the Suspending/Resuming Virtual Machine for more information.

.hdd	This is a virtual hard disk of a Parallels Desktop virtual machine. When you create a new virtual machine, the New VM Wizard prompts you to place a new virtual hard disk and .pvs configuration file into the same directory, however you may store these files in different folders. You may also attach an existing virtual hard disks to different virtual machines. More information about virtual hard disks can be found in the Hard Disk Images topic.
.iso	This is a CD or DVD-ROM image file. .iso image files are treated by an operating system as real CD/DVD discs. More information about .iso images is given in the CD/DVD Real Discs and Images topic.
.fdd	This is a floppy disk image file created by Parallels Desktop. .fdd image files are treated by an operating system as real floppy disks. More information about .fdd images is given in the Floppy Disks and Disk Images topic.
.txt	Serial and parallel ports can be emulated via output .txt files. See Serial Port Options and Parallel Port Options.

3

INSTALLING PARALLELS DESKTOP

In this chapter you'll learn how to install Parallels Desktop on your Macintosh computer.

Chapter 3 at a glance:

System Requirements

> **Note:** *Before installing the product, please make sure your computer meets the hardware and software requirements described in this section.*

To install and successfully run Parallels Desktop you should have:

- A Macintosh computer with an Intel Core™ Duo or Core Solo
- Mac OS® X 10.4.6 or later
- 512MB of RAM. (1GB recommended)
- 30MB of free hard disk space for Parallels Desktop and 15 GB (minimum) space for each virtual machine
- A full (not OEM) version of the operating system you wish to install

Parallels Desktop can be successfully installed if you are running Mac OS X 10.4.6 or higher as your operating system.

To check your version of Mac OS X, go to the **Apple** menu in the menu bar, and click **About This Mac**.

Installing Parallels Desktop

To be able to create a virtual machine, you must first install Parallels Desktop on your Macintosh computer.

To install Parallels Desktop:

1. Insert the *Parallels Desktop* CD into your CD-ROM drive.
2. Open the CD in the Finder.
3. Double-click *Parallels-Desktop*.
4. In the **Introduction** screen click the **Continue** button.

5 Follow the on-screen instructions.

Starting Parallels Desktop

To start Parallels Desktop:

- In a Finder window, open your *Applications* folder, and then double-click the orange Parallels icon .

For handy access, you may want to drag the Parallels icon onto the Dock.

Activating Your Copy of Parallels Desktop

To activate Parallels Desktop:

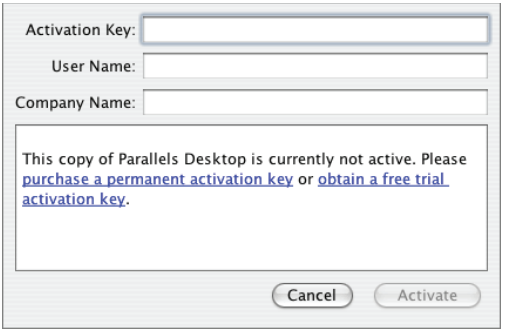
1 Start Parallels Desktop.

2 In the *Parallels Desktop* window, choose **Activate Product** from the **Help** menu.

3 In the **Activate Product** dialog box, type the **Activation Key** from the CD sleeve.

4 If you wish, type your name in the **User Name** box and your company's name in the **Company Name** box.

5 Click **Activate**.



Updating Parallels Desktop

Parallels Desktop includes an updating feature that helps you keep your Parallels Desktop installation up-to-date. Update checks can be initiated either *automatically* or *manually*:

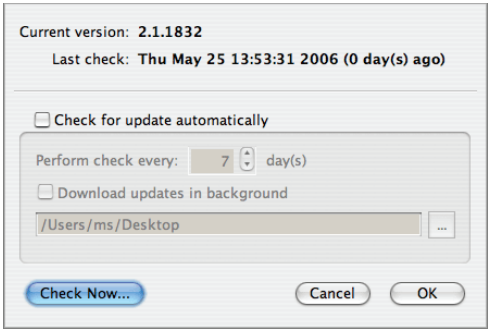
- If you turn on *automatic* update checking, you'll be notified when an update is available. Parallels Desktop will regularly check the Parallels FTP server in the background and will inform you only when an update is available.
- In addition to automatic checking, you may start the updater manually at any time.

Automatic Update Check

To use the automatic checking for updates feature, your Macintosh computer should have a stable Internet connection without a firewall or antivirus software that would preventing Parallels Desktop from accessing the Internet.

To configure Parallels Desktop:

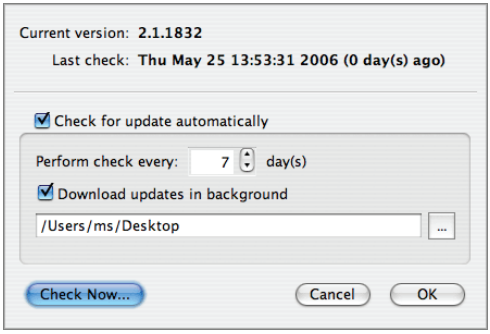
1 Choose **Check for Update** from the **Help** menu.



2 Select **Check for update automatically**.

3 Specify the frequency in the **Perform check every day(s)** field. With these options set, Parallels Desktop will access the Parallels FTP server and notify you when an update is available.

4 If you want Parallels Desktop to automatically download the found update, select **Download updates in background** and specify the folder where the updates will be placed.



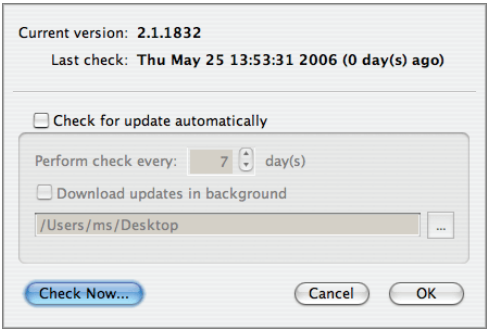
5 Click **OK** to close the screen and apply the new settings.

After this:

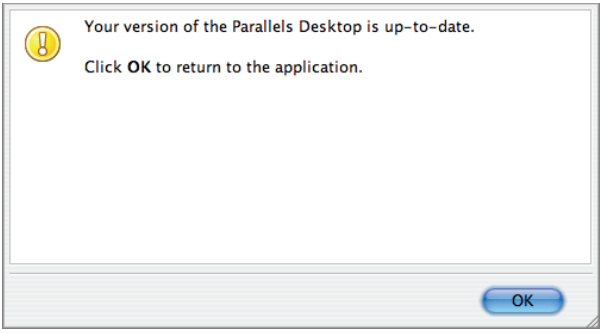
- If you have not selected **Download updates in background**, you will be notified when an update is available. To update your copy, follow the steps at the end of the *Manual Updating* section.
- If you have selected to **Download updates in background**, you will be notified that an update has been downloaded. To install the update, click **Quit Application** and follow the Installing Parallels Desktop procedure.

Manual Updating

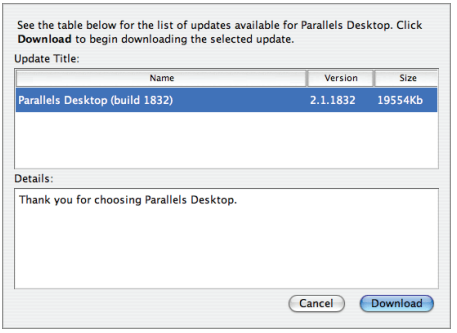
1 Choose **Check for Update** from the **Help** menu.



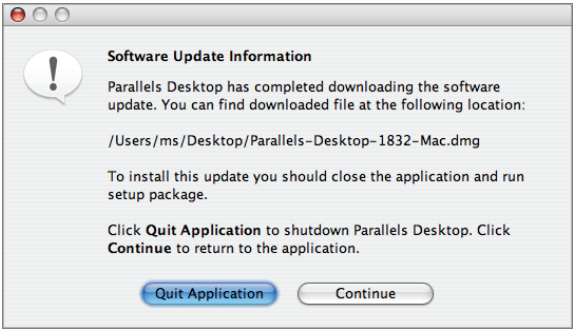
2 To proceed with manual update click **Check Now**. The Updater accesses the FTP server with Parallels Desktop updates and compares available updates with the installed version. If the wizard detects that the most recent version is installed, it shows the following screen:



3 If the wizard finds a more recent version, the number of the newest version is displayed in the following screen. Click the **Download** button to start downloading.



4 After the update is downloaded, you will see the following screen. To install the update, click **Quit Application** and follow the same steps as when Installing Parallels Desktop.



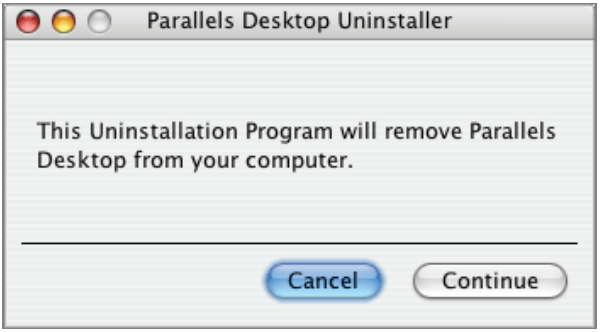
Uninstalling Parallels Desktop

To uninstall Parallels Desktop:

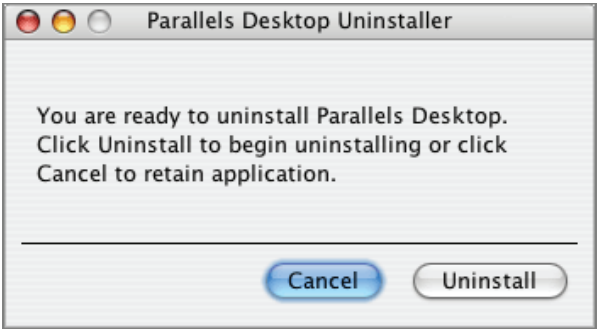
1 Insert the *Parallels Desktop* CD into your CD-ROM drive.

2 Open the CD in the Finder.

3 Click the **Uninstall** button and, in the *Uninstaller*, click **Continue**.



4 In the next screen click **Uninstall**.



5 Type your password if you are asked for it and press **Return** on your keyboard.

6 Uninstaller removes Parallels Desktop from your computer. When finished it displays the following screen. Click the **Finish** button.

4

CREATING A VIRTUAL MACHINE

This chapter discusses the tasks you should perform when creating a new virtual machine: creating a virtual machine configuration and installing a guest operating system.

Chapter 4 at a glance:

The Types of Virtual Machines

There is a special **New Virtual Machine Wizard** in Parallels Desktop that provides a means for creating new virtual machines for both new and experienced users.

The wizard offers three methods of creating a virtual machine: **Typical, Custom**, and **Blank**. They differ in the ability to specify various settings, and the appropriate method should be chosen based on a user's experience with Parallels Desktop. Regardless of what method is selected, you will be able to configure virtual machines using the **Configuration Editor**.

Typical Virtual Machine

Typical method is designed for new users and for fast virtual machine creation. When choosing this method you only need to specify:

- the type and version of the guest operating system that will be installed;
- the name of the virtual machine;
- a directory for storing the virtual machine configuration file and a name of the configuration file.

A virtual machine is created with the most common parameters for the selected guest operating system. A new hard disk image is created with a predefined size and format, a standard amount of memory is allocated, and so on. Users can later change the settings and add new devices using the Configuration Editor.

Custom Virtual Machine

When creating a custom virtual machine configuration, the wizard allows you to set virtual machine parameters directly in the process of creation. This is intended for experienced users. When creating a custom virtual machine configuration, the user is asked to define:

- the type and version of the guest operating system that will be installed;
- the amount of RAM the virtual machine will use;
- whether you want to create a new virtual hard disk, attach an

existing one, or not to add one at all. In the first case you should specify the parameters of the new disk: its size and type and where to store the disk file. When attaching an existing disk you have to locate the disk image file. If you select not to add a hard disk at all, you are able to do it later in the Configuration Editor;

- the type of networking in the virtual machine. If you select Bridged Ethernet, the wizard will ask to choose the network adapter that should be connected to the virtual device;
- a name for the virtual machine;
- a directory for storing the virtual machine configuration file and a name of the configuration file.

The CD/DVD-ROM drive, floppy drive, and sound device (if it is supported in the selected guest OS) are added automatically. Serial ports are included in some guest OSes. Other additional devices can be added in the Configuration Editor.

Blank Virtual Machine

Blank virtual machine has only memory in its configuration after creation. When you select this method, the wizard's **Next** button changes to **Finish**, and after you click it wizard creates the machine immediately. Nothing else needs to be defined. Devices can be added to blank configurations manually in the Configuration Editor.

Creating a Typical Virtual Machine

After you get acquainted with virtual machine configuration options you may use the wizard to create special configurations.

A typical virtual machine includes the following devices:

- memory
- hard disk drive
- floppy drive
- CD/DVD-ROM
- network adapter

- sound device (except for FreeBSD and MS-DOS configurations)
- USB controller (in Windows® 98/ME/2000/XP/2003 and all the Linux typical configurations)
- serial port (OS/2 typical configuration)

The amount of memory and hard disk size vary for different guest OSes. The virtual hard disk for typical virtual machines is always created in expanding format. See the following table for the memory and hard disk size provided for different guest operating systems.

	RAM, MB	HDD size, MB
Windows® 95	128	2000
Windows® NT	128	6000
Windows® 2003	384	8000
Windows® 3.11	64	2000
Windows® other	256	8000
Linux	256	8000
FreeBSD	256	8000
OS/2 wrap 3;4	128	2000
OS/2 wrap 4,5 eComStation	256	6000
OS/2 other	128	6000
Solaris	256	12000
MS-DOS	32	2000
Other guest OSes	256	8000

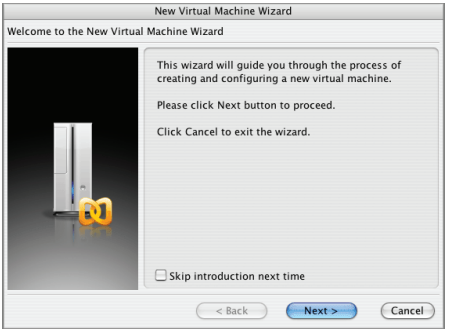
To create a typical virtual machine:

1 Open Parallels Desktop.

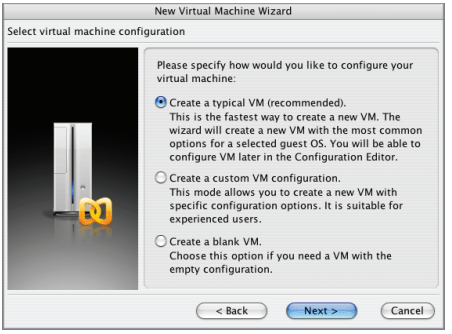
2 Click the 

button or choose **New VM** from the **File** menu.

3 In the *New Virtual Machine* wizard click **Next**.



4 In this step the first option, **Create a typical VM**, is selected. If you are going to create a typical virtual machine, nothing needs to be changed on this screen. Click the **Next** button to continue to the next step.



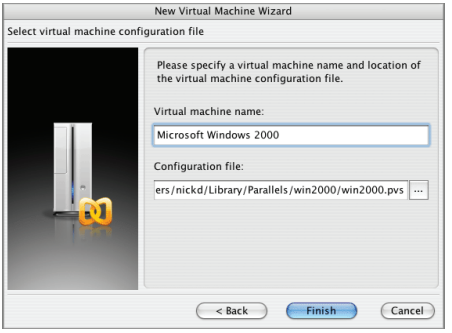
5 Here you should specify the type and the version of the guest operating system you want to install on the new virtual machine. When the guest operating system is specified, click **Next**.

6 In this last step you should define a name for the virtual machine and indicate in which folder on the hard disk the virtual machine configuration file should be stored. By default the wizard will put it into a standard place with a standard name. (You can specify the default folder for Parallels virtual machines in the **Common** tab of the *Preferences* dialog box. See *Chapter 8: Managing Virtual Machines*.)

Enter a descriptive name for the virtual machine in the **Virtual machine name** field. The name should be no longer than 50 characters.

In the **Configuration file** field the default path and name for the configuration file is shown. If you do not like the default name or path you may browse your file system to locate an appropriate folder and name. You may also make changes directly in the field.

Click **Finish** to begin the process of creating your new virtual machine.



After you click **Finish**, the new configuration is generated and opened in the Parallels Desktop window. The property page is displayed. You may now install the guest operating system on the new virtual machine.

Creating a Custom Virtual Machine

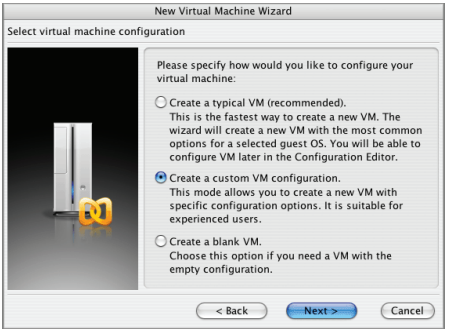
1 Open Parallels Desktop.

2 Click the 

button or choose **New VM** from the **File** menu.

3 In the *New Virtual Machine* wizard click **Next**.

4 In the next screen, select **Create a custom VM configuration** and click **Next**.



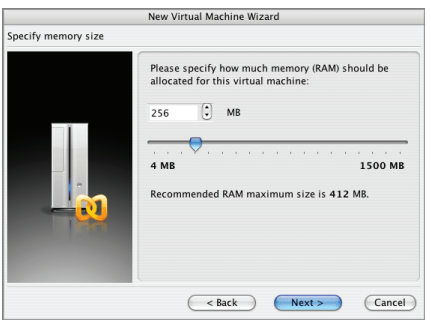
5 On the *Select guest OS* screen you should specify the type and version of the guest operating system you want to install on the new virtual machine. When done, click the **Next** button to move to the next step.

6 On the *Specify memory size* screen you should set the amount of RAM for the new machine. You can choose any value from 4 to 1500 MB. We strongly recommend that you allocate no more than the half of the physical RAM installed on your computer.

Memory size should be in multiples of 4 MB. You will receive error notification and will not be able to go further until specifying a value that meets this condition.

To set memory value, use the slider, the arrows, or type a value directly into the field.

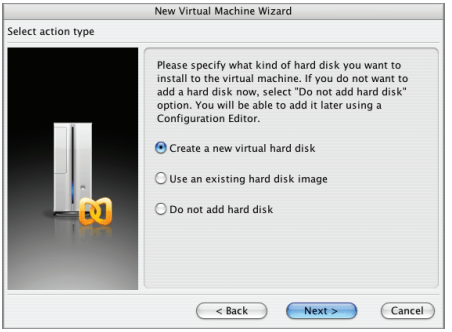
Click **Next** to move to the next step.



7 On the *Select action type* screen you have to decide whether you want to create a new virtual hard disk, attach the machine to an existing one, or not to add one at all. After specifying what the wizard should do, click **Next**.

If you have selected to use an existing hard disk image, go directly to step 10 of the current instructions.

If you have decided not to add a disk at all, proceed to step 11.



8 If you selected to create a new virtual disk on the previous step, you should specify its size and format. Disk formats are shortly explained on this wizard screen, but a more detailed description is given in the *Hard Disk Images* in *Chapter 8: Managing Virtual Machines*.

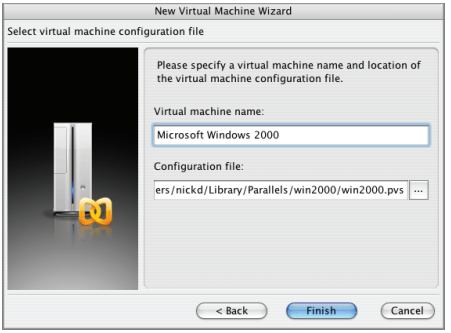
After specifying the required data, click **Next**.

9 On the *Select an image file* screen you should determine the path where the virtual disk image should be stored, and the name of the disk.

The wizard prompts you to store the new hard disk image under the default path that is specified on the **Common** tab in the *Preferences* dialog box. Files of each virtual machine are automatically stored in separate folders, that are named in the following format <guest OS>.<number of the machine of the same version - 1>.

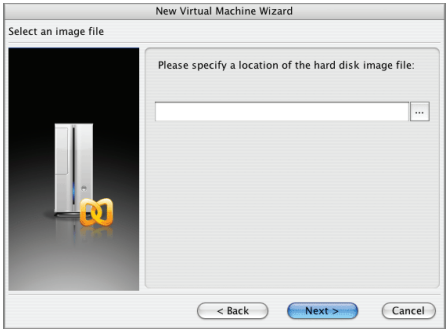
For instance, the first Windows® 2000 virtual machine will be stored in the \win2000\ folder. The second Windows® 2000 VM \win2000.1\ folder.

If you don't like the default name or path you may browse for the right folder and name, as well as make corrections directly in the field.



After you click **Next** the wizard checks if the specified folder exists, if not, permission for creation is asked: "Directory <name> does not exists. Do you want it to be created automatically?" Click **Yes**.
Continue to the step 11 of the current instructions.

10 If you decided to attach to the new VM an existing hard disk image, you have to specify where this disk image is stored. Use the **Browse** button to locate it or type the file name with its path directly in the field.



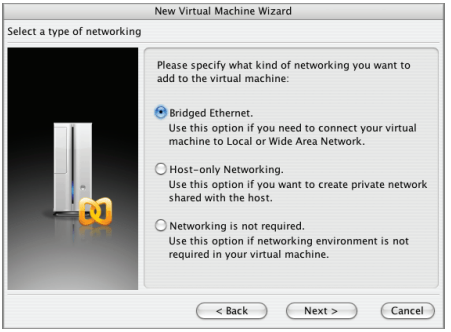
After you click **Next** the wizard searches the disk for the specified file, and if it does not find the file, you are notified that "The specified file <file name> does not exist. Please select a different file."

11 Here you will specify the type of networking for the new virtual machine.

Select **Bridged Ethernet** if you want to access the Internet inside the virtual machine.

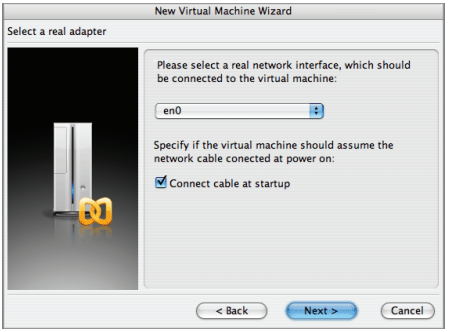
Select **Host-only Networking** if you want to create a virtual network or you don't want to access the network outside your local computer. See *Networking in a Virtual Machine* in *Chapter 8: Managing Virtual Machines* for detailed information about Bridged Ethernet and Host-only types of networking.

If you do not have a physical network interface card or do not need a network adapter in this virtual machine, select the **Networking is not required** option.



Click **Next**. If you have selected **Host-only Networking** or **Networking is not required** go to step 13 of the current instructions.

12 If you have selected **Bridged Ethernet** networking for the new machine, on this screen you should specify which real adapter should be connected to the virtual drive. Select one in the list and click **Next**.

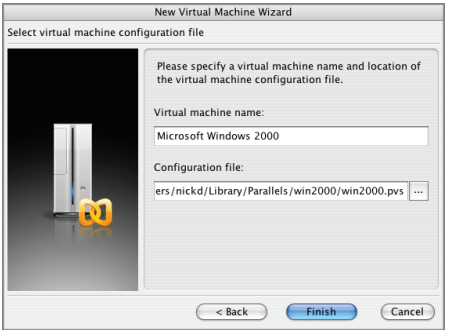


13 On the *Select virtual machine configuration file* screen you should determine the name of the virtual machine and the folder where the virtual machine configuration file should be stored and with what file name.

Specify a descriptive name for the machine in the **Virtual machine name** field. The name should be no longer than 50 characters.

In the **Configuration file** field the default path and name for the configuration file is shown. The wizard offers to store the configuration file in the same folder with the new hard disk image (if you have created a new virtual hard disk for the machine).

If you don't like the default name or path you may browse for the right folder and name, as well as make corrections directly in the field.



Click **Finish** after you specify the path and the name for the configuration file. If the folder does not exist the wizard displays notification: "Directory <name> does not exists. Do you want it to be created automatically?" Click **Yes**. New configuration will be created and opened in the Parallels Desktop window.

Installing Guest OS

This section discusses how to install an operating system in a virtual machine.

Installing a Guest Operating System

Before installing a guest operating system, you should create and configure the virtual machine and you should have the installer for the operating system available. In addition to installing from a CD or DVD, you may install the guest OS from an image file — an .iso image of a CD/DVD or an .fdd, .img or .ima image of a floppy disk.

You can make CD/DVD .iso images using the Parallels Image Tool included with Parallels Desktop. For more information on the Image Tool see *Chapter 10: Using the Parallels Image Tool*. To learn how to create a floppy image see *Floppy Disk Images* found in *Chapter 8: Managing Virtual Machines*.

1. In the virtual machine's configuration window, in the **Resources** list, click the link for the **CD/DVD-ROM** drive.
2. In the *Configuration Editor*, select **CD/DVD-ROM** to view its **Options** tab.
3. Make sure that **Enabled** and **Connect at startup** are selected.
4. Select **Use CD/DVD-ROM** and specify which real drive to connect to the virtual device in the **CD/DVD-ROM Drives** list.
5. Insert the disc with the operating system's installer into the appropriate drive of your computer.
   or
   To install from an .iso image file, select **Use image file** and specify the path to the .iso file in the **Image File** box.
6. Specify the IDE slot for the virtual CD/DVD-ROM. In the **Connect to** list select **0:1** and click **OK**.
7. To save the virtual machine configuration, click **Save**.
8. Start your virtual machine by clicking the **Power On** button on the toolbar.
9. Follow the installation instructions for the operating system.

To install from a floppy image:

1. In the virtual machine's configuration window, in the **Resources** list, click the link for the **Floppy** drive.
2. In the *Configuration Editor*, select **Floppy** to view its **Options** tab.
3. Make sure that **Enabled** and **Connect at startup** are selected.
4. Specify the path to the floppy image file in the **Image File** box.
5. To save the virtual machine configuration, click **Save**.

6 Start your virtual machine by clicking the **Power On** button on the toolbar.

7 Follow the installation instructions for the operating system..

When Installing on Non-empty Hard Disk

If you install a guest operating system onto a hard disk where the guest OS was previously installed, you have to change the boot sequence:

- after you perform the general steps listed above, in the *Configuration Editor*, select **Options** and click the **Booting Options** tab,
- set the boot sequence to **[CD-ROM, Hard Disk, Floppy**], if you installed from a CD/DVD disc, or **[Floppy, Hard Disk, CD-ROM]**, if you installed from a floppy disk

During installation, when the guest OS reboots for the first time, return the boot sequence to booting from hard disk:

- When the virtual machine is off, set **[Hard Disk, Floppy, CD-ROM]** sequence, save the settings, and start the guest OS.

Configuring X Window System in FreeBSD Guest OS

If you want to use the X Window System graphic shell in a FreeBSD guest OS, you should configure it manually. Running automatic configuration command X -probeonly or X -configure may not work. The X Window System can be configured using xorgconfig text utility or xorgcfg graphical utility. You need root privileges to run them.

To start manual configuration:

1 Issue one of the following commands in the command line:
su -l root -c xorgconfig
or
su -l root -c xorgcfg

2 Enter the root password when you are asked for it.

When configuring set the following:

1 Select *Generic VESA compatible* video card.

2 Select *4096K* of video memory.

3 Select screen resolution for a color depth. You may specify single resolution for any color depth. For instance, specify 640x480 resolution for 8-bit color, 800x600 resolution for 16-bit color, and so on. Do not specify several resolutions for a color depth, because upon startup, X window will select the greatest one.
You may set a single resolution for a particular color depth (for instance, if you are going to work with 16-bit color only, select any single resolution for it), and later select only this color depth for your configuration .

4 Select preferred color depth for your configuration.

5

INSTALLING PARALLELS TOOLS

Parallels Desktop includes specially developed tools that help you use your virtual machines in the most comfortable and efficient way. The current version of Parallels Desktop is supplied with tools for the following guest operating systems:

- Windows 95, 98, ME, NT, 2000, XP, 2003
- OS/2 and eComStation
- Solaris. (Install the PRL8029 driver if you want the Solaris virtual machine to support networking.)

For other guest operating systems we provide the PRL8029 network adapter driver.

Chapter 5 at a glance:

Parallels Tools Overview

Most of the tools are located on the CD image VMTOOLS.ISO, however OS/2 network drivers that are conveniently installed during guest OS installation are also located on the floppy disk image VMTOOLS.FDD. Both the CD and floppy images can be found in the directory where Parallels Desktop is installed: /Library/Parallels/Tools.

Tool	Description
Clipboard Synchronization Tool	The Clipboard Synchronization Tool syncs the guest OS clipboard and the primary OS clipboard, allowing you to easily exchange texts and pictures between the primary OS and the guest OS. Currently you can only exchange .bmp files up to 128 KB size. In you enable the Clipboard Synchronization Tool in all of your guest OSes, all of them will share the same clipboard with the primary OS. In all the Windows guest OSes, this tool is installed automatically when you perform Parallels Tools installation. In OS/2 and eComStation you must install it manually.

Time Synchronization Tool	The Time Synchronization Tool allows the guest OS to keep the same system time as the primary OS. Without this tool the guest OS system time may differ from that of the primary OS. This tool also allows you to maintain a constant difference between the guest OS and primary OS system time. You may configure this tool while the guest OS is running. See *Time Synchronization Tool Options* to learn how to perform this task. **Note:** *Before starting the Parallels Time Synchronization Tool, all other time synchronization services must be stopped in order to avoid potential conflicts.*
Video Driver	The best graphical mode available in Windows NT and 2000 guest operating systems without this driver is 16-color VGA with 640x480 resolution. The video driver allows Parallels Desktop to use SVGA graphical modes in guest OS monitors. In Windows XP/2003 the video driver is required for the mouse tool and is chosen automatically when you select the mouse tool installation. **Note:** *If you install the video driver you will not be able to use VGA modes. To return to VGA, you must uninstall the Parallels Tools.*

Mouse Synchronization Tool	The Mouse Synchronization Tool enables the mouse to be captured and released without a special hot key combination defined in the **Hot Key** tab of the *Preferences* dialog box. Using this tool makes mouse movements smoother and improves the system's reaction to the mouse.
Sound Driver	Parallels Tools pack includes an AC97 sound driver for those guest operating systems that do not contain a standard AC97 driver. Sound drivers for Windows XP/2003 are not included in the Parallels Tools pack since these operating systems contain sound drivers in their installations.
Shared Folders Tool	This tool is needed for a guest OS to view shared folders. Without it, the guest OS can not use the shared folders although they may be set up in your virtual machine configuration. To learn more about shared folders see *Using Shared Folders*.
Disk Compacting Tool	Parallels Desktop uses virtual hard disks of two types: plain and expanding. Expanding virtual disks grow in size as you work with them. The Disk Compacting Tool reduces the size of expanding virtual hard disks by cleaning up unused disk space. See *Compacting Virtual Disks* in *Chapter 6: Running a Virtual Machine* for guidelines on using this tool. This tool does not reduce the size of plain virtual disks.

Network Adapters and Drivers: • Parallels Network Adapter Driver	This Ethernet driver for the RTL8029 adapter is specially developed for Parallels Desktop to improve network performance. We recommend that you install this driver whenever possible.
• RTL8029	The CD image with Parallels Tools includes native Realtek (all except for Solaris driver) drivers for the RTL8029 network adapter for many different operating systems. They are located in the Drivers\Network\RTL8029 directory of the vmtools.iso CD image. Some guest operating systems such as Windows 2000, contain an RTL8029 driver in their distributions, whereas others like Windows 2003 and OS/2 do not include this driver at all. **Note:** *Unlike other guest OSes, a Solaris guest OS requires an RTL8029-compatible driver to be installed to support networking. Otherwise networking will not be possible.* *An RTL8029-compatible driver for Solaris has been created by an independent developer and is distributed under the terms of BSD license. A slightly modified version of this driver is included into the Parallels Desktop distribution.*

The table below shows which tools have been developed for which operating systems.

	Windows			OS/2, eCS	Solaris	other
	95, 98, XP, ME	2000	XP, 2003			
Clipboard	+	+	+	+		
Time	+	+	+			
Video	+	+	+			
Mouse		+	+	+		
Sound	+	+		+		
Shared Folders		+	+			
Disk Compacting	+	+	+			
Network Drivers:						
Parallels Network Adapter Driver		+	+			
RTL8029	+	+	+	+	+	+

In a Windows guest OS you can control the tools during guest OS execution. See *Parallels Tools Center* in *Chapter 6: Running a Virtual Machine* to learn how to do this.

Windows Tools Installation

To install Parallels Tools in a Windows guest OS do the following:

1 Make sure that the virtual machine configuration includes a CD/DVD-ROM drive and it is enabled.

2 Start your guest operating system and log in. In order to install the tools properly do not begin the installation until you log in.

3 Choose **Install Parallel Tools** in the Parallels Desktop **VM** menu.

4 You are warned about the necessity of having the guest OS fully started and being logged in: "You can install the Parallels Tools only if the guest operating system is running and you are logged in. If you are not logged in now, select Cancel and run Parallels Tools installation later." If you are logged in, click **OK** to start installing.

5 Parallels Tools Setup wizard starts. Click **Next** to move to the *Choose Destination Location* screen. If you do not like the default directory, select another one using the **Change** button. Then click **Next**.

6 On the *Setup Type* screen you should choose between the *complete* setup and a *custom* one. The complete setup installs all of the tools available for your guest OS. If you select custom setup, the *Select Components* screen asks you to select the desired tools from the tools available for your guest OS.

7 Choose the program folder on the *Select Program Folder* screen, then the *Check Setup Information* screen displays the options selected. If they are correct, click *Next* to begin the installation.

8 After the wizard copies tools, the *Installation Completed* screen asks if you want to restart the computer now. In all of the Windows guest OSes, except 98 and NT, you must restart the virtual machine after this setup procedure. Accept the selected option and click **Finish**. The virtual machine will be restarted and ready for work with the tools installed.

Notes: *In a Windows 98 guest OS, the Sound Driver requires you to perform additional steps after this setup. Proceed to Windows 98 Sound Driver Installation.*

In a Windows NT guest OS, proceed to Windows NT Tools Installation to complete setup in this guest OS.

Troubleshooting When Installing Tools

Parallels Tools installation is invoked by Windows AUTORUN feature for CD/DVD-ROM drive. It is enabled by default, however if you have disabled it manually, nothing happens after you select the **Install Parallels Tools** command. (In any case, the vmtools.iso CD image will be connected to the virtual machine CD-ROM drive, however it is not visible to the user.) To solve this problem do one of the following:

- Enable the AUTORUN function for the CD-ROM drive in the guest Windows.
- Start the tools installation manually.
  Open the contents of the vmtools.iso in Windows Explorer, find PrlTools.exe file, and start it.

Windows 98 Sound Driver Installation

The Sound Driver for a Windows 98 guest OS requires additional steps after the general Parallels Tools installation described in Windows Tools Installation.

To install the AC97 Sound Driver in Windows 98:

1. Open the **Control Panel**.
2. Double-click the **System** icon to open the System Properties control panel. In the System Properties control panel select the **Device Manager** tab.
3. Select **PCI Multimedia Audio Device** in the hardware list and click the **Properties** button.
4. In the *PCI Multimedia Audio Device Properties* dialog box, click the **Reinstall Driver** button.
5. In the *Update Device Driver* wizard select the **Sound, video, and game controllers** item and click the **Next** button.
6. Select **Display a list of all the drivers in a specific location** and click **Next**.
7. On the screen asking you to select the type of device click **Next**.

8 Then click **Have Disk**. In the Install From Disk dialog box, in the **Copy manufacturer's file from** box, type the **C:\Program Files\Parallels\Parallels Tools\Sound** and click **OK**.

9 In the *Select Device* dialog box select **AC'97 Audio** and click **OK**.

10 In the *Update Device Driver* wizard click **Next**. When asked to insert the disc (or connect the CD-ROM image file), type the path to it in the **Copy files from** box. Click **OK**. After the wizard finishes copying files, click **Finish**.

11 Restart the virtual machine if asked to do so.

Windows NT Tools Installation

To install Parallels Tools in Windows NT:

- Perform the installation procedure described in the Windows Tools Installation topic. It is enough to install such tools as Clipboard Synchronization and Mouse Synchronization Tools.
- Perform these specific steps for installing the Video Driver and Sound Driver:

Video Driver Installation

To install the Video Driver do the following:

1 Open the Control Panel. For this click the **Start** system menu, select the **Settings** item, and then **Control Panel**.

2 Double click the **Display** icon to open the **Display Properties** window.

3 In the *Display Properties* control panel select the **Settings** tab. Then click the **Display Type** button.

4 In the *Display Type* dialog box select the **Change** button.

5 In the *Change Display* dialog box select the **Manufacturers** ▸ **Parallels** and **Display** ▸ **Parallels Video Driver**. Click **OK**.

6 In the *Third-party Drivers* dialog box click **Yes**.

7 The *Installing Driver* dialog box informs you of the completed installation. Click **OK**.

8 Click the **Close** button in the *Display Type* dialog box.

9 Click the **Close** button in the *Display Properties* dialog box.

10 Click the **Yes** button in the *System Settings Change* dialog box to restart the guest OS.

> **Note:** *You must restart the virtual machine after this setup procedure.*

AC97 Sound Driver Installation

To install the AC97 Sound Driver do the following:

1 Open the Control Panel.

2 Double-click the **Multimedia** icon to open the **Multimedia Properties** control panel.

3 In the **Multimedia Properties** control panel select the **Devices** tab. Then select **Audio Devices** from **Multimedia devices**: tree. Click **Add**.

4 In the **Add** dialog box select the **Unlisted or Updated Driver** from **List of Drivers**. Click **OK**.

5 In the **Install Driver** dialog box click the **Browse** button and select the sound driver path.
If you have installed Parallels Tools to the default location, select C:\Program Files\Parallels\Parallels Tools\Sound.
If you have installed Parallels Tools to another directory, you should locate this directory.
Click **OK**. Then click **OK** in the **Install Driver** dialog box.

6 In the **Third-party Drivers** dialog box click **Yes**.

7 The **Add Unlisted or Updated Driver** message box informs you that you are about to install the AC97 Audio Driver. Click **OK**.

8 Click **OK** in the **About AC97 Audio Driver** message box.

9 Click **OK** in the **System Settings Change** dialog box.

10 Click **Close** button in the **Display Type** control panel.

> **Note:** *You must restart the virtual machine after this setup procedure.*

OS/2 and eComStation Tools Installation

All of the OS/2 and eComStation tools can be installed from the vmtools.iso CD image. Network drivers can also be installed from the floppy disk image file vmtools.fdd during operating system installation. The latter is easier in most cases.

Before starting the installation you should connect the CD-ROM image with Parallels Tools to your virtual machine CD-ROM drive. Do the following:

- Choose **Install Parallels Tools** in the Parallels Desktop **VM** menu.

Mouse Synchronization Tool Installation

The Mouse Synchronization Tool consists of the mouse driver and the video filter.

> **Note:** *To install the Mouse Synchronization Tool you should have a VESA video driver installed, such as SDD or GENGRADD. For instructions on how to do this refer to OS/2 documentation.*

To install the mouse tool:

1 Click the **Drives** icon on the system panel. Select the CD-ROM drive and **Drivers\Mouse\OS2** directory on it.

2 Launch the INSTALL.CMD batch file. The INSTALL.CMD copies files and make necessary modifications to the CONFIG.SYS file.

3 Restart the guest OS/2 operating system.

Note: *The Mouse Synchronization Tool increases performance of the guest OS/2 operating system under Citrix.*

Clipboard Synchronization Tool Installation

In OS/2 and eComStation you must launch the Clipboard Synchronization Tool manually. This tool is not a tool itself but an ordinary application, and should be treated as such. If you want the Clipboard Synchronization tool to start automatically when your guest operating system is started:

- include the tool file PrlClip.exe into autostart group (startup.cmd or another file as it is done in your operating system).

The Clipboard Synchronization Tool is located in the **ClipBrd\OS2** directory on the CD-ROM containing Parallels Tools.

Sound Driver Installation

Note: *Before installing the Sound Driver you should have multimedia support installed in OS/2 guest OS.*

To install the Sound Driver:

1 Click the **System Setup** icon on the system panel.

2 Select the **Install/Remove** line, and then select **Multimedia Application Install**.

3 In the **IBM Multimedia Presentation Manager/2 - Installation** window choose CD-ROM drive, then **Drivers\Sound\OS2** directory. Select the **ALC Codec** feature and click the **Install** button.

4 Restart the OS/2 guest operating system.

Network Driver Installation

Below we consider the installation of the Realtek RTL8029 driver inside the OS/2 Warp version 4.0.

1 Click the **System Setup** icon on the system panel.

2 Click the **MPTS Network Adapters and Protocol Services** icon to open the **Multi-Protocol Transport Services** window.

3 Click **Configure**.

4 In the **Configure** window that opens, click **Configure** again to open the **Adapter and Protocol Configuration** window.

5 Click the **Other adapters** button below the **Network Adapters** section of the window to open the **Copy Additional Network Adapter Drivers** window.

6 Specify the path to the Parallels driver on CD-ROM disc image. The path should be:
<CD-ROM drive>\Drivers\Network\RTL8029\NDIS2OS2

7 Click **OK**. The Parallels network adapter driver will be copied. After this you can see the name **RTL8029 PCI Ethernet Adapter** included in the **Network Adapters** list. Select this name.

8 Click **Change** in the **Network Adapters** section of the window to change the current network adapter into the selected one.

9 Click **OK** when the message “Are you sure you want to change this network adapter?” is displayed. After you click OK, the **RTL8029 PCI Ethernet Adapter** appears in the appropriate field of the **Current Configuration** section of the window. Now if you click **Edit** in the **Current Configuration** section of the window, you will see that you do not need to configure any driver properties, because it is self-configurable.

10 Click **OK** when finished.

11 Close both the **Configure** and **Multi-Protocol Transport Services** windows.

12 Click **Exit** in **Update CONFIG.SYS** window.

Exit the configuration program and restart the guest OS.

Solaris Network Driver Installation

Unlike other guest OSes Solaris does not support the RTL8029 network driver emulated in virtual machines. To add RTL8029 support to a Solaris virtual machine you need to install the RTL8029 network adapter driver. We have created the special network.sh script that helps you to do this, or you may install and configure the driver manually. Both ways are described below.

Before Installing the Driver

Before installing the driver perform the following steps:

1. Make sure that the virtual machine configuration includes a CD/DVD-ROM drive and it is enabled. See *CD/DVD-ROM Options*.
2. Start your guest operating system.
3. Connect the CD image with tools, vmtools.iso, to the CD/DVD-ROM drive of the virtual machine:
   - right-click the CD/DVD-ROM icon on the status bar and select the **Connect image** menu item (instead you may select **Devices ▸ CD/DVD-ROM <number> ▸ Connect Image** in the Parallels Desktop menu);
   - browse for vmtools.iso in the folder where you installed Parallels Desktop.

Proceed to installing the RTL8029 network driver using the network.sh script or manually.

To install the RTL8029 network driver using network.sh script:

1. In the shell, run the **cd /cdrom/PRLTOOLS/Drivers/Network/RTL8029/SOLARIS/** command to move to the respective directory.
2. Issue the following command to begin installing the driver **./network.sh**

3 You are sequentially informed that the driver is being extracted, compiled, and installed. When it is finished, you are asked "Will you receive IP addresses from DHCP server?" If IP addresses on your network are managed by DHCP server proceed to step 4, otherwise proceed to step 5.

4 If IP addresses on your network are managed by DHCP server, type "Y" and the script will configure the DHCP client. Proceed to step 6.

5 If IP addresses on your network are NOT managed by DHCP server, type "N" and then specify an IP address for your virtual machine, network address, network mask, and default gateway IP address when you are asked for them.

6 Restart the guest operating system by issuing the command
init 6

To install the RTL8029 network driver manually:

1 In the shell, issue the following command to get root privileges:
su
Enter the password to the root account when you are asked for it.

2 As a root run the following commands:
cd /tmp
gzcat /cdrom/PRLTOOLS/Drivers/Network/RTL8029/SOLARIS/ni0.8.11.tgz|tar xf -
cd ni-0.8.11
/usr/ccs/bin/make install
./addni.sh

3 If IP addresses on your network are managed by DHCP server issue the following commands:
touch /etc/hostname.ni0
touch /etc/dhcp.ni0
If IP addresses on your network are NOT managed by DHCP server, see the Solaris System Administration Guide.

4 Leave the root account by running the command
exit

5 Restart the guest operating system by issuing the command **init 6**

Uninstalling Parallels Tools in Windows Guest OSes

To uninstall Parallels Tools in all Windows guest operating systems except Windows NT, you should activate the same wizard as when installing. Do the following:

1 Choose **Install Parallel Tools** in the Parallels Desktop **VM** menu.

2 Parallels Tools Setup wizard performs the diagnostics of the operating system and asks **Do you want to completely remove the selected application and all of its components?** Click **Yes** to begin the process.

3 After the wizard removes the tools, the *Uninstallation Completed* screen asks if you want to restart the computer now. Accept the selected option and click **Finish**. The virtual machine will be restarted.

4 After the OS is started up, the *System Settings Change* message box asks **Do you want to restart your computer now?** Click **Yes**. When the virtual machine is restarted once more, the tools are completely uninstalled.

> **Note:** *After uninstalling Parallels Tools and restarting the virtual machine, the guest operating system may display a warning that it should be restarted once more. In this case restart the guest operating system one more time to ensure its correct functioning.*

Uninstalling Tools in Windows NT

In Windows NT Parallels Tools can be uninstalled using standard operating system techniques.

6

RUNNING A VIRTUAL MACHINE

This chapter provides information on handling a virtual machine while the guest operating system is executed.

Chapter 6 at a glance:

Overview

When you start a virtual machine, its console is opened and acts as the display of a real computer (refer to Console View). Your next step is to capture your keyboard and mouse in the **Virtual Machine** screen; after doing so you are able to work with the virtual machine in the same way you would with a standalone computer.

Parallels Desktop controls such as the toolbar and the menu allow you to manage virtual machine behavior when running the machine in windowed mode. You may also run the virtual machine in fullscreen mode, where Parallels Desktop controls and the primary operating system are not visible.

While working in windowed mode, Parallels Desktop controls let you to do the following:

- start, turn off, and reset the virtual machine,
- switch between the virtual machine and your host computer,
- suspend the virtual machine,
- connect and disconnect devices, and change data types accessed by them,
- temporarily disable separate Parallels Tools (if you have them installed),
- expand the virtual machine console to fullscreen mode.

The Configuration Editor is inaccessible while the virtual machine is running.

Starting a Virtual Machine

To start a virtual machine:

1 Start Parallels Desktop. See *Start Parallels Desktop*.

2 Open a virtual machine configuration.

3 Do one of the following:
- Click the **Power On Virtual Machine** button on the Parallels Desktop toolbar,
- Choose **Power On** in the **VM** menu.

The virtual machine will be switched on, its console will be opened in the Parallels Desktop window, and you can see the boot process of the guest OS.

Note that the virtual machine can be powered on only if you have a registered copy of Parallels Desktop, regardless of whether it is of permanent or trial status. If your copy is not registered, the "This copy of Parallels Desktop is currently not active" warning appears. This warning displays your current activation status and prompts you to activate your copy of the product. Depending on whether you had previously received a trial activation key, warning text contains one or two links prompting you to get a trial or permanent key. See *Activating Parallels Desktop* for a detailed description of the processes of receiving a key and activating.

Capturing and Releasing the Keyboard and the Mouse

This section explains how to capture and release input devices (like your mouse and keyboard) inside a virtual machine.

When you power on a virtual machine, either during installation or normal operation, you will need to capture the computer's input devices in the virtual machine to interact with it exactly as if you were using a standalone computer. Since each virtual machine is independent, it will not "see" the primary OS, and consequently, you will not be able to access Parallels Desktop's menu and toolbar from inside the virtual machine without manually releasing your input devices to the primary OS.

To lock the keyboard and mouse in a virtual machine screen, do one of the following:

- Point the mouse cursor to the Parallels Desktop client window and click somewhere inside the virtual machine screen. When the mouse is captured, it does not move out of the Parallels Desktop window.
- Choose **Capture Input** in the **VM** menu.
- Press Command+I on your keyboard.

To release the keyboard and mouse to your primary OS:

- Press the hot key combination designated for releasing the keyboard/mouse (the default combination is Ctrl+Option.

The keyboard and mouse will be released immediately. Now you will be able to manage your virtual machines using the Parallels Desktop controls, manage your primary operating system, or capture the keyboard and the mouse in another virtual machine.

The default hot key for releasing keyboard/mouse can be changed in the **Hot Key** Combinations tab of the **Preferences** dialog box.

> **Note:** *You can free the mouse and the keyboard from the virtual machine screen without pressing the hot key combination if you install Parallels Tools. See the Parallels Tools Overview to learn if this package is available for your guest operating system.*

Switching a Virtual Machine to Fullscreen Mode

To make working inside a virtual machine more comfortable, you can run a guest operating system in fullscreen mode. When running a Virtual Machine in fullscreen mode, the guest OS screen occupies the whole monitor of your computer; the primary OS and its applications as well as the Parallels Desktop menu, toolbar, and status bar are hidden.

> **Note:** *You can start a virtual machine in fullscreen mode if you've selected the Switch to fullscreen mode automatically option in the Configuration Editor. Select Options in the Resource list on the left and click the VM Flags tab.*

If you want to switch to fullscreen while running a guest OS, do one of the following:

- click the **Fullscreen Mode** toolbar button,
- choose **Fullscreen** in the **View** menu,
- press the appropriate hot key combination on your keyboard (**Option+Return** by default, unless you have defined other hot key).

To return to windowed mode:

- press any of the hot key combinations defined (**Control+Option** or **Option+Return** by default).

Hot key combinations are defined in the **Hot Key** tab of the *Preferences* dialog box.

You may adjust the animation that is displayed when switching to fullscreen mode and the size of the virtual machine window. See *User Interface Preferences* for more info.

Shutting Down and Resetting a Virtual Machine

A virtual machine can be shut down and reset in the same way as a typical computer. If a guest operating system is normally closed using some internal command (such as **Shut Down** in Windows), it is STRONGLY RECOMMENDED to shut down the machine this way to ensure safety of your data. However, if you are unable to stop the guest OS this way, you may use the Parallels Desktop controls.

Stopping a Virtual Machine

To stop a virtual machine, do one of the following:

- Click the **Power Off Virtual Machine** button during guest OS execution.
- Choose **Power Off** in **VM** menu.

The virtual machine will be stopped immediately.

Resetting a Virtual Machine

To reset a virtual machine, do one of the following :

- Click the **Reset Virtual Machine** button on the Parallels Desktop toolbar.
- Choose **Reset** in the **VM** menu.
- Press **Control+Option+Del** while the keyboard is captured inside a virtual machine window.

Pausing Virtual Machine

When a virtual machine is paused, the guest OS is stopped and the virtual machine process is removed from the CPU processes list. Guest operating system execution can be continued at any time.

Pausing the guest OS is recommended if you want to leave the virtual machine for a short period of time. If you want to leave it for an extended period, and especially if you need to restart your primary OS, it is best to suspend of the VM. See *Suspending/Resuming Virtual Machine*.

To pause a virtual machine:

- Choose **Pause** in the **VM** menu.

When a virtual machine is in pause mode its console is darkened.

To continue running the virtual machine do one of the following:

- Click the **Power On Virtual Machine** button on the toolbar.
- Choose **Continue** in the **VM** menu.

Suspending/Resuming Virtual Machine

The state of the running virtual machine, and all of its applications, can be saved in order to continue working with the guest OS at a later time. This is called **suspending** the virtual machine. When suspending, the virtual machine state is saved to the hard disk in a .sav file. After saving, you may return to the saved virtual machine at any time and continue running the guest OS from the point where you stopped.

Suspending a Virtual Machine

To suspend a virtual machine:

1 During guest OS execution do one of the following:
- Click the **Suspend Virtual Machine** button,
- Choose **Suspend** in the **VM** menu.

2 Progress of saving is displayed in the **Please wait while virtual machine is suspending** screen. When finished, the virtual machine property page is displayed.

> **Note:** *After the virtual machine is suspended, its configuration can not be changed. If you begin editing, despite the warning, the .sav file will be deleted and you will not be able to resume the virtual machine.*

Resuming a Suspended Virtual Machine

To resume a suspended virtual machine:

1 Open the virtual machine configuration in the typical way.

2 Do one of the following:
- Click the **Power On Virtual Machine** button,
- Choose **Power On** in the **VM** menu.

3 Wait until the guest OS state is resumed. Progress is displayed in the **Please wait while virtual machine is resuming** screen.

After the virtual machine has been resumed, its .sav file is deleted.

Connecting Devices When Running a Virtual Machine

Despite the fact that Configuration Editor cannot be accessed while a virtual machine is running, you can connect and disconnect additional devices and even choose the media type they access. The

following virtual devices can be connected/disconnected to the running virtual machine:

- CD/DVD-ROMs
- Floppy drive
- Network adapter
- Parallel ports
- Serial ports
- Sound device
- USB device

To connect/disconnect any device, it should be enabled in the Virtual Machine configuration. If you have disabled some device, you should stop the virtual machine first, then enable the device in the Configuration Editor. After that you may restart the virtual machine; the device can be connected/disconnected in a runtime environment.

Additionally, you can change the type of media the CD/DVD-ROM and floppy drives access.

USB Devices

If you start the virtual machine with the USB controller enabled, you may connect various real USB peripherals to the virtual machine. The USB controller itself can not be connected or disconnected.

Connecting a CD/DVD-ROM Drive

If you start a guest operating system with the CD/DVD-ROM drive enabled you can connect/disconnect it and change the media it accesses while running the guest OS.

> **Note:** *If the guest OS was started with the CD/DVD-ROM drive disabled, you should shut down the guest OS first, then enable CD/DVD-ROM in the Configuration Editor (select the* **Enabled** *check box in the* **CD/DVD-ROM Options** *tab) and restart the guest OS.*

All commands to control the CD/DVD-ROM during guest OS execution can be found in the Parallels Desktop **Devices** menu.

If you have several CD/DVD-ROM drives connected to your virtual machine, in the **Devices** menu they are numbered according the order of their appearance. The first CD/DVD-ROM will be **CD/DVD-ROM 1**, the second will be **CD/DVD-ROM 2**, and so on.

To disable all CD/DVD-ROM operations while running the guest OS click **CD/DVD-ROM ▸ Disconnect** in the Parallels Desktop **Devices** menu.

To reconnect the CD/DVD-ROM again choose **CD/DVD-ROM ▸ Connect** command in the **Devices** menu.

Data type accessed by the CD/DVD-ROM drive can be switched from a real CD/DVD-ROM to an image file and vice versa. Use **CD/DVD-ROM ▸ Connect to** and **CD/DVD-ROM ▸ Connect image** commands of the Parallels Desktop **Devices** menu.

> **Note:** *There is another way to perform all the actions described above. Right-click the CD/DVD-ROM icon on the status bar to display the CD/DVD-ROM shortcut menu and choose the appropriate command.*

Connecting a Floppy Drive

If you start a guest operating system with the floppy drive enabled, you may connect/disconnect it and change its options while running the guest OS. Parallels Desktop allows you to connect/disconnect the floppy drive and change the media the floppy drive accesses.

> **Note:** *If the guest OS is started with the floppy drive disabled, you should shut down the guest OS first, then enable the floppy in the Configuration Editor (select the* **Enabled** *check box in the* **Floppy Options** *tab) and restart the guest OS.*

To connect or disconnect the floppy drive to/from a virtual machine:

- Choose **Network ▸ Connect/Disconnect** from the Parallels Desktop **Devices** menu.

To change the image file accessed by the virtual floppy:

- Use **Floppy ➧ Connect image** command in the **Devices** menu.

> **Note:** *There is another way to perform all the actions described above. Right-click the floppy drive icon on the status bar to display the floppy drive shortcut menu and choose the appropriate command.*

Connecting a Network Adapter

If a network adapter is enabled in your virtual machine configuration, you can connect/disconnect it when running the guest OS.

> **Note:** *If the guest OS is started with the network adapter disabled, you should shut down the guest OS first, then enable the network adapter in the Configuration Editor (select the* **Enabled** *check box in the* **Network Adapter Options** *tab) and restart the guest OS.*

To connect or disconnect the network adapter, do the following:

- Choose **Network ➧ Connect/Disconnect** from the Parallels Desktop **Devices** menu

> **Note:** *There is another way to connect/disconnect the network adapter. Right-click the network adapter icon on the status bar to display the shortcut menu and choose the appropriate command.*

Connecting Serial/Parallel Ports

If a parallel/serial port is enabled in your virtual machine configuration, you can connect/disconnect the port while running the guest OS.

> **Note:** *If the guest OS is started with the parallel/serial port disabled, you should shut down the guest OS first, then enable the serial or parallel port in the Configuration Editor (select the* **Enabled** *check box in the* **Serial Port Options** *tab or* **Parallel Port Options** *tab) and restart the guest OS.*

To connect or disconnect the serial or parallel port, do the following:

- Choose **Network ➧ Connect/Disconnect** from the Parallels Desktop **Devices** menu

> **Note:** *There is another way to connect/disconnect the port. Right-click the serial ( ) or parallel ( ) port icon on the status bar to display the shortcut menu, and choose the appropriate command.*

Connecting a Sound Device

If a parallel/serial port is enabled in your virtual machine configuration, you can connect/disconnect the port while running the guest OS.

> **Note:** *If the guest OS is started with the sound device disabled, you should shut down the guest OS first, then enable the sound device in the Configuration Editor (select the* **Enabled** *check box in the* **Sound Options** *tab) and restart the guest OS.*

To connect or disconnect the sound device, you should do the following:

- Choose **Network ➧ Connect/Disconnect** from the Parallels Desktop **Devices** menu

Note: *There is another way to connect/disconnect the sound device. Right-click the sound device icon on the status bar to display the shortcut menu and choose the appropriate command.*

Connecting USB Devices

If the USB controller is enabled in the virtual machine configuration, you can connect/disconnect USB peripherals to the running virtual machine. Up to two USB devices can be used by a virtual machine simultaneously.

Parallels Desktop automatically detects all the USB devices connected to your host computer and displays them under the **Devices ➧ USB** menu item and in the context menu for the USB controller ( ) in the status bar. Those devices that are currently connected to the virtual machine are checked. The primary OS can not access a USB device while it is being used by the virtual machine.

Note: *If the guest OS is started with the USB controller disabled, you should shut down the guest OS first, then enable the USB controller in the Configuration Editor (select the* **Enabled** *check box in the* **USB Options** *tab) and restart the guest OS.*

Autoconnect

If the **Autoconnect USB devices** option in the USB Options tab is turned on and no more than one USB device is currently active, you can connect an additional USB device to your virtual machine. Do the following:

- simply connect a USB device to your host computer.

If you connect an additional USB peripheral to your host computer while there are two active USB devices already running, nothing will happen. However you are able to activate the newly connected device manually after deactivating any of the currently active USB devices. See the next subtopic to learn more on this.

Manual Connect

To connect a USB device to the virtual machine:

- Connect a USB device to your host computer.
- Choose **USB** in the Parallels Desktop **Devices** menu to display the list of all of the USB devices connected to your host computer. You may also use the command on the shortcut menu for the USB controller ().

In the USB device list, make sure that no more than one USB device is currently active. If there are two devices checked, disconnect one of them by clicking it.

- Click the desired USB device in the list to connect it.

Parallels Tools Center

> **Note:** *Parallels Tools Center is available in Windows guest OSes only.*

Parallels Desktop allows you to control the status of Parallels Tools in all of the Windows guest OSes for which tools are provided. (See *Parallels Tools Overview* for tools descriptions and availability table) The **Parallels Tools Center**, which is installed along with Parallels Tools, allows you to:

- check the status of various tools;
- temporarily disable and enable each tool separately (for those tools that can be stopped without violating guest OS execution);
- configure specific tool parameters (for those tools that have them).

The Parallels Tools Center is organized as a collection of tabs, each of which contains settings for an individual tool. In each guest OS, the Parallels Tools Center contains tabs only for those tools that you have installed in your guest OS.

Parallels Tools Center is started automatically upon guest OS startup; its icon is placed into the guest OS system tray.

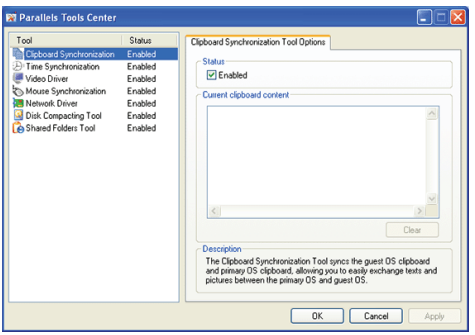
To open Parallels Tools Center:

- click its icon in the guest OS system tray.

To restart Parallels Tools Center after disabling:

- Locate the ParallelsToolsCenter.exe file in the folder where you have installed Parallels Tools and launch it.
  If you installed Parallels Tools into the default folder, this file resides in the following path:
  C:/Program Files/Parallels/Parallels Tools/ParallelsToolsCenter.exe.

Clipboard Synchronization Tool Options



Status:

- **Enabled** shows the current status of the Clipboard Synchronization Tool. To temporarily disable this tool, deselect this check box. You can enable the Clipboard Synchronization Tool by selecting this check box later.

Current Clipboard content:

- This field displays the current Clipboard contents that can be scrolled.
- The **Clear** button empties the Clipboard contents.

Description:

- Displays the short description of the tool. For a complete description see the **Parallels Tools Overview**.

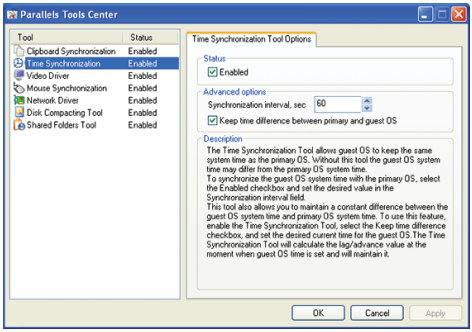
Activating changes:

After you have made the desired changes on the tab, do one of the following:

- Click the **Apply** button to activate changes.

Click the **OK** button to activate changes and hide the Parallels Tools Center.

Time Synchronization Tool Options



Status:

- **Enabled** check box shows the current status of the Time Synchronization Tool. To temporarily disable this tool, deselect this check box. You can enable the Time Synchronization Tool by selecting this check box later.

> **Note:** *Before starting the Time Synchronization Tool, please stop all other time synchronization services in order to avoid potential conflicts.*

Advanced options:

- **Synchronization interval, sec**. contains the period of time between two synchronization operations. Use scroll buttons in the field to set the desired value or simply enter it into the field. The interval value should be from 10 to 3600 seconds.

To synchronize the guest OS system time with the primary OS:

1 Select this check box.

2 Set the desired value of the synchronization interval in the **Synchronization Interval** field.

- **Keep time difference between primary OS** and guest OS check box allows you to maintain a constant difference between the guest OS system time and primary OS system time.

To use this feature:

1 Select the **Enabled** check box.

2 Select the **Keep Time Difference** option,

3 In the guest OS, set the desired current time.
The Time Synchronization Tool will calculate the lag/advance value at the moment when the guest OS time is set and will maintain it.

Description:

- Displays the short description of the tool. For a complete description see the *Parallels Tools Overview*.

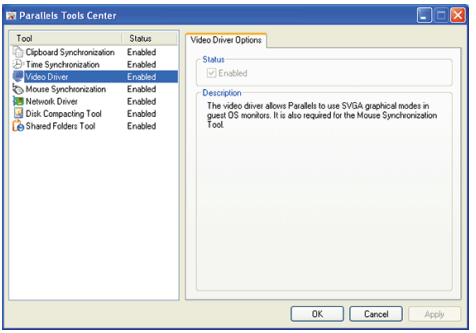
Activating changes:

After you have made the desired changes on the tab, do the following:

- Click the **Apply** button to activate changes.

Click the **OK** button to activate changes and hide the Parallels Tools Center.

Video Driver Options



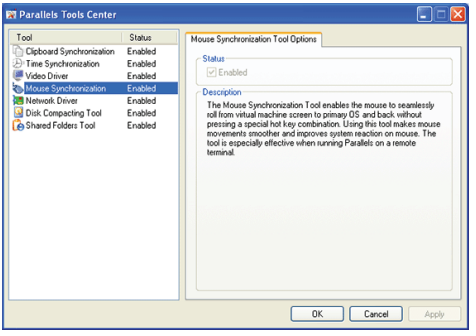
Status:

- Enabled check box shows the tool's current status but is inaccessible for editing.

Description:

- Displays the short description of the tool. For a complete description see the *Parallels Tools Overview*.

Mouse Synchronization Tool Options



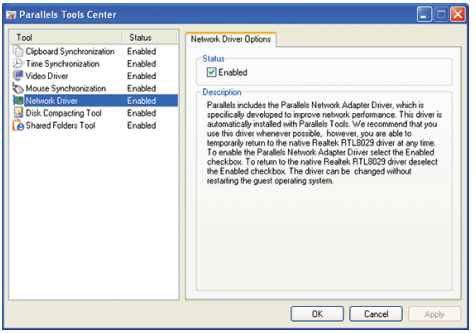
Status:

- Enabled check box shows the tool's current status but is inaccessible for editing.

Description:

- Displays the short description of the tool. For a complete description see the *Parallels Tools Overview*.

Network Driver Options



Status:

- **Enabled** check box shows the current status of the Parallels Network Adapter Driver. If this check box is selected, it means the Parallels Network Adapter Driver is active. We recommend that you use this driver whenever possible, however, you are able to temporarily return to the native Realtek RTL8029 driver at any time.
  To enable the Parallels Network Adapter Driver select the **Enabled** check box. To return to the native Realtek RTL8029 driver deselect the **Enabled** check box. Drivers can be changed without restarting the guest operating system, however your network connection may be temporarily lost.

Description:

- Displays the short description of the tool. For a complete description see the *Parallels Tools Overview*.

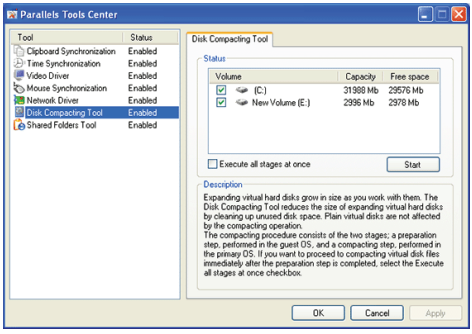
Activating changes:

After you have made the desired changes on the tab, do one of the following:

- Click the **Apply** button to activate changes.

Click the **OK** button to activate changes and hide the Parallels Tools Center.

Disk Compacting Tool Options



Status:

- The table displays the list of volumes located on the expanding virtual hard disks connected to your virtual machine and formatted to Windows file systems. Volumes formatted to other file systems are not displayed even though they may be physically located on the expanding virtual hard disks. In the table you can select the volumes to be processed by the Disk Compacting Tool.
- **Execute all stages at once**. Select this check box if you want to perform both stages of the compacting process at once. See the

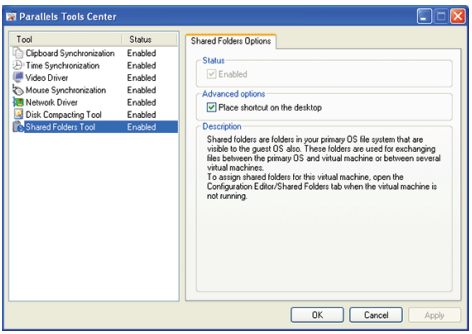
description of the two stages of the compacting process in the **Compacting Procedure** of the *Compacting Virtual Disks* topic.

- **Start** button starts the process of preparing the virtual hard disks for compacting.

Description:

- Displays the short description of the tool. See the complete description and guidelines in the *Compacting Virtual Disks* topic.

Shared Folders Options



Status:

- **Enabled** check box shows the tool's current status but is inaccessible for editing.

Advanced Options:

- **Place shortcut on the desktop** option controls the presence of the Parallels Tools Center shortcut on the guest OS desktop.

Description:

- Displays the short description of the tool. For a complete description see the *Parallels Tools Overview*.

Compacting Virtual Disk

What Is the Disk Compacting Tool?

Expanding virtual disks grow in size as you work with them. Besides applications and their data, every disk accumulates temporary files. The Disk Compacting Tool, included in Parallels Desktop, cleans up the unused disk space occupied by temporary files, thus reducing the size of expanding virtual hard disks. We recommend that you use Disk Compacting Tool from time to time to save space on the host hard disk.

The Disk Compacting Tool processes volumes located on the expanding virtual hard disks and formatted as Windows file systems (FAT 16, FAT 32, and NTFS).

> **Note:** *The Disk Compacting Tool does NOT process: 1) volumes located on expanding virtual hard disks but formatted to file systems other than Windows, 2) plain virtual disks.*

Besides the Disk Compacting Tool, Parallels Desktop includes another tool for maintaining virtual hard disks: the powerful **Parallels Compressor**. Parallels Compressor not only reduces the disk size, but allows you to keep your disks effective in many other ways. For information on this tool see *Chapter 9: Using Parallels Compressor*.

Compacting Procedure

In general the compacting procedure consists of two stages that can be performed separately:

1. A preparation step, performed in the guest OS, when an unused disk space is marked.
   This step can be performed only in those guest OSes where the *Parallels Tools Center* can be installed, i.e. in Windows 95/98/NT/ME/2000/XP/2003 guest OSes. See *Installing Parallels Tools* for guidelines on installing the Parallels Tools package.
2. A compacting step, performed in the primary OS, when the unused space is removed.
   This step can be performed in two ways:
   - Immediately after the preparation step is completed.

   All of the selected expanding virtual disks are compacted in one operation.
   This option is available in those guest OSes where the preparation step can be performed, i.e. in Windows 95/98/NT/ME/2000/XP/2003 guest OSes.
   - When the virtual machine is powered off.

   Compacting is launched for each expanding virtual disk one-by-one.
   This option is available in all guest OSes.

How to Compact Expanding Virtual Disks

To compact disks in Windows 95/98/NT/ME/2000/XP/2003 guest OSes:

1. In the running virtual machine, open the **Parallels Tools Center**. See the Parallels Tools Center topic to learn how to do so.
2. In the Parallels Tools Center, open the **Disk Compacting Tool** tab.
3. In the **Disk Compacting Tool** Options tab, a table in the **Status** group displays the list of volumes that can be compacted. Select the volumes you want.

If you want to proceed to compacting immediately after the preparation step is completed, select the **Execute all stages at once** check box.
Click the **Start** button to begin preparing disks.

4 During the preparation step the **Preparing for compacting. Please wait...** message is displayed.

5 If you have selected the **Execute all stages at once** check box:
When the disks are ready for compacting, The Disk Compacting Tool pauses virtual machine execution and starts compacting. The **Compacting virtual hard disk** box is displayed.
When the process is finished, you are informed that the "Process of compacting of virtual hard disk(s) has been successfully completed". Click **OK** to continue working with the virtual machine.

6 If you have NOT selected the **Execute all stages at once** check box:
When the disks are ready for compacting, you are informed that "You are able either start compacting right now or do it when the virtual machine is powered off".
If you select to start compacting, the Disk Compacting Tool performs compacting as described in step 5.
If you select to put compacting off, you may continue working with the virtual machine. See the subtopic below to learn how to start compacting later.

To compact expanding virtual disks in any guest OS:

- When the virtual machine is powered off, click the **Compact** button on the Advanced tab of the **Hard Disk Options** for each expanding-type virtual disk. While compacting is performed, the **Compacting virtual hard disk** box is displayed. When the process is finished, you are informed that the "Process of compacting of virtual hard disk(s) has been successfully completed".

Setup a Printer in a Virtual Machine

There are two principal methods of configuring printing in a virtual machine:

- Setup a network printer.
  We recommend that you use this method since it provides the most stable work.
- Setup a USB printer.

Configuring a virtual machine for either method of printing is described below.

Setting Up a Network Printer

Before installing a network printer in a guest OS make sure that your primary OS and the virtual machine meet the following requirements:

- Networking in your primary operating system is configured.
- Virtual machine configuration includes the network adapter which is connected to a real network adapter of your computer. See the Network Adapter Options of your virtual machine; make sure that the **Enabled** and the **Connect at startup** options are selected in the **Device Status** group. In the **Emulation** group the **Bridged Ethernet** option should be selected and the real network interface should be chosen in the **Network Adapters** list.
- Networking in the guest OS is configured.
- User account from which you will setup the printer has permission to access the network printer.

In a Linux or FreeBSD Guest Operating System

Make sure that the following components are installed in your guest Linux or FreeBSD system:

- Common UNIX Printing System (CUPS). Installation instructions can be found at CUPS site http://cups.org/documentation.php;

- Samba service. Installation instructions can be found at Samba site http://us4.samba.org/samba/docs/man/Samba-HOWTO-Collection/install.html;
- A Web browser, since we consider controlling CUPS via web interface;
- Also you have to know the root password.

To add a network printer in a Linux or FreeBSD guest OS:

1 Start your Linux or FreeBSD guest operating system.

2 Start Common UNIX Printing System.
In the **Terminal**, issue the command:
/etc/init.d/cups start

3 Start a Web browser and open either the IP address of your virtual machine or http://127.0.0.1:631.

4 Select **Printers** in menu. Click the **Add printer** button below the list of available printers (if any).

5 You are asked for the root password. Enter it to be able to proceed.

6 In the **Add New Printer** screen enter the information for easy identification of the printer: an informative printer name, location, and description.

7 In the **Device for <Printer Name>** screen select the *Windows Printer via Samba*.

8 In the **Device URI for <Printer Name>** screen specify the path to the network printer in the following format:
smb://<computer name>/<printer name>

9 In the **Model/Driver for <Printer Name>** screen select the model of your printer.

10 CUPS performs installation. If installation is successful, the "Printer <name> has been added successfully" message is displayed.

In a Windows Guest Operating System

To add a network printer in a Windows guest OS:

- Start the Windows guest operating system and log in the proper account.
- Open Windows **Start** menu, select **Settings** and then the **Printers and Faxes** (or simply **Printers**) item.
- Open the Add Printer Wizard:
  In Windows 95/98/NT/ME/2000/2003 double-click the **Add printer** icon.
  In Windows XP click the **Add a printer** link.
- In the Add Printer Wizard:
  In Windows 2000/XP/2003:
  - click **Next** in the wizard's first screen,
  - in the **Local or Network Printer** screen, click **A network printer, or a printer attached to another computer**.
  In Windows 98/ME:
  - click **Next** in the wizard's first screen,
  - the wizard's next screen asks: **How is this printer attached to your computer?** Click the **Network printer** option.
  In Windows 95/NT:
  - click Network printer/server.
- Continue an ordinary network printer installation.

Setting Up a USB Printer

To setup a USB printer:

1. Open the virtual machine configuration in the Configuration Editor, and make sure that the configuration includes a USB controller; if necessary add it.
2. Open the USB Options, and make sure that the **Enabled** option is selected. Select the **Autoconnect at startup** if you want the printer to be automatically captured by the virtual machine.
3. Save the virtual machine configuration (see Saving *Virtual Machine Configuration*) and start the guest operating system.

4 Connect the USB printer as a normal USB device. See the *Connecting USB Devices* topic.

5 Install the native driver for the printer in the guest OS.

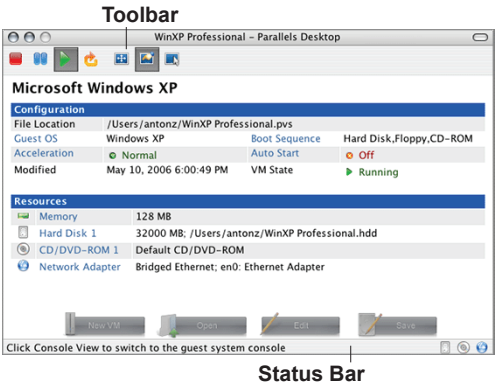
7

INTERFACE BASICS

This chapter provides information about Parallels Desktop window and its controls.

Chapter 7 at a glance:

Main Window



The Parallels Desktop window displays an opened virtual machine and a set of visual controls for managing its behavior. If a virtual machine is not started, only its configuration and resources, i.e. connected devices, are seen. This is called *property page view*. See *Property Page* to learn more about this. When you start the virtual machine, its console is opened and acts as the display of a real computer.

The visual controls that help in managing virtual machine behavior are the:

- Parallels Desktop menu;
- Toolbar;
- Status bar.

The status bar is described in a separate topic; see *Status Bar*.

Toolbar

Toolbar buttons are used to:

- Start a virtual machine. See *Starting Virtual Machine*;
- Shut down virtual machines. See *Shutting Down and Resetting Virtual Machine*;

- Reset a virtual machine. See *Shutting Down and Resetting Virtual Machine*;
- Suspend/resume a virtual machine. See *Suspending/Resuming Virtual Machine*;
- Expand a virtual machine screen to the full screen of your display. See *Switching Virtual Machine to Fullscreen Mode*;
- Switch between property page view and console view. See *Console View and Property Page*;

Most of the toolbar buttons become active when you start the virtual machine. When the virtual machine is stopped, only the **Power On Virtual Machine** button is active letting you start the machine.

If you click a toolbar button it becomes visibly pressed reflecting the current virtual machine state. On the picture above, the **Power On Virtual Machine** and the **Property Page View** buttons are pressed, that means firstly, the guest OS is running and, secondly, you are looking at the virtual machine's property page.

By default the toolbar is located at the top of the Parallels Desktop window. You may place it to the left or to the right of the window if you'd like. Parallels Desktop will keep this toolbar position next time you launch the system.

To change a toolbar position:

1. Choose **Preferences** from the **Parallels Desktop** menu.
2. In the *Preferences* dialog box, select the **User Interface** tab.
3. In the **User Interface** tab, select the preferred position in the **Toolbar placement** option.
4. Click **OK** to activate settings.

Simplifying Parallels Desktop Window

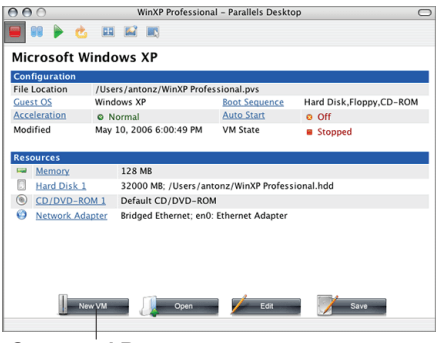
You can simplify the Parallels Desktop window by hiding some of its components such as the toolbar and status bar.

To hide the toolbar/status bar:

- Click **Toolbar/Status Bar** in the **View** menu.

You can make them visible at any time with the same action. Visible window elements are marked with checkmarks.

Property Page



Command Buttons

When you open an existing virtual machine or create a new one its property page is displayed. The upper part of the page, **Configuration**, displays the virtual machine name, name of the configuration file with the path, and general VM settings: guest operating system type and version (regardless whether or not it is installed), acceleration level, last modification date, etc. These settings may be changed; and if you click on any of them, the Configuration Editor will be opened on the appropriate page.

> **Note.** *The name of the virtual machine is not linked to the Configuration Editor, however it can be changed on the* **General Options** *tab.*

The **Resources** list shows all devices connected to the virtual machine and their current options. To edit any device simply click device name. The Configuration Editor will open the tab corresponding to that device.

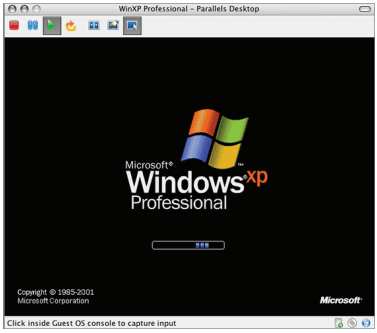
The command button panel in the bottom of the property page contains buttons for creating a new virtual machine, browsing hard disk for a virtual machine to open, editing virtual machine configuration, and also saving an opened virtual machine configuration.

Parallels Desktop allows you to pick for the property page the text size that fits you the best. See *Text Size* for details.

When Running Guest OS

The property page remains available when a guest OS is running. You may open it to check the VM configuration. However, editing of the configuration is prohibited and the command button panel is disabled.

Console View



You interact with a running virtual machine via its console which is opened when you start the virtual machine. If you have a guest operating system installed it will be displayed on the console exactly as the primary OS is displayed on a real monitor.

During guest OS execution all toolbar buttons and many of the menu commands become active.

When a guest operating system is running, you can switch between the console and the property page. To switch to the property page while in the console view, do one of the following:

- click **Property Page View** on the toolbar,
- choose **Console View** in the **View** menu.

To return to console view while in the property page, do one of the following:

- click **Console View** button,
- choose **Console View** in the **View** menu.

Fullscreen Mode

Guest operating systems can be executed in fullscreen mode, making the Parallels Desktop menu, toolbar, and status bar become hidden. For detailed information see *Switching Virtual Machine to Fullscreen Mode*.

Console Screenshots

You can make screenshots of the console while the virtual machine is active. See *Making Screenshots* for details.

Status Bar

The status bar displays information when the virtual machine is running. The left side of the status bar displays prompts describing the menu item currently selected.

Each device (except memory) connected to the virtual machine is represented by an icon on the right side of the status bar.

The following devices have icons onto the status bar:

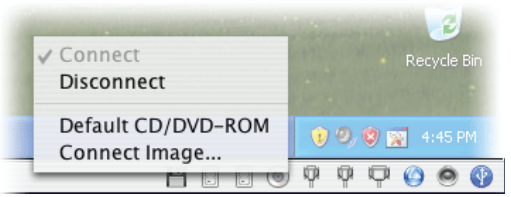
- hard disk ,
- CD/DVD-ROM ,
- floppy disk drive ,
- serial port ,
- parallel port ,
- sound device ,
- USB controller .

When a device is involved in the current process, it is indicated by circle on its icon:

- green circle when reading is being performed,
- orange circle when writing is being performed.

If a device can be connected/disconnected when running a guest OS (CD/DVD-ROM, floppy drive, network adapter, serial and parallel ports a sound device, and USB), these operations can be executed using the device shortcut menu. Right-click the device icon to display its shortcut menu and choose the command you need.

The picture below shows the context menu of the CD/DVD-ROM drive.



Text Size

Parallels Desktop allows to adjust text size of the property page. Use the **Text Size ▶ Increase Text Size** and **Decrease Text Size** commands on the **View** menu. To return to initial text size click **Reset Text Size** command.

Making Screenshots

Parallels Desktop allows you to make screenshots of the guest operating system window when guest OS is running. Click **Console Screenshot** in the **VM** menu. Type or select a name and a directory to store the screenshot file. Parallels Desktop saves screenshots as .png files in the primary OS.

8

MANAGING VIRTUAL MACHINES

This chapter discusses multiple ways to change a virtual machine configuration and provides information on setting user preferences and using virtual disks.

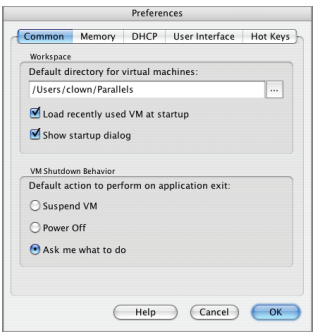
Chapter 8 at a glance:

Setting Parallels Desktop Preferences

Settings that affect more than one virtual machine are contained under a single menu entry. To edit general preferences click **Preferences** in the **Parallels Desktop** menu.

Common, User Interface, and Hot Key preferences are assigned for each user. Memory and DHCP preferences concern all users that work on a particular computer and all virtual machines they launch.

Common



Settings on this tab can be different for each user of your computer.

Workspace:

- **Default directory for virtual machines**. A directory proposed by Parallels Desktop to a user for saving new configuration files and hard disk images is specified on this tab in the **Default directory for virtual machines** field. It is possible to choose another location when creating a configuration file or hard disk image.
- Two options, **Load recently used VM at startup** and **Show startup dialog**, determine what happens at Parallels Desktop startup. By default, both options are selected and the application starts with the last used virtual machine configuration. If this configuration is already opened in another instance of Parallels Desktop or the configuration file cannot be found on the given

path (for instance, it has been moved to another folder or deleted), then **Startup Options** dialog is opened upon Parallels Desktop startup.

If the **Load recently used VM at startup** option is selected while the **Show startup dialog** option is turned off, Parallels Desktop will open a blank virtual machine upon startup if it is unable to open the last used virtual machine.

If the **Load recently used VM at startup** option is not selected while the **Show startup dialog** is turned on, Parallels Desktop always starts with the **Startup Options** dialog.

If both options are turned off, Parallels Desktop starts with a blank virtual machine.

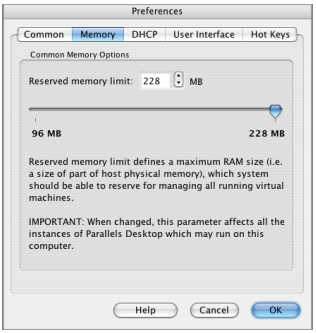
More information about what happens upon Parallels Desktop startup can be found in *Selecting and Opening Virtual Machine* and *Startup Options Dialog* topics.

VM shutdown behaviour:

Radio buttons in this group control the effect upon selecting the **Parallels Desktop ➧ Quit Parallels Desktop** menu item and clicking the close button for the Parallels Desktop window.

- If you want all virtual machines to be suspended upon these actions, select the **Suspend VM** radio button.
- If you want all virtual machines to be stopped upon these actions, select the **Power Off** radio button.
- When you are unsure if you want virtual machines to stop or to suspend, select the **Ask me what to do** radio button. Every time you click the close button or select the **Parallels Desktop ➧ Quit Parallels Desktop** menu command, you will be asked to choose whether you want to stop or suspend the virtual machine.
  See the *Suspending/Resuming Virtual Machine* topic to learn about suspending/resuming virtual machines.

Memory

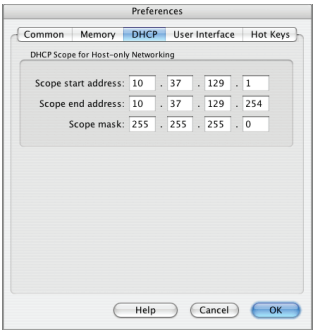


On this tab the maximum amount of physical memory (RAM) the system should reserve to all simultaneously running virtual machines on your computer can be adjusted. This setting applies to all users of your computer.

The maximum memory allowed depends on the physical RAM size of your computer. Some memory must be reserved for your primary operating system. From the remainder you can select the maximum RAM allowed for Parallels Desktop. If you have one instance of a virtual machine running, it may use all the memory allocated here. In the case of several simultaneously running virtual machines this memory will be shared between them. **Memory** for a particular virtual machine is set on the Memory tab in the Configuration Editor.

Memory amount should be in multiples of 4. If it doesn't then you will receive an error notification when trying to save memory options. To set an appropriate memory amount you may use the slider, the spin buttons in the **Reserved memory limit** field, or type a value directly into the field.

DHCP



Parallels Desktop provides host-only network accessible only to a primary system and virtual machines running on it. Methods of configuring different types of host-only network are discussed in the *Creating Host-Only Network* topic.

The **DHCP** tab is intended for specifying a range of IP addresses to be assigned to virtual machines by Parallels DHCP server when configuring host-only networks with dynamic IPs.

The **Scope start address** and **Scope end address** values determine the first and the last IP addresses. The first address of this scope DHCP server usually assigns itself. The second address is usually given to the primary system. Others are assigned to virtual machines. **Scope start address** and **Scope end address** should belong to the same subnet.

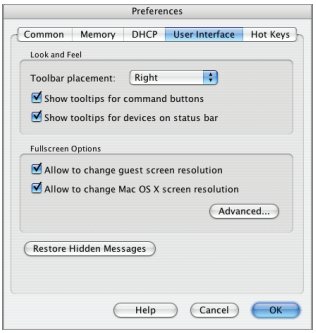
Subnet mask should be set in the **Scope mask** field.

> **Note:** *Before changing DHCP scope settings make sure that there is no virtual machine running in Host-only networking mode.*

To check the networking mode of a running virtual machine:

1. Point the mouse cursor to the network adapter icon in the status bar,
2. Check the **Mode** line in the tooltip.

User Interface



User interface preferences can be different for each user of your computer.

Look and Feel:

- **Toolbar placement** option controls the position of the toolbar. By default the toolbar resides at the top of the Parallels Desktop window.
- **Show tooltips for command buttons** option controls the appearance of tooltips for the toolbar buttons and the command buttons on the property page (see *Property Page*). By default this option is selected.
- **Show tooltips for devices on status bar** option controls the appearance of tooltips for devices connected to the virtual machine when it is running. By default this option is selected.

Fullscreen Options:

- **Allow to change guest screen resolution**. If this option is selected, a virtual machine switched to fullscreen mode tries to change its screen resolution to the Mac OS X screen resolution. This can be done when the video driver from Parallels Tools is installed in your guest OS.
- **Allow to change Mac OS X screen resolution**. If this option is selected, resolution of your Mac monitor is changed to the

resolution of the guest OS when a virtual machine is switched to fullscreen mode. Note that this option has lower priority than the previous one, so if both are selected this option is active only when the **Allow to change guest screen resolution** option can not be applied.

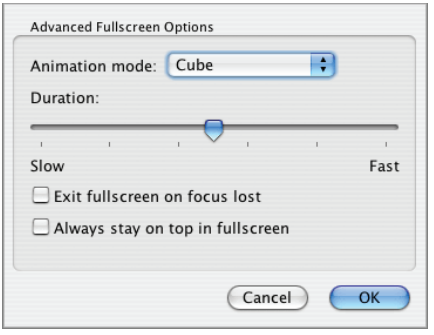
- **Advanced** button opens the **Advanced Fullscreen Options** dialog described below in this topic.

Restore Hidden Messages:

- If the Parallels Desktop wants to attract user's attention to an operation that is going to be performed or to some situation, it displays a message that contains a description and a **Do not show this message again** check box. If you select this check box, in the same situation the message will not be displayed. **Restore hidden messages** button on this tab allows you to reactivate all suppressed messages.

The system does not allow you to suppress messages reporting potentially dangerous situations.

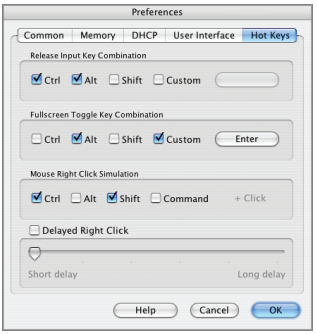
Advanced Fullscreen Options



- **Animation mode** contains the list of animations that are displayed when switching a virtual machine to fullscreen mode. **Duration** slider allows you to select the speed of this animation.

- **Exit fullscreen on focus lost**. If this option is on, a virtual machine running in fullscreen mode exits this mode and returns to the usual windowed mode when focus is moved to another application. For instance this may happen due to a message box appearing in another application.
- **Always stay on top in fullscreen**. When this option is on, the display of a virtual machine in fullscreen mode is always above all other windows and dialogs. If you want to view the dashboard or some other pop-up window, this option should be off.

Hot Keys



Hot key combinations can be different for each user of your computer.

Release Input Key Combination

- This key combination is used for releasing the keyboard and mouse that are captured in the virtual machine screen. The default hot key is **Ctrl+Option**.

> **Note:** *You can free the mouse and the keyboard from the virtual machine screen without pressing the hot key combination if you install the Parallels Tools. See Installing Parallels Tools section to learn if this package is available for your guest operating system, and Capturing and Releasing the Keyboard and the Mouse topic.*

Fullscreen Toggle Key Combination

- This combination is used for switching a virtual machine screen from the Parallels Desktop default window size to the fullscreen mode and back. The default hot key is **Option+Return**.

> **Note:** *See Switching a Virtual Machine to Fullscreen Mode for information on running virtual machine in fullscreen mode.*

Mouse Right Click Simulation

- This key combination is used to imitate mouse right-click for a mouse that does not have the right key. The default hot key is Ctrl+Shift+mouse click.

In addition to the key combination you may turn on another imitation method, **Delayed Right Click**. Preferred delay is specified on the slider.

Both methods of imitation can be turned on at the same time.

> **Note:** *See Keyboard Shortcuts in Virtual Machine for more information on right-click imitation.*

Defining New Key Combinations

Each key combination should include at least one special key (Ctrl, Option(Alt) and Shift).

To define a new key combination, do the following:

1 Select check boxes of one or more special keys.

2 If you want to add an ordinary key:
   - select the **Custom** check box,
   - place input focus in the field for an ordinary key (the extreme right field),
   - then press the key you want to use on your keyboard.

Using Virtual and Real Disks

In this section all types of disks handled by Parallels Desktop virtual machines are discussed.

Hard Disk Images

File Type

The current version of the Parallels Desktop creates and uses only virtual hard disks stored in .hdd files. The size of a virtual disk can be set within the range of 20 MB to 128 GB. Physical hard disks are are not able to be used.

Format of the Virtual Disk

A virtual hard disk can be one of two formats: **plain** or **expanding**.

plain	A disk of this format occupies all of the allocated space from the moment it is created. It takes more space on the real hard disk and more time to create as compared to an expanding virtual hard disk, but allows the guest OS to operate faster.
expanding	A disk of this format is small initially and grows as you add applications and data to the Virtual Machine. The disk size you enter when creating the disk is the maximum size to which the disk can grow. When you just begin to operate with the disk, it's size is much less than this value. Expanding disks take less time to create and save disk space.

Disk format is set when you create a hard disk image. If you need to change the disk format after the hard disk file is created, a copy of the disk in another format can be made using the Parallels Image Tool.

Hard disk images of both formats are stored in .hdd files, however the structure of a disk file is different. Format of the virtual hard disk is

displayed in the **Disk format** field on the **Advanced** tab of **Hard Disk Options**.

If you discover that a hard disk's size is insufficient, you may increase disk capacity using the Parallels Image Tool.

Creating New Virtual Hard Disk

A new virtual hard disk can be created at the same time when a virtual machine is created and attached to this virtual machine. For a typical virtual machine, a new hard disk is created automatically, as for custom virtual machines, you have to select **Create a new virtual hard disk** option in step 6 of the New Virtual Machine Wizard.

To add a new virtual hard disk to an existing virtual machine use the Add Device Wizard.

You may also replace the current virtual hard disk in an opened virtual machine configuration with a new one using the **Recreate** button on the **Hard Disk Options** tab in Configuration Editor.

Maintaining Virtual Hard Disks

Virtual hard disks require periodic maintenance procedures to keep disk operations quick and efficient, similarly to real hard disks. An expanding disk is very size efficient at the beginning of a virtual machine's life cycle and becomes less and less efficient as time goes on, because each time writing to the disk is requested, the system allocates new space, and therefore disk size increases. Deleting files does not reduce the size of a virtual disk image file in the primary operating system. Eventually, an expanding virtual disk could grow enormously causing a number of inconveniencies.

Parallels Desktop includes two tools to serve both of the purposes described above:

- **Parallels Compressor**, a powerful tool that effectively cleans up virtual hard disks (not only expanding disks but plain ones as well) allowing the user to select a level of cleaning and additional operations to perform. Currently Parallels

Compressor can process virtual hard disks of the following guest operating systems:

- Windows XP Professional Edition SP2,
- Windows XP Home Edition SP2,
- Windows 2000 Professional SP4.
  For information on Parallels Compressor see *Chapter 9: Using Parallels Compressor*.
- **Disk Compacting Tool** which is recommend for all other guest operating systems. For more information on the Disk Compacting Tool refer to the *Compacting Virtual Disks* topic.

Floppy Disk Images

Parallels Desktop can create and use floppy disk image files that appear to virtual machine floppy drive as real diskettes. Floppy disk images created by Parallels Desktop have the .fdd format. Blank .fdd image can be created by two methods:

- using the **Recreate** button on the **Floppy Options** tab of the Configuration Editor,
- when adding a floppy drive to a virtual machine use the Add Hardware Wizard.

If you use Parallels Workstation for Windows and Linux, you may create an .fdd image of a real diskette using the Parallels Image Tool. Then transfer this image file to Mac OS X and connect it to a Parallels Desktop virtual machine.

You may also use .img and .ima floppy images created by WinImage or VMware applications.

CD/DVD Real Discs and Images

Parallels Desktop can access real CD/DVD discs, or create and use CD/DVD images files that appear to the CD/DVD-ROM drive of a virtual machine as a real disc. Parallels Desktop uses CD/DVD discs in .iso format. Images in this format can be created by many applications,

particularly by Parallels Image Tool, a special tool for creating images of different real media that is installed along with Parallels Desktop.

There is a set of limitations on using CD/DVD-ROMs in Parallels Desktop in that it allows the use of only a single-session CD or DVD-ROM. Multisession disks cannot be handled. Sound from audio CDs cannot be reproduced. Neither CD nor DVD discs can be written.

Selecting and Opening a Virtual Machine

You may turn this option off to start Parallels Desktop with the Startup Options dialog box, which is discussed in the Startup Options Dialog Box topic, or with blank virtual machine.

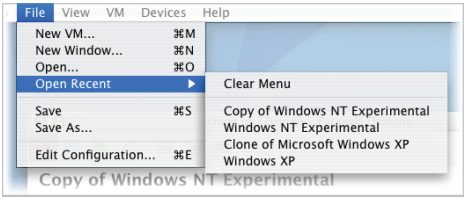
There are other ways to open virtual machines as well:

- List of recently used virtual machines;
- Browsing the hard disk for a configuration;
- Open a virtual machine in a new window.

Opening Recently Used Virtual Machines

The **Open Recent** list in the **File** menu displays the names of the six most recently used virtual machines. Use this method to open a virtual machine you recently worked with.

If the required virtual machine is not shown in the recently used list, you may find it browsing the hard disk for its configuration file manually.



Browsing Hard Disk for a Configuration

To select a virtual machine that is not represented in the recently used list, you should perform the following operations:

1 Click the 

icon on the Command Button panel at the bottom of the Parallel Desktop window or choose **Open** in the **File** menu.

2 Browse for a desired configuration file and click **OK**. After the configuration file is opened, its file name appears in the Parallels Desktop title bar; virtual machine name and full configuration file name with path are displayed on the property page.

Opening a Virtual Machine in a New Window

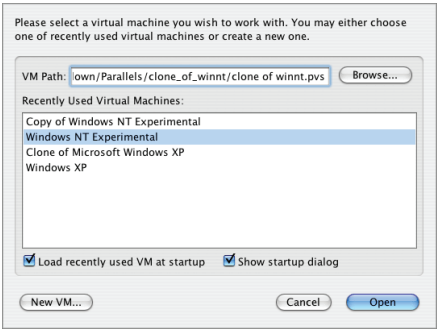
You may open an additional instance of Parallels Desktop using the menu. To do this:

- Select the **New Window** command in the **File** menu.

Since the last used virtual machine is blocked by the Parallels Desktop instance where you issue this command, a new window is opened either with the Startup Options dialog box (if the **Show startup dialog** option is selected on in the **Common** tab of the **Preferences** dialog box), or with a blank virtual machine.

Startup Options Dialog Box

This dialog box is sometimes displayed upon Parallels Desktop startup in order to assist in easily opening a Virtual Machine or proceeding to creation of a new one. The first time you launch Parallels Desktop this dialog box is opened automatically.



Opening Recently Used Virtual Machines

To open one of the recently used virtual machines:

1. Select the name of the machine in the **Recently Used Virtual Machines** list. The **VM Path** will show the respective configuration file.
2. Click **Open**.

The list of the recently used virtual machines is empty if you launch Parallels Desktop for the first time.

Browsing Hard Disk for a Configuration

To open an existing virtual machine that is not in the recently used list:

- Click the **Browse** button and locate the desired configuration file.

Creating a New Virtual Machine

To create new virtual machine:

- Click the **New VM** button and follow the New Virtual Machine Wizard.

Also, you may close this dialog by clicking the **Cancel** button; a blank virtual machine will be opened and you may start creating a new virtual machine manually.

What to Open on Parallels Desktop Startup

The **Load recently used VM at startup** and **Show startup dialog box** options control what happens when Parallels Desktop is started. The same options are in the **Common** tab of Preferences window and are described in the respective topic. Whenever you check/uncheck these options in one of these screens, they are automatically changed in the second one.

Editing Virtual Machine Configuration

Configuration of an existing virtual machine can be changed in the **Configuration Editor**. In this section we consider editing settings of devices already included in the configuration and general virtual machine settings. Adding and removing devices are discussed in a separate section, *Adding New Devices to Virtual Machine*.

Changing Device Settings

To change device settings:

1 Open the Virtual Machine you wish to make changes to.

2 Display the **Configuration Editor**. You are able to display it either by clicking the 

button on the Command Button panel, by selecting **Edit Configuration** in the **File** menu, or by just clicking the device name in the **Resource Name** list.

3 Choose the hardware whose parameters you want to alter in the left part of the Configuration Editor window. (**Options** resource contains general virtual machine settings.) Tabs corresponding to the selected resource are displayed.

> **Note:** *To be able to connect any virtual device to a real one, you should have system privileges to access the real device. Otherwise the real device will not appear in the list of available devices despite it being installed on your computer.*

Saving Virtual Machine Configuration

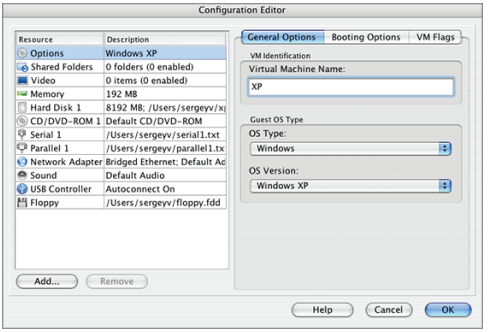
After you have changed devices settings and are satisfied with them, save the virtual machine configuration:

1. Click **OK** on the **Configuration Editor** screen, then click the 

button on the Command Button panel or select **Save** in the **File** menu. The file will be saved in its current location with the current name.
2. To save the configuration in another location or with another name choose **Save As** in the **File** menu. After you have saved the file, its new file name appears in the title bar; itsl new name with path appears on the property page.

General Options

Under **Options** general virtual machine settings are collected.



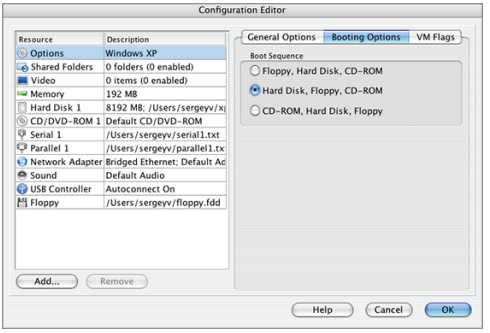
VM Identification:

- **Virtual machine name** field shows the name of the machine that has been specified when creating and can be changed. Its name should be descriptive, and its length should be no more than 50 characters. The name of the virtual machine is displayed on its property page.

Guest OS Type:

- Here you can specify an operating system to be installed on the virtual machine (if you didn't choose the right one while creating the machine or want to install another OS). Be careful to choose the right operating system. If settings on this tab do not correspond with the operating system actually installed this may cause problems varying from slow performance to machine failure.

Booting Options

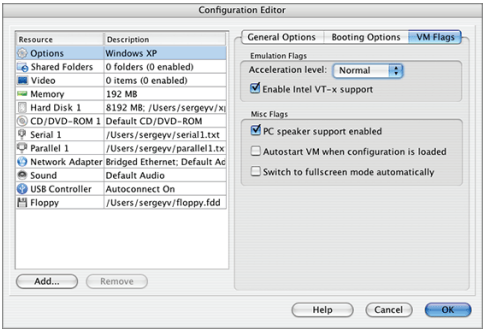


On the **Booting Options** tab you can select the order of devices from which the virtual machine will try to boot one-by-one. You can choose one of the three predefined sequences - **[Floppy, Hard drive, CD-ROM], [Hard drive, Floppy, CD-ROM], [CD-ROM, Hard drive, Floppy]**. During its startup, the virtual machine checks media in the first device of the boot sequence and tries to boot from it. If the media is not found or is

not bootable, the virtual machine will proceed with the next device in the boot sequence, and so on.

> **Note:** *Please make sure that a boot disk (Floppy disk, Hard Disk, CD-ROM) is available and configured correctly. If you select a boot disk that does not exist, after starting up the guest operating system and loading BIOS, you will see the error message "Currently opened virtual machine does not include any boot devices. In order to be successfully booted the virtual machine should have at least one of the following devices attached: floppy disk drive, hard disk drive, CD/DVD-ROM drive. Do you want to power on this virtual machine anyway?". Click* **No***, correct the configuration of your floppy or the corresponding IDE drive and try to start again.*

VM Flags



VM Flags tab contains various options that influence the performance of the virtual machine and startup configuration options.

Emulation flags:

- **Acceleration level**. Acceleration enables a number of the guest OS specific performance optimization techniques. We recommend selecting the *High* level. If you notice incorrect guest operating system behavior while running with high

acceleration, for example when installing software, shut down the OS and lower acceleration level. Note that without acceleration at all (*Disabled* level) the virtual machine runs very slowly. We recommend turning acceleration on after finishing the process that caused problems.

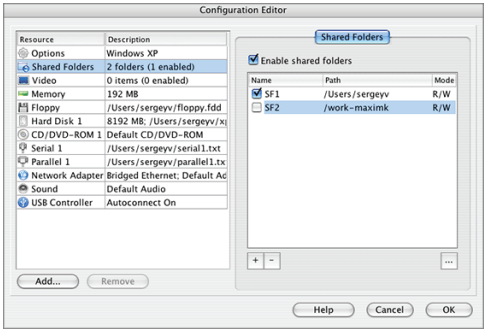
- **Enable Intel VT-x Support** option is available for editing if you have an Intel processor with Virtualization Technology on your host computer. By default VT-x support is enabled. See Intel Virtualization Technology (VT-x) Support to learn about VT-x support in Parallels Desktop. If you are running a guest OS with VT-x support, it is indicated in the **About Parallels Desktop** screen (see the *More Information* section).

Misc flags:

- **PC speaker support enabled**. If this option is enabled the virtual machine can indicate its actions by PC speaker sounds.
- **Autostart VM when configuration is loaded**. After you open the virtual machine configuration file, the VM will be automatically started.
- **Switch to fullscreen mode automatically**. As soon as the virtual machine is started, it will run in fullscreen mode.

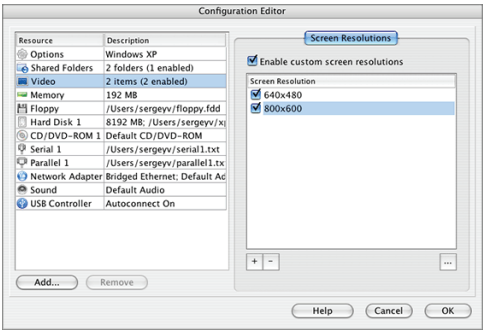
Shared Folders

> **Note:** *This tab is active in Windows 2000/XP/2003 guest OSes only. In other guest OSes you will see the message: "Feature is not available for this type of guest operating system".*



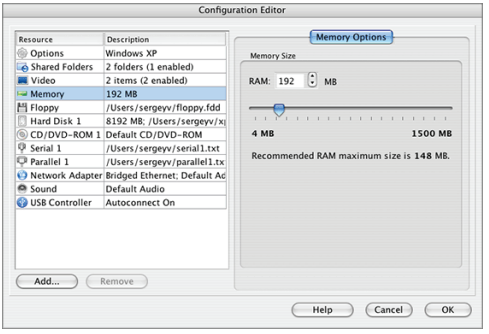
- **Enable shared folder** option allows/prohibits using shared folders in the virtual machine.
- The list below displays all the shared folders created for this virtual machine. The **Name** column shows name of the folder in the guest OS, the **Path** column shows the same folder in the file system of your Mac.
- Add button [+] opens the **Shared Folder Properties** dialog for creating a new shared folder. See the *Using Shared Folders* section for detailed description of this process.
- Delete button [-] removes the selected shared folder.
- Edit button [...] opens the **Shared Folder Properties** dialog where you can make changes in the shared folder properties. See the description of this dialog in the *Using Shared Folders* section.

Video (Screen Resolutions)



- **Enable custom screen resolutions** option allows/prohibits using different screen resolutions for the virtual machine.
- **Screen Resolutions** table displays all the custom resolutions defined for this virtual machine. The check mark near a resolution means that this resolution will be available for selection in the virtual machine. Those resolutions that are not checked will not be available for selection. To enable/disable a resolution, open its properties using the **Edit** button.
- Add button + opens the **Resolution Properties** dialog for creating a new resolution. See the *Using Custom Screen Resolutions* topic for detailed description of this process.
- Delete button − removes the selected screen resolution.
- Edit button ... opens the **Resolution Properties** dialog where you can make changes in the screen resolution properties. See description of this dialog in the *Using Custom Screen Resolutions* section.

Memory Options



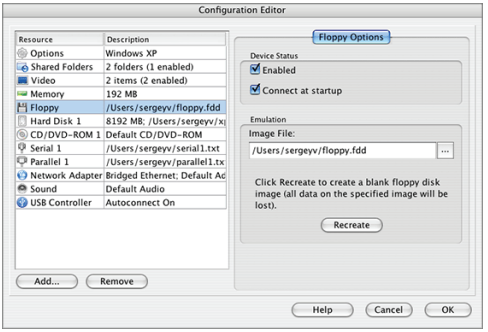
The **Memory Size** parameter describes the size of virtual memory (RAM) to be allocated for the virtual machine. You can choose any value from 4 to 1500 MB. We advise you not to exceed the recommended maximum because this is the limit of the physical RAM that your system should reserve for virtual machines. If this amount is not enough the redundant memory is swapped to disk, thus slowing down both guest OS and primary OS performance.

The recommended memory maximum size is specified on the tab below the slider. This value can be adjusted on the Memory tab in the **Preferences** window.

To set memory size for the current virtual machine use slider, spin buttons in the **RAM** field, or type a value directly into the field. Memory size should be set at a multiple of 4. If not, when trying to save memory options you will receive an error message.

Floppy Options

A virtual machine floppy drive can be connected to a floppy disk image. To get information on floppy disk images used by Parallels Desktop read the Floppy Disk Images topic.



Device status:

- To temporary disable floppy drive operations without deleting it from configuration, deselect **Enabled** check box.

> **Note:** *If you start the virtual machine with the floppy drive disabled, you cannot change this option when virtual machine is running.*

If the floppy drive is enabled, it can be connected/disconnected while VM is running. Media that the floppy drive accesses can also be changed.

- To start guest OS with the floppy disk inserted, select the **Connect at startup** check box.

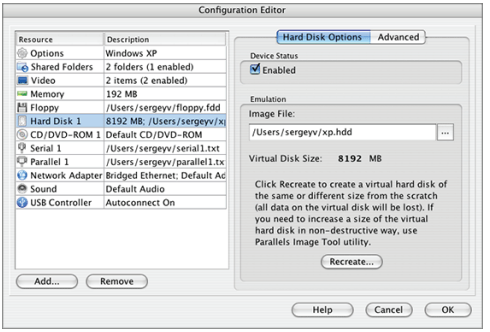
Emulation:

- To connect the virtual floppy drive to a floppy disk image, specify the name of the floppy disk image in the **Image File** field. You may use **Browse** button to locate the file.
- Parallels Desktop allows to create a blank floppy image. Type the file name and the path in the **Image File** field and click the **Recreate** button. The size of a floppy disk image equals 1.44 MB. The default extension for a floppy disk is .fdd.

Hard Disk Options

The current version of Parallels Desktop allows virtual machines to only use hard disk images in .hdd format. Read the Hard Disk Images topic to get acquainted with disk format and its other options.

Up to four IDE devices (hard disks and CD/DVD-ROM drives) can be connected to a virtual machine currently. This means, that there can be no more than four hard drives plus CD/DVD-ROM drives, i.e., it doesn't matter how many of IDE devices are hard drives and how many are CD/DVD-ROMs.



Device status:

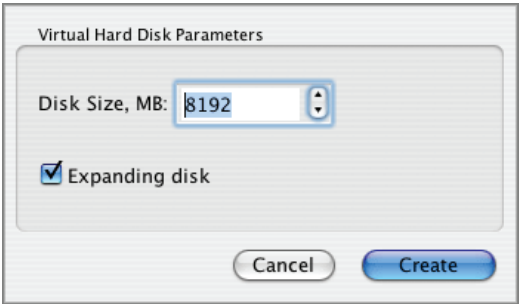
- To temporarily disable operations with this hard drive without deleting it from configuration, deselect **Enabled** check box.

Emulation:

- If you want to change the hard drive connected to your virtual machine, you may choose another .hdd file in the **Image File** field.
- **Recreate** button deletes an old hard disk and creates a new one. Use this opportunity if you want to create a disk from scratch. If you want to replace the current hard disk with a new one do the following:

1 Click the **Recreate** button.

2 **Create HDD** window appears. You can specify **Disk size** and whether the disk should be expanding or plain. Select **Expanding disk** check box if you want the hard disk to be expanding.

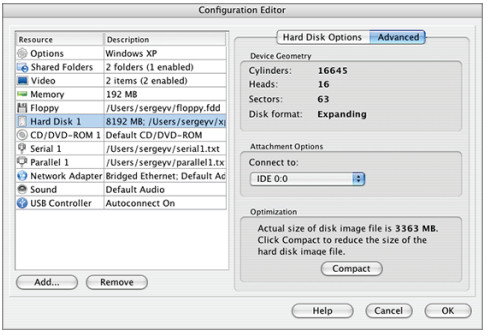


3 Click **Create**.

4 You are asked to confirm that you are going to create a new disk instead of the old one. Click **Yes**. A new empty disk is now connected to your virtual machine.

Note: *If while using a hard disk you discover that its size is insufficient, you may increase disk capacity using the Parallels Image Tool.*

Advanced



Device Geometry:

- Fields **Cylinders, Heads**, and **Sectors** in this group show geometry of a virtual HDD. Note that the geometry concerns virtual disk, not a real one where virtual disk is stored.
- **Disk format** label indicates virtual hard disk format. See the *Format of The Virtual Disk* in the Hard Disk Images topic.

Attachment Options:

- Choose the IDE slot to connect to the HDD image in the **Connect to** field. If you want the HDD to be startup one select *IDE 0:0*.
  Note that if you set two startup drives at once - hard disk (IDE 0:0) and CD/DVD-ROM (IDE 0:1) - the guest OS will try to boot according to the sequence set on the Booting Options tab under the **General Options**.

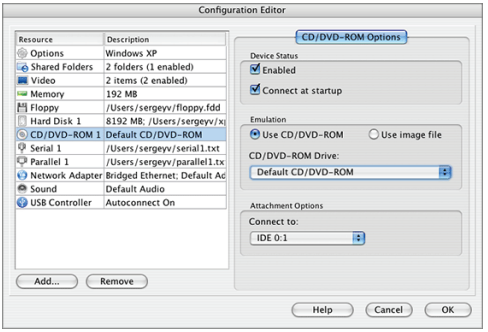
Optimization:

- If the selected disk is an expanding-type disk, the **Compact** button starts the process of compacting the disk. See the *Compacting Virtual Disks* topic for information on this feature. The **Compact** button is disabled for plain virtual disks.

CD/DVD-ROM Options

A virtual machine CD/DVD-ROM drive can be connected to a real CD/DVD-ROM drive of your computer as well as to a CD/DVD .iso image. To get information on using CD/DVD images in Parallels Desktop look in CD/DVD Real Discs and Images topic.

Up to four IDE devices (hard disks and CD/DVD-ROM drives) can be connected to a Virtual Machine currently. This means, that there can be no more than four hard drives plus CD/DVD-ROM drives, i.e., it doesn't matter how many of IDE devices are hard drives and how many are CD/DVD-ROMs.



Device Status:

- If you wish to temporary disable a CD/DVD-ROM drive without deleting it from configuration, deselect **Enabled** check box.

> **Note:** *If you start the operating system with the CD/DVD-ROM drive disabled, you cannot change this option when virtual machine is running.*

If the CD-DVD-ROM drive is enabled, it can be connected/disconnected while VM is running. Media that the CD/DVD-ROM drive can access may also be changed.

- If the CD/DVD-ROM drive is enabled, you can select the **Connect at startup** check box to start the guest OS with the CD/DVD disc inserted.

Emulation:

- If you have a physical CD/DVD-ROM on your computer, you can use it in the virtual machine. In this case, select the Use **real CD/DVD-ROM** check box, the name of the physical CD/DVD-ROM (for example, D:) will be shown in the **CD/DVD-ROM drives** drop-down menu and available for selection.

> **Note:** *To be able to connect the virtual machine CD/DVD-ROM drive to a real CD/DVD-ROM drive, you should have system privileges to access the real device. Otherwise the real CD/DVD-ROM drive will not appear in the list of available devices even though it is installed on your computer.*

- If you want to use a CD/DVD image (e.g., the .iso file), select the **Use image file** flag. As you select it, another field where you can enter the CD/DVD image file name appears below. Specify the path to your CD/DVD image file or click the **Browse** button and locate the CD/DVD image file.

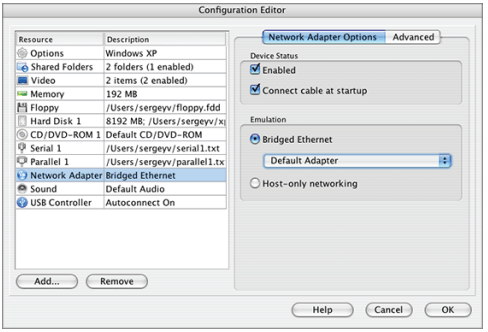
Attachment Options:

- Choose the IDE slot to connect to CD/DVD-ROM image in the **Connect to** list. If you want the CD/DVD-ROM to be the startup drive select *IDE 0:1* in the list.
  Note that if you set two startup drives at once - hard disk (IDE 0:0) and CD/DVD-ROM (IDE 0:1) - the guest OS will try to boot according to the sequence set on the Booting Options tab of the **General Options**.

Network Adapter Options

In the current version of Parallels Desktop a RTL8029 (NE2000 compatible PCI card) network adapter is supported.

In a Linux guest OS, to be able to access an external network in the virtual machine, a **ne2k-pci** driver should be loaded into the Linux kernel. It is included by default, however if you are going to recompile the kernel remember to select the **ne2k-pci** component. In a FreeBSD guest OS you need to have the **if_ed.ko** module loaded.



Device Status:

- If you wish to temporarily disable network support in the Virtual Machine without deleting the network adapter from configuration, deselect the **Enabled** check box. When the **Enabled** check box is selected, the options and fields for configuring the network become active.
- If network adapter is enabled, you can select **Connect at startup** check box to start the guest OS with network adapter connected.

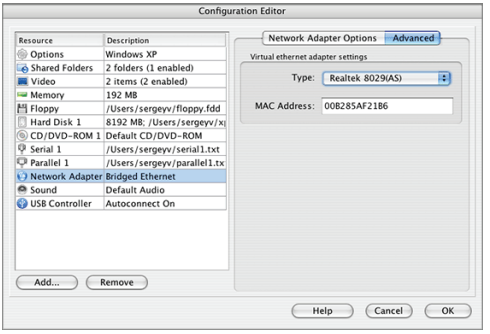
Emulation:

In the **Emulation** group, you can select the type of network adapter to be used in your guest OS. You can choose between the **Bridged Ethernet** and **Host-only networking**.

- **Bridged Ethernet** networking is intended to access local network and Internet using physical Ethernet adapter of your computer. A virtual machine is treated as a separate computer and should be configured the same way as a real one.
  If you select the **Bridged Ethernet** radio button, the drop-down list below will show a list of all physical network adapters available on your computer. Choose one of them to connect to your virtual adapter.

- Select **Host-only networking** if you want to emulate a network inside your computer, you don't want to access a network outside your local computer, or you don't have a physical network interface card. When you set this option, the primary OS and other Parallels Desktop virtual machines inside it are visible, thus making it possible to imitate a network that includes the primary OS and a number of virtual machines. The Creating Host-Only Network topic discusses how to configure a host-only network.

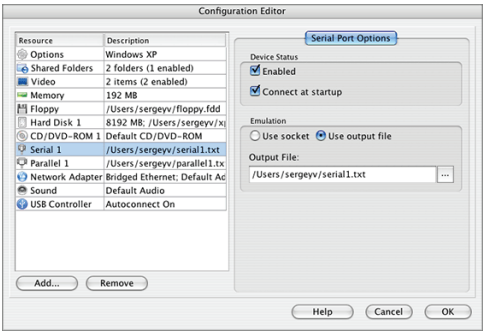
Advanced



- This tab allows you to specify a network driver to be used in your guest OS. In the current version of Parallels Desktop a RTL8029 driver for the Ethernet adapter is supported. It is already selected in the **Type** field.
  You can find native Realtek RTL8029 drivers for many different guest OSes in the Parallels Tools pack shipped together with the Parallels Desktop.
  In Windows 2000/XP/2003 guest operating systems you can improve network performance by installing a specially developed PRLETH driver that can be found in the Parallels Tools pack.
- A **MAC address** is generated automatically but can be changed manually. If you decide to change it, please make sure that the number is unique inside your network.

Serial Port Options

Parallels Desktop allows up to four serial ports to be connected to a virtual machine.



Device status:

- If you wish to temporarily disable operations with a serial port without deleting it from configuration, deselect the **Enabled** check box.

> **Note:** *If you start the operating system with the serial port disabled, it can not be connected/disconnected while the VM is running.*

- If you have enabled the port, you can select the **Connect at startup** check box to start the guest OS with this port connected.

Emulation:

Parallels Desktop suggests two methods of serial port emulation:

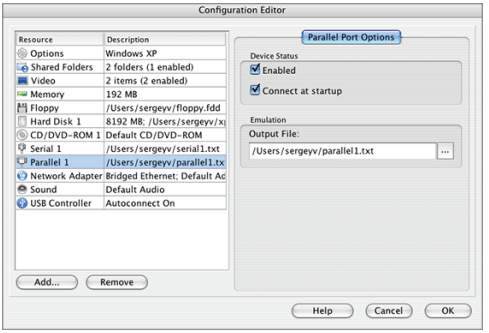
- using socket technology (**Use socket** option).
  If you have selected **Use socket**, the **Socket Name** field appears containing a default socket name. Use it or type a new name that should subject to the following rules. The name should begin

with /tmp/, i.e. it should be in the form /tmp/<socket>. If a name doesn't subject to the rule, then after virtual machine is started you will get the error message: "Com Port <number>: Unable to open <port name> device".
In the second field select a role at this end of the socket.

- using an output file (**Use output file** option).
  You can attach the existing file using the **Browse** button or create a new one. The new file is created in the virtual machine directory.

Parallel Port Options

Parallels Desktop allows up to three parallel ports to be connected to a virtual machine.



Device status:

- If you wish to temporarily disable operations with a parallel port without deleting it from configuration, deselect the **Enabled** check box. If the parallel port is enabled, it can be connected/disconnected while the VM is running.

> **Note:** *If you start the operating system with the parallel port disabled, you cannot change this option when the virtual machine is running.*

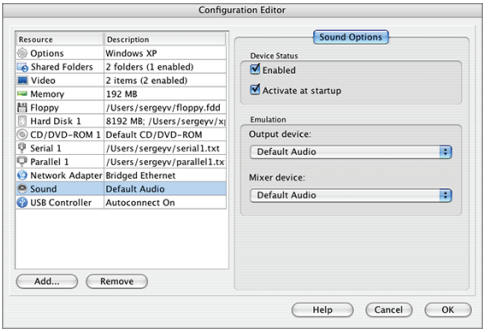
- If you have enabled a port, you can select the **Connect at startup** check box to start the guest OS with this port connected.

Emulation:

The current version of Parallels Desktop suggests only one method of parallel port emulation:

- using an output file (**Use output file** option).
  You can attach the existing file using the **Browse** button or create a new one. The new file is created in the virtual machine directory.

Sound Options



Parallels Desktop virtualizes the Realtek AC'97 compatible sound card.

Device status:

- **Enable** option allows/prohibits using the sound device in the virtual machine. If the sound device is enabled, it can be connected/disconnected while the VM is running. However if you wish to temporarily disable operations with a sound device without deleting it from configuration, deselect the **Enabled** check box.

> **Note:** *If you start the operating system with the sound device disabled, you cannot change this option when the virtual machine is running.*

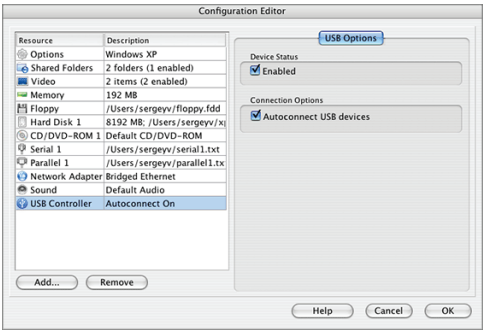
- To start the guest OS with the sound device activated, select the **Activate sound at startup** check box.

Emulation:

- After the sound is enabled, the **Output Device** field appears containing a list with the *Default Audio* and *Null Device* items. As a rule we recommend to select the *Default Audio* device. *Null Device* is the choice for situations when you don't want to produce sound while the sound card is required by the guest OS'es applications.
- The same situation occurs with the **Mixer Device**. As a rule we recommend to select the *Default Audio* device. *Null Device* is the choice for situations when you don't want to produce sound while the sound card is required by the guest OS'es applications.

> **Note:** *If you are not satisfied with the quality of sound produced, a special AC'97 sound driver is available for Windows 95/98/ME/ NT/2000 guest OSes and for OS/2 and eComStation guest OSes. You can install it instead of standard one.*

USB Options



Device status:

- **Enable** option allows/prohibits using USB devices in the virtual machine. If the USB is enabled, USB devices can be connected/disconnected to the virtual machine while it is running. However if you wish to temporarily disable USB operations without deleting it from configuration, deselect the **Enabled** check box.

> **Note:** *If you start the operating system with the USB disabled, you cannot change this option when the virtual machine is running.*

Connection Options:

- **Autoconnect USB devices**. Select this option if you want the running virtual machine to capture new USB devices connected to your host computer. New device are captured if there is no more than one USB device currently active.

Adding New Devices to Virtual Machines

Virtual machine technology allows adding new devices to a virtual machine to be the same as connecting new devices to a real computer. Virtual machine configuration can include the following devices:

- up to four IDE devices - virtual hard disks and CD/DVD-ROM drives;
- a floppy drive;
- a network adapter;
- up to four serial ports;
- up to three parallel ports;
- a sound device;
- a USB controller.

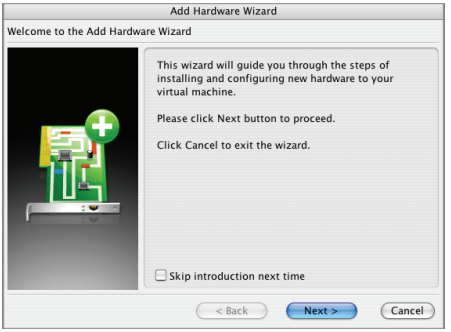
New devices are added using the **Add Hardware Wizard**. Devices of any type (except hard disks) can be connected to a real drive as well as to virtual media. In addition, if you add a floppy drive, a new blank .fdd image can be created at the same time and connected to the drive. When adding a virtual hard disk you may choose between connecting an existing hard disk image and creating a new one.

> **Note:** *To be able to connect any virtual device to a real one, you should have system privileges to access the real device. Otherwise the real device will not appear in the list of available devices even though it is installed on your computer.*

To add a new device to the virtual machine do the following:

1. Open the virtual machine to which you want to add new device, then select **Edit Configuration** in the **File** menu or click 

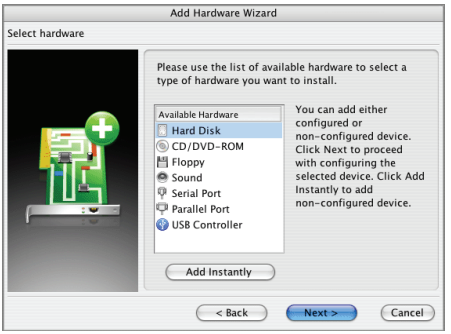
on the command button panel to open Configuration Editor.
2. In the lower left part of the **Configuration Editor** window click the **Add** button.
3. The Add Hardware Wizard greets you with the **Welcome to Add Hardware Wizard** screen. Click **Next**.



4 On the **Select hardware** screen you should choose the device you want to add to your machine.

The **Available Hardware** list contains devices available for adding. If the VM configuration already includes the maximum allowed number of a particular device type, this device type will not appear in the **Available Hardware** list. For instance, only one floppy drive is allowed.

The wizard allows you to add only one device at a time.



On this screen you may prefer to add devices immediately without specifying its options, in order to save time (You may set options later in the Configuration Editor). To do so, click the **Add Instantly** button after selecting the desired device. The new device is added immediately with standard options, and some of them are not set at all (for example, the instant hard disk has a size of zero).

To set the options of the device being added click the **Next** button.

5 Follow the wizard screens to configure the new device. You should select the device type, the media it is connected to, and the options specific to the device and media type. All of them are described under the Editing Virtual Machine Configuration section. The final options screen contains the **Finish** button.

Removing Devices

Most virtual machine devices can be removed from the configuration. Memory and those elements of the virtual machine configuration that are not devices but rather collections of settings can not be removed. These elements are: Options, Shared Folders, and Video.

> **Note:** *Any device, except memory, can be disabled in the Configuration Editor without removing it from configuration. Uncheck the* **Enabled** *check box of the desired device.*

To remove a device:

1 Open the virtual machine from which you want to remove a device, then open the Configuration Editor by selecting **File ➧ Edit Configuration** in the menu or click  on the command button panel.

2 Select the device you want to delete in the left part of the **Configuration Editor** window. Note that options, shared folders, video, and memory list entries can not be deleted.

3 Click the **Remove** button.

Networking in a Virtual Machine

In general, Parallels Desktop allows two types of networking in virtual machine, Bridged Ethernet and Host-only networking. However in some cases you may prefer a mixed mode, Host-Only with Internet Sharing (NAT). This section describes these types of networking and ways of configuring them.

Bridged Ethernet Networking

Bridged Ethernet networking allows virtual machines to access a physical network, such as a Local Area Network and/or Internet. You should have an Ethernet adapter installed on your host computer.

To access a LAN and Internet, configure the virtual machine:

- in virtual machine Network Adapter Options select **Bridged Ethernet** type of networking in the **Emulation** group and choose the proper network adapter in the list,
- configure network options in the guest operating system. If you encounter problems when using Bridged Ethernet mode or you do not want to use Bridged Ethernet networking because of security considerations, consider Host-Only Networking with Internet Sharing.

Creating a Host-Only Network

Parallels Desktop provides a virtual network accessible only to the primary operating system and virtual machines running on it. The primary operating system is attached to this network through the Parallels Host-Guest Virtual NIC adapter installed along with Parallels Desktop. For a virtual machine to join a host-only network, the guest network adapter should be set to host-only networking. IP addresses for the primary operating system and virtual machines may be:

- dynamic (assigned by Parallels DHCP server running on host-only network);
- static (assigned manually).

Configuring Network with Dynamic IPs

IP addresses for machines in a host-only network are provided by Parallels DHCP server that is started automatically whenever you launch Parallels Desktop. DHCP server is installed along with Parallels Desktop.

Configure network with dynamic IPs in the following way:

1 Open Configuration Editor for the virtual machine and on the Network Adapter Options tab select the Host-only networking parameter.

2 Select **Parallels Desktop ➧ Preferences** in the menu. Specify a range of IP addresses to be assigned to the virtual machines on the DHCP tab.

Configuring Network with Static IPs

To configure host-only network with static IP addresses you have to manually assign them to the primary operating system and to each virtual machine in which you want to include on the network.

The virtual machine should be configured as follows:

1 Open the Configuration Editor for the virtual machine and on the Network Adapter Options tab select the Host-only networking parameter.

2 Start the virtual machine and specify the IP address by standard means for the guest operating system installed on it.

Configuring a static IP address for the primary operating system:

1 Open System Preferences.

2 In the Internet & Network section, click the Network icon.

3 In the Network screen, select *Parallels Host-Guest Adapter* in the Show drop-down list.

4 Open the TCP/IP tab of the Network screen.

5 In the TCP/IP tab:
in the Configure IPv4 option select *Manually*,
specify the IP Address and Subnet Mask.

6 Click the Apply Now button and close the Network screen.

Host-Only Networking with Internet Sharing

If you encounter one of the following:

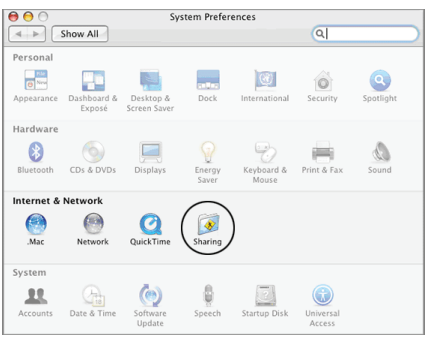
- you want to access the Internet in a virtual machine but do not want to use Bridged Ethernet networking because of security considerations,
- you have problems with Bridged Ethernet mode,
- your Mac accesses the Internet via a modem or another non-Ethernet device,

you may prefer to use Host-Only Networking mode in a virtual machine with Internet Sharing (NAT) turned on in your Mac. Note that your virtual machine will not be accessible from outside your Mac.

To configure this type of networking:

1 Open the **Configuration Editor** for the virtual machine and on the Network Adapter Options tab select the **Host-only networking** parameter.

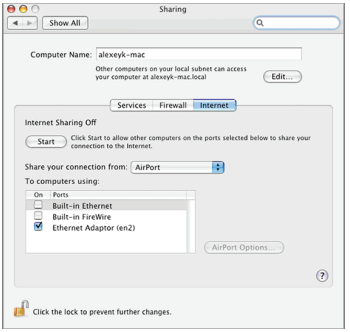
2 In your Mac OS X, open **System Preferences** and click **Sharing** in the **Internet & Network** section.



In the **Sharing** screen, select **Ethernet Adaptor (enX)** from the **To computers using** list.

Select the adapter you want sharing from in **Share your connection from** drop-down list.

Click the **Start** button and confirm staring the service.



Using Shared Folders

Shared folders are folders in your Mac file system that are visible to the guest OS also. These folders are used for exchanging files between the primary OS and a virtual machine or between several virtual machines.

In the primary OS shared folders appear as usual folders, while in guest OS they are objects of the network neighborhood.

Using shared folders is possible for the following guest OSes:

- Window 2000/XP/2003.

Setting Up a Shared Folder

Setting Up a shared folder requires two steps:

1 Adding a shared folder(s) in your virtual machine configuration.

2 Installing Parallels Tools in your guest OS.

See below for detailed instructions.

Adding a Shared Folder

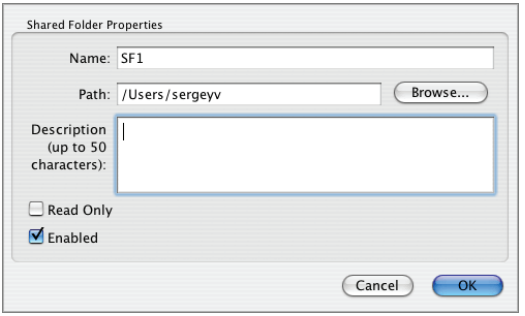
1 Open the virtual machine configuration, click the 

button to open the **Configuration Editor**.

2 In the **Configuration Editor**, select the **Shared Folders** tab (see the *Shared Folders* topic). Select the **Enable shared folders** option.

3 In the **Shared Folders** tab, click the + button to open the **Shared Folder Properties** screen.

4 In the **Shared Folder Properties** screen:
specify a name for the folder which will appear in your guest OS in the **Name** field;
specify a folder in your Mac OS X file system that will be shared in the **Path** field;
if you want to restrict writing to this folder from inside the guest OS, select the **Read Only** check box. You will be able to save files to this folder in the primary OS only;
make sure the **Enabled** check box is selected;
and click **OK**.



5 Click **OK** in the **Configuration Editor**.

6 Click Save to save the virtual machine configuration.

If you have not installed the Parallels Tools in a virtual machine, proceed to the **Installing Parallels Tools in the Guest OS** subtopic. If you have them installed:

- power on your virtual machine and view shared folders in your guest OS.

Installing Parallels Tools in Guest OS

Parallels Tools includes the Shared Folders tool which is necessary for a guest OS to view the shared folders. See a full description of this tool in the *Parallels Tools Overview*.

Installation of Parallels Tools is performed just after you have created a new virtual machine and installed a guest OS in it. See *Installing Parallels Tools* for detailed descriptions on how to do so in a particular guest OS. We recommend that you perform the *typical* installation, but if you perform a *custom* installation make sure the Shared Folders tool is selected.

Viewing Shared Folder in Guest OS

To view the contents of the shared folders in the guest OS:

1. Start the virtual machine.
2. Open Windows **Explorer**.
3. In the Explorer, select **My Networks Places**, then select **Entire Network**, and find the **Parallels Shared Folders**.
4. Click the **Parallels Shared Folders** to view the list of shared folders available in your virtual machine.

When working with a shared folder inside a virtual machine, keep in mind that the ability to save files into this folder depends on its **Read Only** setting.

Using USB Devices in a Virtual Machine

The current version of Parallels Desktop emulates the 2-port USB controller 1.1. This means that up to two USB peripherals can be connected to a virtual machine simultaneously. Parallels Desktop currently supports bulk devices such as scanners, printers, mass storage, PDAs, etc. Isochronous devices are not supported in the current version.

Parallels Desktop lets you connect USB devices to virtual machines automatically. See the *USB Options* section to learn how to

turn this option on. And see the *Connecting USB* Devices section to learn how to connect a USB device to a virtual machine both automatically and manually.

Using Custom Screen Resolutions

Parallels Desktop allows you to define up to 10 different resolutions for a virtual machine and change them when running the guest OS.

You may set typical resolutions, such as 640x480, 800x600 etc., and moreover you may try to define non-standard ones. However we do not guarantee that your guest OS will support them.

Adding a Screen Resolution

1 Open the virtual machine configuration you want to add a resolution to, click the 

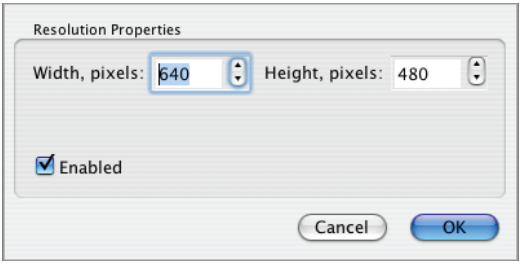
button to open the **Configuration Editor**.

2 In the **Configuration Editor**, select **Video** in the **Resource** list.

3 In the **Screen Resolutions** tab (see *Video (Screen Resolutions*), make sure the **Enable custom screen resolutions** option is selected.

4 Click the **Add** button to open the **Resolution Properties** dialog.

5 In the **Resolution Properties** dialog:
set the desired resolution options in the **Width, pixels** and **Height, pixels** fields;
select the **Enabled** check box if you want this resolution to be available for selection in the guest OS;
click **OK**.



6 Click **OK** in the **Configuration Editor**.

7 Click  to save the virtual machine configuration.

Changing Screen Resolution for a Virtual Machine

To change screen resolution:

- Power on your virtual machine.
- Select the preferred resolution as it is usually done in your guest OS. The guest OS will propose for selection all the resolutions available in the Video (Screen Resolutions) tab for which the **Enabled** option is selected.

If you have defined a non-typical resolution and do not see it in the list of available resolutions in the running guest OS, this means that your guest OS can not use this resolution.

Making Copy of a Virtual Machine

A complete copy of a virtual machine can be created using the **Clone Virtual Machine Wizard**. A new configuration file and new hard disk drive(s) are made. The clone includes as many hard drives as there are connected to an original machine. By default the Wizard puts new files into a new directory, but you may prefer to store them in an existing one. Copies of virtual hard disks are always placed in the same folder with the copy of the configuration file.

Auxiliary devices of the new virtual machine are connected to the same drives or disk images as the source devices. If source CD/DVD-ROM drive is connected to an .iso CD/DVD disc image file, this connection is restored in the new machine. The same goes for the floppy drive. However output files of serial/parallel ports, if used, are not transferred from the original VM. In the clone, they are started from scratch.

If a network adapter is included in the original configuration, a new MAC address is generated for the new adapter.

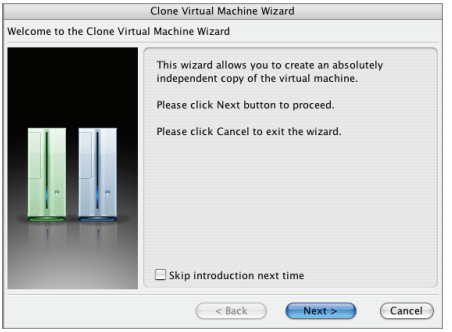
A virtual machine to be copied should be opened and meet the following conditions:

- The guest OS is not running. If it is running, the menu item that starts the wizard is disabled.
- The virtual machine is not opened by another instance of Parallels Desktop.
- It is not a blank virtual machine. Blank virtual machines can not be copied.

To make a clone of a virtual machine:

1 Open the virtual machine you want to make copy of.

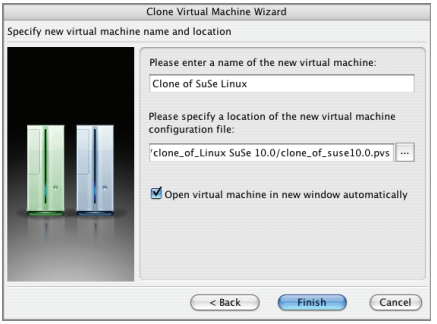
2 Select **Clone VM** in the **VM** menu. The **Clone VM Wizard** starts. Click **Next**.



3 In the next step, **Specify new virtual machine name and location**, you have to specify a name for the clone and a path for storing its configuration file. The name and path suggested by the wizard

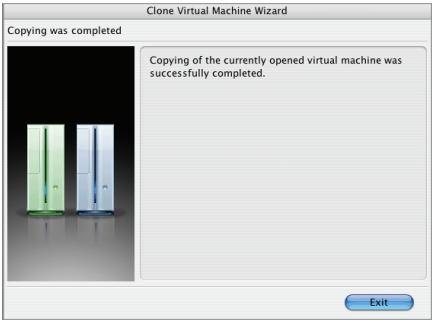
are made by adding “Clone of” at the beginning of the original virtual machine name and path. You can modify both of them. Remember that a virtual machine name should be no longer than 50 characters.

If you select the **Open virtual machine in new window automatically** option, after the new configuration is created it will be opened in a new Parallels Desktop window. Click **Finish** to start copying the machine.



If the directory for storing the virtual machine configuration file does not exist, the confirmation for its creation may be asked: “Directory <directory name> does not exist. Do you want to be created automatically?” Click **Yes**. A new directory will be created.

4 While the virtual machine is being copied, the **Copying in progress** screen indicates the current state of the process. If everything is OK, the Wizard informs you that copying has been performed and a new machine is ready. Click **Exit** to close the Wizard.



A new instance of Parallels Desktop is opened with the new virtual machine loaded, if you have selected the corresponding option on the **Specify new virtual machine name and location** screen.

Keyboard Shortcuts in a Virtual Machine

How to Right-Click If Mouse Does Not Have the Right Key

If your mouse does not have the right key, you are probably used to pressing Ctrl+click combination instead. Parallels Desktop gives you the option of using the Ctrl+click combination for standard selection operation and proposes two other ways to perform a right-click in virtual machine:

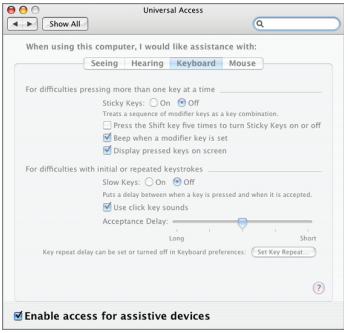
- Press a key combination plus mouse click simultaneously.
  By default Ctrl+Shift+click the mouse key is defined. You may set other keys on the **Preferences ➧ Hot Keys** tab.
- Click with delay.
  You have to click and hold the mouse button until the context menu is displayed. Preferred delay is specified on the slider on the **Preferences ➧ Hot Keys** tab.
  By default this method is disabled and is to be enabled manually on the **Preferences ➧ Hot Keys** tab.

Using Mac System Keyboard Shortcuts in a Virtual Machine

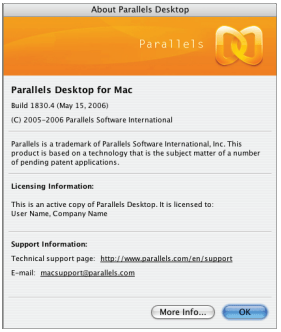
Mac keyboards have a set of system keys, and problems may result when using these keys in a Virtual Machine. For instance, the F9 - F12 keys are reserved for Dashboard & Expose operation, whereas F11 can be handy in Windows Internet Explorer for full screen mode. To be able to use this Mac shortcuts with a virtual machine keyboard, do the following:

1. In Mac OS X, open **System Preferences**, and click **Universal Access** in the **System** section.

2 In the **Universal Access** window select **Enable access for assistive devices** option.



About Parallels Desktop Screen



The upper part of the **About Parallels Desktop** screen provides information on the number of the build you are using, the full name of the vendor and link to its site, and copyright and trademark information as well.

Licensing Information

- indicates your type of activation and to whom this copy is licensed.

Support Information

- contains the contact information of the Parallels technical support group.

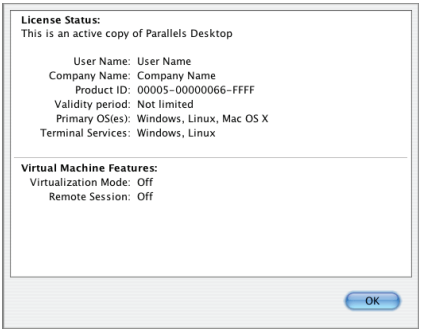
Buy Online and/or **Evaluate** buttons

- are provided if you have a trial activation or did not activate your copy at all. If you have activated the program with a permanent activation key, none of these buttons will be displayed. See *Activating Parallels Desktop* for a detailed description of the processes of receiving a key and activating.

More Info button

- opens the screen with details of your license and set of indicators.

More Information



License Status:

- **User Name** and **Company Name** contain information about your name and the name of your company that you entered in the **Activate Product** window.
- **Product ID** displays the identification number of your copy of Parallels Desktop as well as the following information: the version of the Parallels Desktop, license number, and the abilities covered by your license that are displayed in the **Primary OSes** and **Terminal Services** fields.
- **Validity period** shows the date until your license is valid.
- **Primary OSes** indicates which primary operating systems are allowed by your license.
- **Terminal Services** displays which primary operating systems are able to access Parallels Desktop remotely.

> **Note:** *The same license information is displayed in the* **Activate Product** *window. See Activating Parallels Desktop.*

Virtual Machine Features:

This group contains indicators that are active only when the guest OS is running. Otherwise they are off.

- **Virtualization mode** shows *Intel VT-x* if you work on an Intel VT-enabled processor and Virtualization Technology is activated through the virtual machine configuration setting available on the VM Flags tab of the **General Options**. See *Intel Virtualization Technology (VT-x) Support* for a full description of VT-x.
  If you are running without Virtualization Technology, the virtualization mode indicates the acceleration level. All guest OSes, besides Windows NT/2000/XP/2003, run in *Software mode 0*. Windows NT/2000/XP/2003 starts with *Software mode 0*, then switch to *Software mode 1* and *Software mode 2* in case the **Acceleration Level** setting (on the VM Flags tab of the **General Options**) is set to *High*.
- **Remote session** indicates if Parallels Desktop is executed on a remote server.

Deleting a Virtual Machine

Virtual machines can be deleted manually, however we recommend doing it using the **Delete VM Wizard** that detects all the files that make up the virtual machine and are connected to it.

The Wizard helps remove the following virtual machine components and associated files:

- configuration file,
- virtual hard disk drives connected to the virtual machine,
- CD/DVD disc .iso images connected to the virtual machine (if any),
- floppy disk image (.fdd or other) connected to the virtual machine (if any),
- output files of serial and parallel ports (if any),
- home directory where virtual machine files are stored.

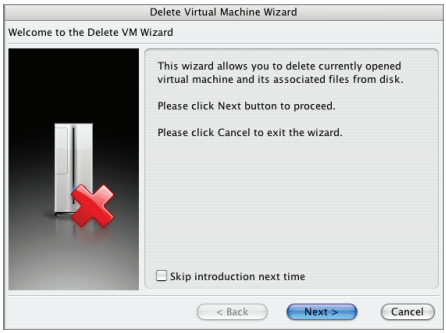
The Wizard can delete a currently opened virtual machine that meets the following conditions:

- Its guest OS is not running. If it is running, the menu item that starts the wizard is disabled.
- The virtual machine is not opened by another instance of Parallels Desktop.
- The virtual machine is not blank.

To delete a virtual machine:

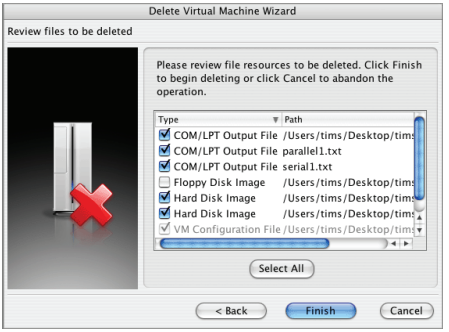
1 Open the desired virtual machine.

2 Select **Delete VM** in **VM** menu. The **Welcome to the Delete Virtual Machine Wizard** screen is opened. Click **Next**.



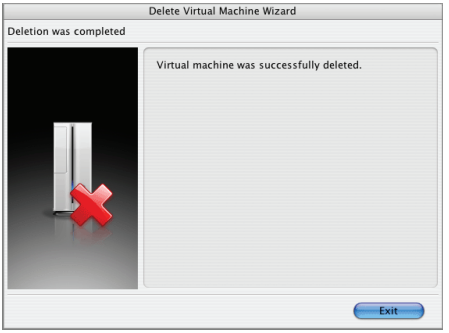
3 The Wizard detects all files related to the virtual machine and presents them on the **Review files to be deleted** screen. Each device/file is displayed in a separate string, i.e. if two hard disks are connected to the virtual machine, there will be two hard disk strings on the screen. The full path is displayed for each component.

The configuration file, virtual hard disk, output files of serial and parallel ports, and the home directory are pre-selected for deleting while connected CD-ROM .iso images and floppy .fdd (or other) images are not, because they can be useful for other virtual machines. If you do not consider them to be useful, mark them for deletion on this screen. Note that virtual hard disks can also be attached to other virtual machines.



Review selected files, check those that should be deleted and click **Finish** when you are ready.

4 The virtual machine wizard removes the selected files from your hard disk. If everything is OK the final wizard screen will appear:



The virtual machine is considered to be successfully deleted if all the selected components or all selected components except the home directory (if it was chosen for deleting) have been removed. If the home directory contains any files it will not be deleted.

Click **Exit** to close the wizard.

After the virtual machine is deleted, a blank VM is opened in the Parallels Desktop screen. The deleted machine disappears from the list of recently used configurations in the **File** menu.

9

USING PARALLELS COMPRESSOR

Parallels Compressor is a new, easy-to-use Parallels tool which will help you keep your virtual machines efficient for many purposes.

Parallels Compressor allows users to:

- effectively clean up disk space in a virtual machine
- significantly reduce the size of virtual hard disks
- efficiently use the real hard disk resources
- easily share smaller virtual disks by burning them to CD/DVDs or moving them over a network.

Chapter 9 at a glance:

How Does Parallels Compressor Process a Virtual Machine?

Compressor processes a virtual machine in the following way:

- Deletes unnecessary files on the current system.
- Defragments virtual disks of all formats and cleans up unused space.
- Compacts expanding disks.

The actions performed on your particular virtual machine depend upon the running mode: *automatic* or *manual* :

- In *automatic* mode Parallels Compressor compresses only the current system disk performing the pre-defined set of actions. If this disk is plain, it will not be compacted.
- In *manual* mode you are able to choose disks to compress and actions to perform.

More about running modes and other Compressor properties can be found in the Options of Parallels Compressor section.

Steps of the Compression Procedure

Parallels Compressor is designed to perform the most efficient compression of a virtual machine, including compacting of virtual disks that can significantly increase the ratio of useful data in your virtual machine. The procedure consists of two steps:

- a preparatory step performed in the guest operating system (deleting of temporary and unnecessary files, cleaning up of unused disk space); and
- a compacting step (reducing virtual disk size) performed in the primary operating system.

Requirements for the Guest Operating System

To run Parallels Compressor your virtual machine should have one of the following guest operating systems installed:

- Windows Server 2003 Standard Edition SP0, SP1
- Windows Server 2003 Enterprise Edition SP0, SP1
- Windows Server 2003 Web Edition SP0, SP1
- Windows Server 2003 Small Business Edition SP0, SP1
- Windows XP Professional Edition SP2
- Windows XP Home Edition SP2
- Windows 2000 Professional SP4
- Windows 2000 Server SP4
- Windows 2000 Advanced Server SP4

In other guest operating systems we recommend using the Disk Compacting Tool.

How to Run Parallels Compressor

Before Starting Parallels Compressor

Before starting Parallels Compressor perform the following steps:

1 Back up your virtual machine by cloning it or by copying its hard disk files to a safe location.
This enables you to restore your VM in case you do not like the results of the compression, as this operation is irreversible.

> **Note:** *The result of virtual machine compression is irreversible. Before starting Parallels Compressor please back up your virtual machine.*

2 Make sure your virtual machine configuration includes the CD/DVD-ROM drive.

If it does not:
- power off the virtual machine,
- open the Configuration Editor,
- add a CD/DVD-ROM drive into the configuration if it is not included. Refer to Adding New Devices to Virtual Machine for details,
- on the CD/DVD-ROM Options tab make sure that the **Enabled** check box is selected.

How to Start Parallels Compressor

To start Parallels Compressor:

1 Power on the virtual machine you want to compress.

2 Log in to the guest operating system as a user with administrator rights.

> **Note:** *To run Parallels Compressor in a virtual machine you must have administrator rights in the guest operating system.*

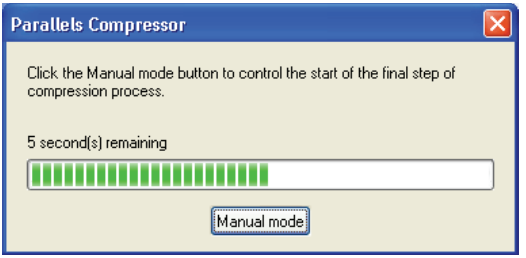
3 Select **VM ➧ Start Parallels Compressor** in the menu.

Running Parallels Compressor

Parallels Compressor has the following running modes:

- *automatic*, the default mode. In this mode Compressor uses the default compression options.
- *manual*, Parallels Compressor runs as a wizard which helps you select the options of virtual machine compression.

When you start Parallels Compressor, the ISO file with Compressor is connected to the virtual CD/DVD-ROM and displays the dialog box with a time indicator. The time indicator shows the time remaining until Parallels Compressor will run in automatic mode (timeout is about 10 seconds).



To run Parallels Compressor:

- in *automatic* mode, don't do anything, just wait until the timeout expires. Detailed information about running Compressor in this mode is given in the Compression in Automatic Mode topic.
- in *manual* mode, press the ESC key or click the **Manual Mode** button on the dialog box before the timeout expires. Detailed information about running Compressor in this mode is given in the Parallels Compressor Wizard topic.

After Compressing Is Finished

When Parallels Compressor finishes its work, it disconnects the ISO with Parallels Compressor from the virtual machine and restores the previously existed connection. If the connection is not restored automatically:

- select **VM / Cancel Parallels Compressor** in the menu.

> **Note:** *Do not perform this command when Parallels Compressor is running. If the ISO file is disconnected during the process, the virtual machine may behave unpredictably.*

Also refer to Further Reducing Disk Size to get an idea of what else you can do to compress virtual hard disks.

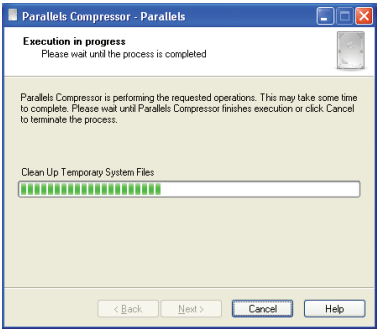
Compression in Automatic Mode

In *automatic* mode Parallels Compressor uses the following default options:

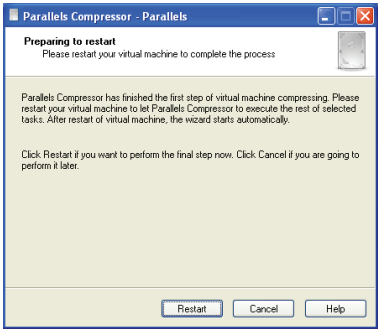
- only one virtual system disk is being processed (if the virtual machine has several system disks, the one which the VM was booted from is compressed);
- compression is performed at the High level, and all compression tasks will be executed, except for **Clean up Drivers Cache**, which will be skipped.

> **Note:** *During its work, Parallels Compressor displays several dialog boxes. Although they are used for information purposes, you can click* **Cancel** *any time to stop Parallels Compressor or click the* **Help** *button to get necessary information.*

1 Parallels Compressor displays the **Execution in progress** dialog box that informs what tasks are being executed.

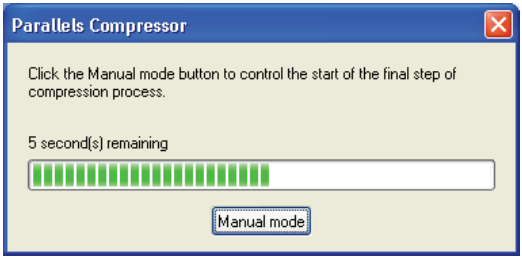


2 The next screen states that Parallels Compressor is going to restart the virtual machine.

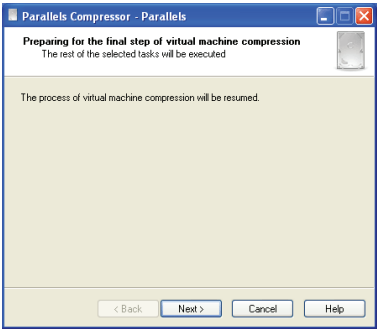


3 Parallels Compressor restarts the virtual machine.

4 After restart, it displays the dialog box with the time indicator which shows the time remaining until Parallels Compressor will continue the execution of compression tasks.

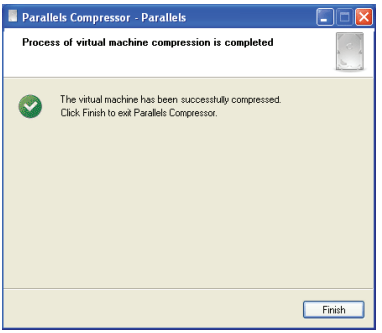


If you click the **Manual mode** button before the timeout expires, you can postpone the execution of the remaining tasks. In this case you will see the dialog box below. Click **Next** at any time to let Parallels Compressor continue the compression.



5 When Parallels Compressor resumes the execution of compression tasks (after restart of the virtual machine), it informs of the tasks currently being performed on the **Execution in progress** dialog box.

6 When Parallels Compressor successfully finishes its work, you will see the following screen.

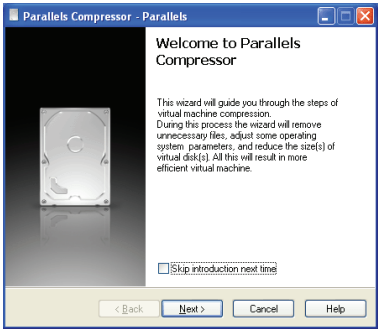


Click **Finish** to exit Parallels Compressor.

Parallels Compressor Wizard

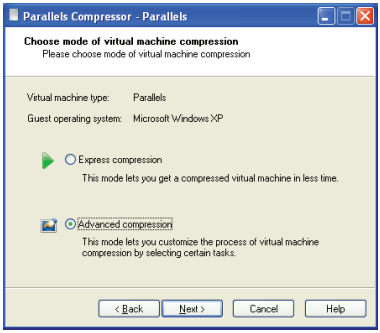
In *manual* mode, Parallels Compressor starts as a wizard.

1 The wizard displays the Welcome screen.



If you'd like to skip the **Welcome** screen next time you run the wizard, select the **Skip introduction next time** check box. Click **Next** to continue.

2 **Choose mode of virtual machine compression**. At this step, the wizard detects the type of virtual machine and the guest operating system installed. The wizard prompts you to choose between **Express** compression and **Advanced** compression.



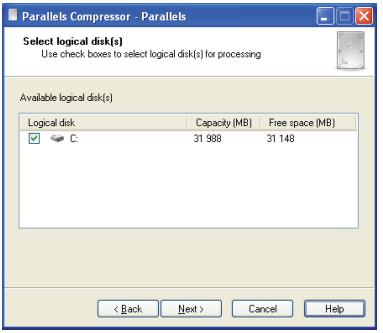
If you choose **Express** compression, the wizard will use the default options specific for the type of virtual machine and guest operating system.

If you choose **Advanced** compression, you will be able to select certain options of compression.

3 **Select Logical Disk(s)**. The wizard determines what hard disks are available in your virtual machine. Please read the Selecting Logical

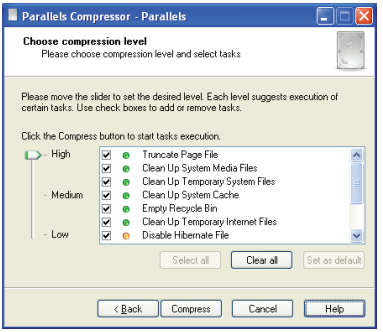
Disks for Compression topic if you are not sure what disk formats are supported.

Use check boxes to select disk or disks.



Click **Next**. If you selected **Express** compression in the **Step 3** then go straight to **Step 6**.

4 **Choose Compression Level**.



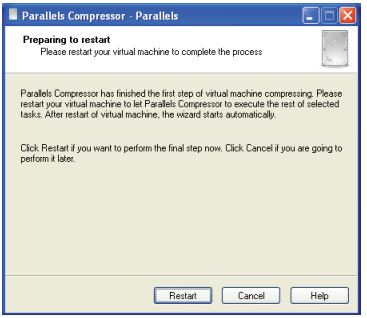
The wizard prompts you to choose the Compression level. There are three levels: *High, Medium, Low*.

To choose the level, place the cursor over the level slider and smoothly move slider to the desired level or just click the levels consecutively starting from High until the slider reaches the desired level.

Each level suggests that certain tasks be executed. Additionally, you can select check boxes for tasks you want to be executed and clear the check boxes for tasks you don't want to be

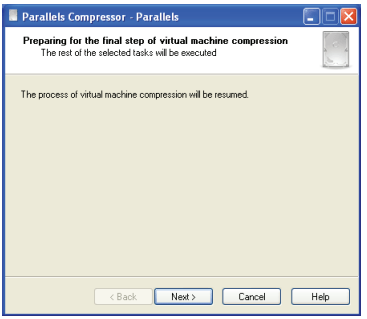
executed. You also can click the **Select all** button to select all tasks or click **Clear all** to clear all check boxes. Click **Set as default** to restore the selection of tasks that are default for the chosen level.
The check box for the **Compact virtual disk** task is always disabled.
Click the **Compress** button. The wizard starts executing the selected tasks, and you can see the progress of the operation.
If you cleared the check box for the **Truncate page file** option, the wizard skips **Step 5** and **Step 6**.

5 **Preparing to restart**. Depending on the tasks you have selected on the previous step, the wizard may require restarting the computer .



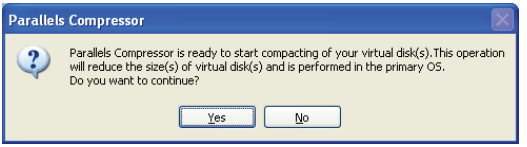
Click **Next** to restart your virtual machine.
If you click **Cancel** the process of virtual machine compressing will be resumed automatically the next time you start your virtual machine.

6 After the restart is complete, the wizard is ready to resume the execution of tasks. Click **Next**.



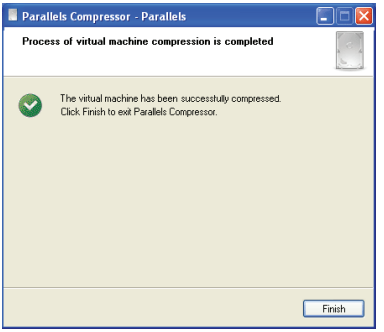
7 On the wizard's next dialog box, you can see the progress of operations. If you have chosen **Express** compression, the wizard performs the disk compacting without prompting you to confirm this operation.

8 Disks compacting is the final step of compression.



Click **Yes** to perform the operation. Click **No** to skip disk compacting.
The compacting of a selected virtual disk will not be performed if a selected disk is in plain format or not a system disk. For more information please refer to the Selecting Logical Disks for Compression topic.

9 Compression of the virtual machine is completed.



Now, your virtual machine is compressed and its expanding disks are significantly reduced in size.

Options of Parallels Compressor

This Section describes in detail all the options of Parallels Compressor available in *manual* mode.

Running Modes

Parallel Compressor has two running modes:

- **Automatic**. Default running mode. In automatic mode, Parallels Compressor performs Express Compression without prompting the user to confirm operations.
- **Manual**. Parallels Compressor runs as a wizard which helps you choose various compression options.

Once launched, Parallels Compressor displays the dialog box with a time indicator showing the time remaining until Parallels Compressor will run in automatic mode.

To run Parallels Compressor in **automatic** mode don't do anything, just wait.

To run Parallels Compressor in **manual** mode press the ESC key or click the **Manual mode** button before the timeout expires.

Command-line keys for Parallels Compressor

The current version of Parallels Compressor has the following keys:

- **/A** - to start program in automatic running mode;
- **/Q** - to disable messaging ("quiet mode");
- **/G <cmdline>** - to start third party defragmentation tool instead of the tool used by Parallels Compressor, <cmdline> stands for the path and name of such tool;
  /H - to open help panel with the list of available keys.

Comments to command line format

- The program name and key are separated by a space.
- If spaces are used in the **<activation key>** or in **<cmdline>**, enclose the expression in double quotes as follows:
  ParallelsCompressor /G"C:\Program Files\...defrag.exe"
- There is no space between the key and its parameter as in the example above.

Express and Advanced Modes

When launched in manual mode, Parallels Compressor offers to choose the compression mode in which the virtual machine will be processed:

- **Express** compression. Recommended for all users. By default, in this mode, the compression is performed at the high level. That means, all compression tasks will be executed except for **Clean up Drivers Cache** (which is skipped by default). During Express compression, only one virtual disk is processed, the current system disk.
- **Advanced** compression. Recommended for advanced users only. In **Advanced** compression mode, the wizard lets the user select options: logical disks, desired compression level, and which tasks to execute.

Selecting Logical Disks for Compression

A virtual machine may have several virtual disks. In manual mode you can select one or more logical disks for compression.

In the **Select Logical Disks** dialog box, Parallels Compressor displays the list of virtual machine's disks in expanding and plain formats.

Please take into account the limitations discussed below.

Virtual machine compression is performed in two steps:

- disk cleaning: removing unnecessary files, disk defragmenting
- disk compacting: reducing the size of a virtual disk file performed in host operating system

Expanding disks

Both steps can be performed only on a virtual disk in expanding format.

Plain disks

Parallels Compressor performs only a disk cleanup step on selected plain disks, system or not; disk compacting can not be done for plain disks.

Compression Levels

Parallels Compressor supports three levels of compression: Low, Medium, High. Each level suggests the execution of certain tasks. The wizard displays the complete list of such tasks.

The complete list includes the following tasks:

- Truncate Page file (recreates the system page file of smaller size);
- Clean Up Temporary System Files (deletes temporary files used by the system for acceleration of operations);
- Clean Up System Cache (temporary data stored by system on disk to increase performance);
- Empty Recycle Bin (permanently removes previously deleted files from the Recycle Bin);
- Clean Up Temporary Internet Files (cleans up the Internet Explorer cache, deletes cookies, history, address bar, temporary files);
- Disable Hibernate file (disables hibernate file which stores the virtual machine memory when the virtual machine is turned off);
- Compact virtual disk(s) (reduces the size of disk in host (primary) operating system);
- Clean Up Temporary Setup Files (deletes installation files used by MS Office and other programs);
- Clean Up System Media Files (deletes temporary files used by Media Player);
- Clean up Drivers Cache (empties the cache for the most popular drivers. If you are going to install new hardware, clear this check box);
- Clean Up System Restore Information (deletes data related to the last successful system loading).

By default, tasks are assigned to the compression level in the following way:

- High level: all tasks on the list (those marked by , ,)

- Medium level: all tasks marked by and
- Low level: only tasks marked by

The desired level of compression can be chosen with the help of a slider which has three positions: *Low, Medium, High*. For each task on the list there is a check box. When the slider is at the *High* position all tasks are selected. Moving the slider from the *High* to *Medium* position, clears check boxes for tasks marked by ; moving the slider to the *Low* position clears check boxes for tasks marked by and leaves selected only those tasks which are suggested for execution at the *Low* level ( ).

Additionally, with any level chosen, you can add/remove tasks by selecting or clearing corresponding check boxes. To restore the selection of tasks default for the chosen level, click the **Set as default** button.

> **Note:** *The check box for the task:* **Compact virtual disk(s)** *- cannot be cleared; this task is mandatory for each level.*

In **Express** compression mode (or in automatic mode) all tasks are executed as suggested by the *High* level, only the **Clean up Drivers Cache** task is skipped.

Advanced compression allows users to select any set of tasks.

Further Reducing the Disk

After you have run Parallels Compressor you can further reduce the disk size.

If you are going to share the virtual machine files with other users, then the smaller its disks are, the better. Once Parallels Compressor has completed its work, turn off the virtual machine. Running the virtual machine after compression has been completed will increase its system disk file (the system page file increases as the virtual machine is running). As the virtual hard disk is just a file on your computer, you can archive it with WinZip or WinRAR, whatever you prefer. The size can be reduced by 50% or more.

10

USING THE PARALLELS IMAGE TOOL

This chapter provides all the information necessary to use Parallels Image tool. Since a virtual machine operates virtual hard disks which are image files and uses virtual CD/DVDs which are images of real discs, the Parallels Desktop package includes a special tool for creating and supporting images - the Parallels Image Tool, which is automatically installed along with Parallels Desktop.

Chapter 10 at a glance:

Overview

Parallels Image Tool allows you to:

- modify existing images of virtual hard disks including conversion of images to other formats (see the *Format of The Virtual Disk* in the Hard Disk Images topic),
- create ISO images of real CDs or DVDs.

The Image Tool can perform the following operations on hard disk images:

- Increase the disk size of a hard disk image.
  Both expanding and plain disks can be enlarged. Note that disk size can not be reduced.
- Convert a plain hard disk image to an image in expanding format.
  The result of the conversion can be saved in the same file as well as in another one.
- Convert an expanding hard disk image to an image in a plain format.
  The result of the conversion can be saved in the same file as well as in another one.
- Defragment an expanding hard disk image.

Parallels Image Tool is designed as a wizard. The wizard guides you through all the steps necessary to perform the required operation on the image. Furthermore, the wizard keeps all your previously selected options between uses in case you often perform the same operation.

How to Start Image Tool

To start the Parallels Image Tool:

1 Click on the **Finder**.

2 Select **Applications**.

3 On the list of available applications find the **Parallels** folder, click to open it.

4 Double-click the **Image Tool** icon.

Modifying Hard Disk Images

> **Warning:** *Before you start modifying an image of a virtual hard disk, please always back it up.*

Requirements for Source Disk

The modifying operations require that the source hard disk image should not be in use by a running virtual machine.

Checking Disk Format

When selecting a disk image to modify, make sure that you select the source hard disk image of a proper format.

To check the disk format do the following:

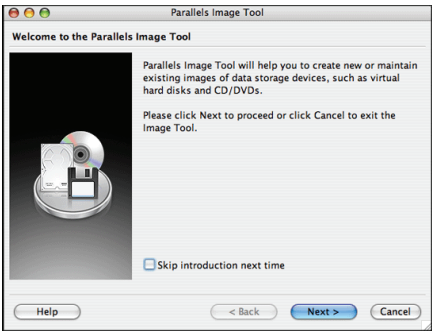
1 Open the configuration of any virtual machine that includes this virtual hard disk.

2 In the **Configuration Editor** open the Advanced tab of the **Hard Disk Options**

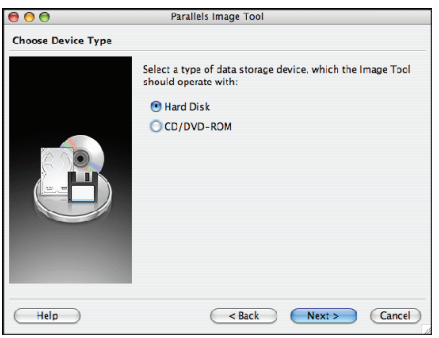
3 You will see the disk format in the **Disk format** field.

Using the Wizard to Modify an Existing Hard Disk Image

1 Start the Parallels Image Tool. Upon startup, the wizard displays the **Welcome** screen. If you want to skip this screen next time you run the Image Tool, select the **Skip Introduction next time** check box. Click **Next**.



2 On the **Choose device type** screen select the **Hard Disk** option and click **Next**.

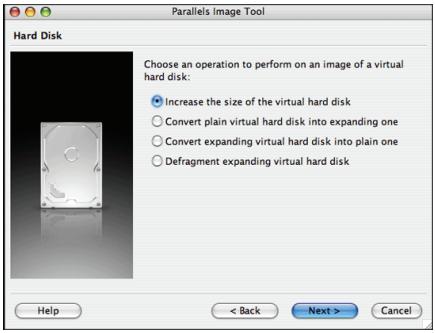


3 On the **Hard Disk** wizard's screen choose the operation you want to perform on the virtual hard disk.

There are four available operations for virtual disks images:

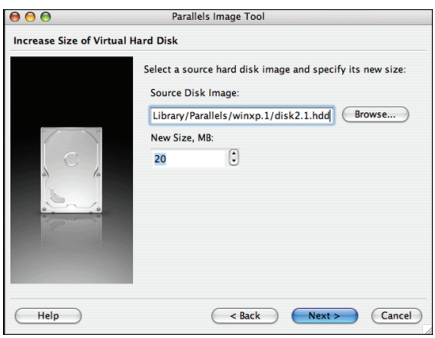
- **Increase size of hard disk image** to make a hard disk image larger,
- **Convert plain hard disk image into expanding hard disk image** or create an expanding copy of a plain hard disk image,
- **Convert expanding hard disk image into plain hard disk image** or create a plain copy of an expanding hard disk image,
- **Defragment expanding hard disk image** to optimize files arrangement on a virtual disk and to increase disk operation speed.

Choose the operation, then click **Next**.

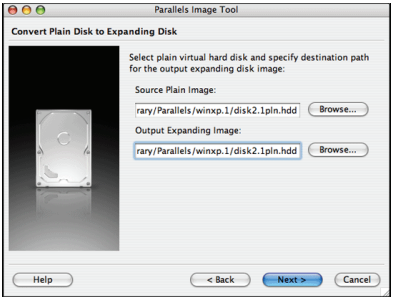


4 Next, you have to specify the options for the selected operation. On the **Increase Size of Virtual Hard Disk** screen select the source hard disk image and the new size for the disk. Use the **Browse** button to locate a file. Use the spinner buttons next to the **New Size** field to set the required value.

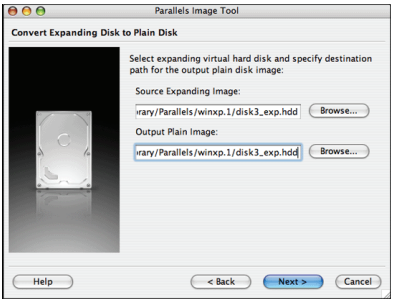
> **Note:** *Parallels Image Tool doesn't allow you to decrease the image size.*



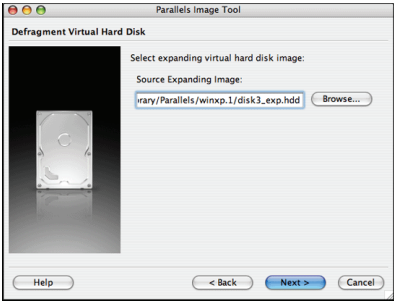
On the **Convert Plain Disk to Expanding Disk** screen select a source plain disk image using the **Browse** button. Once the source file is selected, the same name appears in the **Output Image File** field. If you want to save the result of the conversion into a different existing or a new file, use the **Browse** button to the left of the field.



On the **Convert Expanding Disk to Plain Disk** screen select a source expanding disk image using the **Browse** button. Once the source file is selected, the same name appears in the **Output Image File** field. If you want to save the result of the conversion into a different existing or a new file, use the **Browse** button to the left of the field.



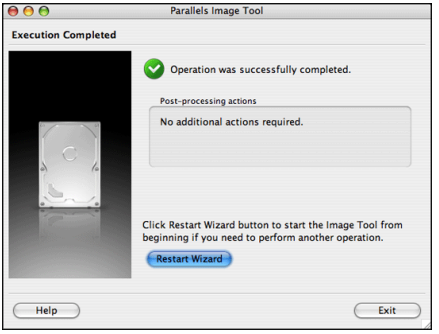
On the **Defragment Virtual Hard Disk** screen specify the name of a source hard disk image. Use the **Browse** button to locate the required file.



Click **Next**.

5 The wizard will display the chosen operation and selected options on the **Review Processing Options** screen.
Carefully review the settings (operation, source image file, and destination file if present, etc.). If everything is correct, click the **Start** button to start the desired operation.

6 While the operation is being performed, the **Execution in progress** screen is displayed. After the disk image is created, the **Execution completed** screen appears. Close the Wizard by clicking the **Exit** button.



The new disk image is ready and you can connect it to a virtual machine in the Configuration Editor. See *Adding New Devices to Virtual Machines* to learn how to connect to a new hard disk image to a virtual machine, or the Hard Disk Options to learn how to replace one of the currently connected hard disks with the new one.

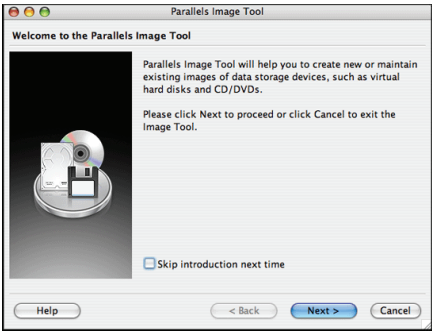
Also see the *Hard Disk Images* section for ideas on using hard disk images in Parallels Desktop.

Creating Images of CD/DVD discs

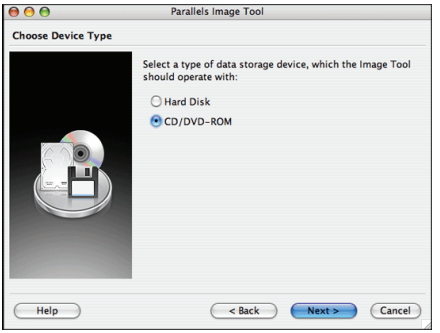
To create an image of a CD/DVD disc follow these steps:

1 Insert the required disc into the CD/DVD-ROM drive of your computer.

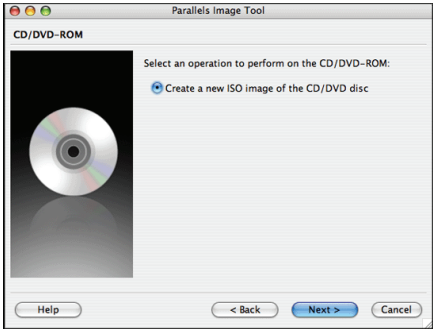
2 Start the Parallels Image Tool. Upon startup, the wizard displays the **Welcome** screen. If you want to skip this screen next time you run the Image Tool, select the **Skip Introduction next time** check box. Click **Next**.



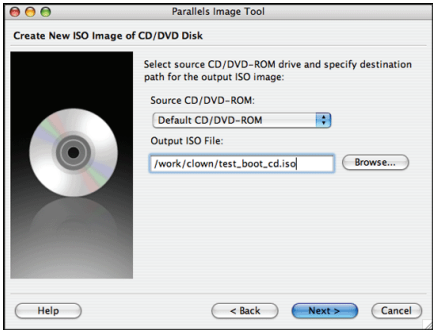
3 On the **Choose device type** screen select the **CD/DVD-ROM** option and click **Next**.



4 The **Select Operation Type** screen appears with the single operation **Create new ISO image of CD/DVD** already selected. Click **Next**.



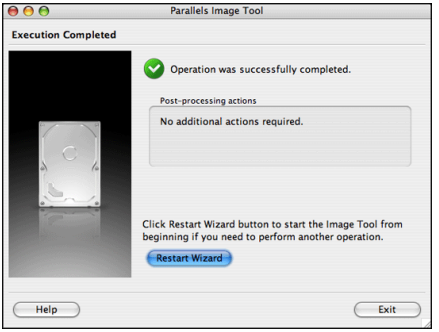
5 On the **Create New ISO Image of CD/DVD Disk** screen select the source device (CD/DVD-ROM on your Mac), and specify a destination folder and a name of the CD/DVD image file. Use the **Browse** button to select an existing file or specify a new file. Click **Next**.



6 The wizard will display the chosen operation and the selected options on the **Review Processing Options** screen. Carefully review the settings (operation, source device, and destination file). If everything is correct, click the **Start** button to begin the operation.

7 While the operation is being performed, the **Execution in progress** screen is displayed. Wait until the operation is completed.

8 After the disc image is created, the **Execution completed** screen appears.



Click the **Restart Wizard** button to continue if you'd like to process more objects or perform other operations. Click the **Exit** button to close the wizard.

The disc image is created and placed in the destination folder specified in step 5 and can be connected to a virtual machine CD/DVD-ROM drive. See the *CD/DVD-ROM Options* section to learn how to connect an .iso image to CD/DVD-ROM drive of a virtual machine.

Also see the *CD/DVD-ROM Real Disks and Images* section for ideas of using CD and DVD disc images in Parallels Desktop.

11

TROUBLESHOOTING

Chapter 11 at a glance:

Frequently Asked Questions

How I can enable other screen resolutions in a Windows guest OS?

You need to have Parallels Tools installed in the virtual machine to enable this functionality. See Chapter 5: Installing Parallels Tools in the user guide.

How do I switch from full screen mode to windowed mode?

Press Control + Option.

How do I go to full screen mode using the keyboard?

Assuming you have not redefined the keys, use Command+Return.

Can I boot Windows XP in Parallels Desktop using my Boot Camp partition?

No. At this point in time, you must use the hard drive support within Parallels Desktop.

Which graphic applications can run inside a virtual machine?

Currently, Parallels Desktop has video support that is equivalent to VGA and SVGA with VESA 3.0 support. With this you can run any 2D graphic application inside a virtual machine.

Could the partitioning of VM's hard disk affect the real hard disk?

The virtual hard disk used by the virtual machine is a virtual container. As far as Mac OS X is concerned it is a normal file to which all the changes are written, so its partitioning, formatting and other changes don't affect your real hard disk.

Can my Windows virtual machine be infected with viruses?

Yes, though it is limited to the Windows virtual machine. Your Macintosh should not be affected. You should run the standard anti-virus and anti-spyware tools if your virtual machine is connected to the Internet.

For additional FAQs go to http://www.parallels.com/en/support/faq/

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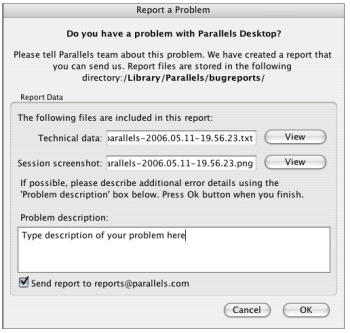
Reporting a Problem to the Parallels Team

In order to enhance the quality of Parallels Desktop product, you are able to send feedback to Parallels Software International Inc. in the form of problem reports. In the case of a fatal error inside a Virtual Machine, Parallels Desktop automatically opens the *Report a Problem* dialog box proposing user to send a report. You may also decide to send a report on your own if you should ever encounter incorrect system behavior.

Automatically Generated Reports

Fatal errors in a virtual machine lead to the automatic generation of a virtual machine status report which takes a console screenshot and opens the *Report a Problem* dialog box for a user to decide whether he/she wants to send the report to Parallels Software corporation. The *Report a Problem* dialog box contains the following elements.



The Technical data field shows the name of the .txt status report file that has been generated in accordance with the error. The status report holds information on the product version, your activation data, primary and guest OSes information, processor status, and so on. You can update the data if necessary. Click **View** to open the report in the text editor.

The Session screenshot field holds the name of the .jpg console screenshot that has been made in accordance with the error. To see the screenshot click the **View** button.

You may add a verbal description of the situation in the Problem description box. The text you enter here is saved in the status report in a separate block when you close the *Report a Problem* dialog box by clicking **OK** button.

To send the report to the Parallels corporation:

1 Click the **OK** button in the *Report a Problem* dialog box.

2 Launch your e-mail client application, create a new letter and attach the status report and the console screenshot to it. They are located in the following directory:
/Library/Parallels/bugreports/
The format of status report's names and screenshots are the following:
parallels-yyyy.mm.dd-hh.mm.ss.<txt/png>

3 Enter the following e-mail address for the recipient:
reports@parallels.com

Creating a Report Manually

To create a problem report, select Report a Problem in the Help menu. A report is generated which contains technical data collected at the moment that the Report a problem command was activated. If a guest OS is running, a console screenshot is made.

To send a report, perform the same actions as you would for an automatically generated report.

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