Parallels® Virtual Automation 4.6.4

Installation Guide for Linux and Bare Metal

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CHAPTER 1

Preface

Parallels Virtual Automation is a flexible and easy-to-use administration tool designed for managing physical servers with Parallels Virtuozzo Containers, or Parallels Server Bare Metal software. With Parallels Virtual Automation, you can create groups of physical servers and perform both collective and individual administration operations on these groups. Moreover, you can also manage the virtual environments residing on the registered physical servers: their productivity and resources, system tasks and processes, configuration, and much more. To work with the registered physical servers and their virtual environments, you will need a standard Web browser running on any platform.

You can read more about Parallels Virtual Automation and its functionality in **Parallels® Virtual Automation Administrator's Guide**.

In This Chapter

About This Guide

This guide is aimed at a wide range of users who are new to Parallels Virtual Automation or just want to make sure they are doing everything right.

The present document is just as easy to use, as the product itself. However, we also provide complete information about the structure and peculiarities of the guide in the following topics.

Organization of This Guide

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

- The **Preface** chapter (p. 5) provides basic information about the product and this guide.
- The **PVA Overview** chapter (p. 10) describes the basics of the Parallels Virtual Automation infrastructure concept and explains the PVA components structure.
- The **PVA System Requirements** chapter (p. 20) provides information about the system requirements your physical servers should meet to ensure successful installation.
- The **Installing via Autoinstaller** chapter (p. 20) provides detailed installation instructions for the autoinstaller.
- The **Installing via Installation Archive** chapter (p. 31) provides detailed installation instructions for the installation archive.
- The **Removing PVA** chapter (p. 49) instructs you how to remove the product or its components from a given computer.

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

Italics	Used to emphasize the importance of a point, to introduce a term or to designate a command line placeholder, which is to be replaced with a real name or value.	These are the so-called *EZ templates*. To destroy a Container, type `vzctl destroy` *ctid*.
`Monospace`	The names of commands, files and directories.	Use `vzctl start` to start a Container.
`Preformatted`	On-screen computer output in your command line sessions; source code in XML, C++, or other programming languages.	`Saves parameters for Container 101`
`Monospace Bold`	What you type as contrasted with on-screen computer output.	**`# rpm -V virtuozzo-release`**
Key+Key	Key combinations for which the user should 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 turn, are subdivided into subsections. For example, **About This Guide** is a section, and **Documentation Conventions** is a subsection.

Getting Help

Parallels Virtual Automation offers several options for accessing necessary information:

Parallels Virtual Automation documentation

- **Parallels Virtual Automation Administrator's Guide**. This document contains extensive information about the product, its usage and troubleshooting. To access the PDF version of the document, go to the **Support** link in the left pane and then click the **Downloads** pane. You can download any document of the Parallels Virtual Automation documentation bundle from the Parallels website.
- **Parallels Virtual Automation Installation Guides for Linux/Bare Metal and Windows**. These documents contain extensive information on system requirements for physical computers and instructions how to install Parallels Virtual Automation components on them.
- **Getting Started With Parallels Virtual Automation**. This document contains the basic information how to install, launch and manage Parallels Virtual Automation.
- **Parallels Power Panel User's Guide**. This document contains extensive information about the Power Panel application.
- **Parallels Virtual Automation 4.6 Agent XML API Reference**. This document is a complete reference on all Parallels Virtual Automation configuration files and physical server command-line utilities.
- **Parallels Virtual Automation Agent Programmer's Guide**. This is a task-oriented guide that provides information on all Parallels Virtual Automation configuration files and physical server command-line utilities.

The documentation is available for download from the Parallels official website http://www.parallels.com/products/pva46/resources/.

Context-sensitive help

You can open a help page for the current screen by clicking the **Help** link in the right upper corner.

Parallels Website

Parallels website http://www.parallels.com/products/pva/resources/. Explore the Support web page that includes product help files and the FAQ section.

Parallels Knowledge Base

Parallels Knowledge Base http://kb.parallels.com. This online resource comprises valuable articles about using the Parallels Virtual Automation, Parallels Virtuozzo Containers and Parallels Server Bare Metal products.

Feedback

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

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

CHAPTER 2

PVA Overview

With Parallels Virtual Automation, you can easily deploy an effectively functioning virtual infrastructure that can help you significantly reduce your costs in terms of time and resources. While Parallels software virtualization products enable you to create complex formations of virtual environments, you may find it hard to manage these formations using different management tools. However, with Parallels Virtual Automation you can handle this challenging task with ease. Since Parallels Virtual Automation supports the whole set of the Parallels products, you can use it with any of its virtualization solutions, be it Parallels Virtuozzo Containers for Windows or Linux or Parallels Server Bare Metal products.

Of course, if you work with only one software virtualization product, you can as well use the native management tool – Parallels Management Console (PMC) – designed to manage either Parallels Containers or Parallels virtual machines. However, if you build up your infrastructure with both software- and hardware-based virtualization, you need a more sophisticated tool for managing such infrastructure.

Why would you need to use both Parallels Containers and Parallels Server technologies? One of the primary reasons could be that you want to have virtual environments with guest OS different from the hosting physical server OS. With Parallels virtual machines, you can have a wide range of guest OSs installed on them.

At the same time, you can use Parallels Virtuozzo Containers software for creating Windows- and Linux-based virtual environments (depending on the physical server OS), as the resulting Containers are less resource consuming than virtual machines.

Parallels Virtual Automation enables you to manage complex groups of virtual environments, as well as particular Containers or virtual machines. Using Parallels Virtual Automation, you can form groups of physical servers and virtual environments, schedule physical server backups and other tasks; start, stop, and configure particular virtual environments, and much more. You can read more about Parallels Virtual Automation and its functionality in **Parallels® Virtual Automation Administrator's Guide**.

In This Chapter

PVA Components

Before you start installing Parallels Virtual Automation, you should learn about its components and their role in the management process. Parallels Virtual Automation consists of several components and an auxiliary tool. The main Parallels Virtual Automation components are:

Component	Where to Install	Description
PVA Management Server	On any clean physical server without any software virtualization technology, or on a Container.* The physical server with PVA Management Server component installed is called *Master Server*.	This component ensures the communication between the slave physical servers and their virtual environments. **PVA Control Center** It is a part of the PVA Management Server component and is always installed together with it. Thus, you are able to interact with the remote physical servers and have means to observe your virtual infrastructure. It is the PVA front-end that you see in the browser window after logging in to Parallels Virtual Automation. When talking about the Parallels Virtual Automation interface, we are actually talking about the Control Center interface.
PVA Agent for Parallels Server	On a dedicated physical server that has Parallels Server Bare Metal installed. Such server is also called a *Slave server*.	The component ensures the interaction between this physical server, the Master Server and your client computer. Without this component, a physical server cannot be registered in Master Server.
PVA Agent for Virtuozzo	On a dedicated physical server that has either of the following software installed: • Parallels Virtuozzo Containers for Linux, or • Parallels Virtuozzo Containers for Windows. Such server is also called a *Slave server*.	This component ensures the interaction between this physical server, the Master Server and your client physical computer. Without this component, a physical server cannot be registered in Master Server.
SNMP	On a dedicated physical server that has Parallels Virtuozzo Containers for Windows/Linux installed. Such server is also called a *Slave server*.	The PVA Agent for Virtuozzo on Windows physical servers includes the SNMP protocol distributive that is installed alongside with the Agent. On Linux physical servers, SNMP should be installed separately before the Agent component installation.

Parallels Power Panel	On a dedicated physical server together with the PVA Agent component (PVA Agent for Virtuozzo or for Parallels Server).	An auxiliary tool designed for managing a single virtual machine or a single Container. It can be installed only together with the PVA Agent component. **Note:** During the Parallels Power Panel installation, an auxiliary Service Container 1 is created. It ensures proper Parallels Power Panel functioning. **SOAP protocol** The Soap Agent part is installed alongside with the Power Panel component. Rejecting Power Panel installation, you will not be able to manage virtual environments via SOAP.

* The PVA Management Server component cannot be installed directly on a Parallels Server Bare Metal physical server due to the virtualization software already installed on this server. The workaround solution is to create a Container on the PSBM physical server and to launch the PVA installation there. A Container is free from any virtualization technologies, so you can easily install PVA Management Server on it. To ensure a successful installation, the Container should be created on the basis of the **ve-vswap.2048MB.conf-sample** template.

The PVA Management Server component cannot be as well installed on a dedicated Mac, Linux-, or Windows-based physical server. But creating a virtual environment on this physical server allows you to launch the PVA Management Server component installation inside it. Create a Container on Linux or Windows server, and a virtual machine with any OS on a Mac server.

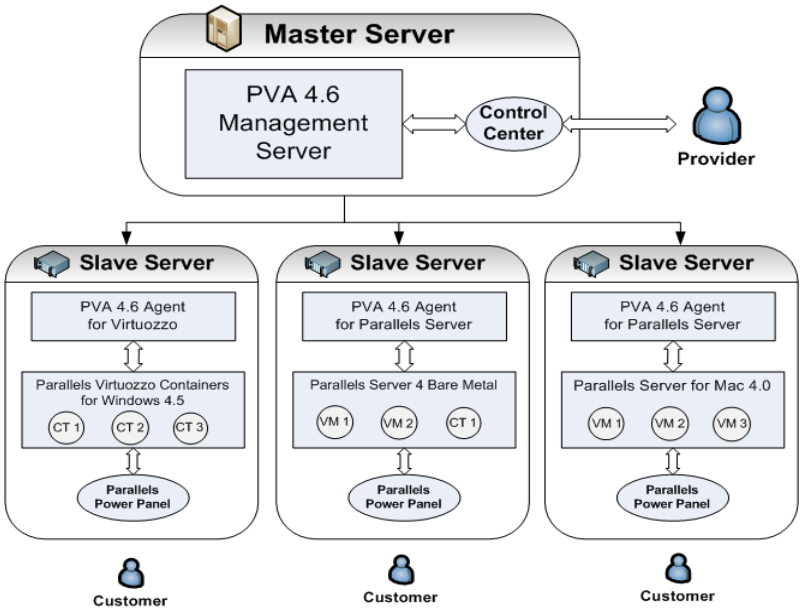
For the instructions on creating a Container, refer to the **Parallels® Virtuozzo Containers for Linux User Guide** or **Parallels® Virtuozzo Containers for Windows User Guide**.

For the instructions on creating a virtual machine, refer to the **Parallels® Server Bare Metal** documentation.

Planning Your PVA Management System

From the previous section, you know what components Parallels Virtual Automation consists of. Now you can pass on to creating your own management system.

Please pay attention to the following scheme. This is an example of a possible Parallels Virtual Automation management system. Of course, your management system may vary from the scheme below but nevertheless it will help you to understand the Parallels Virtual Automation basics more clearly.



So, let us analyze the Parallels Virtual Automation management system displayed on the scheme. It consists of:

Master Server

Master Server is a physical server where all other subordinate physical servers are registered. On this physical server, PVA Management Server component should be installed.

Note: PVA Management Server component is always installed together with the PVA Control Center component.

What physical server can be used as a Master Server?

- A clean physical server with Linux, Windows or Mac operating system. This server should have no Parallels virtualization software installed. PVA Management Server component is installed directly on the physical server.
- A Linux- or Windows-based physical server with Parallels Virtuozzo Containers software installed. As such physical server already has a software virtualization technology installed, you cannot install PVA Management Server component directly on it. First, you should create a Container by means of Parallels Virtuozzo Containers software and then install the PVA component inside the Container. In this case, the physical server can act as a Master Server and a Slave Server at the same time.
- A bare-metal physical server with Parallels Server Bare Metal software installed. This case is much alike the previous one. First, you should create a Container and then install the PVA Management Server component into it. The physical server also can act as a Master Server and a Slave Server at the same time.

Slave Server

A Slave Server is a dedicated physical server that has one of the Parallels software virtual technologies installed. On this physical server, PVA Agent for Parallels Server and/or PVA Agent for Virtuozzo should be installed depending on the software virtualization technology the server already has. For example, a bare metal computer with Parallels Server Bare Metal software allows you to install both PVA Agents, thus to have Containers and virtual machines on one and the same physical server.

A Slave Server should also have the Power Panel component installed. This ensures that a customer can manage the private virtual environment residing on the hosting physical server.

Note: PVA Agent component is installed by default together with the PVA Power Panel component.

What physical server can be used as a Slave Server?

- a Linux-based physical server running Parallels Virtuozzo Containers for Linux 4.7;
- a bare metal physical server running Parallels Server Bare Metal 5

Note: After you install all the necessary components on the physical servers, you should register your slave servers on Master Server. Registering a slave server is a management operation. You can learn about management operations from the **Parallels Virtual Automation Administration Guide**.

Customer's Computer

Any computer can serve as a customer's computer provided that it has a stable network connection and a Web browser supported by Parallels Virtual Automation. A customer's computer does not need any PVA components to be installed. The connection between the customer's computer and the PVA Slave Server's virtual environments is provided by the Parallels Power Panel installed on the Slave server.

Note: Parallels Power Panel allows working with a single private computer and does not provide access to the whole Slave Server or PVA management system.

Parallels Licensing Policy

Parallels team provides flexible and easy-to-use solutions, which also applies to its licensing policy.

As such, Parallels Virtual Automation doesn't have a license of its own, and you can download and install it without accepting a license agreement. Instead, Parallels sticks to the *per-server licensing policy*, which means that you can use Parallels Virtual Automation only if you have a valid license for the Parallels virtualization software installed on your computer.

CHAPTER 3

PVA System Requirements

After deciding on the structure of your Parallels Virtual Automation management system, please make sure that all the physical servers, which you are going to include in this system, meet the system and network requirements below.

This section focuses on the software and hardware requirements for the Linux-based physical computers and bare metal physical servers where you are going to install the Parallels Virtual Automation components.

A Linux-based computer can take various roles in the management system:

- It can be used as a **Master Server** (p. 13) and should meet the system requirements for the PVA Management Server component.
- It can be used as a **Slave Server** (p. 13) and should meet the requirements for the PVA Agent for Virtuozzo component.
- It can be used as a **Client computer** (p. 13) and doesn't need any PVA component to be installed, but still has some software requirements.

A Parallels Server bare metal computer can take various roles in the management system:

- It can be used as a **Master Server** (p. 13) and should meet the system requirements for the PVA Management Server component.
- It can be used as a **Slave Server** (p. 13) and should meet the requirements for the PVA Agent for Parallels Server and for Virtuozzo components.

In This Chapter

Hardware Requirements

Hardware Requirements for Linux Computers

If a Linux-based computer serves as a Master Server, there are no special requirements for it. However, below is the list of the basic hardware requirements you can use as a checklist:

- Intel Celeron, Pentium III, Pentium 4, Xeon, AMD Athlon CPU, or better
- at least 1 GB of RAM
- hard drive with at least 15 GB of free disk space
- network card

If a Linux-based computer serves as a Slave Server where virtual environments will be stored and managed, then Parallels Virtual Automation will call for more complex hardware. The general considerations regarding the configuration of your physical servers could be as follows:

- CPUs. The more virtual environments you plan to run simultaneously, the more CPUs you need.
- Memory. The more memory you have, the more virtual environments you can run. The exact figure depends on the number and nature of applications you are planning to run in your virtual environments.
- Disk space. Each virtual environment occupies 40–150 MB of hard disk space for system files in addition to the user data inside the virtual environment (for example, web site content). You should consider it when planning disk partitioning and the number of virtual environments to run.

Note: The hardware requirements above serve as additional requirements and are true for the proper functioning of Parallels Virtual Automation only. The correct work of Containers is guaranteed by adhering to the system requirements of the Parallels Virtuozzo Containers product.

For the detailed and more concrete information on the requirements for the computer, see **Parallels® Virtuozzo Containers for Linux** and **Parallels® Virtuozzo Containers for Windows** user guides.

Hardware Requirements for Parallels Server Bare Metal Computers

If a Parallels Server bare metal computer serves as a Master Server, there are no special requirements for it. However, below is the list of the basic hardware requirements you can use as a checklist:

- Intel Celeron, Pentium III, Pentium 4, Xeon, AMD Athlon CPU, or better
- at least 1 GB of RAM

- hard drive with at least 15 GB of free disk space
- network card

Bear in mind, that the PVA Management Server component, that converts a physical server into a Master Server, cannot be installed directly on a Parallels Server bare metal computer because it already has two Parallels virtualization technologies installed. First, you should create a Container and start the PVA component installation there. To ensure a successful installation, the Container should be created on the basis of the **ve-vswap.2048MB.conf-sample** template. For the instructions on creating a Container, refer to the **Parallels® Virtuozzo Containers for Linux** user guide.

If a Parallels Server bare metal computer serves as a Slave Server where virtual environments will be stored and managed, then Parallels Virtual Automation will call for more complex hardware. The general considerations regarding the configuration of your physical servers could be as follows:

- CPUs. The more virtual environments you plan to run simultaneously, the more CPUs you need.
- Memory. The more memory you have, the more virtual environments you can run. The exact figure depends on the number and nature of applications you are planning to run in your virtual environments.
- Disk space. Each virtual environment occupies 40–150 MB of hard disk space for system files in addition to the user data inside the virtual environment (for example, web site content). You should consider it when planning disk partitioning and the number of virtual environments to run.
- Intel VT-x or AMD-V hardware virtualization technology support.

Note: The hardware requirements above serve as additional requirements and are true for the proper functioning of Parallels Virtual Automation only. The correct work of Containers and virtual machines is guaranteed by adhering to the system requirements of the Parallels Virtuozzo Containers and Parallels Server Bare Metal products.

For the detailed and more concrete information on the requirements for the Parallels Server Bare Metal computer, see **Parallels® Server Bare Metal Installation Guide**.

Software Requirements

If a Linux-based computer serves as a Master Server, it should be a physical server without any software virtualization technology running x64 or i386 versions of

- CentOS 5.x or 6.x
- RHEL 5.x or 6.x

A Linux-based computer can serve as a Master Server even if it has a software virtualization technology - Parallels Virtuozzo Containers for Linux software. In this case, you should create a Container and start the PVA installation there. The Container should be created on the basis of the **ve-vswap.2048MB.conf-sample** template. For the instructions on creating a Container, refer to the **Parallels® Virtuozzo Containers for Linux** user guide.

If a Linux-based computer serves as a Slave Server where virtual environments will be stored and managed, then Parallels Virtual Automation will call for more complex requirements, as the creation and management of containers and virtual machines demand more complex software resources. So, in choosing an appropriate Linux-based computer, you should be guided by the Parallels Virtuozzo Containers system requirements. For the detailed and more concrete information on the requirements, see **Parallels® Virtuozzo Containers for Linux** and **Parallels® Virtuozzo Containers for Windows** user guides.

If a computer serves as a Client Server (p. 13), it should have a supported Web-browser client:

- Internet Explorer 8.x and 9.x for Windows
- Mozilla Firefox 8.x for Windows, Linux, and Mac OS X
- Safari 5.x for Mac OS X

Note: The software requirements above serve as additional requirements and are true for the proper functioning of Parallels Virtual Automation only. The correct work of Containers is guaranteed by adhering to the system requirements of the Parallels Virtuozzo Containers product.

Although other browsers will most likely work, only those listed above have been extensively tested for compatibility with Parallels Virtual Automation.

Installing via Autoinstaller

This section gives the detailed information on how to install Parallels Virtual Automation on Parallels Server bare metal and Linux-based physical servers using the autoinstaller.

You can download Parallels Virtual Automation 4.6 distribution from the Parallels download page http://www.parallels.com/download/pva/.

The autoinstaller scans the physical server and offers to download and to install those Parallels Virtual Automation components that can be installed on this server. Thus, the autoinstaller saves the downloading time and the disk space. The autoinstaller, through the internet, connects to the repository and downloads the necessary components.

Installing on Parallels Server Bare Metal Computers

You can install Parallels Virtual Automation on your Parallels Server Bare Metal physical server using the autoinstaller. This procedure consists of the following steps:

1. Download the necessary autoinstaller to the target Parallels Server bare metal physical server.
2. Go down to the directory, where the autoinstaller is stored.
3. Start the autoinstaller by executing the following command:

```
# ./autoinstaller_file_name
```

   In the above command, `autoinstaller_file_name` stands for the name of the autoinstaller file.

4. In the **Welcome to pva-setup** window, click **Configure** to specify the Internet repository information and the local download directory to which you want to upload the files. For more information about the configuration settings, see **Configuring Installation Settings**:

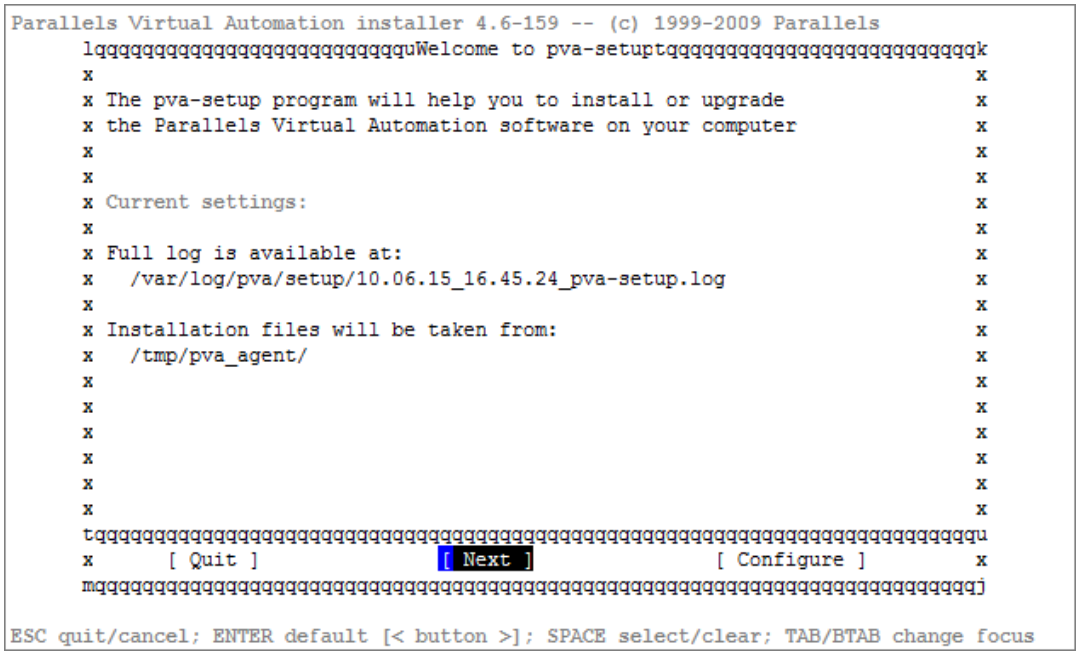
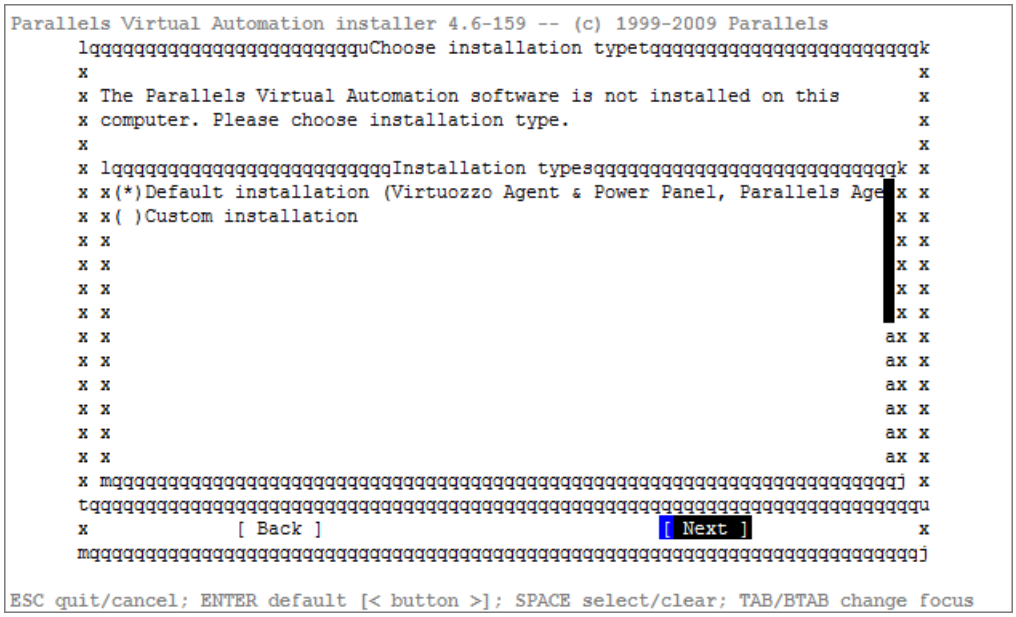


Figure 1: Installing From TUI - Beginning Installation

   After you have specified the necessary information, click **OK** and then **Next** to proceed with the installation.

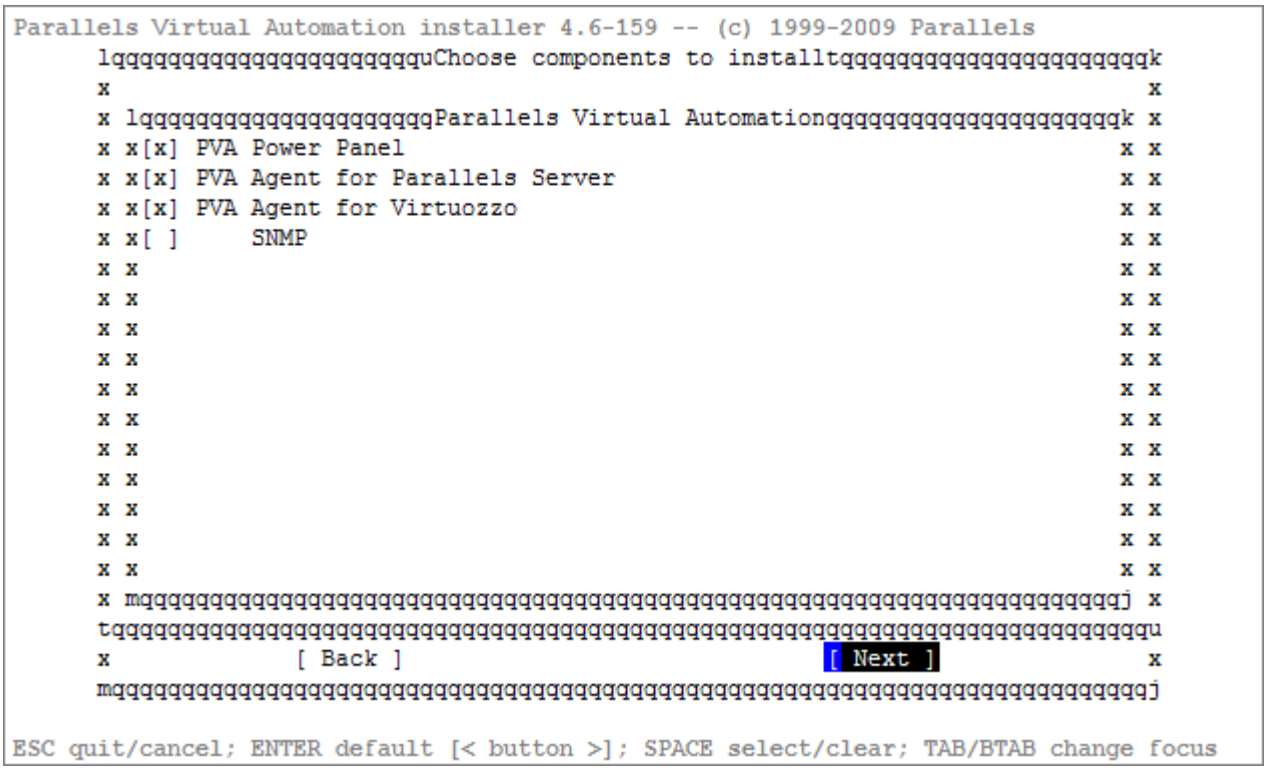
5. In the **Choose installation type** window, choose the installation type. By default, you are offered to install PVA Agent for Virtuozzo, for Parallels Server, and the Power Panel component.

Note: To make a PSBM physical server function as a Master Server, you need to create a Container on this server and launch the PVA installation there. Refer to the **Installing PVA on Container via Autoinstaller** section (p. 30).



Click **Next** to start the installation. Keep in mind that, by default, the wizard will install both the PVA Agents and PVA Power Panel components. If you want to deselect PVA Power Panel or select SNMP for installation, select **Custom installation** and click **Next**. Pass on to the next step.

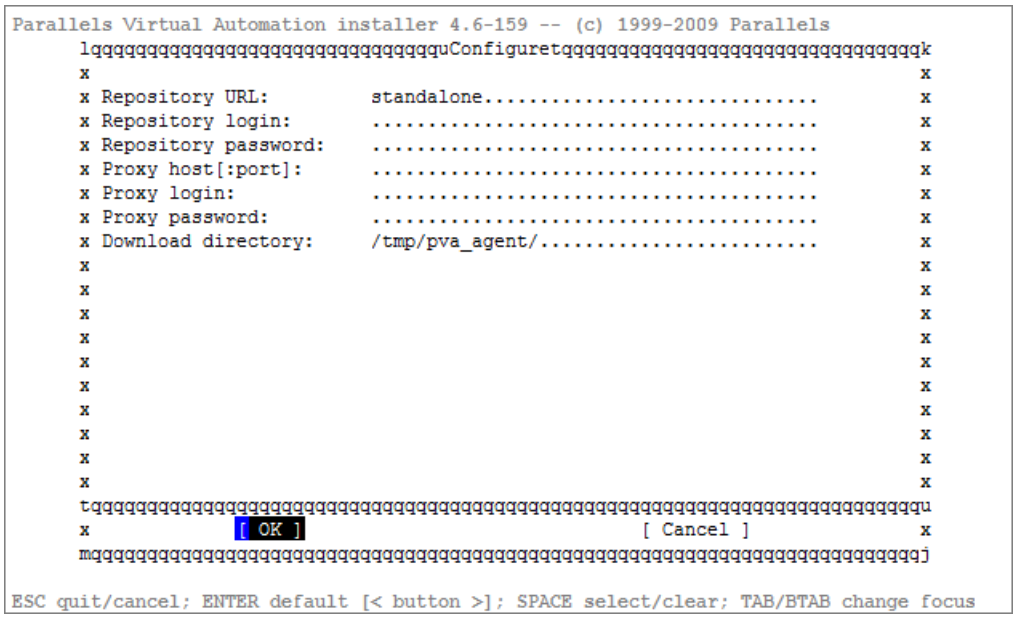
6 After you have selected **Custom installation** and clicked **Next**, you see the **Choose components to install** window displayed. Choose the components for installation.



7 Click **Next** to start the installation.

Configuring Installation Settings

In the **Configure** window, you can set up the following parameters:



- **Repository URL**: the URL of the server storing the repository with the product installation files.
- **Repository login**: the user name to log in to the repository.
- **Repository password**: the password of the user specified in the **Repository login** field.
- **Proxy host[:port]**: (for those who use proxy server) the hostname or IP address of the proxy server to be used to connect to the repository.
- **Proxy login**: the user name used by the proxy server for your authentication.
- **Proxy password**: the password of the user specified in the **Proxy login** field and used for your authentication by the proxy server.
- **Download directory**: the directory on your server where the installation files will be downloaded to.

To edit the settings, click the text field and type/edit the text.

Installing on Linux-based Computers

You can install Parallels Virtual Automation on your Linux-based physical server using the autoinstaller. This procedure consists of the following steps:

1 Download the necessary autoinstaller to the target Linux-based physical server.

2 Go down to the directory, where the autoinstaller is stored.

3 Start the autoinstaller by executing the following command:

```
# ./autoinstaller_file_name
```

In the above command, `autoinstaller_file_name` stands for the name of the autoinstaller file.

4 In the **Welcome to pva-setup** window, click **Configure** to specify the Internet repository information and the local download directory to which you want to upload the files. For more information about the configuration settings, see **Configuring Installation Settings**:

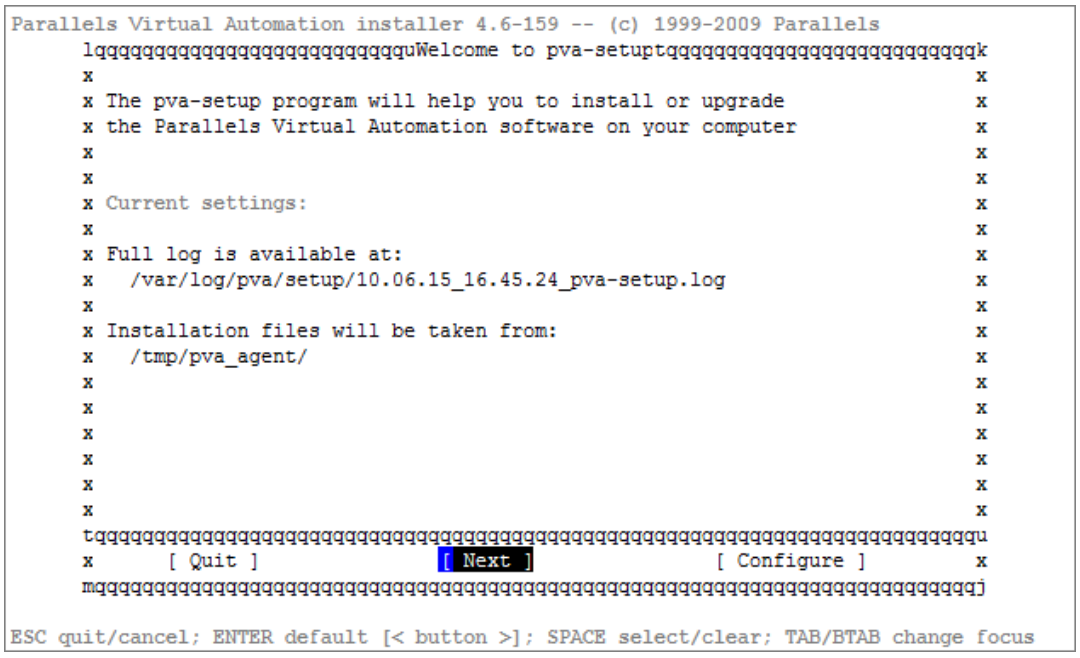


Figure 2: Installing From TUI - Beginning Installation

After you have specified the necessary information, click **OK** and then **Next** to proceed with the installation.

5 In the **Choose installation type** window, choose the installation type. The component for the default installation may differ. This depends on whether the physical server is clean or already has any software virtualization technology installed on it.

- If the physical server is clean (i.e. has no virtualization technology installed), you will be offered to install the PVA Management Server component by default. Click **Next** to start the installation. If you want to change the destination folder for the Management Server component, choose **Custom installation** and click **Next**.

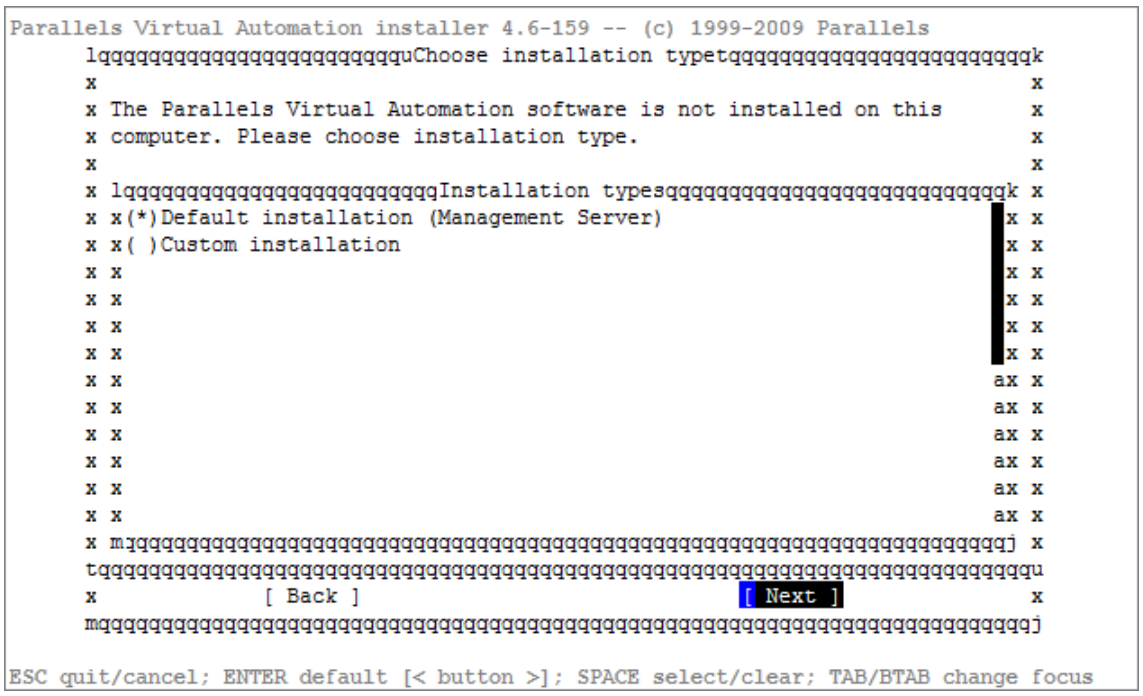


Figure 3: Installing PVA Management Server on Linux - Selecting Default Installation

- If the physical server has Parallels Virtuozzo Containers installed, you will be offered to install the PVA Agent for Virtuozzo component by default.

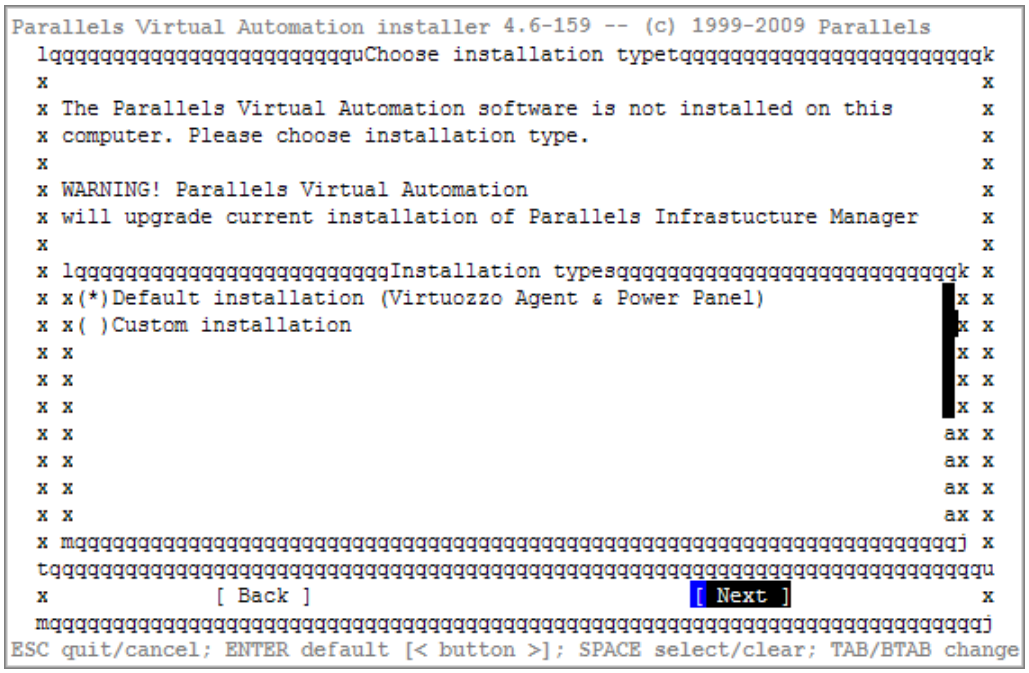


Figure 4: Installing From TUI - Choosing Installation Type

Click **Next** to start the installation. Keep in mind that, by default, the wizard will install both the PVA Agent for Virtuozzo and PVA Power Panel components. If you want to deselect PVA Power Panel or select SNMP for installation, select **Custom installation** and click **Next**. Pass on to the next step.

6 After you have selected **Custom installation**, you will see the **Choose components to install** window displayed. Select the components to be installed.

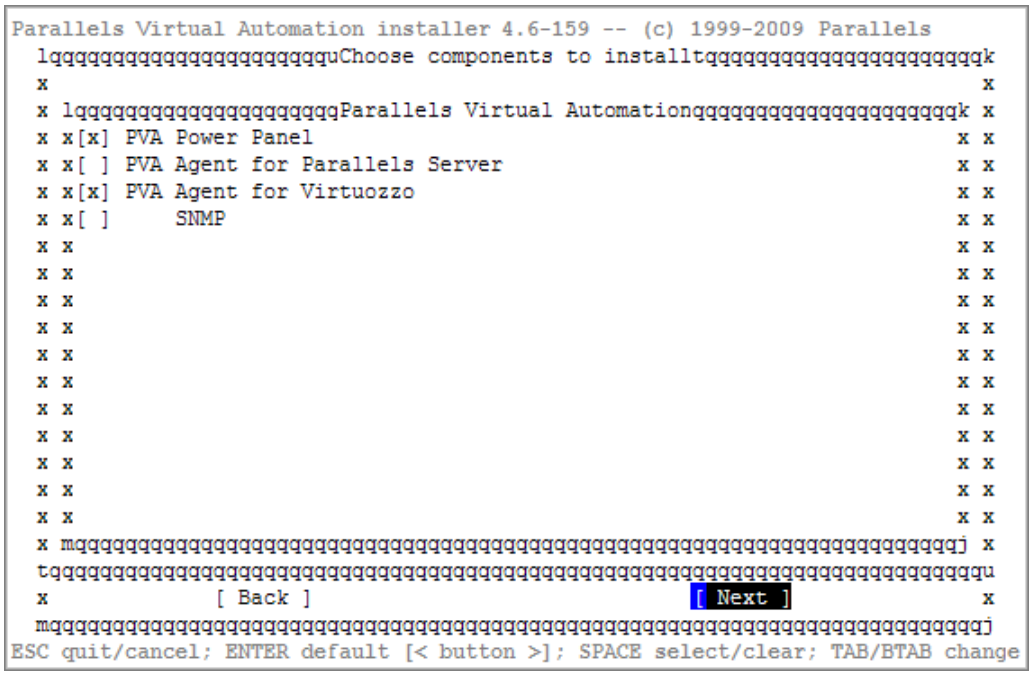
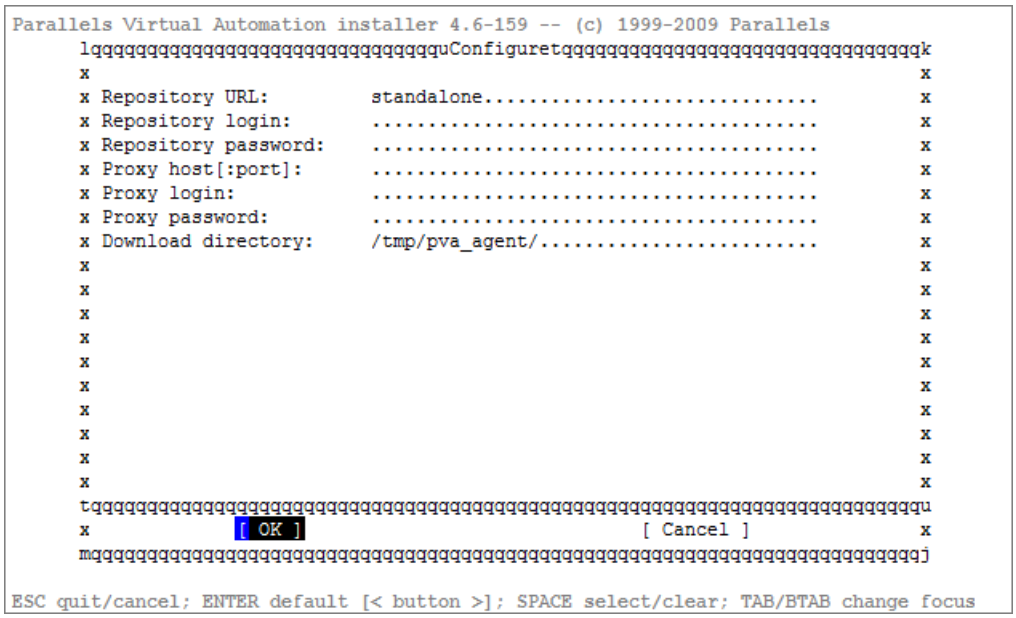


Figure 5: Installing From TUI - Selecting Components

7 Click **Next** to start the installation.

Configuring Installation Settings

In the **Configure** window, you can set up the following parameters:



- **Repository URL**: the URL of the server storing the repository with the product installation files.
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- **Repository password**: the password of the user specified in the **Repository login** field.
- **Proxy host[:port]**: (for those who use proxy server) the hostname or IP address of the proxy server to be used to connect to the repository.
- **Proxy login**: the user name used by the proxy server for your authentication.
- **Proxy password**: the password of the user specified in the **Proxy login** field and used for your authentication by the proxy server.
- **Download directory**: the directory on your server where the installation files will be downloaded on.

To edit the settings, click the text field and type/edit the text.

Installing PVA on Container via Autoinstaller

You will need to install PVA on a Container in the following situation: you have a physical server with a software virtualization technology installed (a Parallels Server Bare Metal physical server or Windows-/Linux-based physical server with Parallels Virtuozzo Containers software installed). It means that the physical server already has a software virtualization technology, and you cannot convert this server into a Master Server. But you can create a Container, that has no software virtualization technology, and use this Container to install the **Management Server** component of PVA, thus you convert the whole physical server into a Master Server.

Creating a Container

To ensure a successful installation of the PVA components in the Container, you should create a Container with a particular configuration. On Parallels Server bare metal and Linux-based physical servers, use the **ve-vswap.2048MB.conf-sample,** on the basis of which you should create the Container. A Container on a Windows-based physical server can be created on the basis of any template.

For the instruction on creating a Container refer to the **Parallels® Virtuozzo Containers for Linux** and **Parallels® Virtuozzo Containers for Windows** user guides.

Running PVA Autoinstaller on a Container

After you have created a Container, you can start the PVA Autoinstaller inside. The Autoinstaller behavior principles are absolutely the same as if you were running it on a real physical server with Linux- or Windows-based operating system. So, for the detailed instructions, you can refer to the **Installing on Linux-Based Computers** section.or to the **Installing on Windows-based Computers** section.

Installing via Installation Archive

This subsection contains a detailed description on how to install Parallels Virtual Automation, using the installation archives, on various platforms.

You can download Parallels Virtual Automation 4.6 distribution from the Parallels download page http://www.parallels.com/download/pva/.

Installing PVA on Parallels Server Bare Metal Computers

Different PVA components can be installed from different archives:

If you want to have a Parallels Server Bare Metal computer serve as a **Master Server** (p. 13), you should use one type of archives that allow you to install the Management Server and Control Center.

If you want to have a Parallels Server Bare Metal computer serve a **Slave Server** (p. 13), you should use another type of archives that allow you to install PVA Agent for Parallels Server.

Management Server and Control Center

Management Server is a PVA component that converts a physical server into a Master Server and that can be installed on a physical server without any software virtualization technology primarily installed.

Bear in mind, that this component cannot be installed directly on a bare metal computer because it already has Parallels Server Bare Metal software installed. First, you should create a Container with the help of Parallels Virtuozzo Containers and start the PVA component installation there. For the instructions on creating a Container, refer to the *Parallels® Virtuozzo Containers for Linux* user guide.

You can conduct the installation procedure using either terminal user interface (TUI) or command-line interface (CLI). These two ways are described in detail in the following subsections.

Using TUI

If you are more accustomed to using a GUI installer, than to typing commands in Terminal, use the TUI wizard that will lead you through the installation process.

Note: The Management Server component cannot be installed directly on the bare metal computer. You should primarily create a Parallels Virtuozzo Container. See Bare Metal system requirements.

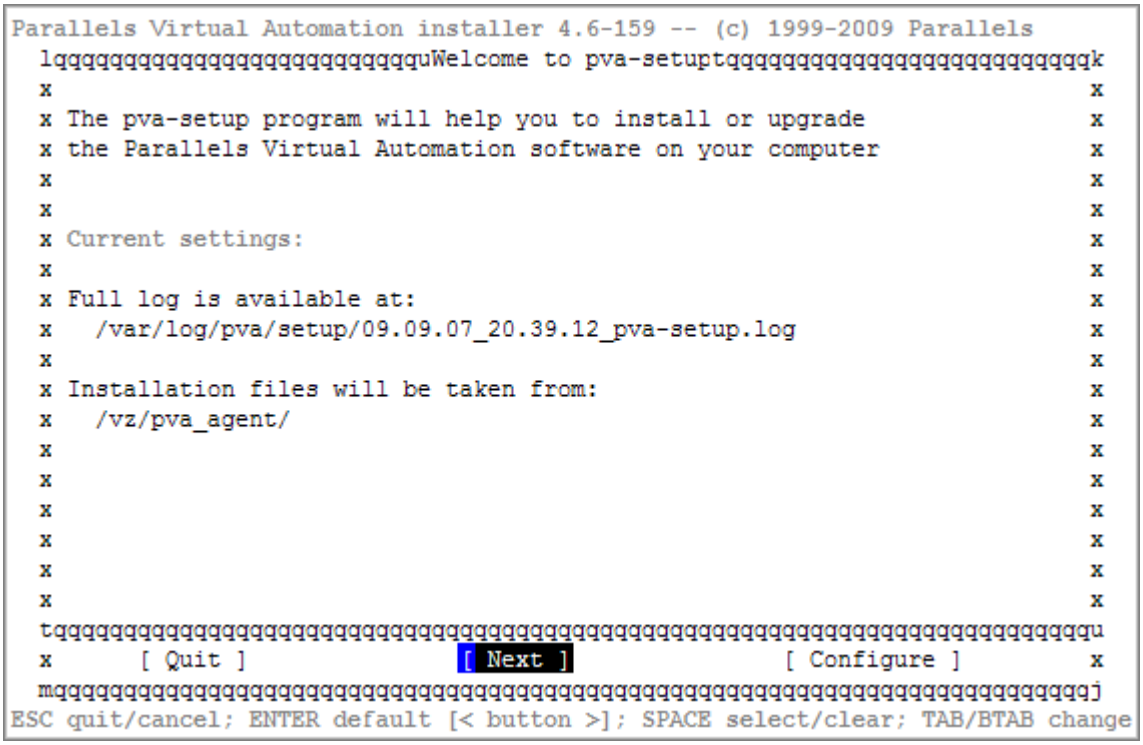
Below you will find the installation procedure for the Container with a Linux operating system.

To install the PVA Management Server component on a Container, perform the following actions:

1. Log in to the target Container on the bare metal physical computer running Parallels Server Bare Metal as a user with the `root` privileges.
2. Locate the Parallels Virtual Automation distribution and go down to the directory, where the `pva-setup` binary is stored.
3. Execute the following command:

```
# ./pva-setup
```

4. In the **Welcome to pva-setup** window, you can view the path where the installation package is stored. Click **Next** to proceed with the installation



5 In the **Choose installation type** window, you will be offered to install the PVA Management Server component by default.

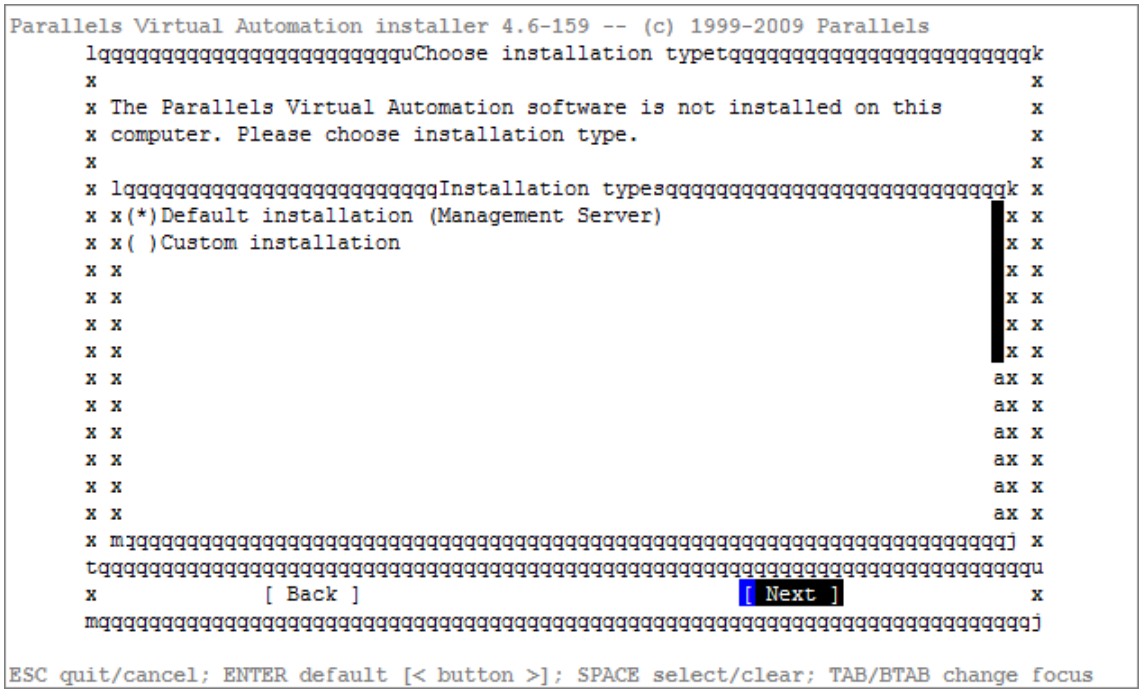


Figure 6: Installing PVA Management Server on Linux - Selecting Default Installation

Click **Next** to start the installation.

Unattended Installation

If you prefer to use the command-line interface to install Parallels Virtual Automation on your bare metal-based physical server, you have to specify a number of PVA components after the `--install` command of the `pva-setup` utility and the program will use them to install the product.

Note: The Management Server component cannot be installed directly on the Parallels Server Bare Metal computer. You should primarily create a Parallels Virtuozzo Container. See Bare Metal system requirements.

Besides a number of components used with the `--install` command, the `pva-setup` utility also provides you with a set of its own options that you can specify to configure, for example, the online installation. The options of the `pva-setup` utility are described in the following table:

Note: To be able to install Parallels Virtual Automation, you must be logged in with the `root` privileges.

Option	Description
`-h, --help`	Shows the installer help.
`-v, --verbose`	Prints the verbose output.
`-r, --repository <repository_address>`	This option is used when the installation files are stored in an online repository. Specify the Internet address of the remote repository to enable the installer download the required files to your computer. If you already have the installation files on the given computer, set the `<repository_address>` value to `local`.
`-d, --downloaddir <dir_path>`	Specifies the local directory, to which the installation files will be downloaded during the installation.
`-l,--logdir <dir_path>`	Specifies the path to the local folder where the installation logs will be stored.
`--os_distributive_path <path>`	Specifies the path to the distribution set of your operating system.
`--install [-c <list_of_components>] [-u <versions>]`	Installs/upgrades the specified Parallels Virtual Automation components. `-c, --components <list_of_components>`: Specifies the list of components to install. Component names should be separated by commas: `-c 'PVA Control Center, PVA Management Server'` `-u , --update <version>`: Specifies the version to which you want to upgrade. **Note:** The update mechanism is still in development.

`--list`	Prints a list of updates and components you can install on the given computer.
`--uninstall`	Removes Parallels Virtual Automation and all its components.

The following example demonstrates how to install Parallels Virtual Automation on your bare metal physical server via the command-line interface:

1. Log in to the server with the `root` privileges.
2. Locate the Parallels Virtual Automation distribution and go down to the directory, where the `pva-setup` binary is stored.
3. Specify the necessary options and components after the `--install` command of the `pva-setup` utility:
   - To install only the PVA Management Server component, execute the following command:

```
# ./pva-setup --install -c "PVA Management Server"
```

   The specified component will be installed on the server.

PVA Agents for Parallels Server and Virtuozzo, Power Panel

PVA Agent for Parallels Server or Virtuozzo is a PVA component that converts a physical server into a Slave Server and that can be installed on a physical server with Parallels Virtuozzo Containers or Parallels Server Bare Metal software.

You can conduct the installation procedure using either terminal user interface (TUI) or command-line interface (CLI). These two ways are described in detail in the following subsections.

Using TUI

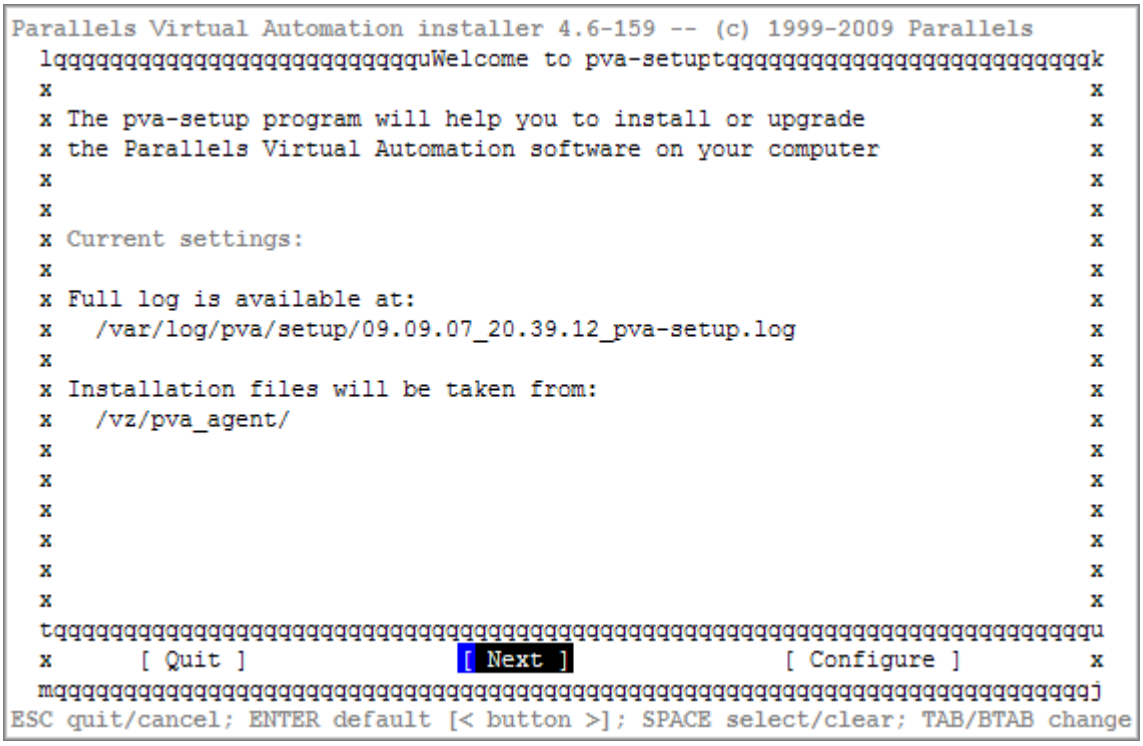
If you are more accustomed to using a GUI installer, than to typing commands in Terminal, use the TUI wizard that will lead you through the installation process.

To install the PVA Agent for Parallels Server component from TUI, perform the following actions:

1. Log in to the target bare metal physical computer running Parallels Server Bare Metal as a user with the `root` privileges.
2. Locate the Parallels Virtual Automation distribution and go down to the directory, where the `pva-setup` binary is stored.
3. Execute the following command:

```
# ./pva-setup
```

4. In the **Welcome to pva-setup** window, click **Next** to proceed with the installation

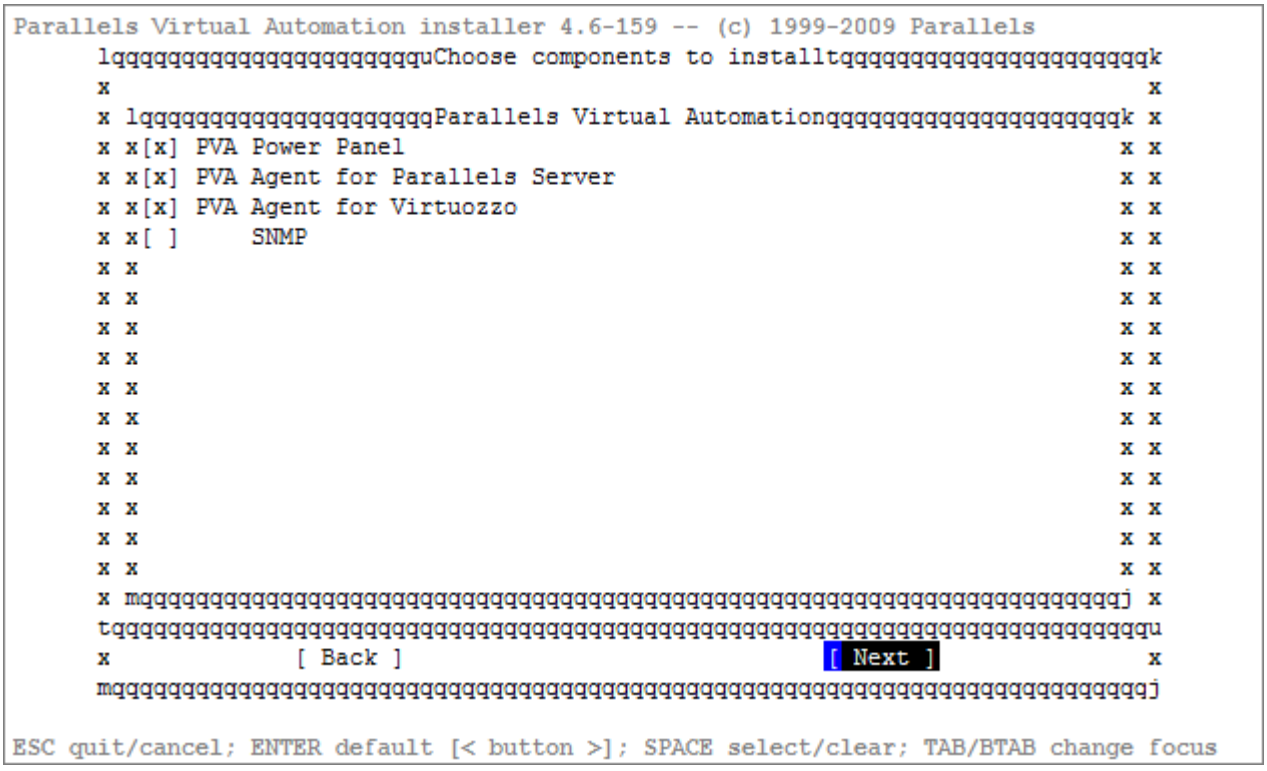


5 In the **Choose installation type** window, you will be offered to install the PVA Agents for Parallels Server and Virtuozzo components by default. Click **Next** to start the installation.

Keep in mind that, by default, the wizard will install both the PVA Agents and PVA Power Panel components.

If you want to deselect PVA Power Panel, select **Custom installation** and click **Next**.

6 In the **Choose components to Install** window, deselect the PVA Power Panel. Click **Next** to start the installation.



Unattended Installation

In some cases, installing Parallels Virtual Automation components from command-line may be a faster solution compared against the TUI wizard. You only need to specify a number of parameters after the `install` command, and the program will use them to install the product.

The command you should run to install PVA Agent for Parallels Server on a bare metal physical computer running Parallels Server Bare Metal is the following:

```
# ./pva-setup --install -c "PVA Agent for Parallels Server"
```

If you want to install the PVA Agent for Parallels Server and PVA Power Panel components, execute the following command:

```
# ./pva-setup --install -c "PVA Agent for Parallels Server, PVA Power Panel"
```

Besides a number of parameters used with the `--install` command, the `pva-setup` utility also provides you with a set of its own parameters that you can use to configure on-line installation, for example. The table below lists all available parameters and their usage description.

Note: To be able to install Parallels Virtual Automation, you must be logged in as a user with root privileges.

Parameter	Description
`-h, --help`	Show the installer help.
`-v, --verbose`	Print verbose output.
`-r, --repository <repository_address>`	Used when the installation files are stored in an on-line repository. Specify the Internet address of the remote repository to enable the installer download the required files to your computer. If you already have the installation files on the given computer, set the `<repository_address>` value to `local`.
`-d, --downloaddir <dir_path>`	Specifies the local directory, to which the installation files will be downloaded during installation.
`-l,--logdir <dir_path>`	Specifies the path to the local folder where the installation logs will be stored.
`--os_distributive_path <path>`	Specifies the path to the distribution set of your operating system.

<table>
<tr><td><code>--install [-c <list_of_components>] [-u <versions>]</code></td><td>Install/upgrade the specified Parallels Virtual Automation components.

<code>-c, --components <list_of_components></code>
Specifies the list of components to install. Component names should be separated by comma:
<code>-c 'PVA Agent for Parallels Server, PVA Agent for Virtuozzo, PVA Power Panel'</code>

<code>-u, --update <version></code>
Specifies the version to which you want to upgrade.
Note: The update mechanism is still in development.</td></tr>
<tr><td><code>--list</code></td><td>Prints a list of updates and components you can install on the given computer.</td></tr>
<tr><td><code>--uninstall</code></td><td>Removes Parallels Virtual Automation and all its components.</td></tr>
</table>

Installing PVA on Linux-based Physical Servers

This section gives the detailed information on how to install Parallels Virtual Automation on Linux-based physical servers.

Management Server and Control Center

Management Server is a PVA component that converts a physical server into a Master Server and that can be installed on a physical server without any software virtualization technology primarily installed.

You can conduct the installation procedure using either terminal user interface (TUI) or command-line interface (CLI). These two ways are described in detail in the following subsections.

Using TUI

If you are more accustomed to using a GUI installer, than to typing commands in Terminal, use the TUI wizard that will lead you through the installation process.

Note: The Management Server component cannot be installed on a Linux-based computer if it already has Parallels Virtuozzo Containers installed. But you can create a Parallels Virtuozzo Container and install Management Server there. See Linux computer system requirements (p. 19).

At the moment, Parallels Virtual Automation does not support Security Enhanced (SE) Linux, so make sure its working mode is set to *Permissive* before trying to install the product. To set the SE Linux mode to *Permissive*, enter the following command:

```
/usr/bin/setenforce Permissive
```

To install the Management Server component on your Linux-based physical server, perform the following actions:

1. Log in to the physical server as a user with the `root` privileges.
2. Locate the Parallels Virtual Automation distribution and go down to the directory, where the `pva-setup` binary is stored.
3. Start the Parallels Virtual Automation installation by executing the following command:

```
# ./pva-setup
```

4. In the **Welcome to pva-setup** window, click **Next** to proceed with the installation.

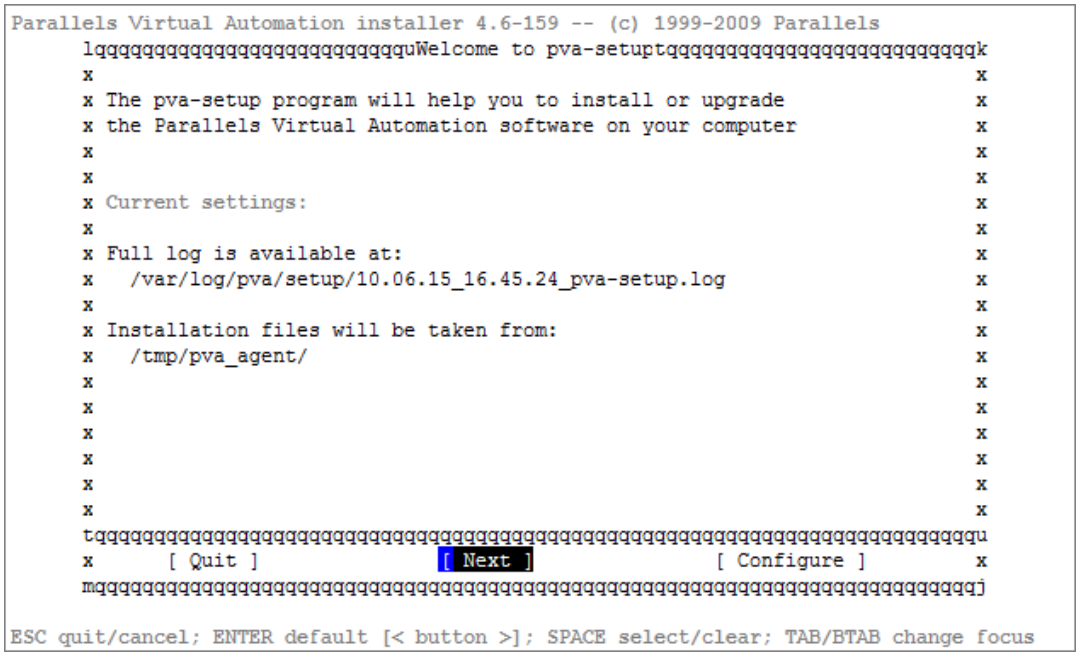


Figure 7: Installing From TUI - Beginning Installation

5 In the **Choose installation type** window, choose the installation type. By default, you are offered to install PVA Management Server, because you do not have Parallels Virtuozzo Containers installed on the physical server you are currently logged into.

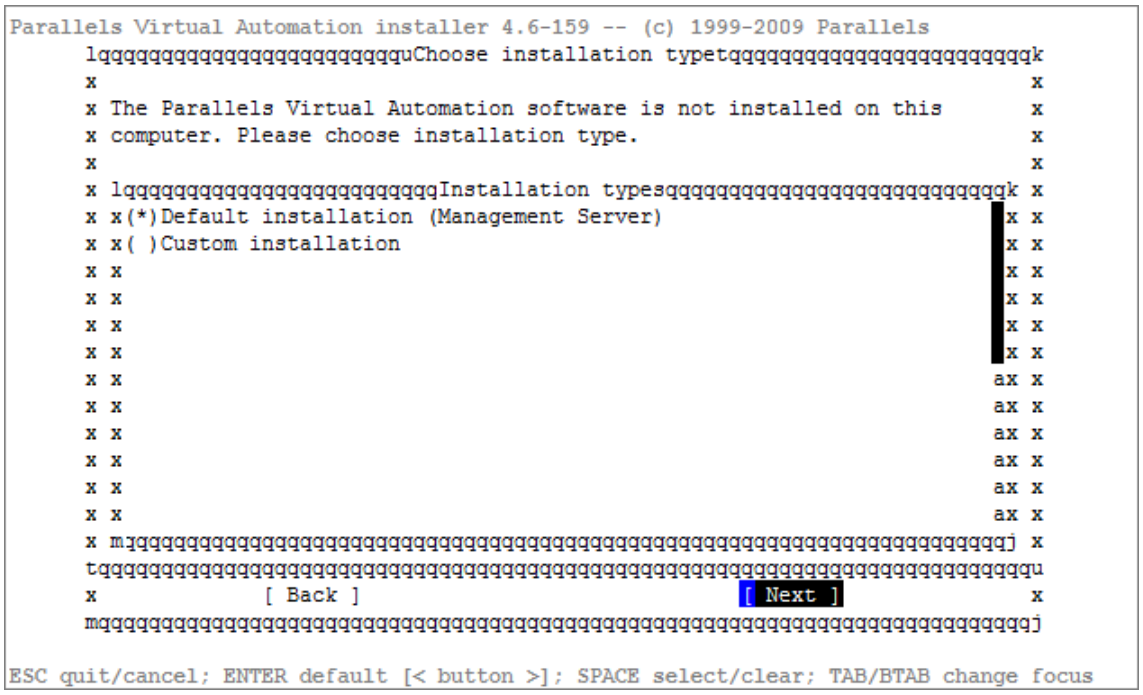


Figure 8: Installing PVA Management Server on Linux - Selecting Default Installation

6 Click **Next** to start the installation.

Unattended Installation

If you prefer to use the command-line interface to install Parallels Virtual Automation on your Linux-based physical server, you have to specify a number of components after the `--install` command of the `pva-setup` utility and the program will use them to install the product.

Note: The Management Server component cannot be installed on a Linux-based computer if it already has Parallels Virtuozzo Containers installed. But you can create a Parallels Virtuozzo Container and install Management Server there. See Linux computer system requirements (p. 19).

Besides a number of components used with the `--install` command, the `pva-setup` utility also provides you with a set of its own options that you can specify to configure, for example, the online installation. The options of the `pva-setup` utility are described in the following table:

Option	Description
`-h, --help`	Shows the installer help.
`-v, --verbose`	Prints the verbose output.
`-r, --repository <repository_address>`	This option is used when the installation files are stored in an on-line repository. Specify the Internet address of the remote repository to enable the installer download the required files to your computer. If you already have the installation files on the given computer, set the `<repository_address>` value to `local`.
`-d, --downloaddir <dir_path>`	Specifies the local directory, to which the installation files will be downloaded during the installation.
`-l,--logdir <dir_path>`	Specifies the path to the local folder where the installation logs will be stored.
`--os_distributive_path <path>`	Specifies the path to the distribution set of your operating system.
`--install [-c <list_of_components>] [-u <versions>]`	Installs/upgrades the specified Parallels Virtual Automation components. `-c, --components <list_of_components>`: Specifies the list of components to install. Component names should be separated by commas: `-c 'PVA Control Center, PVA Management Server'` `-u, --update <version>`: Specifies the version to which you want to upgrade. **Note:** The update mechanism is still in development.
`--list`	Prints a list of updates and components you can install on the given computer.

`--uninstall`	Removes Parallels Virtual Automation and all its components.

The following example demonstrates how to install Parallels Virtual Automation on your Linux-based physical server via the command-line interface:

1. Log in to the server with the `root` privileges.
2. Locate the Parallels Virtual Automation distribution and go down to the directory, where the `pva-setup` binary is stored.
3. Specify the necessary options and components after the `--install` command of the `pva-setup` utility:
   - If you want to install only the PVA Management Server component, execute the following command:

```
# ./pva-setup --install -c "PVA Management Server"
```

   The specified component will be installed on the server.

   Note: To be able to install Parallels Virtual Automation, you must be logged in with the `root` privileges.

PVA Agent for Virtuozzo and Power Panel

PVA Agent for Virtuozzo is a PVA component that converts a physical server into a Slave Server and that can be installed on a physical server with Parallels Virtuozzo Containers software installed.

You can conduct the installation procedure using either terminal user interface (TUI) or command-line interface (CLI). These two ways are described in detail in the following subsections.

Using TUI

If you are more accustomed to using a GUI installer than to typing commands in Terminal, use the TUI wizard that will lead you through the installation process.

To install the required PVA Agent from TUI, perform the following actions:

1. Log in to the target Linux-based physical server as a user with the `root` privileges.
2. Locate the Parallels Virtual Automation distribution and go down to the directory, where the `pva-setup` binary is stored.
3. Execute the following command:

```
# ./pva-setup
```

4. In the **Welcome to pva-setup** window, click **Next** to proceed with the installation.

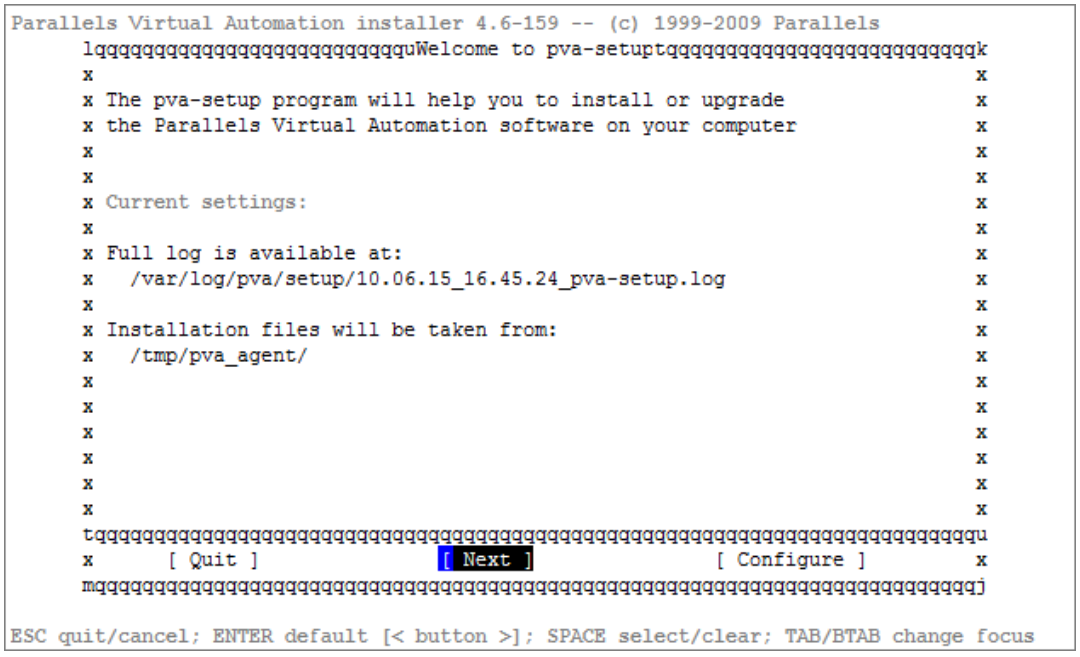


Figure 9: Installing From TUI - Beginning Installation

5. In the **Choose installation type** window, you will be offered to install the PVA Agent for Virtuozzo component by default. Click **Next** to start the installation.

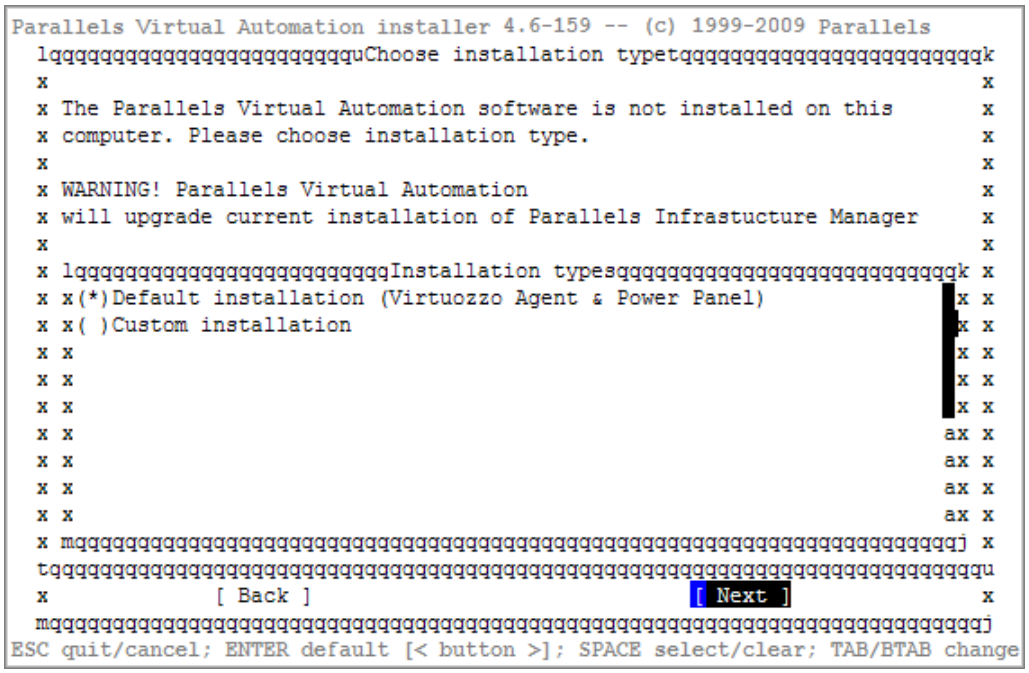


Figure 10: Installing From TUI - Choosing Installation Type

Keep in mind that, by default, the wizard will install both the PVA Agent for Virtuozzo and PVA Power Panel components.

If you want to deselect PVA Power Panel, select **Custom installation** and click **Next.**

6 In the **Choose components to install** window, deselect the Power Panel component and click **Next** to start the installation**.**

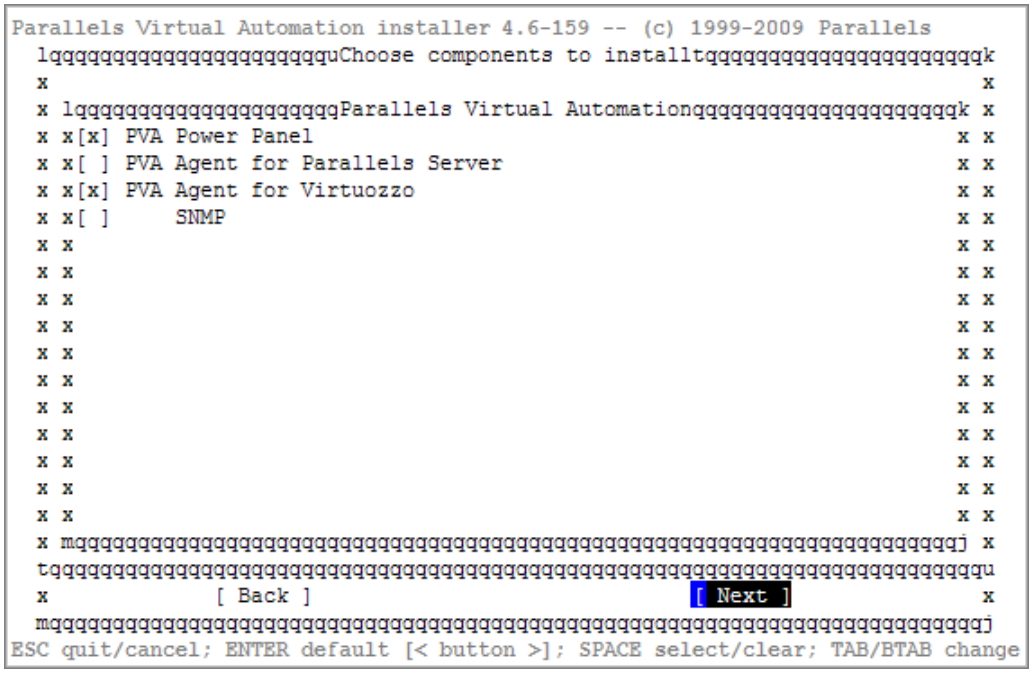


Figure 11: Installing From TUI - Selecting Components

Unattended installation

In some cases, installing Parallels Virtual Automation components from command-line may be a faster solution compared against the GUI wizard. You only need to specify a number of parameters after the `install` command, and the program will use them to install the product.

The command you should run to install PVA Agent for Virtuozzo on a Linux-based computer is the following:

```
# ./pva-setup --install -c "PVA Agent for Virtuozzo"
```

If you want to install the PVA Agent for Parallels Server and PVA Power Panel components, execute the following command:

```
# ./pva-setup --install -c "PVA Agent for Virtuozzo, PVA Power Panel"
```

Besides a number of parameters used with the `--install` command, the `pva-setup` utility also provides you with a set of its own parameters that you can use to configure online installation, for example. The table below lists all available parameters and their usage description.

Note: To be able to install Parallels Virtual Automation, you must be logged in as a user with root privileges.

Parameter	Description
`-h, --help`	Show the installer help.
`-v, --verbose`	Print verbose output.
`-r, --repository <repository_address>`	Used when the installation files are stored in an on-line repository. Specify the Internet address of the remote repository to enable the installer download the required files to your computer. If you already have the installation files on the given computer, set the `<repository_address>` value to `local`.
`-d, --downloaddir <dir_path>`	Specifies the local directory, to which the installation files will be downloaded during installation.
`-l,--logdir <dir_path>`	Specifies the path to the local folder where the installation logs will be stored.
`--os_distributive_path <path>`	Specifies the path to the distribution set of your operating system.

<table>
<tr><td><code>--install [-c <<i>list_of_components</i>>] [-u <<i>versions</i>>]</code></td><td>Install/upgrade the specified Parallels Virtual Automation components.

<code>-c, --components <<i>list_of_components</i>></code>
Specifies the list of components to install. Component names should be separated by comma:
<code>-c 'PVA Agent for Virtuozzo, PVA Power Panel'</code>

<code>-u, --update <<i>version</i>></code>
Specifies the version to which you want to upgrade.
Note: The update mechanism is still in development.</td></tr>
<tr><td><code>--list</code></td><td>Prints a list of updates and components you can install on the given computer.</td></tr>
<tr><td><code>--uninstall</code></td><td>Removes Parallels Virtual Automation and all its components.</td></tr>
</table>

CHAPTER 4

Removing PVA

The section provides instructions on deleting Parallels Virtual Automation components.

In This Chapter

Removing From Parallels Server Bare Metal Computer

You can remove any of the PVA components from a given computer using either the TUI wizard, or command-line options.

To remove Parallels Virtual Automation with the TUI wizard, do the following:

1. Log in as a user with root privileges.
2. Go down to the installation files directory and run `pva-setup`.
3. The first window provides information about the current configuration settings. To change the configuration, click **Configure**.
4. In the next window, select the **Uninstall** option and click **Next**.
   The installer removes Parallels Virtual Automation and all its components.

To remove Parallels Virtual Automation using command line, do the following:

1. Log in as a user with root privileges.
2. Go down to the installation files directory and enter the following:

```
# ./pva-setup --uninstall
```

Note. Unlike the `install` command, the `uninstall` command doesn't require any options and removes all PVA components from the given computer.

Removing From Linux-based Computer

You can remove any of the Parallels Virtual Automation components from a given computer using either the TUI wizard, or command-line options.

To remove Parallels Virtual Automation with the TUI wizard, do the following:

1. Log in as a user with root privileges.
2. Go down to the installation files directory and run `pva-setup`.
3. The first window provides information about the current configuration settings. To change the configuration, click **Configure**.
4. In the next window, select the **Uninstall** option and click **Next**.
   The installer removes Parallels Virtual Automation and all its components.

To remove Parallels Virtual Automation using command line, do the following:

1. Log in as a user with root privileges.
2. Go down to the installation files directory and enter the following:

```
# ./pva-setup --uninstall--nodeps
```

Note. Unlike the `install` command, the `uninstall` command doesn't require any options and removes all Parallels Virtual Automation components from the given computer.

Glossary

Application template is a template used to install a set of applications on virtual environments. See also **Template**.

Container is a virtual private server, which is functionally identical to an isolated standalone server, with its own IP addresses, processes, files, its own users database, its own configuration files, applications, system libraries, and so on. Containers on one and the same **physical server** (or **Hardware node**) share one OS kernel. However, they are isolated from each other.

EZ template is built up from separate chunks of code that are uploaded from the web every time you pick an EZ template to install in the Container. This means, that an EZ template is not an independent package but rather a unit containing all the necessary information about repositories from where the necessary packages will be uploaded to the physical server.

Hardware Node is a **physical server** where the Parallels software is installed for hosting virtual environments. The **Hardware Node** term is used in the product interface, while in technical documentation, you will find the term **physical server**.

Hardware Virtualization, or hypervisor, virtualizes at the hardware level creating a duplicate of all system resources such as operating system, CPU, memory and configuration files.

Host Operating System (or **Host OS**) is an operating system installed on the **physical server**.

Master Server is a physical server where the Parallels Virtual Automation Management Server component is installed.

OS template (or **Operating System template**) is used to create new virtual environments with a preinstalled operating system. See also **Template**.

Parallels Virtual Automation is a tool designed for managing **physical server** and all virtual environments residing on them with the help of a standard Web browser on any platform.

Parallels Power Panel is an easy-to-use web-based tool designed for administering single personal virtual environment. With Power Panel, a user with administrative access to a virtual environment can easily perform many critical management tasks, while not requiring access rights to the physical server:

Parallels Virtuozzo Containers (or **Parallels Containers**) is a complete server automation and software virtualization solution allowing you to create multiple isolated **Containers** on a single physical server to share hardware, licenses, and management effort with maximum efficiency.

Software Virtualization, in Parallels Virtual Automation documentation, stands for the Parallels software virtualization products, such as Parallels Virtuozzo Containers for Linux and Windows, Parallels Server Bare Metal, etc.

SSH stands for Secure Shell. It is a protocol for logging into a remote physical server or virtual environment and executing commands.

Standard template is a solid bundle of all the necessary template files together with the Virtuozzo virtual environments software. If newer versions of any of these packages appear, a standard template can be correspondingly updated.

TCP (**TCP/IP**) stands for Transmission Control Protocol/Internet Protocol. This suite of communications protocols is used to connect hosting physical servers on the Internet.

Template (or **package set**) is a set of original application files (packages) repackaged for mounting over Parallels File System. There are two types of templates. OS Templates are used to create new virtual environments with a preinstalled operating system. Application templates are used to install an application or a set of applications on virtual environments.

Parallels Containers and **Parallels Server license** is a special license that you should install on the **Hardware Node** to be able to start using the virtual environments software. Every **Hardware Node** shall have its own unique Server license.

Virtual Machine is an emulation of a physical computer by means of Parallels Server virtualization technology. It is functionally identical to an isolated standalone server. A virtual machine has its own virtual hardware and requires an operating system to control its hardware. The installed operating system and its applications are isolated inside the virtual machine and share physical hardware resources of the physical server where the virtual machine resides.

Virtual Environment is a generic name for virtual machines and Containers.

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