

Parallels Server 4.0 for Mac Bare Metal Edition

Getting Started Guide

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CHAPTER 1

Introduction

Parallels Server 4.0 for Mac Bare Metal Edition is a virtualization solution that allows you to create and run Parallels virtual machines on bare Apple hardware.

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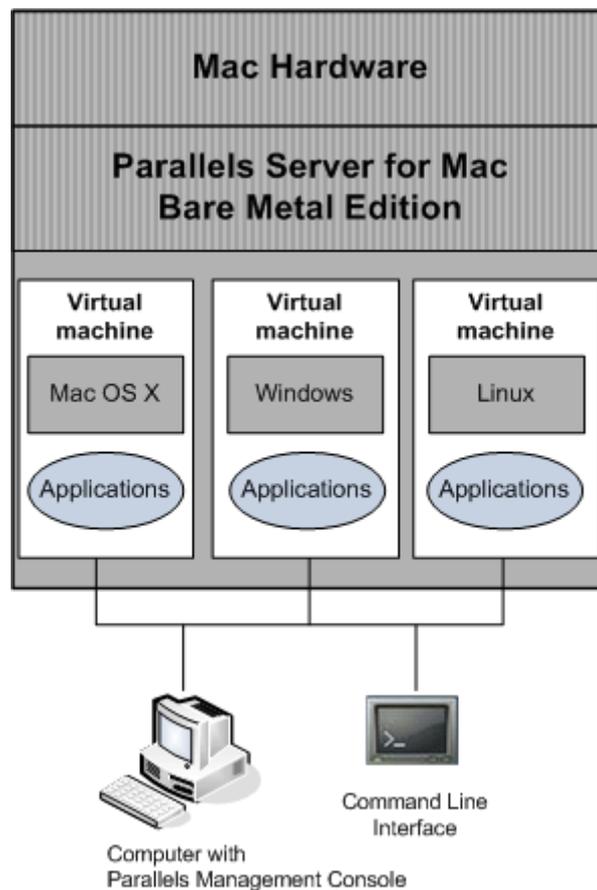
About Parallels Server 4.0 for Mac Bare Metal Edition

Parallels Server 4.0 for Mac Bare Metal Edition provides you with the possibility to run Parallels virtual machines on bare Apple hardware. Using this software, you can efficiently use your Mac's hardware resources by sharing them among multiple virtual machines.

Parallels Server for Mac Bare Metal Edition is installed directly on the Mac hardware and does not need any operating system for its functioning. Once installed, Parallels Server for Mac Bare Metal Edition allows you to create virtual machines and manage them using the following tools:

- **Command-line interface (CLI).** This tool comprises a set of Parallels command-line utilities for managing virtual machines both locally and remotely.
- **Parallels Management Console.** Parallels Management Console is a remote management tool for Parallels Server for Mac Bare Metal Edition with a graphical user interface. This tool can be used to manage Macs and Parallels virtual machines residing on them.

Graphically, a server with the Parallels Server for Mac Bare Metal Edition software installed can be represented as follows:



About This Guide

The *Getting Started With Parallels Server 4.0 for Mac Bare Metal Edition* guide provides information on installing and deploying Parallels Server for Mac Bare Metal Edition on your Mac, including the pre-requisites and the stages you shall pass.

The primary audience for this guide is anyone interested in installing and putting Parallels Server for Mac Bare Metal Edition in operation on their servers.

Organization of This Guide

This guide is organized in the following way:

- **Chapter 1, Introduction**, gives an overview of the Parallels Server for Mac Bare Metal Edition product and this guide.
- **Chapter 2, Installing Parallels Server 4.0 for Mac Bare Metal Edition**, describes the hardware and software requirements your Mac must meet to successfully install Parallels Server for Mac Bare Metal Edition. It also provides detailed information on how to install Parallels Server for Mac Bare Metal Edition.
- **Chapter 3, Starting to Work in Parallels Server 4.0 for Mac Bare Metal Edition**, provides instructions on how to start working in Parallels Server for Mac Bare Metal Edition using both Parallels command line utilities and Parallels Management Console.
- **Chapter 4, Performing Basic Operations in Parallels Server 4.0 for Mac Bare Metal Edition**, familiarizes you with the way to perform the main operations on your virtual machines: create new virtual machines, start and stop them, adjust their configuration, etc.

Documentation Conventions

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

The table below presents the existing formatting conventions.

Formatting convention	Type of Information	Example
Special Bold	Items you must select, such as menu options, command buttons, or items in a list.	Go to the Resources tab.
	Titles of chapters, sections, and subsections.	Read the Basic Administration chapter.

<i>Italics</i>	Used to emphasize the importance of a point, to introduce a term or to designate a command-line placeholder, which is to be replaced with a real name or value.	These are the so-called <i>EZ templates</i> . To destroy a Container, type <code>vzctl destroy <i>ctid</i></code> .
Monospace	The names of commands, files, and directories.	Use <code>vzctl start</code> to start a Container.
<code>Preformatted</code>	On-screen computer output in your command-line sessions; source code in XML, C++, or other programming languages.	<code>Saved parameters for Container 101</code>
Monospace Bold	What you type, as contrasted with on-screen computer output.	<code># rpm -v virtuoizzo-release</code>
Key+Key	Key combinations for which the user must press and hold down one key and then press another.	Ctrl+P, Alt+F4

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

Getting Help

In addition to this guide, there are a number of other resources available for Parallels Server for Mac Bare Metal Edition which can help you use the product more effectively. These resources include:

Manuals:

- *Parallels Server 4.0 for Mac Bare Metal Edition Installation Guide*. This guide provides detailed information on installing Parallels Server for Mac Bare Metal Edition on your Mac, including the pre-requisites and the stages you shall pass.
- *Parallels Server 4.0 for Mac Bare Metal Edition User's Guide*. This guide provides comprehensive information on Parallels Server for Mac Bare Metal Edition covering the necessary theoretical conceptions as well as all practical aspects of working with the product. However, it does not deal with the process of installing and configuring your system.
- *Parallels Command Line Reference Guide*. This guide is a complete reference on all Parallels Server for Mac Bare Metal Edition configuration files and command line utilities.

Help systems:

- *Getting Started with Parallels Management Console*. This help system provides information on how to start working in Parallels Management Console. You will learn how to install this application on your computer, connect to a Mac running Parallels Server for Mac Bare Metal Edition, and perform the basic operations on your virtual machines.
- *Parallels Management Console User's Guide*. This help system provides detailed information on Parallels Management Console - a graphical user interface tool for managing Macs and their virtual machines.

Feedback

If you spot a typo in this guide, or if you have thought of a way to make this guide better, you can share your comments and suggestions with us by completing the feedback form at the Parallels documentation feedback page (<http://www.parallels.com/en/support/usersdoc/>).

Key Terms

To avoid any misunderstandings while following the instructions in the guide, please become acquainted with the main Parallels Server for Mac Bare Metal Edition definitions:

Guest operating system (Guest OS). An operating system installed inside a virtual machine. It can be any of the supported Windows, Linux, or Mac operating systems.

Parallels Management Console. A Parallels Server for Mac Bare Metal Edition management and monitoring tool with graphical user interface. Parallels Management Console is cross-platform and can run on Microsoft Windows, Linux, and Mac computers.

Parallels Server. A hardware virtualization solution that enables you to efficiently use your physical server's hardware resources by sharing them between multiple virtual machines created on the server.

Parallels Server for Mac Bare Metal Edition license. A special license that you must install on the physical server to be able to start using Parallels Server for Mac Bare Metal Edition. Every physical server must have its own license installed.

Parallels server (or server). A Mac computer where the Parallels Server for Mac Bare Metal Edition software is installed for hosting Parallels virtual machines.

Virtual machine (VM). A computer emulated by Parallels Server for Mac Bare Metal Edition. A virtual machine is functionally identical to an isolated standalone computer, with its own operating system, IP addresses, processes, files, its own users database, its own configuration files, its own applications, system libraries, and so on.

CHAPTER 2

Installing Parallels Server 4.0 for Mac Bare Metal Edition

The current chapter provides comprehensive information on the process of installing Parallels Server 4.0 for Mac Bare Metal Edition on your Mac, including the pre-requisites and the stages you shall pass.

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Installation Requirements

Before installing Parallels Server for Mac Bare Metal Edition on your Mac, make sure that it meets the requirements listed in this section.

Hardware Compatibility

Parallels Server for Mac Bare Metal Edition can be installed on an Intel-based Mac that meets the following hardware requirements:

- Platform:
Intel-powered Macs with VT-x virtualization support (Apple Xserve or MacPro is recommended).
- CPU:
1.5 GHz or higher processor (a 64-bit processor is required for launching 64-bit guest operating systems).
- Memory:
2 GB of RAM (4 GB recommended).
- Hard disk space:
3 GB of free disk space.
30 GB of free disk space for each virtual machine.
- Network:
Ethernet network adapter.
Valid IP address.
- Other hardware:
DVD-ROM drive.

Software Compatibility

Parallels Server for Mac Bare Metal Edition is installed on a bare-metal server and does not need any operating system for its functioning.

Network Requirements

To connect to the physical server with Parallels Server for Mac Bare Metal Edition (for example, to manage it using Parallels Management Console), you need to establish a network connection (wireless or wired) between this server and the remote computer. So, you must have a valid IP address for the physical server as well as other IP parameters (default gateway, network mask, DNS configuration).

Obtaining Parallels Server 4.0 for Mac Bare Metal Edition Distribution Set

You can use one of the following ways to obtain the Parallels Server for Mac Bare Metal Edition distribution set:

- Download the ISO image containing the installation files for Parallels Server for Mac Bare Metal Edition from the Parallels web site to your computer. If you use this way of getting the Parallels Server for Mac Bare Metal Edition distribution set, you will need to burn the downloaded ISO image to a DVD before starting the installation.
- Contact a Parallels sales representative and get a DVD containing Parallels Server for Mac Bare Metal Edition.

Note: To install Parallels Server for Mac Bare Metal Edition on an Apple Xserve, you also need to obtain a special DMG image (and burn it to a CD, if necessary). You will then use this image to create the pre-installation environment on the Xserve.

Installation in a Nutshell

To install Parallels Server for Mac Bare Metal Edition, follow the steps below. To know more about a particular step, see the next section.

- 1 Switch on the server where you want to install Parallels Server for Mac Bare Metal Edition.
- 2 Insert the DVD with the Parallels Server for Mac Bare Metal Edition distribution set into the server's CD/DVD-ROM drive.
- 3 Press and hold the C key while the server is booting. Alternatively, you can press the Command key and choose CD-ROM.
- 4 When the server boots, press Enter to continue with the installation.
- 5 Click **Next** to accept the Parallels end user license agreement, and in the displayed window, click **Agree** to confirm your decision.
- 6 In the **Customer Experience Program** window, click **Next**, and in the displayed dialog, click **Agree** to join the Parallels Customer Experience Program.

Note: If you join the program, Parallels will periodically collect the information about your physical server and virtual machines configuration and use it to make the product better fit your needs. No private information like your name, e-mail address, phone number, and keyboard input will be collected.

- 7 Enter the Parallels Server for Mac Bare Metal Edition license, and click **Next**.
- 8 Select the **Remove all partitions on selected drives and create a default layout** radio button, click **Next**, and in the displayed window, click **Yes** to confirm your decision.

Note: Selecting this option and clicking **Next** will remove all data on the selected drives.

- 9 In the **Network Configuration** window, click **Next** to accept the default network settings.
- 10 Set your time settings, and click **Next**.
- 11 Enter the password for the root account, and click **Install**.
- 12 Click **Reboot** to restart the server.

Installing Parallels Server 4.0 for Mac Bare Metal Edition

You can install Parallels Server for Mac Bare Metal Edition in one of the following modes:

- graphical mode
- text mode

This section familiarizes you with the way of installing Parallels Server for Mac Bare Metal Edition in graphical mode. If you want to install the product using text mode, refer to the **Installing Parallels Server for Mac Bare Metal Edition in Text Mode** section in the *Parallels Server for Mac Bare Metal Edition 4 Installation Guide*.

To install Parallels Server for Mac Bare Metal Edition in graphical mode, do the following:

Note: If you are going to install Parallels Server for Mac Bare Metal Edition on an Apple Xserve, you first need to create a special pre-installation environment on the Xserve. See **Installing Parallels Server for Mac Bare Metal Edition on an Apple Xserve** (p. 22) for details.

- 1 Switch on the server where you want to install Parallels Server for Mac Bare Metal Edition.
- 2 Insert a DVD containing the Parallels Server for Mac Bare Metal Edition distribution set into the server's CD/DVD-ROM drive.
- 3 Press and hold the **C** key while the server is booting. Alternatively, you can press the **Command** key and choose **CD-ROM**.
- 4 After the server boots, the installation starts automatically. Press **Enter** to continue with the installation.
- 5 Accept the Parallels end user license agreement by clicking **Next**, and in the displayed window, clicking **Agree**.
- 6 After accepting the license agreement, you are asked to join the Parallels Customer Experience Program. If you choose to participate in the program (select **Agree**, and press **Enter**), Parallels will periodically collect the information about the configuration of your physical server and virtual machines and use it to make the product better fit your needs. No private information like your name, e-mail address, phone number, and keyboard input will be collected.
- 7 On the next screen, you will be asked to enter the Parallels Server for Mac Bare Metal Edition license. Every physical server must have its own license installed. Licenses are issued by Parallels and needed to start using Parallels Server for Mac Bare Metal Edition on your server. Type the product key for Parallels Server for Mac Bare Metal Edition in the field provided, and click **Next**.



You can also proceed without entering the product key and install the license after the Parallels Server for Mac Bare Metal Edition installation. However, if you skip this step, you will not be able to automatically install Parallels Virtual Automation and its components once the Parallels Server for Mac Bare Metal Edition installation is complete. For more information on installing Parallels Virtual Automation, see **Step 12**.

Note: If your license does not support using the Parallels Virtual Automation application, the options for installing this application will be grayed out in the installer and you will not be able to select them. In this case, you must first upgrade the license and then install the Parallels Virtual Automation application manually. For more information, see **Using Parallels Virtual Automation** (p. 34).

8 In the **Partitioning** window, choose the way of partitioning your server:

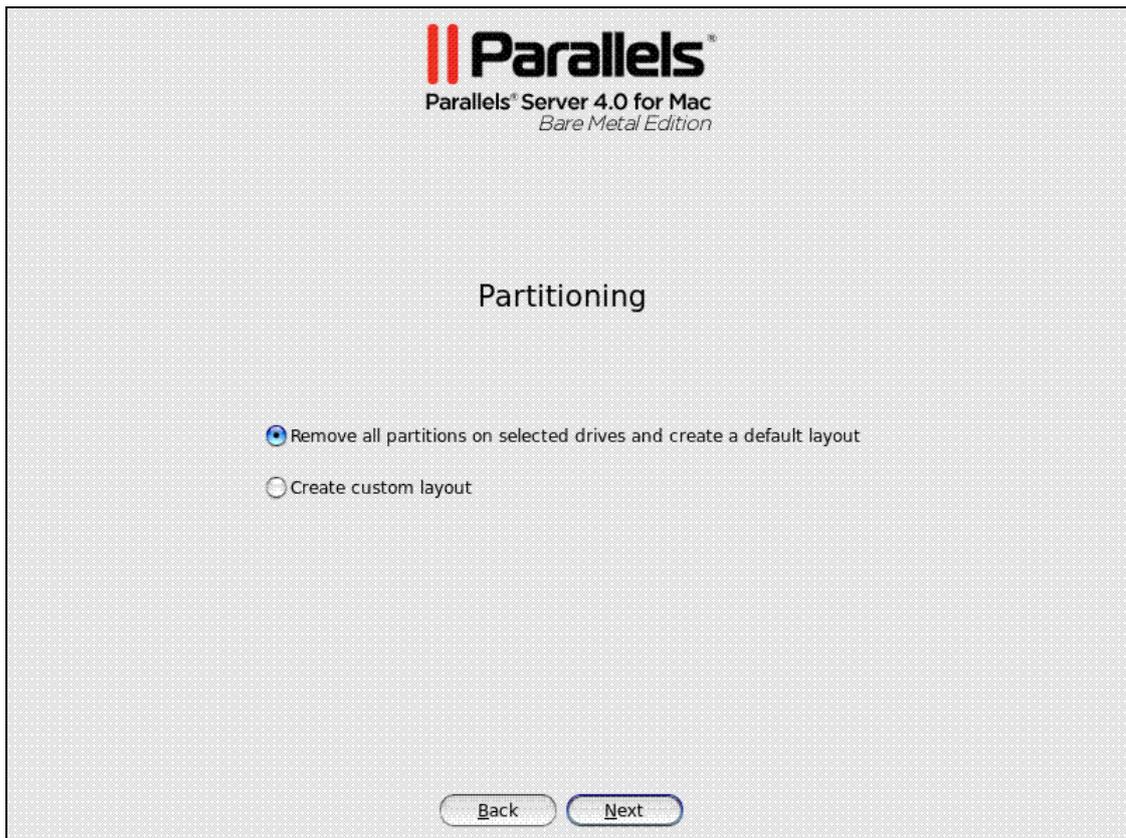
- Select the **Remove all partitions on selected drives and create default layout** radio button to create the default layout on the server, which includes creating the following partitions:

Partition	Description
/	The root partition containing all Parallels Server for Mac Bare Metal Edition files.
/vz	The partition intended to host all virtual machines data.
swap	The paging partition for Parallels Server for Mac Bare Metal Edition.

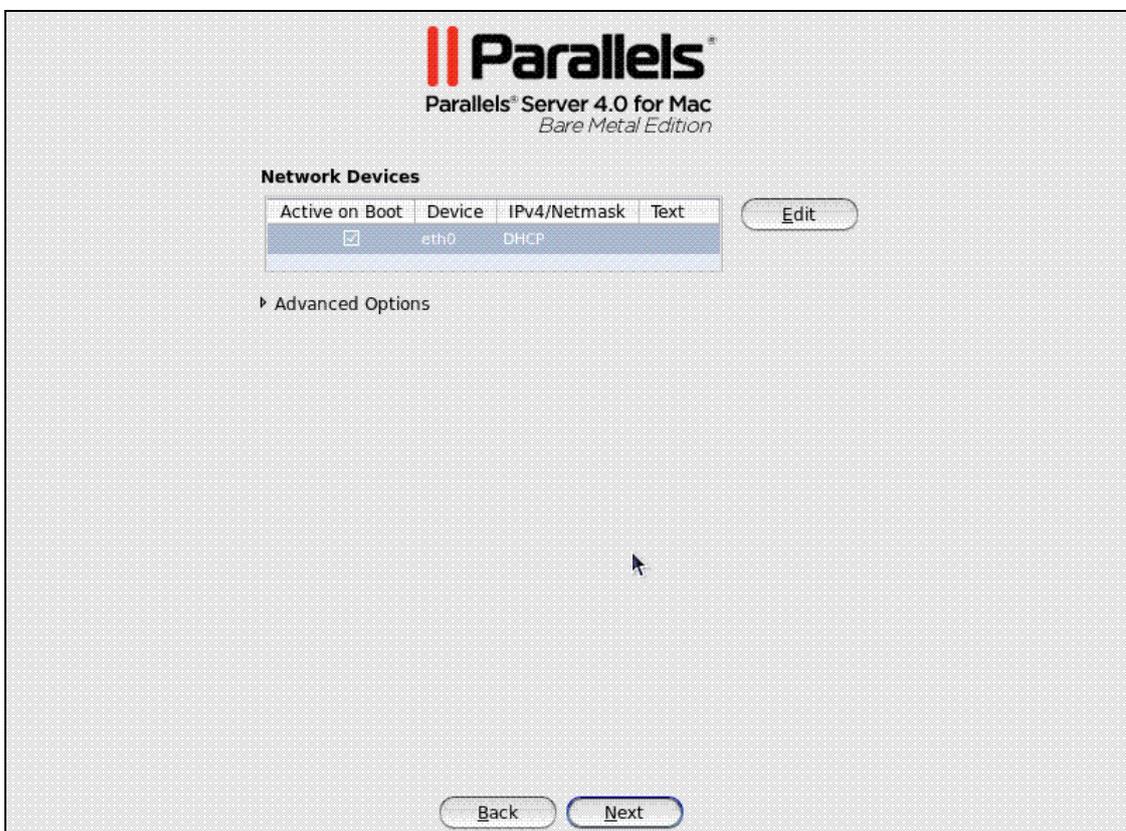
If you do not feel comfortable with partitioning your server, we recommend that you select this option and let the installer automatically partition your system.

Note: After you select this option and click **Next**, you will be presented with a message warning you that all data on the selected drives will be removed. To confirm your decision and proceed with the installation, click **Yes**.

- Select the **Create custom layout** radio button to manually partition your disk drive. Detailed information on how you can do it is given in the **Creating Custom Layout** section of the *Parallels Server 4.0 for Mac Bare Metal Edition Installation Guide*.



- 9 On the next screen, configure the network settings on the server.



You can do one of the following:

- Accept the network settings offered by the Parallels Server for Mac Bare Metal Edition installer by default. View the default settings in the **Network Devices** table, and if you are satisfied with them, click **Next** to proceed with the installation.
- Manually configure the network configuration settings. If you wish to configure some of the default network settings, select the network device to be configured, and click **Edit**. In the **Edit Interface** window, make sure the **Enable IPv4 support** check box is selected, select the **Manual configuration** radio button, type the IP address and network mask to be assigned to the network devices in the fields provided, and click **OK**.
- Specify a hostname for the Parallels server. By default, the server is configured to receive a hostname through DHCP. To specify a custom hostname for the server, click **Advanced Options**, select the **manually** radio button, and type the desired hostname in the provided field.

Note: If you have several network adapters installed, they all will be listed in the **Network Devices** table. To edit the properties of a network adapter, select the check box next to its name in the table, and click the **Edit** button.

- 10** Next, specify your time settings. To set your time zone, you can either select the nearest city to your physical location on the drop-down menu or click on the interactive map to zoom in to the needed place. You can also select the **System clock uses UTC** check box to set your system to UTC (Universal Time Coordinated), which makes it automatically switch between normal and daylight savings time.
- 11** On the next screen, enter the password for the root account.

Parallels
Parallels® Server 4.0 for Mac
Bare Metal Edition

Set Root Password

Set a password for the root account.

Password:

Confirm:

You will need to log in to the server as `root` to be able to manage Parallels virtual machines. After providing the password and confirming it, click **Install** to start installing Parallels Server for Mac Bare Metal Edition on your server.

12 Once the installation is complete, the Congratulations window appears.



In this window, do the following:

- Remove the installation DVD from the server's CD/DVD-ROM drive, clear the **Install PVA Agent for Parallels Server** and **Install PVA Management Node** check boxes, and click **Reboot** to restart the server and complete the installation.
- Leave the **Install PVA Agent for Parallels Server** and **Install PVA Management Node** check boxes selected to set up the Parallels Virtual Automation application and its components on the server. Using Parallels Virtual Automation, you can connect to the Parallels server and manage your virtual machines with your favorite browser.

If you select the check boxes, you will also need to specify a valid IP address and hostname in the **PVA Node IP Address** and **PVA Node Hostname** fields. Once the installation is complete, you can log in to Parallels Virtual Automation by opening `http://IP_address_or_hostname` in the browser and using the `root` user name and the password you specified in the previous step.

When the check boxes are selected, the installer performs the following operations after restarting the server:

- a** Downloads the installation packages for Parallels Virtual Automation from the Parallels web site to the server. Notice that the download process may take some time, depending on the speed of your Internet connection.
- b** Sets up Parallels Virtual Automation and its components on the server. The installation is automatically initiated once the installation packages are downloaded to the server and runs without your interaction.

When you are ready, remove the installation DVD from the server's CD/DVD-ROM drive, and click **Reboot** to restart the server.

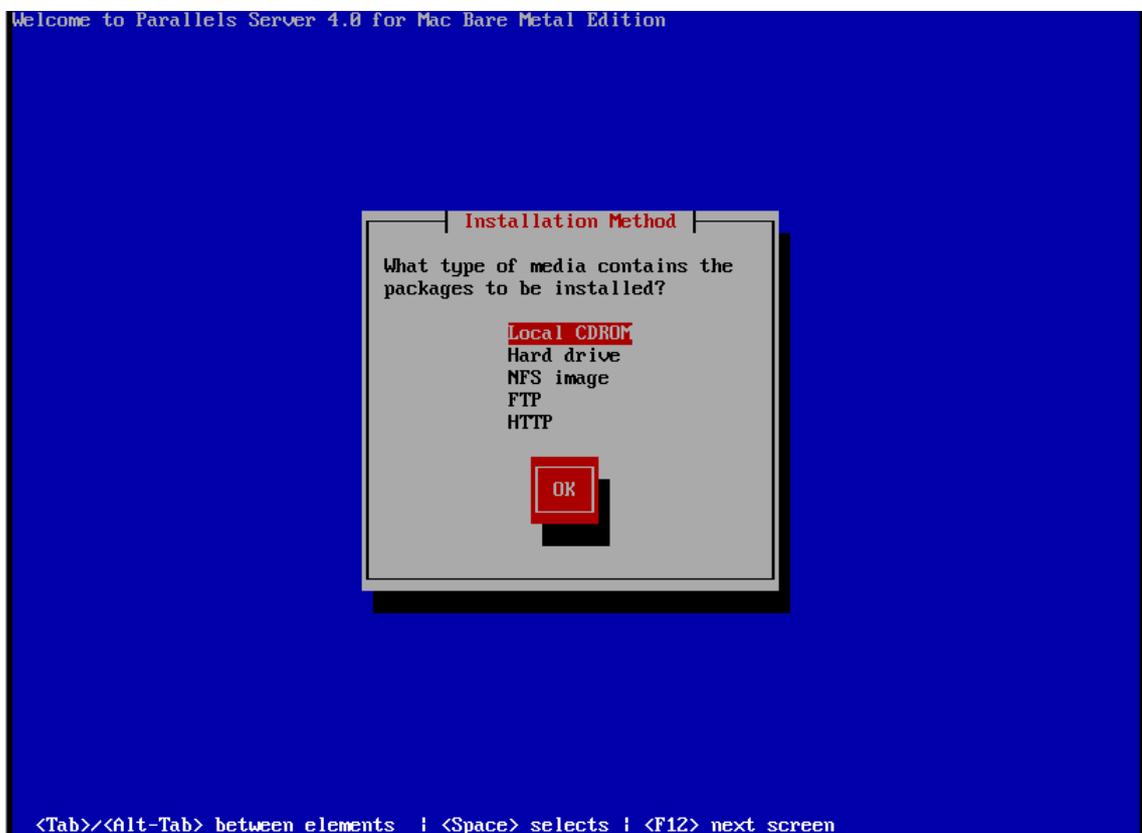
Notes:

1. You must have an active Internet connection to download the Parallels Virtual Automation installation packages.
 2. You can use Parallels Virtual Automation to manage Parallels servers only if your license allows you to do so. If the license does not support using Parallels Virtual Automation, the **Install PVA Agent for Parallels Server** and **Install PVA Management Node** options will be grayed out and you will not be able to select them. In this case, you must first upgrade your license and then install the Parallels Virtual Automation application manually. For more information, see **Installing Parallels Virtual Automation Manually**.
 3. For more information on setting up and logging in to Parallels Virtual Automation, refer to **Using Parallels Virtual Automation** (p. 34).
-

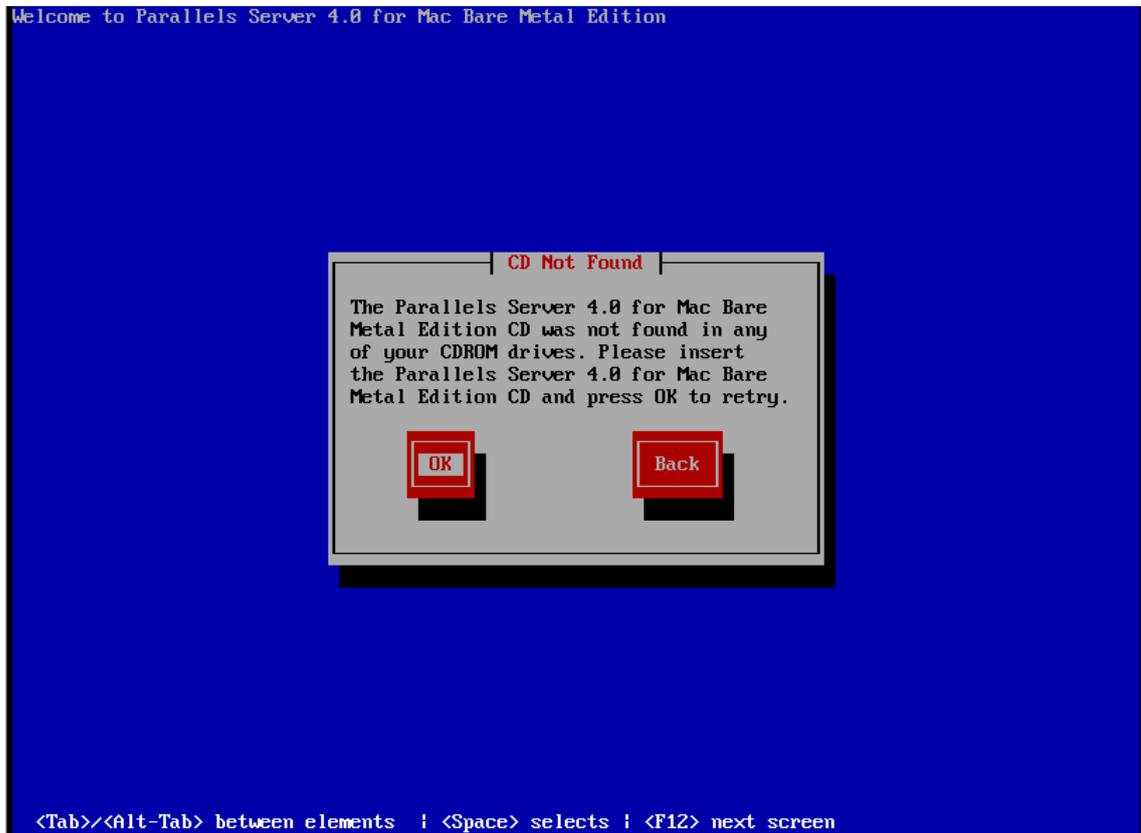
Installing Parallels Server for Mac Bare Metal Edition on an Apple Xserve

To install Parallels Server for Mac Bare Metal Edition on an Apple Xserve, you need to complete the following tasks before starting the Parallels Server for Mac Bare Metal Edition installation:

- 1 Insert the CD for installing on Apple Xserves into the CD/DVD drive of your server. This CD contains a special boot loader and is used to create a special pre-installation environment on the Xserve.
- 2 Press and hold the C key while the Xserve is booting. Alternatively, you can press the Command key, and choose CD-ROM.
- 3 In the Installation Method window, select the Local CDROM option, and click OK.



- 4 Once the necessary packages are installed, the CD is ejected automatically, and the following dialog appears.



Insert the DVD with Parallels Server for Mac Bare Metal Edition installation files, and click OK.

- 5 Continue with the standard installation.

CHAPTER 3

Starting to Work in Parallels Server 4.0 for Mac Bare Metal Edition

After you restart the Parallels server, you will see a screen providing instructions on how to start working in Parallels Server 4.0 for Mac Bare Metal Edition.

```
Dear Parallels user!
Use the following hostname and IP address
to connect to this server:

dhcp-10-30-16-165.sw.ru
(10.30.16.165)

To download the management software for
Parallels Server 4.0 for Mac Bare Metal Edition, go to
http://dhcp-10-30-16-165.sw.ru/

Mon Feb  8 08:47:42 EST 2010
dhcp-10-30-16-165 login: _
```

You can manage Parallels Server for Mac Bare Metal Edition using these tools:

- Parallels command line utilities
- Parallels Management Console
- Parallels Virtual Automation

Detailed information on both tools is given in the following sections.

In This Chapter

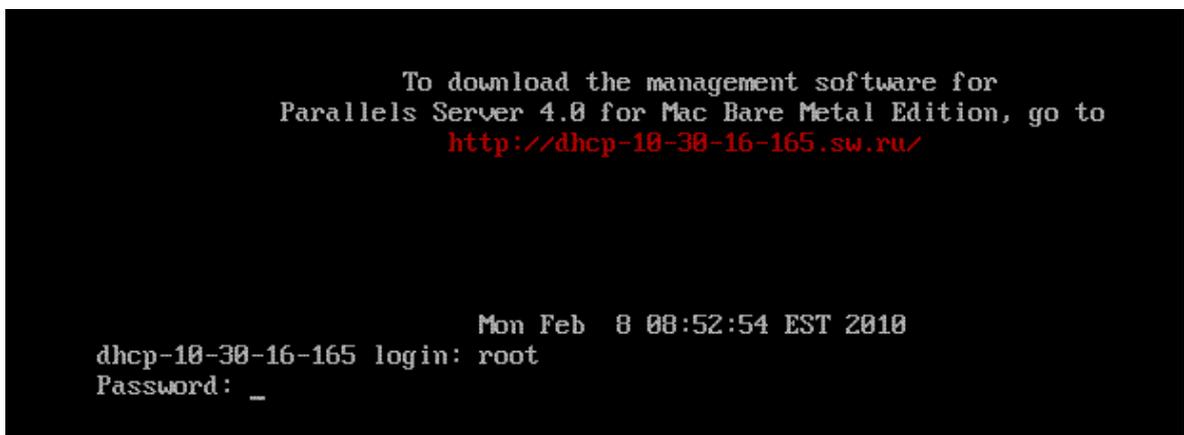
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Using CLI

Parallels Server for Mac Bare Metal Edition provides a set of utilities that allow you to manage Parallels virtual machines both locally and remotely.

Connecting to Parallels Server for Mac Bare Metal Edition Locally

To manage your virtual machines locally, i.e. from the same server where Parallels Server for Mac Bare Metal Edition is installed, log in to the server by typing the `root` username and the password you provided when installing Parallels Server for Mac Bare Metal Edition at the bottom of the welcome screen.



```
To download the management software for
Parallels Server 4.0 for Mac Bare Metal Edition, go to
http://dhcp-10-30-16-165.sw.ru/

Mon Feb  8 08:52:54 EST 2010
dhcp-10-30-16-165 login: root
Password: _
```

After you have successfully logged in to the server, you will see a command prompt and can start creating and managing your Parallels virtual machines using Parallels command line utilities.

Connecting to Parallels Server for Mac Bare Metal Edition Remotely

To connect to Parallels Server for Mac Bare Metal Edition remotely, use the IP address or hostname indicated on the server's screen. For example, you can use a Secure Shell client to connect to your Parallels server. When logging in to the server, use the `root` user name and the password you provided when installing Parallels Server for Mac Bare Metal Edition.

Using Parallels Management Console

If you prefer working with GUI tools, you can set up Parallels Management Console to remotely connect to Parallels Server for Mac Bare Metal Edition. To do this:

- 1** Make sure that the computer where you are going to install Parallels Management Console meets the necessary system requirements.
- 2** Download the Parallels Management Console installation file.
- 3** Install Parallels Management Console.
- 4** Launch Parallels Management Console and connect to the server with Parallels Server for Mac Bare Metal Edition.

All these operations are explained in the following subsections in detail.

Checking System Requirements

Parallels Management Console can be installed on any computer that meets the following requirements:

Hardware Configuration

- Intel-powered Mac with Core™ Duo or Core™ Solo processor or a PC with 700+ MHz Intel-compatible x86 or x64 processor
- 1 GB of RAM
- 100 MB of hard disk space for Parallels Management Console installation files
- Ethernet or WiFi network adapter

Compatible Operating Systems

Ubuntu 7.04 (x32, x64)	CentOS 4.x (x32, x64)
Ubuntu 7.10 (x32, x64)	CentOS 5.0 (x32, x64)
Ubuntu 8.04 (x32, x64)	CentOS 5.1 (x32, x64)
Ubuntu 8.10 (x32, x64)	SUSE Linux Enterprise Server 10 SP1 (x32, x64)
Fedora 8 (x32, x64)	SUSE 10 (x32, x64)
Fedora 9 (x32, x64)	SUSE 11 (x32, x64)
Fedora 10 (x32, x64)	Windows Server 2003 Standard Edition SP2, R2 (x32, x64)
Debian 4.0 (x32, x64)	Windows Server 2003 Enterprise Edition SP2, R2 (x32, x64)
Mandriva 2007 (x32, x64)	Windows 2003 Home Server (x32, x64)
Mandriva 2008 (x32, x64)	Windows XP Professional Edition SP2 (x32, x64)
Red Hat Enterprise Linux WS4 (x32, x64)	Windows Vista Ultimate (x32, x64)
Red Hat Enterprise Linux AS4 (x32, x64)	Mac OS X v10.5 Leopard or Server Leopard
Red Hat Enterprise Linux ES4 (x32, x64)	Mac OS X v10.6 Snow Leopard or Server Snow Leopard
Red Hat Enterprise Linux 5 (x32, x64)	

Downloading Parallels Management Console

After checking the installation requirements, you should obtain the Parallels Management Console installation file. To do this:

- 1 Ensure that the server with Parallels Server for Mac Bare Metal Edition can be accessed over the network.
- 2 On a computer connected to the network, open your favorite browser and type the IP address or hostname of the Parallels server running Parallels Server for Mac Bare Metal Edition. You will be presented with the following window:



Welcome to the Parallels Server 4.0 for Mac Bare Metal Edition

Download Parallels Management Console

To work with Parallels Server 4.0 for Mac Bare Metal Edition, you need to install Parallels Management Console



[For Windows](#)



[For Linux](#)



[For Mac](#)

Download Parallels Transporter

To migrate a physical computer to a virtual machine, install Parallels Transporter



[For Windows](#)



[For Linux](#)

Download Parallels Transporter for Containers

To migrate a Parallels Virtuozzo Containers to a virtual machine, install Parallels Transporter for Containers



[For Windows](#)



[For Linux](#)

Parallels Documentation



Click to visit the [documentation page](#) for Parallels Server 4.0 for Mac Bare Metal Edition. If you have questions or suggestions or are interested in other Parallels products, [visit our website](#)

Software Development Kit



[View](#) the SDK documentation and download SDK tools for integration with Parallels Server 4.0 for Mac Bare Metal Edition

- 3** Under **Download Parallels Management Console**, click the link corresponding to your system architecture:
 - **For Windows.** Click this link to download the Parallels Management Console installation file for installing on Windows computers.
 - **For Linux.** Click this link to download the Parallels Management Console installation file for installing on Linux computers.
 - **For Mac.** Click this link to download the Parallels Management Console installation file for installing on Mac computers.
- 4** Download the file.
- 5** If you wish to install Parallels Management Computer on another computer, transfer the file to that computer.

Installing Parallels Management Console

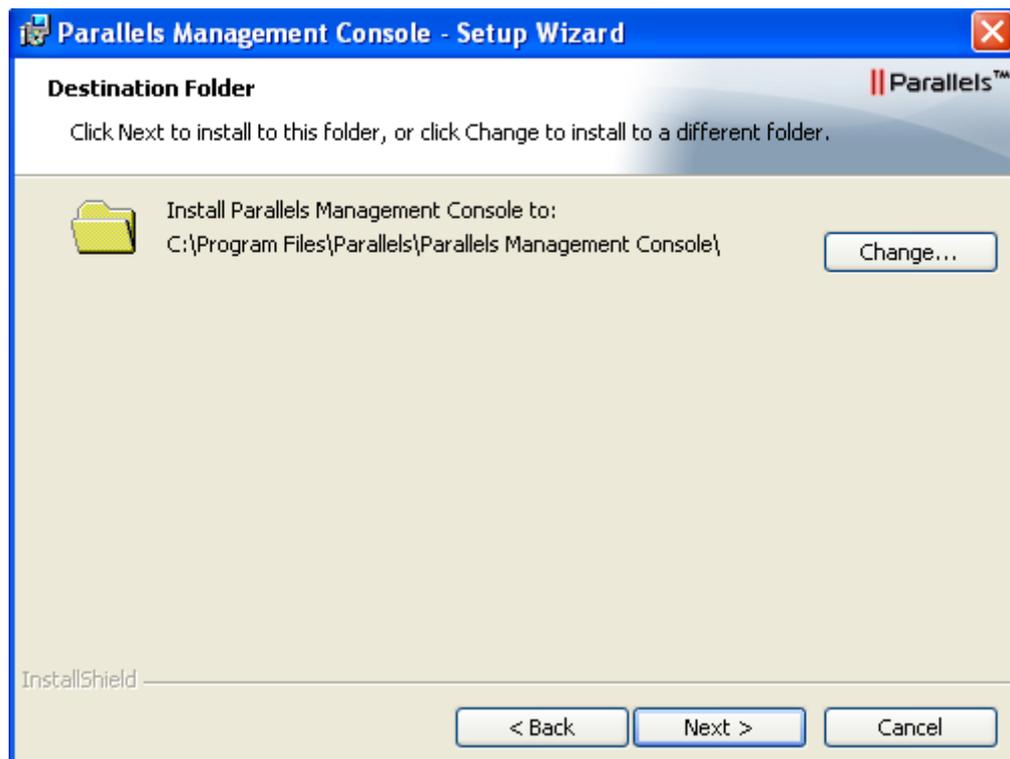
The process of installing Parallels Management Console differs depending on the operating system installed on your computer.

Installing on Windows Computers

- 1 Locate the Parallels Management Console installation file, and double-click it to launch the Parallels Management Console Setup wizard.
- 2 In the Welcome window, click Next.
- 3 In the License Agreement window, carefully read the end user license agreement for Parallels products. If you agree with the terms of the license agreement, select **I accept the terms in the license agreement**, and click Next. If you want to print the text of the license agreement for your records, click Print.

Note: You must accept the license agreement to proceed with the installation.

- 4 In the Destination Folder window, specify the folder where you want to install Parallels Management Console, and click Next. By default, Parallels Management Console is installed to C:\Program Files\Parallels\Parallels Management Console.



- 5 In the **Ready to Install the Program**, click **Install** to start installing Parallels Management Console. You can view the installation progress in the **Setup Status** window.
- 6 Once the installation is complete, click **Finish** to exit the wizard.

Installing on Linux Computers

- 1 Locate the installation package and launch the `parallels-management-console-4.0.XXXX.XXXXX.run` file to run the Parallels Management Console Installer. You can also run this file in terminal.
- 2 Confirm your wish to install Parallels Management Console by clicking **Run** when prompted.

Wait until the process of uncompressing Parallels Management Console is complete and the Installer launches.
- 3 In the **Welcome** window, select **Next**.
- 4 In the **License Agreement** window, carefully read the end user license agreement. If you agree with the terms of the license agreement, select **I accept the terms in the license agreement** and click **Next**. If you want to print the text of the license agreement for your records, click **Print**.

Note: You must accept the license agreement to proceed with the installation.

- 5 In the **Installation Completed** window, click **Exit** to quit the Installer.
- 6 By default, Parallels Management Console is installed to `/usr/lib/parallels-management-console`. To launch Parallels Management Console, start a terminal and execute `pmc-standalone`.

Installing on Mac Computers

- 1 Locate and open the Parallels Management Console DMG package.
- 2 Drag the **Parallels Management Console** icon to the **Applications** folder. The recommended installation path for Parallels Management Console is `/Applications/Parallels Management Console`.
- 3 Wait while the files are being transferred to the **Applications** folder.

Connecting to Parallels Server for Mac Bare Metal Edition

Now that you have installed Parallels Management Console, you can connect to the server where Parallels Server for Mac Bare Metal Edition is installed. Do the following:

- 1 Launch Parallels Management Console:
 - On Mac OS X, open the `/Applications/Parallels` folder and launch the Parallels Management Console application.
 - On Windows, click `Start > All Programs > Parallels > Parallels Management Console > Parallels Management Console`.
 - On Linux, start a terminal and execute `pmc-standalone`.
- 2 In the Parallels Management Console main window, click **Connect to Parallels Server**.
- 3 In the Parallels Server Login dialog, specify the parameters to be used to log in to the Parallels server:
 - In the **Server** list, type the IP address or hostname of the Parallels server.
 - In the **User Name** field, type `root`. You must use the root account to log in to the Parallels server.
 - In the **Password** field, type the password for the root user. Use the password you specified when installing Parallels Server for Mac Bare Metal Edition on the server.

If you want Parallels Management Console to remember your login and password, select the **Save Password** option. With this option selected, you do not need to specify the root credentials each time you connect to the server.

Server: 10.30.19.84

User Name: root

Password: •••••

Save Password

▼ More Options

Server List: 53 servers found

OS	Name	Address
		10.30.18.29
		10.30.18.60
		10.30.18.91
		10.30.18.135
		10.30.18.184
		10.30.19.10
		10.30.19.13
		10.30.19.71
		10.30.19.81
		10.30.19.84
		10.30.19.130
		10.30.19.184
		10.30.19.185

Connection Security: Medium Use Data Compression

Cancel Add Server

- 4 Click **Add Server** to establish connection to the Parallels server.

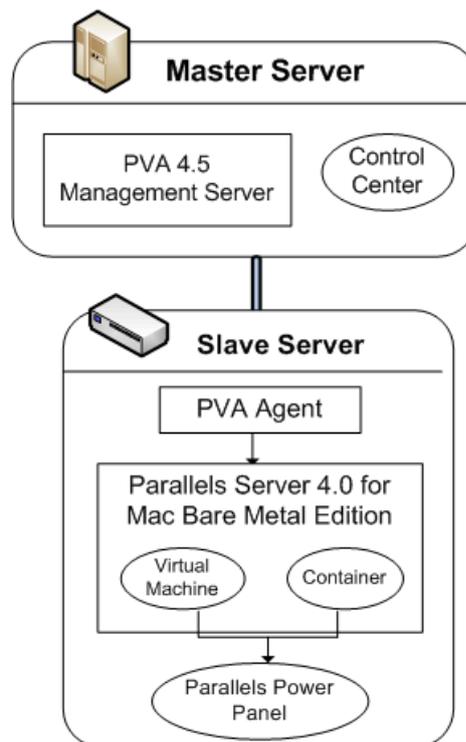
After the server has been successfully registered in Parallels Management Console, it appears in the left menu of the Parallels Management Console main window. For further information on using Parallels Management Console, refer to the *Parallels Management Console User's Guide*.

Using Parallels Virtual Automation

Parallels Virtual Automation is a flexible and easy-to-use administration tool for managing servers with Parallels Server for Mac Bare Metal Edition and virtual machines residing on these servers. Once you set up Parallels Virtual Automation, you can use it to connect to your Parallel servers with a standard web browser on any platform. Parallels Virtual Automation includes the following components:

- *PVA Management Server (or Master Server or Management Node)*. This is a physical server that ensures the communication between the server running Parallels Server for Mac Bare Metal Edition (known as *Slave Server*) and the Parallels Virtual Automation application. The Master Server keeps a database with the information about all registered Slave Servers.
- *Control Center*. This is a front-end to the Parallels Virtual Automation application. You see Control Center in the browser window when you log it to the Slave Server using Parallels Virtual Automation.
- *PVA Agent*. This is a special agent installed on a Slave Server and ensuring the interaction between the Slave Server, the Master Server, and your client computer (i.e. the computer you use to connect to the Slave Server). Without this component, a server cannot be registered in Management Server.
- *Slave Server*. This is a physical server running the Parallels Server for Mac Bare Metal Edition software and hosting a number of virtual machines. You use Control Center to log in to the Slave Server and manage your virtual machines.
- *Parallels Power Panel*. This is a tool installed on the Slave Server and used for managing particular virtual machines.

Graphically, a typical system with Parallels Virtual Automation can be represented as follows.



Setting Up Parallels Virtual Automation

Parallels Virtual Automation is automatically set up on your server during the Parallels Server for Mac Bare Metal Edition installation, provided you select the **Install PVA Agent for Parallels Server** and **Install PVA Management Node** options in the **Congratulations** window of the Parallels Server for Mac Bare Metal Edition installer. However, it is not installed on the server in the following cases:

- You skipped the step of installing the license.
- Your license does not allow you to use Parallels Virtual Automation.
- You had no Internet connection when installing Parallels Server for Mac Bare Metal Edition or the connection got broken for some reason.

At any time, you can install Parallels Virtual Automation manually and start using for managing your virtual machines by doing the following:

- 1 Obtain the appropriate license from Parallels. This step is required only if your license does not support using Parallels Virtual Automation.
- 2 Install the license on the server using Parallels Management Console or the `vzlicload` utility. For information on installing licenses using these tools, see the *Parallels Management Console User's Guide* and *Parallels Server 4.0 for Mac Bare Metal Edition User's Guide*, respectively.
- 3 Once the license is installed, create the `pva_opt.cfg` file, open it for editing, and specify the following options:
 - `PVA_AGENT=1` if you want to install the PVA Agent components or `PVA_AGENT=0` if you do not want to.
 - `PVA_MN=1` if you want to install the PVA Management Server and Control Center components or `PVA_MN=0` if you do not want to.
 - `PASSWD="XXXXXX"` where `XXXXXX` is the password of the root user on the Parallels server (you set this password during the Parallels Server for Mac Bare Metal Edition installation). This option is mandatory if you choose to install PVA Management Server and Control Center components.
 - `PVA_IP="X.X.X.X"` where `X.X.X.X` is the IP address to be assigned to the Master Server. You will then use this IP address to log in to the Master Server. This option is mandatory if you choose to install PVA Management Server and Control Center components.
 - `PVA_HOSTNAME="hostname"` where `hostname` is the hostname to be assigned to the Master Server. This option is mandatory if you choose to install PVA Management Server and Control Center components
- 4 Make sure the Parallels server is connected to the Internet.
- 5 In a terminal, change to the directory where the `pva_opt.cfg` file is located, and run this command:

```
# /usr/libexec/pva-setup.sh pva_opt.cfg
```

Connecting to a Server

To connect to a server using Parallels Virtual Automation, do the following:

- 1 On any computer, open your favorite web browser.
- 2 Make sure that the computer can access the server with Parallels Server for Mac Bare Metal Edition over the network.
- 3 Type the IP address or hostname of the Master Server in the browser window (e.g. `http://123.124.125.126`).
- 4 Use the root credentials to log in to the Master Server, i.e. the root user name and the password you entered during the Parallels Server for Mac Bare Metal Edition installation.

Note: For more information on using Parallels Virtual Automation for managing servers with Parallels Server for Mac Bare Metal Edition, refer to the *Parallels Virtual Automation 4.5 User's Guide* (available at <http://www.parallels.com/products/pva45/resources/>).

CHAPTER 4

Performing Basic Operations in Parallels Server 4.0 for Mac Bare Metal Edition

This chapter outlines the basic day-to-day operations that you are likely to perform with Parallels virtual machines in Parallels Server for Mac Bare Metal Edition.

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Creating a Virtual Machine

To create a new virtual machine in Parallels Server for Mac Bare Metal Edition, do the following:

- 1 Create a virtual machine configuration. To create a virtual machine configuration, you can use either the `pctl create` command or Parallels Management Console.
- 2 Install an operating system in the virtual machine. This operation can be performed using Parallels Management Console only.

The example below shows you how to create a new virtual machine configuration using `pctl create`:

```
# pctl create MyVM --distribution win-2008 --location /vz/VMs
Creating the virtual machine...
Generate the VM configuration for win-2008.
The VM has been successfully created.
```

This will create a virtual machine with the name of `MyVM`, adjust its configuration for installing the Windows Server 2008 operating system in it, and place all virtual-machine-related files in the `/vz/VMs` directory. Now you can use Parallels Management Console to install Windows Server 2008 OS in this virtual machine. For information on how you can do it, see the *Parallels Management Console User's Guide* or *Getting Started With Parallels Management Console* guide.

Note: For more information on options you can pass to `pctl create` when creating virtual machines, see the *Parallels Command Line Reference Guide*.

Supported Guest Operating Systems

Listed below are the operating systems that you can run in your virtual machines:

Mac

Mac OS X 10.5 Server Leopard

Mac OS X 10.6 Server Snow Leopard

Windows

Windows 7 (x32, x64)

Windows Server 2008 R2 (x32, x64)

Windows Server 2003 R2 (x32, x64)

Windows Vista with Service Pack 1 and 2 (x32, x64)

Windows XP with Service Pack 2 and 3 (x32, x64)

Windows 2000 with Service Pack 4 (x32, x64)

Linux

Red Hat Enterprise Linux 5.3 (x32, x64)

Red Hat Enterprise Linux 4.7 (x32, x64)

Fedora 11

Fedora 10

CentOS 5.3 (x32, x64)

CentOS 4.7 (x32, x64)

SUSE Linux Enterprise Server 10 (x32, x64)

Debian GNU/Linux 5.0 (x32, x64)

Debian GNU/Linux 4.0 (x32, x64)

Ubuntu Linux 9.04 Server (x32, x64)

Ubuntu Linux 8.10 Server (x32, x64)

BSD

FreeBSD 7 (x32, x64)

FreeBSD 6 (x32, x64)

Performing Initial Configuration

Before starting your newly created virtual machine, you first need to configure it. This section describes the configuration steps for virtual machines.

Configuring Network Settings

To be accessible from the network, a virtual machine must be assigned a correct IP address. DNS servers must also be configured. The session below illustrates setting the main network parameters for a virtual machine having the name of MyVM:

- To set the IP address of 10.0.186.1, run this command:

```
# pct1 set MyVM --device-set net0 --ipadd 10.0.186.1
```

(net0 is the network card to assign the IP address to.)

- To set the DNS server IP address of 192.168.1.165, run this command:

```
# pct1 set MyVM --nameserver 192.168.1.165
```

Note: You can configure the network settings only inside virtual machines that have Parallels Tools installed.

Setting the Password for a Virtual Machine

In Parallels Server for Mac Bare Metal Edition, you can use the `--userpasswd` option of the `pctl set` command to create new accounts in your virtual machines directly from the Parallels server. The created account can then be used to log in to the virtual machine. The easiest way of doing it is to run this command:

```
# pct1 set MyVM --userpasswd user1:2wsx123qwe
```

This command creates the `user1` account in the MyVM virtual machine and sets the `2wsx123qwe` password for it. Now you can log in to the MyVM virtual machine as `user1` and administer it in the same way you would administer a standalone server: install additional software, add users, set up services, and so on.

The `pctl set` command can also be used to change passwords for existing accounts in your virtual machines. For example, to change the password for `user1` in the MyVM virtual machine to `0pi65jh9`, run this command:

```
# pct1 set MyVM --userpasswd user1:0pi65jh9
```

Note: You can use manage user accounts only inside virtual machines that have Parallels Tools installed.

Installing Parallels Tools

If you are creating a Parallels virtual machine, you are also recommended to install Parallels Tools. Parallels Tools are a set 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, synchronize your virtual machine's time and date settings with the time setting of the host computer, and share clipboard of your computer with the virtual machine's clipboard.

Parallels Tools are available for the following guest operating systems:

Windows

- Windows 2000
- Windows Server 2003
- Windows XP
- Windows Vista
- Windows Server 2008

Linux

Any supported Linux guest operating systems that have the following packages installed:

- `x.org 6.7` and later
- `glibc2.4` and later

Mac

Any supported Mac OS X guest operating systems.

Installing Parallels Tools

To install Parallels Tools in a virtual machine, use the `pctl installtools` command. For example, to install these tools in the `MyVM` virtual machine, you can run this command:

```
# pctl installtools MyVM
```

For more information on Parallels Tools, refer to the *Parallels Management Console User's Guide*.

Starting, Stopping, and Querying Status of a Virtual Machine

After a Parallels virtual machine has been created, it can be managed like an ordinary computer.

Starting a Virtual Machine

You can use the `pctl start` command to start your virtual machines. For example, to start a virtual machine with the name of `MyVM`, you can run this command:

```
# pctl start MyVM
Starting the VM ...
```

Stopping a Virtual Machine

The `pctl stop` command is used to stop your virtual machines. For example, to stop a virtual machine with the name of `MyVM`, you can run this command:

```
# pctl stop MyVM
Stopping the VM ...
```

Checking the Status of a Virtual Machine

You can use the `pctl list` command to check the status of a virtual machine:

```
# pctl list MyVM
stopped 10.12.12.121 MyVM
```

You can also get more detailed information on a virtual machine by specifying the `-i` option after `pctl list`.

Restarting a Virtual Machine

Sometimes, you may need to restart a virtual machine. To do this, use the `pctl reset` command:

```
# pctl reset MyVM
```

Listing Virtual Machines

To get an overview of the virtual machines existing on the physical server and to get additional information about them - their IP addresses, hostnames, current resource consumption, and so on - use the `pctl list` command. In the most general case, you may get a list of all virtual machines by issuing the following command:

```
# pctl list -a
                                ID      NPROC  STATUS  IP_ADDR  HOSTNAME
{b8cb6d99-1af1-453d-a302-2fddd8f86769}  -    stopped 10.10.100.1  VM_1
```

The `-a` option tells the `pctl list` command to output both running and stopped virtual machines. By default, only running virtual machines are shown. The default columns inform you of the virtual machines IDs, the number of running processes inside virtual machines, their status, IP addresses, and hostnames. This output may be customized as desired by using `pctl list` command line options. For example:

```
# pctl list -a -o name,ctid
NAME                                ID
My_Vm  {b8cb6d99-1af1-453d-a302-2fddd8f86769}
```

This command displays only the names and IDs of the virtual machines existing on the physical server. The full list of the `pctl list` command options for virtual machines is available in the *Parallels Command Line Reference Guide*.

Deleting a Virtual Machine

You can delete a virtual machine that is not needed anymore using the `pctl delete` command. Notice that you cannot delete a running or mounted virtual machine. For example, you can run these commands to delete the `MyVM` virtual machine:

```
# pctl delete MyVM
Deleting the VM...
VM is currently running
# pctl stop MyVM
Stopping the VM...
VM was stopped
# pctl delete MyVM
Deleting the VM...
VM was deleted
```

Running Commands in a Virtual Machine

Parallels Server for Mac Bare Metal Edition allows you to execute arbitrary commands inside virtual machines by running them on the physical server, i.e. without the need to log in to the respective virtual machine. For example, this can be useful in these cases:

- If you do not know the virtual machine login information, but need to run some diagnosis commands to verify that it is operational.
- If network access is absent for a virtual machine.

In both these cases, you can use the `pctl exec` command to run a command inside the respective virtual machine. The session below illustrates the situation when you run the stopped SSH daemon inside a Linux virtual machine with the name of `My_Linux`:

```
# pctl exec My_Linux /etc/init.d/sshd status
sshd is stopped
# pctl exec My_Linux /etc/init.d/sshd start
Starting sshd:[OK]
# pctl exec My_Linux /etc/init.d/sshd status
sshd (pid 26187) is running...
```

Notes:

1. You can use the `pctl exec` command only inside virtual machines that have Parallels Tools installed.
 2. The `pctl exec` command is executed inside a virtual machine from the `/` directory rather than from the `/root` one.
-

Monitoring Resources on the Physical Server

Parallels Server for Mac Bare Metal Edition includes a number of means to monitor the physical server and virtual machines resources. One of Parallels Server for Mac Bare Metal Edition's most powerful features is the ability to monitor resources in real time. To do so, you may run the `pstat` utility on the physical server, for example, with the following options:

```
# pstat -d 5
12:34pm, up 14 days, 18:31, 1 user, load average: 1.00, 1.00, 1.00
CTNum 1, procs 245: R 3, S 228, D 0, Z 0, T 14, X 0
CPU [ OK ]: CTs 0%, CT0 50%, user 31%, sys 19%, idle 50%, lat(ms) 10/0
Mem [CRIT]: total 3940MB, free 962MB/0MB (low/high), lat(ms) 1/0
  ZONE0 (DMA): size 10MB, act 0MB, inact 0MB, free 2MB (0/0/0)
    fragm 5*1 7*2 5*4 4*8 5*16 5*32 4*64 3*128 1*256 1*512 1*1024
  ZONE1 (DMA32): size 2992MB, act 1631MB, inact 179MB, free 957MB (5/7/8)
    fragm 1*1 1*2 5*4 2*8 0*16 0*32 2*64 15*128 11*256 3*512 233*1024
  ZONE2 (Normal): size 1008MB, act 603MB, inact 258MB, free 2MB (1/2/2)
    fragm 1*1 9*2 3*4 3*8 2*16 1*32 2*64 1*128 1*256 2*512 1*1024
Mem lat (ms): A0 0, K0 0, U0 0, K1 1, U1 0
Slab pages: 243MB/243MB (ino 84MB, de 53MB, bh 49MB, pb 8MB)
Swap [ OK ]: tot 1992MB, free 1992MB, in 0.000MB/s, out 0.000MB/s
Swap lat: si 0, 0/0 ms, so 0, 0/0 ms, 0/0 cpu ms
Swap cache: add 0, del 0, find 0/0
Net [ OK ]: tot: in 0.002MB/s 22pkt/s, out 0.000MB/s 1pkt/s
             lo: in 0.000MB/s 0pkt/s, out 0.000MB/s 0pkt/s
             eth0: in 0.002MB/s 22pkt/s, out 0.000MB/s 1pkt/s
             eth1: in 0.000MB/s 0pkt/s, out 0.000MB/s 0pkt/s
             sit0: in 0.000MB/s 0pkt/s, out 0.000MB/s 0pkt/s
Disks [ OK ]: in 0.000MB/s, out 0.012MB/s
             root(/) free: 1964MB(50%), 972837ino(94%)
             vz(/vz) free: 174234MB(97%), 47117046ino(99%)
...
```

This screen will be updated with the time interval equal to the value specified after the `-d` (delay) option measured in seconds. In the session above, the statistics displayed will be renewed every five seconds. If the `-d` option is not specified, the default interval equals 1 second.

Migrating Virtual Machines

Parallels Server for Mac Bare Metal Edition provides a special utility - `pmigrate` - allowing you to perform different types of migration.

Migrating a physical server to a virtual machine

The `pmigrate` utility allows you to migrate physical servers to virtual machines on the physical server running Parallels Server for Mac Bare Metal Edition. For example, to move a physical server to the `MyVM` virtual machine, you can execute the following command:

```
# pmigrate h 192.168.1.130 v localhost/MyVM
```

where

- `h` denotes that you are migrating a physical server.
- `192.168.1.130` is the IP address of the physical server to be migrated.
- `v` indicates that the physical server is to be moved to a virtual machine.
- `localhost/MyVM` denotes that the physical server must be migrated to the `MyVM` virtual machine on the local server.

Migrating virtual machines between physical servers

The `pmigrate` utility supports migrating virtual machines between physical servers running Parallels Server for Mac Bare Metal Edition. For example, to migrate a virtual machine with the name of `MyVM` from the server having the IP address of `192.168.1.130` to the local server, run this command:

```
# pmigrate v 192.168.1.130/MyVM v localhost/MyVM
```

Managing Virtual Machine Backups

A regular backing up of the existing virtual machines is essential for any physical server reliability. In Parallels Server for Mac Bare Metal Edition, you can use the `pctl backup` and `pctl restore` commands to back up and restore your virtual machines.

Note: You can also use the `pbackup` and `prestore` utilities to back up and restore your virtual machines.

Creating a backup

The `pctl backup` command allows you to create virtual machine backups on both local and remote physical servers. For example, to make a full backup of the MyVM virtual machine residing on the local server and save it on the destination physical server with the IP address of `10.10.100.1`, run the following command:

```
# pctl backup MyVM -s root:1qaz2wsx@10.10.100.1
```

`root:1qaz2wsx` before the destination server IP address denotes the root credentials used to log in to this server. If you do not specify these credentials, you will be asked to do so during the command execution.

Restoring a backup

To restore a backup of a virtual machine, you can use the `pctl restore` command. This command supports restoring backups to a local Parallels server only. For example, to restore a backup of the MyVM virtual machine stored on the remote server with the IP address of `10.10.100.1`, you can run this command on the local server:

```
# pctl restore MyVM -s root:1qaz2wsx@10.10.100.1
```

If you have two or more backups of the MyVM virtual machine, you can use the `pctl backup-list` command to find out the ID assigned to a specific backup:

```
# pctl backup-list -s 10.10.100.1
ID
Node          Date          Backup_ID          Type
{e3c8be4a-2955-4242-93f6-2fb68a433de1} {7a5e7605-a467-4e04-9f5f-6f0078b5f9f5} dhcp-10.10.100.1.parallels.com 2009-08-21 10:10:32 f
{e3c8be4a-2955-4242-93f6-2fb68a433de1} {24a3011c-092e-4f21-bb3b-29ccfe967e92} dhcp-10.10.100.1.parallels.com 2009-08-21 11:12:35 f
```

You can now indicate the found ID after the `-t` option to tell `pctl backup` to restore a particular backup. For example, to restore the backup that was created first, execute this command:

```
# pctl restore -t {7a5e7605-a467-4e04-9f5f-6f0078b5f9f5} -s root:1qaz2wsx@10.10.100.1
```

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