

# Getting Started With Parallels Desktop® 4

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## CHAPTER 1

# Introduction

This guide provides general instructions on installing Parallels Desktop, setting up and configuring a typical virtual machine.

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## About Parallels Desktop

Parallels Desktop is a virtualization solution that enables you to create virtual machines on computers with Intel® processors (1.66 GHz and faster) and a Windows or Linux operating system installed. You can install a Windows, Linux, or another supported guest operating system in each of your virtual machines and work with them and their applications side by side with the applications of the primary operating system installed on the physical computer.

Built on Parallels' hypervisor-based virtualization technology, Parallels Desktop enables you to:

- create powerful and easy-to-use virtual machines
- use Windows and Linux applications side by side with the primary operating system applications

To enhance your experience of running more than one operating system on your physical computer, Parallels Desktop includes several add-on utilities:

- Parallels Transporter® for migrating physical computers and third-party virtual machines to Parallels virtual machines
- Parallels Image Tool for maintaining the capacity and other properties of your virtual hard disks
- Parallels Compressor® for compressing the data stored on Windows virtual hard disks

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## Getting Help

Parallels Desktop offers several options for accessing the necessary information:

- **Parallels Desktop User's Guide.** This document contains extensive information about the product, its usage and, troubleshooting. You can access the guide by choosing **Parallels Desktop Help** from the **Parallels Desktop Help** menu.
- **Online documentation.** The PDF documentation for Parallels Desktop and other Parallels products, such as Parallels Transporter, Parallels Image Tool, and Parallels Compressor. To open the online documentation page, choose **Online Documentation** from the **Help** menu.
- **Parallels Command Line Reference Guide.** This document contains information on using the `prlctl` command line utility designed to manage Parallels Desktop and its virtual machines from command line. To access the document, go to the Online documentation page on our website.
- **Parallels API references and the SDK programmer's guide.** These guides are aimed at IT-professionals mainly and can be found on the Online documentation page on our website.
- **Context-sensitive help.** You can open a help page for the active window by pressing **F1**.
- **Parallels website** (<http://www.parallels.com>). Explore the Support web page that includes product help files and the FAQ section.
- **Parallels Knowledge Base** (<http://kb.parallels.com/>). This online resource comprizes valuable articles about using Parallels Desktop and other Parallels products.

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## Feedback

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

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

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## Key Terms

**Guest Operating System (Guest OS).** An operating system installed inside the virtual machine. It can be a Windows, Linux, or another supported operating system.

**Primary Operating System (Primary OS).** The operating system that is loaded when you turn on your physical computer.

**Virtual Machine (VM).** A computer emulated inside the primary operating system. A virtual machine has its own virtual hardware and requires an operating system. The installed operating system and its applications are isolated within the virtual machine and share physical hardware resources with the physical computer.

## CHAPTER 2

# Installing Parallels Desktop

Parallels Desktop can be installed on a physical computer that has a Windows or Linux primary operating system and is based on a processor that supports Intel VT-x virtualization technology.

Before installing Parallels Desktop, make sure that your computer complies with the system requirements (p. 8).

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# System Requirements

Before installing Parallels Desktop, please make sure that your computer complies with the hardware and software requirements listed here.

## Hardware Requirements

- Minimum 1.66 GHz x86 (32-bit) or x64 (64-bit) CPU with the Intel VT-x or AMD-V hardware virtualization technology support.
- 2 GB RAM minimum. 4 GB RAM or more is recommended.
- The recommended amount of memory assigned to a virtual machine is 1-2 GB (you can assign up to 8 GB of RAM).
- 200 MB of hard disk space for the Parallels Desktop installation.
- About 30 GB of hard disk space for each virtual machine.

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

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

## Software Requirements

Parallels Desktop officially supports host computers with the following operating systems installed.

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

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### 32-bit operating systems

- Windows 7 (supported experimentally)
- Windows Vista SP1, SP2
- Windows XP Pro SP3
- Windows XP Home SP3
- Debian 5.0
- Fedora 11
- Mandriva 2009 Spring
- OpenSUSE 11.1
- RHEL 5.3
- SLES 11
- Ubuntu 9.04

### 64-bit operating systems

- Windows 7 (supported experimentally)
- Windows Vista SP1, SP2

- Windows XP Pro SP2
- Debian 5.0
- Fedora 11
- Mandriva 2009 Spring
- OpenSUSE 11.1
- RHEL 5.3
- SLES 11
- Ubuntu 9.04

In Linux operating systems, make sure the following software packages are installed:

- kernel development packages

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**Note:** In RedHat-based systems, such packages are called `kernel-<kernel_version>-devel`, in Debian-based systems - `linux-headers-<kernel_version>`.

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- gcc of the version with which the host kernel was compiled
- 32-bit version of glibc 2.3.6 or later
- make or gmake
- the 32-bit version of the `alsa-plugins-pulseaudio` package in the Fedora 10 (64-bit) operating system

For 64-bit systems, it is also desired to have 32-bit `alsa-lib` installed in RedHat-based systems or `lib32asound` in Debian-based systems.

If you do not have any of the aforementioned packages installed on your Linux-based physical computer, the Parallels Desktop installer will try to install it automatically.

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# Installing Parallels Desktop in Windows

Before installing Parallels Desktop on a Windows computer, make sure that it complies with the system requirements (p. 8).

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**Note:** You must have administrator's rights to install Parallels Desktop in a Windows operating system.

---

To install Parallels Desktop in Windows, you will need the Parallels Desktop setup file. The setup file is available:

- in the Parallels Desktop installation package that can be downloaded from the Parallels website
- on the Parallels Desktop installation disc included in the boxed version of Parallels Desktop

To install Parallels Desktop in Windows:

- 1 Locate the `ParallelsDesktop-4.0.xxxx.xxxxxx.exe` file and open it.
- 2 Parallels Desktop will connect to the Parallels update server and check for available updates. If there is a newer version of Parallels Desktop available, you will be offered to install the most recent version of Parallels Desktop. If you do not want to install the most recent version, you may choose to install the version from the installation media.
  - If you click **Install existing version**, Parallels Desktop will be installed from the installation media.
  - If you click **Download and install new version**, the latest version of Parallels Desktop will be downloaded and installed on your computer.

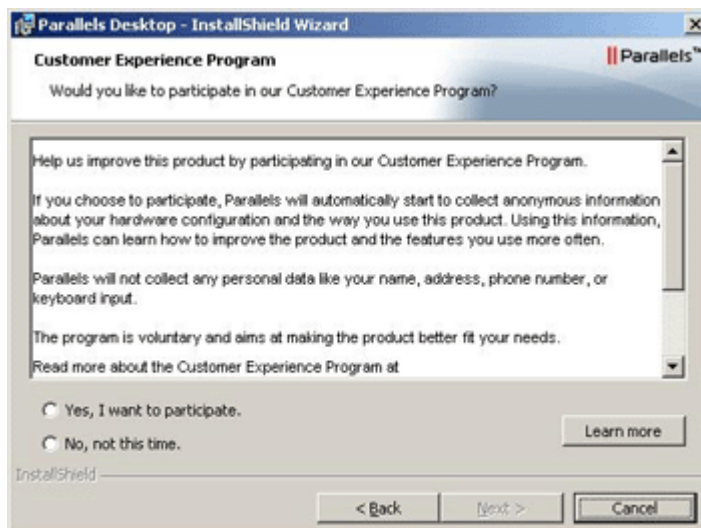
If there are no updates available or your host computer is not connected to the Internet, Parallels Desktop will be installed from the current installation source.

- 3 In the installation wizard **Welcome** window, click **Next**.
- 4 In the **License Agreement** window, read carefully the entire agreement. Select **I accept the terms in the license agreement**, and click **Next**.

You may print the license agreement for your records using the **Print** button.



- 5 In the Customer Experience Program window, you can choose to participate in the program that will help us improve Parallels Desktop according to your experience. Read carefully the information about the program and decide whether you want to participate in it or not. Click Next when finished.



- 6 In the Destination Folder window, specify the folder where Parallels Desktop will be installed and click Next. If you do not want to install to the default folder, click the Change button to specify another one.

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**Note:** Parallels Desktop must be installed on the boot volume.

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- 7 In the Ready to Install the Program window, click Install to start the Parallels Desktop installation or click Back to return to the previous steps.
- 8 You can see the installation progress shown in the Installing Parallels Desktop window.
- 9 When Parallels Desktop is installed, the Setup Wizard Completed window appears. Click Finish to exit the installer.

---

## Installing Parallels Desktop in Linux

Before installing Parallels Desktop on a Linux computer, make sure that the packages and libraries listed in the system requirements (p. 8) for Linux primary OSs are installed in your system.

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**Note:** You must have the `root` privileges to be able to install Parallels Desktop in a Linux operating system.

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To install Parallels Desktop in Linux, you will need a RUN installation package. The RUN package is available:

- in the Parallels Desktop installation package that can be downloaded from the Parallels website
- on the Parallels Desktop installation disc included in the boxed version of Parallels Desktop

To install Parallels Desktop in Linux:

- 1 Double-click the Parallels Desktop RUN package. This will open a terminal and start the installation.
- 2 Parallels Desktop will connect to the Parallels update server and check for available updates. If there is a newer version of Parallels Desktop available, you will be offered to install the most recent version of Parallels Desktop. If you do not want to install the most recent version, you may choose to install the version from the installation media.

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**Note:** If the host computer is accessing the Internet only via a proxy server, configure the proxy server settings to allow Parallels Desktop to check for available updates during the installation process. For more information on how to configure the proxy server settings, refer to the [Troubleshooting](#) subsection below.

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- If you click **Next**, the most recent version of Parallels Desktop will be downloaded and installed.
- If you click **Cancel**, Parallels Desktop will be installed from the current installation media.

If there are no updates available or your host computer is not connected to the Internet, Parallels Desktop will be installed from the current installation source.

- 3 The Parallels Desktop Installation wizard starts. In the **Welcome** screen, click **Next**.
- 4 In the **License Agreement** screen, read the license agreement scrolling it by pressing **Spacebar** on your keyboard. To accept the agreement, click the **Accept** button.
- 5 In the **CEP Agreement** screen, you can choose to participate in a program that will help us improve Parallels Desktop according to your experience. Read carefully the information about the program and click the **Yes** button if you want to participate in it. Otherwise click **No**.
- 6 When the installation is completed, the **Parallels Desktop Installation completed** screen appears. Click the **Exit** button to close the wizard.
- 7 To exit the terminal, enter:

```
exit
```

## Troubleshooting

If the host computer is accessing the Internet only via a proxy server, you should configure the proxy server settings to allow Parallels Desktop to check for available updates during the installation process. To this effect, begin the Parallels Desktop installation as follows:

- 1 Launch a terminal, locate the Parallels Desktop installation package, and execute the following command to start the installation:

```
sudo ./parallels-desktop-4.0.xxxx.xxxxxx.run -- -p proxy_server_host_name:port
```

or

```
sudo ./parallels-desktop-4.0.xxxx.xxxxxx.run -- -p ip_address:port
```

where *proxy\_server\_host\_name* stands for the proxy server host name, *ip\_address* stands for the proxy server IP address, and *port* stands for the proxy server port.

- 2 Continue the installation as it was described above.

If the proxy-server requires authentication, you will be prompted to enter your name and password in one of the steps.

---

# Upgrading from Parallels Workstation 2.2 to Parallels Desktop for Windows and Linux

To upgrade from Parallels Workstation 2.2 to Parallels Desktop for Windows and Linux, you should purchase the Parallels Desktop upgrade from Parallels Online Store (<http://www.parallels.com/en/buyonline>). An upgrade activation key will be sent immediately to the e-mail address you provided.

Before the upgrade, you should stop all your running virtual machines and exit Parallels Workstation 2.2. Generally, the upgrading procedure for Parallels Desktop is the same as for its installation. See *Installing Parallels Desktop* (p. 7).

You do not have to remove Parallels Workstation 2.2 before the upgrade: the installer will remove it automatically before installing Parallels Desktop for Windows and Linux.

## Using an Upgrade Activation Key

After you have installed Parallels Desktop for Windows and Linux, you should activate it with an upgrade activation key. To launch the activation process, choose **Activate Product** from the **Help** menu and enter your upgrade activation key and the required information in the **Activate Product** dialog. If you purchased your upgrade activation key for Parallels Desktop for Windows and Linux, you may need to confirm that you have a valid permanent key for Parallels Workstation 2.2:

- If you activated Parallels Workstation 2.2 with a permanent key, you will need to enter the upgrade key only.
- If you activated Parallels Workstation 2.2 with a trial activation key, you will be prompted to enter both keys: the upgrade key for Parallels Desktop for Windows and Linux and the key you used with Parallels Workstation 2.2.
- If you purchased Parallels Workstation 2.2 but have not installed it on your physical computer, you will need to install only Parallels Desktop for Windows and Linux and activate it using two keys: the upgrade activation key and a permanent key for Parallels Workstation 2.2.

## Converting Your Virtual Machines to the New Format

Parallels Desktop for Windows and Linux uses a new format of virtual machines. When you start a virtual machine created in Parallels Workstation 2.2, you will be asked to convert it to the new format. When prompted to convert the virtual machine to the new format, choose one of the following:

- Click **Convert** to start the process. This operation is irreversible. If you choose this option, you will not be able to convert the virtual machine back to the old format.
- Click **Backup & Convert** to start the process. In this case, the virtual machine will be backed up and then converted to the new format. If you need to start this virtual machine in Parallels Workstation 2.2, you will be able to restore it from the backup.

## Upgrading the Virtual Machine Configuration and Updating Parallels Tools

The upgrading procedure starts and runs automatically when you start a virtual machine after its conversion. During the upgrade, the virtual machine configuration and Parallels Tools are processed. The virtual machine can be used in Parallels Desktop for Windows and Linux only after it is upgraded.

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**Note:** In Linux virtual machines, X Server may fail to start after the upgrade, which means that you may need to upgrade Parallels Tools manually in text mode.

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If you encounter any problems during the upgrade, visit the upgrade troubleshooting page (<http://www.parallels.com/support/desktop/troubleshooter/upgrade/>) or use the online Troubleshooting guide available through **Help > Troubleshooting Guide**.

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# Activating Parallels Desktop

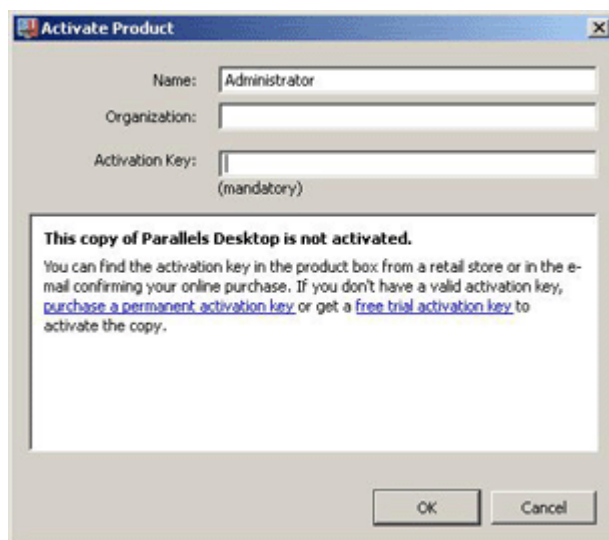
To fully run Parallels Desktop, you should activate it with an activation key. If you purchased a boxed version of the program, you can find the activation key printed on the installation CD sleeve. If you purchased the program online, the activation key was sent to your e-mail. If you downloaded a copy of Parallels Desktop to evaluate it before buying, you can get a trial activation key valid for a certain period of time.

After you activate your copy of Parallels Desktop, you can run virtual machines, install operating systems and various applications in them.

## Activating Your Copy of Parallels Desktop

To activate Parallels Desktop:

- 1 Choose **Activate Product** from the **Help** menu.
- 2 In the **Activate Product** dialog, specify your name and your company name in the **Name** and **Organization** fields (optional) and type the activation key into the **Product Key** field:
  - To get a trial activation key, click the [free trial activation key link](#).
  - To buy a permanent activation key, click [purchase a permanent activation key](#).



Click **OK** when finished.

Now that your copy of Parallels Desktop is activated, you can create virtual machines, install operating systems in them, and work with the virtual machines' applications side by side with the applications of your primary OS.

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## Starting Parallels Desktop

To start Parallels Desktop in Windows:

- From the Windows **Start** menu, choose **Programs > Parallels > Parallels Desktop > Parallels Desktop**.
- You can also start Parallels Desktop by double-clicking its icon on the desktop.

To start Parallels Desktop in Linux:

- From the **Applications** menu, choose **System Tools > Parallels Desktop**.
- Enter the following command in a terminal:

```
parallels-desktop
```

## CHAPTER 3

# Adding Virtual Machines

This section describes how to create new virtual machines with the help of New Virtual Machine Wizard and install Parallels Tools in them.

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# Supported Guest Operating Systems

The current version of Parallels Desktop officially supports the following guest operating systems:

## 32-bit operating systems

- Windows** Windows 7 (supported experimentally)  
:  
Windows Vista SP1, SP2  
Windows XP Pro SP3  
Windows XP Home SP3  
Windows 2000 Pro SP4
- Linux:** Debian 5.0  
Fedora 11  
Mandriva 2009 Spring  
OpenSUSE 11.1  
RHEL 5.3  
SLES 11  
Ubuntu 9.04

## 64-bit operating systems

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

---

- Windows** Windows 7 (supported experimentally)  
:  
Windows Vista SP1, SP2  
Windows XP Pro SP2
- Linux:** Debian 5.0  
Fedora 11  
Mandriva 2009 Spring  
OpenSUSE 11.1  
RHEL 4.7  
RHEL 5.3  
SLES 11  
Ubuntu 9.04

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**Note:** Parallels Desktop does not provide users with OS ISO images or OS installation discs. You should purchase an OS installation disc or an OS ISO image if you do not have any.

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## Creating a New Virtual Machine

If you want to create a new virtual machine, use New Virtual Machine Wizard. This wizard can work in three modes:

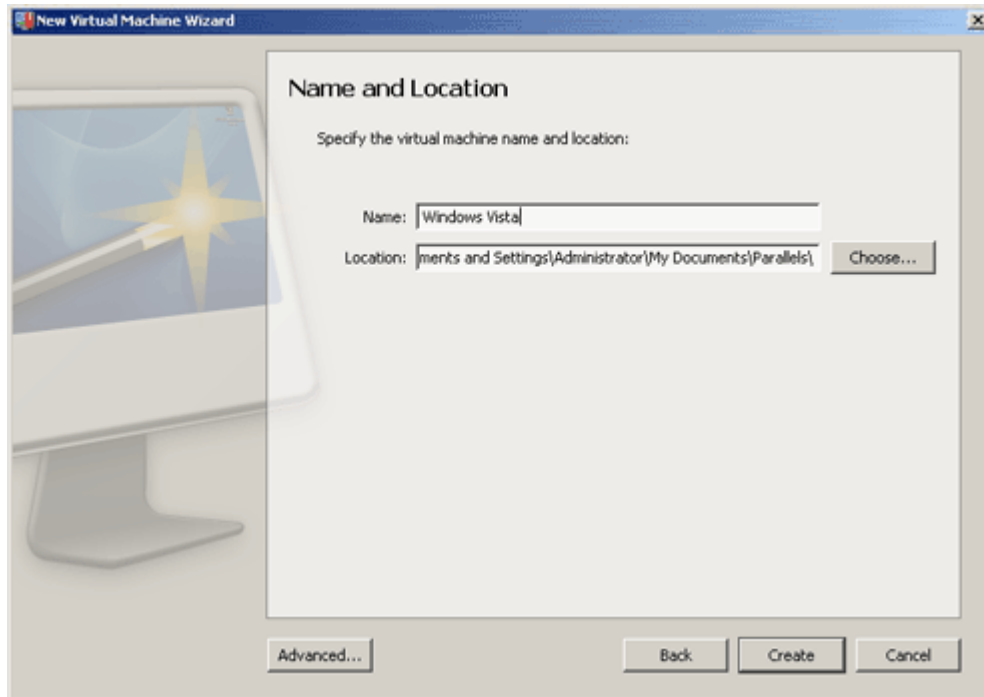
- **Express Windows.** Use this mode to create a Windows XP or Windows Vista virtual machine. In this mode, the the guest operating system and Parallels Tools will be installed automatically.
- **Typical.** Use this mode to create a virtual machine with a typical configuration.
- **Custom.** Use this mode if you want to customize the virtual machine configuration while creating it.

This guide provides you with the instructions on creating a virtual machine in the *Typical* mode. For the instructions on creating virtual machines in the *Custom* or *Express Windows* modes, refer to *Parallels Desktop User's Guide*.

Before creating a virtual machine in the *Typical* mode, make sure that you have an operating system installation disc or its image.

To create a typical virtual machine:

- 1** Start Parallels Desktop and launch New Virtual Machine Wizard by choosing **New Virtual Machine** from the **File** menu.
- 2** In the **Introduction** window, click **Next** to proceed with the virtual machine creation.
- 3** In the **Select Operating System Type and Version** window, select the operating system you are planning to install inside your virtual machine and click **Next**.
- 4** In the **Virtual Machine Type** window, select **Typical** and click **Next**.
- 5** In the **Name and Location** window, define the name and location for your virtual machine:
  - **Name.** Indicate an arbitrary name to be assigned to the virtual machine. By default, the virtual machine gets the same name as the operating system that is planned to be installed inside this virtual machine. If a virtual machine with such a name already exists, you will be prompted to indicate another name. The name must not exceed 50 characters.
  - **Location.** Use the **Choose** button if you want to change the default location of the virtual machine-related files.

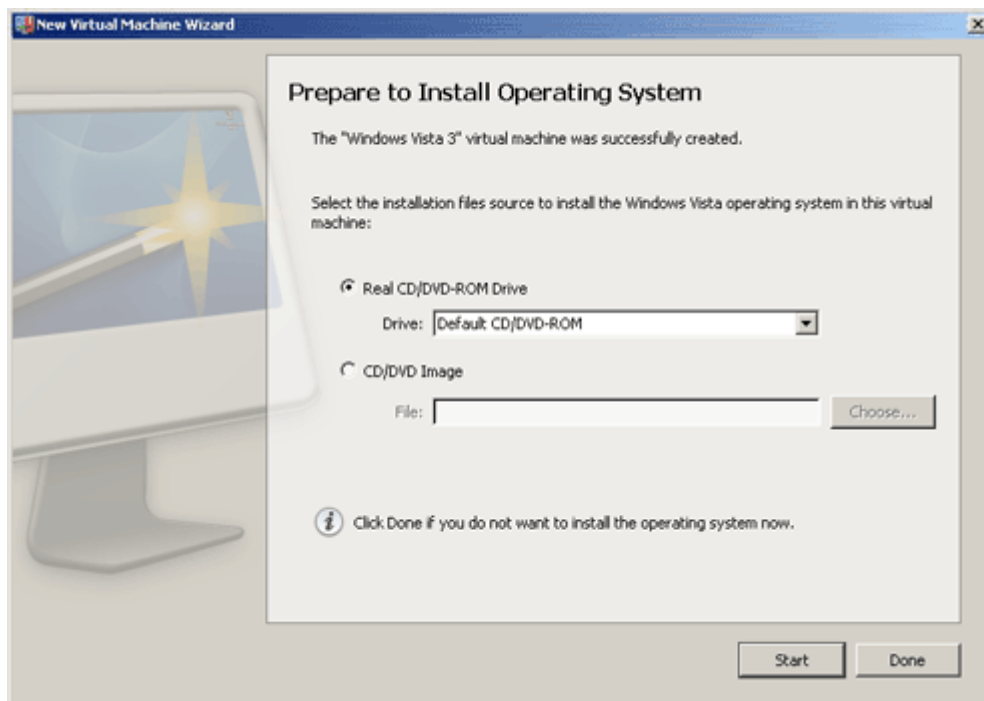


If you click the **Advanced** button, you can set the number of CPUs, the amount of RAM, and the virtual hard disk capacity to your future virtual machine.

Click **Next**.

- 6 After the virtual machine is created, in the **Prepare to Install Operating System** window, specify the source of installation files and click **Start**. You can use the following types of installation media:
  - **Real CD/DVD-ROM Drive**. Select this option to use a disc inserted into the optical drive of the computer. Choose the drive to use from the **Drive** list.
  - **CD/DVD Image**. Select this option to use a CD/DVD disc image connected to the virtual machine's CD/DVD drive. Type the path to the file in the **File** field or use the **Choose** button to locate the file.

**Note:** Parallels Desktop does not provide you with operating systems installation media. You should purchase an OS installation disc or an image of it if you do not have any.



If you do not want to install the guest OS and start the virtual machine, click **Done**.

---

## Installing Parallels Tools

Parallels Tools are a suite of special utilities that help you use your virtual machines in the most comfortable and efficient way. With Parallels Tools, you can move the mouse seamlessly outside the guest OS window without pressing any key, change the virtual machine's screen resolution by simply resizing its window, and synchronize your virtual machine's time and date settings with the time settings of the host computer.

## In Windows Virtual Machines

If you created your virtual machine using the *Express Windows* mode, Parallels Tools were installed automatically after the installation of the Windows guest operating system.

If your virtual machine was created in the *Typical* or *Custom* mode, do the following to install Parallels Tools in it:

- 1 Start the virtual machine and log in to the guest operating system.
- 2 When the guest OS boots up, connect the Parallels Tools ISO image by choosing the **Install Parallels Tools** option from the **Virtual Machine** menu.

---

**Note:** If the **Install Parallels Tools** option is grayed out, make sure that Parallels Tools can be installed in your guest operating system. To see the list of guest OSs supported by Parallels Tools, refer to the **Parallels Tools Overview** section in **Parallels Desktop Help** available through the **Help** menu.

---

- 3 In the **Welcome** window, click **Install**. The wizard will start the automatic installation.
- 4 When the installation is complete, click **Reboot** to exit the wizard and restart the virtual machine.

If the Parallels Tools installation does not start automatically, you can launch it manually:

- 1 Start the virtual machine and log in to the guest operating system.
- 2 When the guest OS boots up, connect the Parallels Tools ISO image by right-clicking the CD/DVD-ROM icon in the virtual machine's window status bar and choosing **Connect Image**.

- 3 Open the following folder:

- In **32-bit Windows**: C:\Program Files\Parallels\Parallels Desktop\Tools\
- In **64-bit Windows**: C:\Program Files (x86)\Parallels\Parallels Desktop\Tools\

Select the `prl-tools-win.iso` file, and click **Open** to connect it to the virtual machine.

- 4 In the virtual machine, open **My Computer** and double-click the **Parallels Tools** disc icon to expand its contents.

---

**Note:** If the installation wizard does not launch automatically, right-click the disc, choose **Open** from the shortcut menu, and double-click `Setup.exe` to launch the installer.

---

- 5 Follow the wizard's instructions to complete the installation.

### How to check if Parallels Tools are installed

If you are not sure whether Parallels Tools are installed, you can easily check this. Start your virtual machine and look at the status bar of its window: if the tip "Press Ctrl + Alt to release the mouse and keyboard" appears in the status bar of the virtual machine's window, this means that Parallels Tools are not installed. When Parallels Tools are installed, you do not need to press any key to release the mouse and keyboard - they are released automatically.

## In Linux Virtual Machines

Before installing Parallels Tools in a Linux guest OS, perform the following actions:

- Close all applications in the guest operating system.
- Disable the 3D accelerated window manager if you use any.
- Make sure that you have the `gcc` package and kernel sources installed. If these packages are not installed, the Parallels Tools installer will warn you. The kernel sources package name depends on the type of Linux operating system you use: it can be `kernel-devel`, or `kernel-headers`, or something else. For more information about the kernel sources, refer to the Installing the GCC package and Kernel Sources in Linux section.

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**Note:** To install Parallels Tools in your virtual machine, you must have the `root` privileges.

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### Installing Parallels Tools in the most recent versions of Linux guest OSs

If you have one of the most recent versions of Linux OSs (Fedora 10) in your virtual machine, the `prl-tools-lin.iso` image file will be mounted automatically after you connect it to the CD/DVD-ROM drive. To install Parallels Tools, do the following:

- 1 Start the virtual machine.
- 2 When the guest OS boots up, click the **Virtual Machine** menu and choose **Install Parallels Tools**.

---

**Note:** If the **Install Parallels Tools** option is grayed out, make sure that Parallels Tools can be installed in your guest operating system. To see the list of guest OSs supported by Parallels Tools, refer to the **Parallels Tools Overview** section in *Parallels Desktop User's Guide*.

---

- 3 The `prl-tools-lin.iso` image file will be connected to the virtual machine's CD/DVD-ROM drive and mounted.
- 4 Start a terminal in your Linux guest OS. Type the following command to gain the `root` privileges:

```
su
```

- 5 Change the directory to the CD/DVD-ROM directory using

```
cd /media/cdrom/
```

---

**Note:** In some of the Linux operating systems, the mount point for the virtual CD/DVD-ROM drive may appear as `/media/Parallels\ Tools/`.

---

- 6 In the CD/DVD-ROM directory, enter the following command to launch Parallels Tools installation:

```
./install
```

- 7 Follow the Parallels Tools Installer instructions to complete the installation.
- 8 When the installation of Parallels Tools is complete, restart your virtual machine.

### Installing Parallels Tools in other versions of Linux guest OSs

To install Parallels Tools in the older versions of Linux OSs, you have to mount the `prl-tools-lin.iso` image file manually. Do the following:

- 1 Start the virtual machine.

- 2 When the guest OS boots up, click the Virtual Machine menu and choose Install Parallels Tools.

---

**Note:** If the Install Parallels Tools option is grayed out, make sure that Parallels Tools can be installed in your guest operating system. To see the list of guest OSs supported by Parallels Tools, refer to the Parallels Tools Overview section in *Parallels Desktop User's Guide*.

---

The `prl-tools-lin.iso` image file will be connected to the virtual machine's CD/DVD-ROM drive.

- 3 Start a terminal in your Linux guest OS. Type the following command to gain the root privileges:

```
su
```

- 4 Check if the Parallels Tools CD image is mounted by entering

```
mount | grep iso9660
```

If this command does not return anything, proceed to the next step.

If this command returns anything like

```
/dev/cdrom on /media/cdrom type iso9660 (ro,exec,nosuid,nodev,uid=0),
```

skip the next step and proceed to the following one.

If this command returns anything like

```
/dev/cdrom on /media/cdrom type iso9660 (ro,noexec,nosuid,nodev,uid=0)
```

with the `noexec` option present in parentheses, you need to unmount the disc using the following command and then proceed to the next step:

```
umount /dev/cdrom
```

- 5 To mount the Parallels Tools installation disc image, enter the following:

```
mount -o exec /dev/cdrom /media/cdrom
```

---

**Note:** `/dev/cdrom` is the virtual machine's CD/DVD-ROM drive and `/media/cdrom` is the mount point for this device. In some of the Linux operating systems the virtual CD/DVD-ROM drive may appear as `/dev/hdb` and the mount point `/mnt/cdrom`. Some Linux OSs do not have the CD/DVD-ROM mount point. In this case, you should create the mount point directory manually.

---

- 6 When the installation disc image is mounted, change the directory to the CD/DVD-ROM directory using

```
cd /media/cdrom/
```

- 7 In the CD/DVD-ROM directory, enter the following to launch Parallels Tools installation:

```
./install
```

---

**Note:** You must have the root privileges to run this command.

---

- 8 Follow the Parallels Tools Installer instructions to complete the installation.

- 9 When the installation of Parallels Tools is complete, restart your virtual machine.

## How to check if Parallels Tools are installed

If you are not sure whether Parallels Tools are installed, you can easily check this. Start your virtual machine and look at the status bar of its window: if the tip "Press Ctrl + Alt to release the mouse and keyboard" appears in the status bar of the virtual machine's window, this means that Parallels Tools are not installed. When Parallels Tools are installed, you do not need to press any key to release the mouse and keyboard - they are released automatically.



## CHAPTER 4

# Managing Virtual Machines

This chapter outlines the major day-to-day operations that you are likely to perform on your Parallels virtual machines.

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---

## Capturing and Releasing the Keyboard and Mouse

To start working in a virtual machine, you need first to capture the keyboard and mouse input in the virtual machine. To this effect:

- 1 move the mouse pointer over the virtual machine window
- 2 click in the window.

When the keyboard and mouse input is captured in the virtual machine, you cannot move the pointer out of the virtual machine window and all keystrokes and button clicks go to the virtual machine. To release the keyboard and mouse back to the primary OS, press Ctrl+Alt. The keyboard and mouse will be released immediately.

---

**Note:** You can change the key combination for releasing the keyboard and mouse input using the **Keyboard** pane of the **Preferences** dialog.

---

If you want to automatically capture and release the keyboard and mouse input, you should install Parallels Tools (p. 23) in your virtual machine. After the Parallels Tools installation, you can capture and release the mouse and keyboard input more easily:

- click anywhere in the virtual machine window to capture the input
- click anywhere outside the virtual machine window to release the input.

---

# Starting Your Virtual Machine and Shutting It Down

## Starting the Virtual Machine

To start the virtual machine, select it in the Parallels Desktop sidebar and



- click the **Start** button on the Parallels Desktop toolbar or
- choose **Start** from the **Virtual Machine** menu.

After starting the virtual machine, it will boot into the guest operating system installed in this virtual machine. If no guest operating system is installed in the virtual machine, you will see the following message: "No boot device is available...".

---

**Notes:** 1. The virtual machine can be powered on only if you activated your copy of Parallels Desktop with permanent or trial activation key. See the *Activating Parallels Desktop* section (p. 17) in *Parallels Desktop User's Guide*.

2. It is not recommended that you start your virtual machines from an external storage device, this may result in low performance and unsteady operation.

---

## Shutting Down the Virtual Machine

To turn off the virtual machine, you can:

- use the standard shutdown procedure for the guest operating system installed in your virtual machine,



- click the **Shut Down** button in the Parallels Desktop toolbar, or
- choose **Shut Down** from the **Virtual Machine** menu.

---

# Suspending and Pausing Your Virtual Machine

Starting and shutting down virtual machines may take a considerable amount of time. Instead of performing these operations, you can suspend or pause a virtual machine for the required time and quickly resume it later.

## Suspending a Virtual Machine

Suspending a virtual machine is similar to putting a real computer into the sleep mode. When you suspend a virtual machine, you save its current state (including the state of all applications and processes running in the virtual machine) to a special file on the host computer. When the suspended virtual machine is resumed, it continues operating at the same point the virtual machine was at the time of its suspending.

Suspending your virtual machine may prove efficient if you need to restart the host computer, but do not want to:

- quit the applications running in the virtual machine
- spend much time on shutting the guest operating system down and then starting it again


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

- choose **Suspend** from the **Virtual Machine** menu or
- click the **Suspend** button  in the Parallels Desktop toolbar.

---

**Note:** You can view the configuration of the suspended virtual machine in read-only mode. To be able to modify the suspended virtual machine configuration, you should stop the virtual machine.

---

To resume a suspended virtual machine, click the **Resume** button  in the Parallels Desktop toolbar or choose **Resume** from the **Virtual Machine** menu.

## Pausing a Virtual Machine

Pausing a virtual machine releases the resources, such as RAM and CPU, currently used by this virtual machine. The released resources can then be used by the host computer and its applications or by other virtual machines running on the host computer.

---

**Note:** Only the amount of RAM used by the guest OS will be released. The memory used by the Parallels Desktop application will still be locked.


---

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

- click the **Pause** button  in the Parallels Desktop toolbar or

- choose **Pause** from the **Virtual Machine** menu.

When a virtual machine is paused, its window is grayed out. To continue running the virtual

machine, click the **Resume** button  in the Parallels Desktop toolbar or choose **Resume** from the **Virtual Machine** menu.

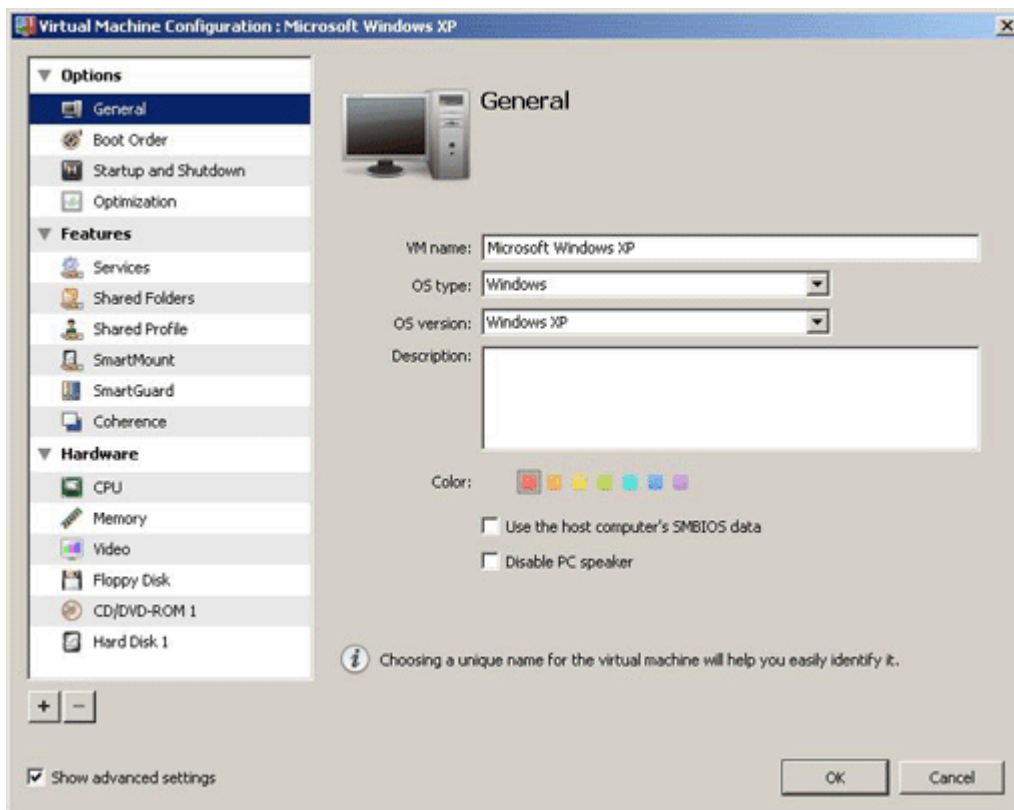
Parallels Desktop is designed to operate like an ordinary computer application. This means that you do not have to change the virtual machine's state from running to paused, suspended, or stopped before putting the host computer to sleep. In sleep mode, the host computer does not allocate any resources to the running applications (including Parallels Desktop and all virtual machines) so that they are stopped automatically. As you start the host computer, all the applications are automatically up and running again.

---

## Configuring the Virtual Machine

The configuration of an existing virtual machine can be changed in the Virtual Machine Configuration dialog. You can open the Virtual Machine Configuration dialog by doing one of the following:

- Choose **Configure** from the **Virtual Machine** menu.
- Click the **Configure** button on the toolbar of the virtual machine main window.
- Right-clicking the virtual machine in the main window sidebar and choosing **Configure** from the context menu.
- Selecting **Configure** in the **Operations** area of the virtual machine **Summary** pane or clicking any of the items in the **Configuration** area.



Virtual Machine Configuration allows you to configure your virtual machine in a variety of ways. For example, you can

- Configure the virtual machine general options on the **General** pane.
- Define the virtual machine boot options on the **Boot** pane.
- Configure different parameters of the devices currently available inside the virtual machine: hard disk drives, CD/DVD-ROM drives, floppy disk drives, etc.
- Configure the resource values currently set for the virtual machine: main memory, video memory, CPU, etc.
- Add a new device to the virtual machine or remove an existing one.

## What's Next

Detailed information on all parameters that you can configure in Virtual Machine Configuration is given in *Parallels Desktop User's Guide*.

When you created a virtual machine and installed an operating system in it, you may need to

- use USB devices in the virtual machine
- connect your virtual machine to the Internet

This chapter provides basic instructions on performing these actions.

---

## Using USB Devices in a Virtual Machine

Parallels Desktop provides you with the possibility to connect up to eight USB 2.0 and eight USB 1.1 devices to a single virtual machine. This means that you can plug up to eight USB 2.0 devices and eight USB 1.1 devices into the physical computer and use them from the virtual machine. To use this feature, you should add a USB controller to the virtual machine configuration (p. 32). If the USB controller is already present in the virtual machine configuration, make sure it is enabled.

To connect a USB device to a virtual machine running on a Linux host computer:

---

**Note:** To connect a USB device to a virtual machine, you should have the `root` privileges.

---

- 1 Connect the USB device to your physical computer.
- 2 Start the virtual machine and log in to the virtual machine guest OS.
- 3 When the guest OS boots up, connect the USB device by clicking the USB Controller icon in the virtual machine's window status bar and choosing your USB device name from the list.

### Troubleshooting

After connecting the device, you may need to get access to the files in `/proc/bus/usb`. The way of accessing these files depends on your Linux distribution. You may try to access these files as `root` or try to use the following command:

```
sudo chmod -R 777 /proc/bus/usb
```

You need to issue this command each time you want to reconnect to the device or connect a new USB device.

---

## Accessing the Internet

If your primary operating system is connected to the Internet, your new virtual machine can share this connection by using the Shared Networking mode that is selected as a default option for a new virtual machine.

If you experience problems with connecting your virtual machine to the Internet:

- Make sure that the host computer is connected to the Internet.
- Open the virtual machine configuration by choosing **Virtual Machine > Configure** and make sure that the **Network Adapter** is present in the **Devices** list and it is in the **enabled** status. If it is not present, add it using the **Add** button in the bottom part of the **Virtual Machine Configuration** window.

For additional information about configuring network in virtual machines, refer to *Parallels Desktop User's Guide*.

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