Parallels™

Parallels Virtual Automation 4.5

Change Log

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CHAPTER 1

Introduction

This section contains introductory notes and important information about documentation conventions used in this document

In This Chapter

About Parallels Virtual Automation

Parallels Virtual Automation is a flexible and easy-to-use administration tool designed for managing groups of physical servers hosting Parallels Virtuozzo Containers and/or Parallels Server software. With Parallels Virtual Automation, you can manage both the available physical servers and the virtual environments they host, using a standard web browser running on any platform.

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 Guide. This document contains 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.

Context-sensitive help

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

Parallels Web Site

Parallels web site http://www.parallels.com. 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 comprizes valuable articles about using Parallels Virtual Automation 4.5, Parallels Virtuozzo Containers and Parallels Server.

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

Managing Parallels Server Virtualization Technology

Parallels Virtual Automation 4.5 offers centralized management for two virtual technologies. In addition to Parallels Virtuozzo Containers technology, now you can enjoy using Parallels Server Bare Metal physical servers and Parallels Virtual Machines. The main peculiarity of the Parallels Server virtualization technology is that it allows Parallels Server Bare Metal physical servers to host both Containers and virtual machines.

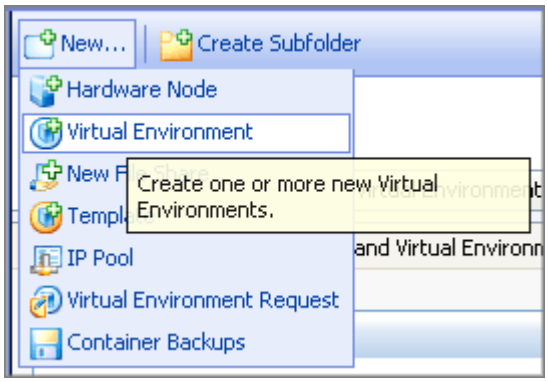
You can easily register multiple Parallels Server Bare Metal physical servers in Parallels Virtual Automation 4.5 and manage them almost the same way as you manage multiple Parallels Virtuozzo Containers servers.

In This Chapter

Creating Virtual Machines and Containers on Single Host

Parallels Server Bare Metal physical servers allow you to install both Parallels Virtual Automation 4.5 Agents: PVA Agent for Virtuozzo and PVA Agent for Parallels Server. This means that both Containers and virtual machines can be created on one and the same physical server - on the Parallels Server Bare Metal physical server.

When both Agents have been installed on the Parallels Server physical server, and the server has been registered in Parallels Virtual Automation, you can start creating and managing virtual environments on it. To create a virtual environment, from the upper menu, choose New --> Virtual Environment to open the New Virtual Environment page, where you can select the virtualization technology and the physical server that will host the virtual environment.



The creation procedure is described in details in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Creating Virtual Environments.

Using Combined Lists of Virtual Machines and Containers

Mixed lists have been organized for all cases when the information relates both to Containers and virtual machines.

On the **Infrastructure** level, the joined lists are of two types and can include:

- physical servers with two kinds of virtual technology. For example, the Hardware Nodes tab shows all physical servers registered in Parallels Virtual Automation 4.5.
- virtual environments of two types. For example, the Virtual Environments tab shows all virtual machines and Containers on all physical servers.

On the Parallels Server Bare Metal physical servers (**physical server** level), there are joined lists on the following tabs:

- Virtual Environment. Shows all virtual environments functioning on the physical server.
- Resources. Shows information on virtual environment resource consumption.
- Logs. Shows logs (tasks, alerts and events) for all virtual environments on this physical server.
- Backups. Shows lists of backups made for all virtual environments.
- Security. Shows the list of permissions on all virtual environments.

In the **Logical View**, **Resource Library**, and **Management** sections, the lists display information relevant for both Containers and virtual machines.

The combined lists are described in details in the *Parallels Virtual Automation Administrator's Guide*, see the sections dedicated to the global management, such as the Organizing Parallels Virtual Automation Infrastructure section, or the sections dedicated to the physical servers management, such as the Managing Physical Servers section.

Performing Express Windows Installation in Virtual Machines

Express Windows installation mode has been complemented for quick and easy installation of the guest operating system inside the virtual machine. On the stage of virtual machine creation, you need to specify the minimum of information that will allow the Creation Wizard to start installing the operating system right after the virtual machine creation.

The following Windows operating systems can be installed in the Express mode:

- Windows XP
- Windows Server 2003

For a successful Windows Express installation, several requirements should be met:

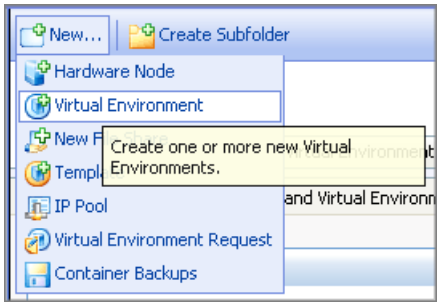
- Windows user account and Windows Licensing key should be entered on the New Virtual Machine(s): Express Windows Installation page.
- CD/DVD-ROM drive should be set in the virtual machine hardware configuration on the New Virtual Machine(s): Hardware Settings page.
- the Windows installation CD or DVD should be either inserted into the physical drive or mounted as an ISO image.

The installation procedure is described in details in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --.> Creating Virtual Machine.

Performing Massive Virtual Machine Operations

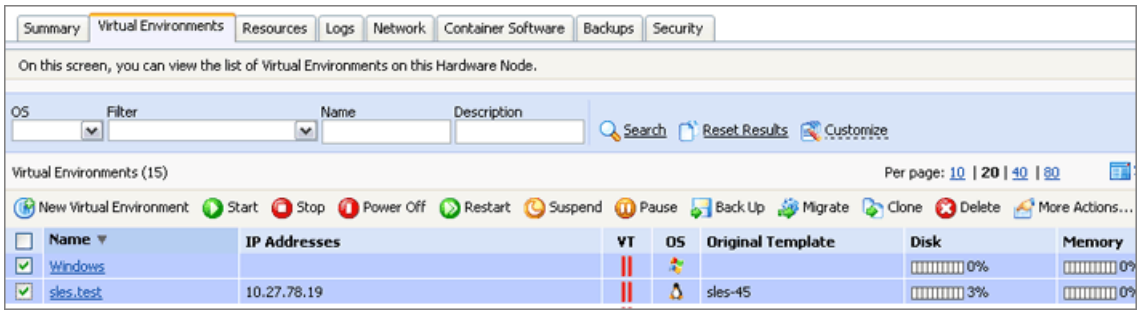
Perform basic management operations on multiple virtual machines at once.

You can start a mass virtual machine creation process, during which you can specify general and hardware settings that will be common for all these virtual machines. To start massive virtual machine creation, click New --> Virtual Environment in the upper menu. In the New Virtual Environment: Begin screen, specify the virtualization technology and the number of virtual machines for creation. The Virtual Environment Template field serves for specifying the template with the predefined configuration on the basis of which you can create new virtual machines. The Wizard also offers two options of naming virtual machines: automatic and manual naming.



The mass creation procedure is described in details in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Creating Virtual Environments.

Also, from the Parallels Server Bare Metal physical server's Virtual Environments tab, the following operations are available for mass operations: start, stop, power off, restart, suspend, pause, back up, migrate, clone, delete, configure, convert to template, and clone to template. Select the virtual machines' check boxes and click the operation button. The operation will be logged, and you will be able to view the tasks status details.

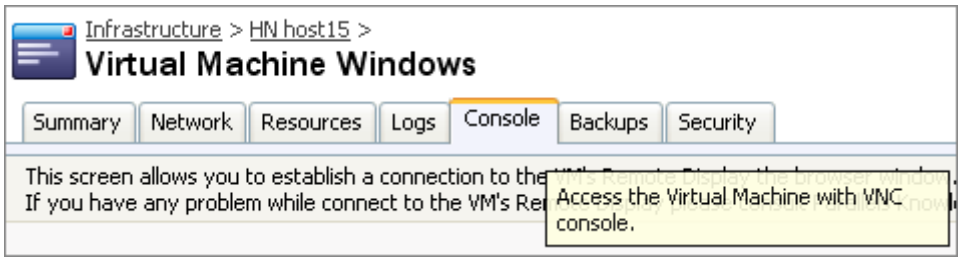


The massive management actions are described in details in the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Server --> Managing Virtual Environments on Physical Servers.

Accessing Virtual Machines via Integrated VNC Console

Parallels Virtual Automation 4.5 allows you to operate the virtual machine via Virtual Network Computing (VNC). It is a graphical desktop sharing system that remotely controls another computer. With an integrated VNC console, you can perform basic actions with a single virtual machine without switching to a stand-alone control application, such as install Parallels Tools and freely work inside the virtual machine.

To open the VNC Console, choose the virtual machine from the left menu tree and click the Console tab.



To use this graphical desktop sharing system to remotely control a virtual machine, the client computer should have Sun Java(TM) plugin/JRE installed.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> VNC Connection to Virtual Machines.

Using Power Panel for Offline Virtual Machine Management

Now a virtual machine can be managed with the help of Parallels Power Panel application. Using any of the standard Web browsers on any platform, you can start working with an offline virtual machine and perform a wide range of actions. The range of actions you can perform with the virtual machine is the same as when managing Containers via Parallels Power Panel.

To enable the offline service management, several preconditions should be met:

- The Offline service management option should be turned on. You can do it in the virtual machine configuration section while creating a virtual machine or any time later when changing the configuration.
- The virtual machine configuration should include either the Routed or the Bridged network adapter enabled.

For the detailed information on setting the virtual machine configuration, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines.

To open the Parallels Power Panel application, choose the virtual machine from the left menu tree. From the upper menu bar, click Log in --> Open Power Panel.

The user privileges for managing a virtual machine are restricted by Power Panel Policies (p. 32).

For more information on working with the Parallels Power Panel application, refer to the *Parallels Power Panel User's Guide*.

Monitoring Virtual Machine Resource Usage

Now the virtual machine resource consumption can be monitored via the integrated live and history graphs. The virtual machine History Graph on the virtual machine Resources tab provides information on the following activities:

- CPU usage
- Memory usage
- Disk Usage

Among other options, there is an ability to set the consumption period and to export data into a stand-alone file in `.csv` format.

To receive more information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines section.

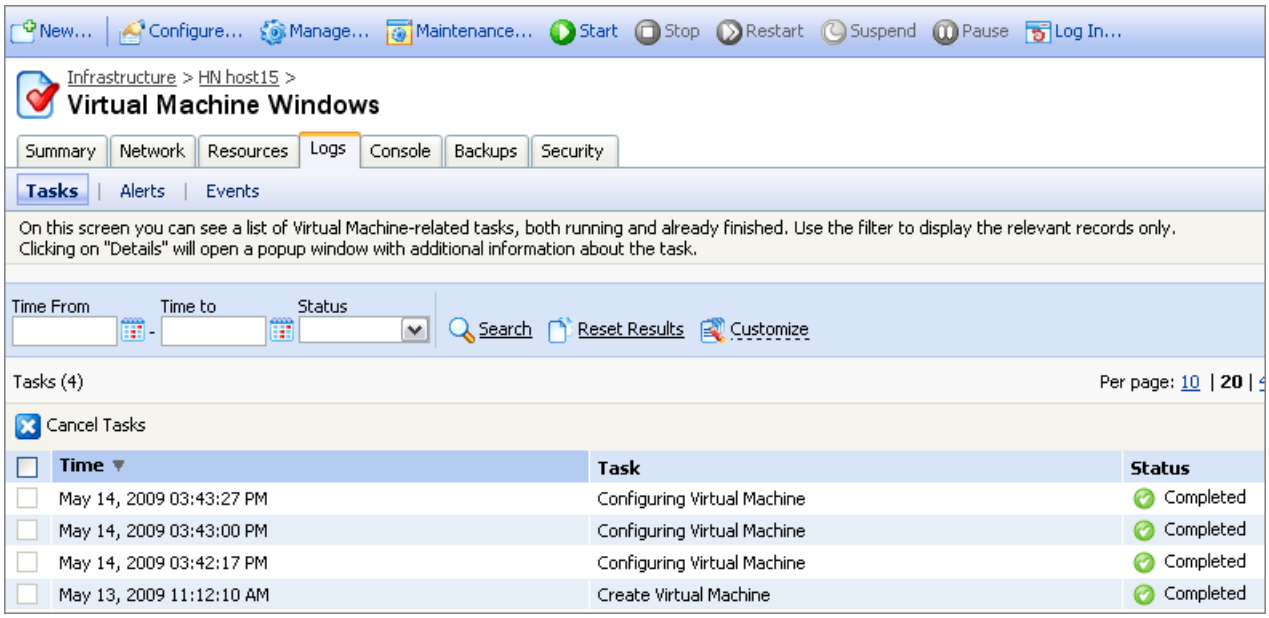
Viewing Virtual Machine Logs Information

An ability to view the virtual machine activity information has been developed. The virtual machine Logs pane provides information on Tasks, Alerts and Events logs. Choose the virtual machine, click the Logs pane and choose one of the three subpanes to view the details.

The Tasks screen shows the virtual machine operations, running or already completed.

The Alerts screen shows the virtual machine resource alerts, i.e. information on the virtual machine resource consumption being within or beyond limits. If a Parallels Server Bare Metal license is expired or a virtual machine exceeds the limit of resource consumption, you will be informed by special alerts.

The Events screen shows the virtual machine status changes during the routine management.



You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Viewing Virtual Machine Logs.

Migrating Virtual Machine Between Physical Servers

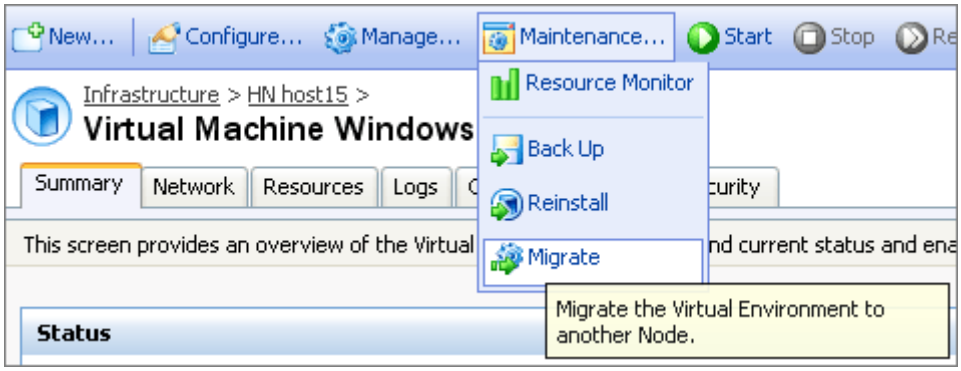
Parallels Virtual Automation 4.5 allows you to migrate a virtual machine from one physical server to another physical server.

The hosting physical server should be registered in Parallels Virtual Automation and have Parallels Serve Bare Metal virtualization technology installed.

To migrate a virtual machine, you can choose one of the three migration types:

- Warm migration. The virtual machine is paused for the whole migration period. For the successful warm migration, the CPU architecture of the hosting and receiving physical servers should coincide.
- Cold migration. The virtual machine is stopped for the whole migration period. It can be started right after the migration, if you choose this option.

To initiate the migration, choose the virtual machine from the left menu tree. In the upper button menu, choose Maintenance --> Migrate. Or you can use the Migrate link on the virtual machine dashboard, in the Maintenance group.



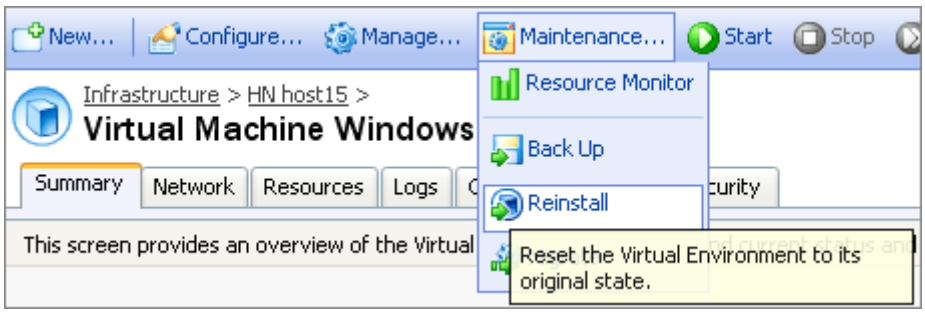
You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Migrating Virtual Machines.

Reinstalling Virtual Machine

Parallels Virtual Automation 4.5 allows you to reinstall a virtual machine if you need to reset it to its original state.

The current state of the virtual machine is not saved automatically, so to preserve it, you should first make a backup of the virtual machine.

To reinstall a virtual machine, choose the virtual machine from the left menu tree. In the upper button menu, choose Maintenance --> Reinstall. Or you can use the Reinstall link on the virtual machine dashboard, Tasks table.



To read more detailed information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Reinstalling Virtual Machines.

Converting Virtual Machine to Template

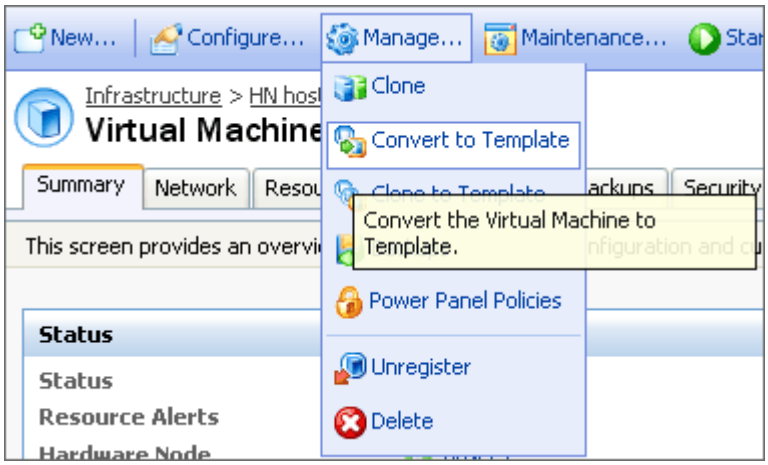
Parallels Virtual Automation 4.5 allows converting a virtual machine to a template.

A template of a virtual machine is an exact copy of the virtual machine, with the same hardware and software configuration, but with the only difference that it cannot be started like an ordinary virtual machine though it may have an OS preinstalled and a set of various software programs.

The Convert to template operation allows you to transform the existing virtual machine to a template. The virtual machine will exist in the state of a template on the basis of which you can initiate, for example, multiple virtual machine creation.

The created template can be stored in the global library or locally on the hosting physical server. The library template is placed to the Resource Library -> Templates section. Such a template is accessible from every physical server in the infrastructure, and virtual machines based on this template will be able to reside on any PSBM registered physical server. The local template is created locally on the same PSBM physical server where the virtual machine resides. Such a template is visible from the hosting server only, and the virtual machines based on this template will be always placed on this physical server. You can view these templates by clicking Manage --> Virtual Machine Templates.

To convert a virtual machine to template, use the Convert to Template link on the virtual machine dashboard, Manage group.



You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Managing Virtual Machine Templates.

Cloning Virtual Machine to Template

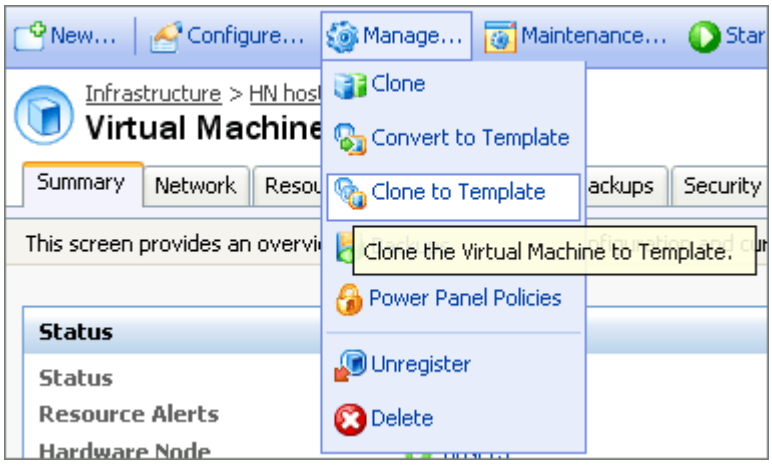
Parallels Virtual Automation 4.5 has a new functionality that allows cloning a virtual machine to a template.

A template of a virtual machine is an exact copy of the virtual machine, with the same hardware and software configuration. The only difference is that it cannot be started like an ordinary virtual machine though it may have an OS preinstalled and a set of various software programs.

The Clone to template operation allows you, still having a valid virtual machine, to create its copy. Using this clone, you can initiate multiple virtual machine creation.

The created template can be stored in the global library or locally on the hosting physical server. The library template is placed to the Resource Library -> Templates section. Such a template is accessible from every physical server in the infrastructure, and virtual machines based on this template will be able to reside on any PSBM registered physical server. The local template is created locally on the same PSBM physical server where the virtual machine resides. Such a template is visible from the hosting server only, and the virtual machines based on this template will be always placed on this physical server. You can view these templates by clicking Manage --> Virtual Machine Templates.

To create a cloned template, use the Clone to Template link on the virtual machine dashboard, Manage group.



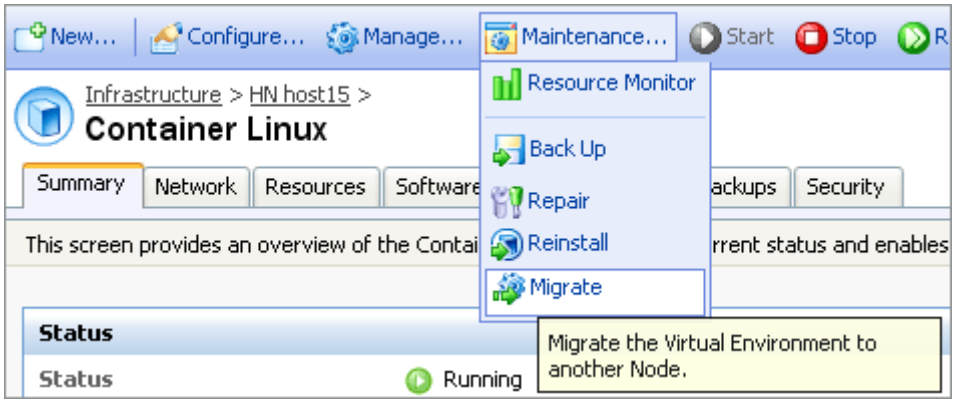
You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Cloning virtual Machine.

Converting Container to Virtual Machine

Now Containers can be converted to virtual machines. The Migration Wizard allows you to migrate a Windows- or a Linux-based Container to a Parallels Server Bare Metal physical server and to convert it into a virtual machine. If you migrate a Linux-based Container, you can choose whether to convert the Container to a virtual machine or not. If you migrate a Windows-based Container, the Container will be automatically converted into the virtual machine with the Windows operating system.

The created virtual machine will be an exact copy of the Container, i.e. it will have the same operating system and networking settings, memory size and CPU count, the whole scope of software programs and data stored in the Container, the same security and port redirection settings, etc. Moreover, the virtual machine will have the information on traffic, disk, CPU and memory usage recorded during the Container's activity.

To convert a Container to a virtual machine, choose the Container and, from the upper button menu, choose Maintenance --> Migrate. The Migration Wizard, responsible for migration and conversion, will open.



The conversion procedure is described in details in the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Containers --> Migrating and Converting Containers.

Managing Centralized License

Parallels Virtual Automation 4.5 provides a single-source license management policy.

Physical servers running Parallels Virtuozzo Containers technology demand Parallels Containers licenses to create and work with Containers. Physical servers running Parallels Server Bare Metal technology demand Parallels Server Bare Metal license to create and work with virtual machines and Containers. Thus, you do not need to additionally install Parallels Virtuozzo Containers license on Parallels Server Bare Metal physical servers to run Containers on them.

To manage licenses, use the Licensing group on the Setup section.

To read more detailed information on licensing, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Product Licenses.

Managing Virtual Machine Security

Parallels Virtual Automation 4.5 includes a virtual machine security component that allows you to organize and to control the virtual machine processes according to assigned rules. When managing virtual machine security, the following operations are available:

- creating new users and groups of users with a new set of privileges and restrictions
- adding new user or a group of users to existing groups of users with a preset list of rights and privileges.
- registering users and groups of users from external databases and grant them a set of rights and privileges according to your needs.
- creating roles (i.e. sets of rights and restrictions) and use them for further security management

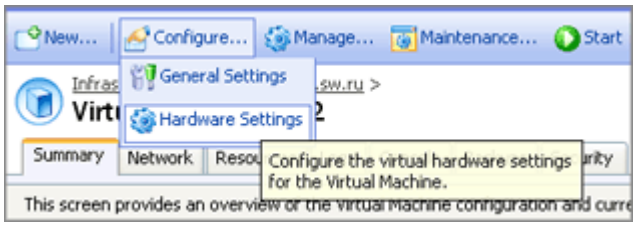
To use the benefits of the virtual machine security management, choose the Security option in the Setup group of the left menu.

To receive more information on the security management, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Virtual Automation Security.

Resizing Virtual Machine Hard Disk

Most of the virtual machine configuration settings are highly manageable and can be reconfigured after the virtual machine creation. In Parallels Virtual Automation 4.5, the size of a virtual machine hard disk is a flexible value which you can adjust whenever the need arises.

To change the hard disk size, open the virtual machine configuration wizard and switch to the hard disk pane.



For the detailed instructions, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing virtual environments --> Managing Parallels Virtual Machines.

Managing Virtual Machine Disk I/O Priority

Parallels Virtual Automation 4.5 allows you to assign the priority of the disk i/o operations for the virtual machine. Setting the priority level (from 1 to 7), you define the working time of the host physical server hard disk that will be allocated to this particular virtual machine (in comparison to other virtual machines on the same physical server). The higher priority level you assign to the virtual machine, the more time of the host hard disk it is allowed to consume for its own resources/applications.

The disk i/o priority can be set during the virtual machine creation and changed any time later by editing its configuration.

For more detailed instructions, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing virtual environments --> Managing Parallels Virtual Machines, the sections on creating the virtual machine and defining its configuration.

Binding Virtual Machine to Virtual Network

The process of binding a virtual machine to the virtual network complies with the same rules as when you bind a Container to a virtual network. You can bind a virtual machine to the virtual network in the hardware configuration section, while creating a virtual machine or later while changing the virtual machine configuration.

In the Hardware configuration section, you are to add a network adapter to the VM configuration. You can add several virtual adapters, each of them being bound to only one virtual network. The list of virtual networks consists of those that have been created on the hosting physical server. So, prior to choosing the virtual network in the VM configuration, you are to create them. You can do it on the Network --> Virtual Networks subpane of the physical server. Every virtual server, you create can be of one of the types:

- shared networking;
- bridged networking;
- host-only networking;
- routed networking;

The type of the virtual network is indicated in the virtual networks' list when you choose the one to bind the virtual machine to. Depending on the virtual network type, the network adapter type is set for the virtual network. In other words, it is the virtual network that determines the network adapter, but not the adapter that determines the range of virtual networks that a virtual machine can be bound to.

For the detailed information on creating a virtual network on the physical server, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Managing virtual Networks.

For the detailed description of virtual networks types and instructions on binging a virtual machine to a virtual network, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Creating Virtual Machine.

Making Virtual Machine Backups

The Parallels Virtual Automation 4.5 backup technology allows you to

- specify the backup settings on several levels: the global, infrastructure, physical server, and virtual environment level; The higher the level, the more influential and compound these settings are.
- back up any virtual machine on any PSBM physical server;
- place the virtual machine backup on any PSBM physical server irrespective of the VM's hosting server;
- set up an automatic backup process, by scheduling a special job;
- choose between the three backup types: full, incremental, or differential;
- back up any virtual machine manually immediately;

Backup Types

Full backup. This type is recommended when doing a backup job for the first time and contains all the data selected for the backup. A full backup storage space and completion time requirements are the highest.

Incremental backup affects only those files and data which have changed since the last backup and takes less storage space and creation time.

Differential backup includes only the data modified since the last full backup. (Whereas an incremental backup will save the data changed after any last backup, be it a full, incremental, or differential, this is only a full backup a differential backup considers to be the last one.)

For the detailed information on creating virtual machine backups, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Virtual Environment Backups.

CHAPTER 3

Managing Resource Library Functionality

Resource Library is a new section inside Parallels Virtual Automation 4.5 administration panel where you can manage all building blocks for Containers and virtual machines, such as:

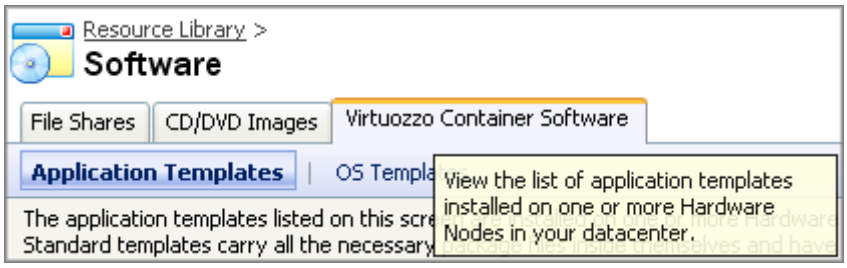
In This Chapter

Storing OS and Application Templates

The Software section of the Resource Library group serves as a data centrum for storing Container OS and Application templates.

Creating a database of OS or application templates allows you to quickly and easily install them into multiple virtual environments. OS templates cannot be created via the Parallels Virtual Automation means, but should be uploaded from an external source and then installed on the physical server which virtual environments will later use these templates.

To start working with the templates, go to the Resource Library section --> Software group --> Virtuozzo Container Software tab.



You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Containers OS and Application Templates.

Creating and Using Virtual Networks

Create virtual networks via Parallels Virtual Automation and join the virtual environments together.

To start working with the virtual networks, go to the Resource Library section --> Virtual Networks group.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Networks.

Managing IP Pools

Create IP pools and distribute the IP addresses among the virtual environments. The Parallels Virtual Automation IP pools management systems allows you to create and operate multiple IP pools, to bind IP pools to particular physical servers, etc.

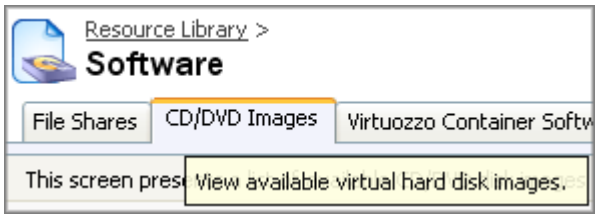
To start working with the IP pools, go to the Resource Library section --> IP Pools group.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Networks --> Managing IP Pools.

Managing CD/DVD Images Library

Organize ISO image shares of CD and DVD discs (stored on Windows) into the Parallels Virtual Automation library and use them for mounting into virtual machines.

To become available for usage, these ISO images should be located on a file share which, in its turn, should be registered in Parallels Virtual Automation. To register a file share in Parallels Virtual Automation, go to the Resource Library section --> Software group --> File Shares pane and click the New File Share button. When an external folder is shared with the Parallels Virtual Automation resources, the CD/DVD images and other files become visible in Parallels Virtual Automation, on the CD/DVD Images pane of the Software group.



You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Managing Disk Images.

Managing Virtual Machine Templates

Parallels Virtual Automation 4.5 allows you to create a virtual machine template.

A template of a virtual machine is an exact copy of the virtual machine, with the same hardware and software configuration. The only difference is that it cannot be started like an ordinary virtual machine though it may have an OS preinstalled and a set of various software programs.

The created template can be stored as a library template or as a local template. The library template is placed to the Resource Library section --> Templates group. The virtual machines based on this template will be able to reside on any registered physical server.

The virtual machine Library templates are automatically placed into the VM Templates Storage. If the storage is offline, no templates can be created and placed into the Library folder.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Resource Library Tools --> Operations on Library Templates.

CHAPTER 4

Managing User Session and Monitoring Operations

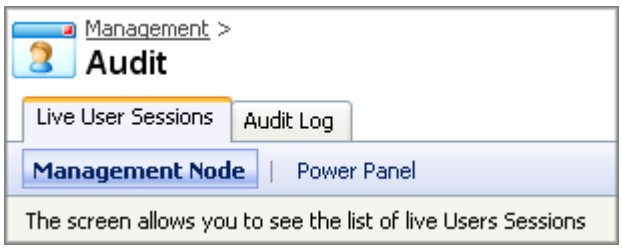
Parallels Virtual Automation 4.5 keeps track of all user sessions and operations initiated by any user.

In This Chapter

Viewing and Disconnecting Active User Sessions

Keep track of all active user sessions in Parallels Virtual Automation or in Parallels Power Panel.

To view the whole list of user sessions, go to the Management section --> Audit group --> Live User Sessions pane. The Management Node and Power Panel subpanes contain the information on the Parallels Virtual Automation and Parallels Power Panel user sessions, correspondingly. Every user session entry contains information on the logon and expiration time, the IP address of the user, and the virtual environment the user is working with (in case with Power Panel sessions only).



To terminate any of the sessions, use the Close Sessions link

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Maintaining Parallels Virtual Automation Management Tools --> Viewing Parallels Virtual Automation User Sessions.

Viewing Operations History for User Sessions

The User Session details screen provides information on the logon and expiration time, on the status and IP address of the user, as well as the role under which the user is working in Parallels Virtual Automation.

To view the whole list of user sessions, go to the Management section --> Audit group --> Live User Sessions pane. The Management Node and Power Panel subpanes contain the information on the Parallels Virtual Automation and Parallels Power Panel user sessions, correspondingly. Click the needed user session to view the operations history and other details.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Maintaining Parallels Virtual Automation Management Tools --> Viewing Parallels Virtual Automation User Sessions.

Viewing All Operations Relating to Particular Virtual Environment

Keep track of all operations of any virtual machine or Container. Go to the virtual environment and click the Logs pane --> Tasks subpane. The opened screen contains the list of all operations performed by the virtual environment, the date and time of the operation, and its status. If an operation (or several operations) is in progress, you can stop it by clicking the Cancel Tasks button.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Maintaining Parallels Virtual Automation Management Tools --> Viewing Parallels Virtual Automation User Sessions.

CHAPTER 5

Viewing Statistics

In This Chapter

Viewing Top Resource Consumers at any Logical Hierarchy Level

In Parallels Virtual Automation 4.5, you can range Containers and virtual machines according to their resource consumption.

On the Infrastructure, physical server, or virtual environment levels, open the Resources tab. Under the Resource Consumers subpane, you can keep the resource usage on the physical servers in check. The list settings allow you to view the last hour, day or week resource consumption statistics.

If you click a column name, you will see an upward triangle displayed to the right of the column name and virtual environments consuming the corresponding resource in ascending order. If you click the column name once again, you will see a downward triangle and virtual environments consuming this resource in descending order.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Organizing Parallels Virtual Automation Infrastructure --> Viewing Resource Consumers.

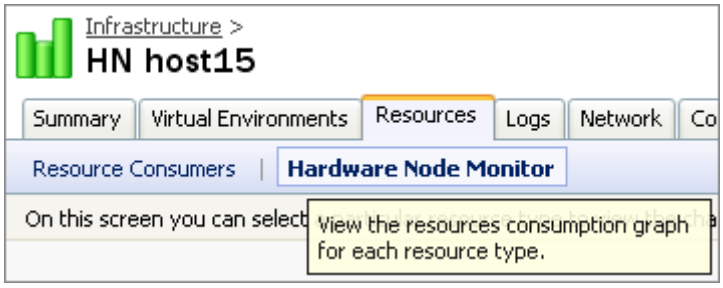
Viewing Resource Usage History

View the resource usage history for any physical server or virtual environment.

The built-in history graph enables you to select a particular resource type (CPU, memory, disk I/O or traffic usage) and combine several resources on one graph, as well as to set the period under consideration.

If needed, you can save the data from the graph in the format of plain text (.svs file) on your computer.

To view the resource usage history, on the physical server, go to the Resources pane --> Hardware Node Monitor subpane.



You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Monitoring physical Server Resource Consumption.

Switching Between Current Usage and History Views

Parallels Virtual Automation 4.5 allows you to quickly switch between two ways of monitoring the consumption statistics.

All kinds of statistics are collected in a single place - on the Resources tab on the Infrastructure or physical server level. The Resource Consumers subpane shows the top consumers. The neighboring subpane - Hardware Node Monitor - shows the current usage and the consumption history.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Monitoring physical Server Resource Consumption.

Managing Power Panel Policies

The Parallels Power Panel functionality provides you with the ability to manage your virtual environment - Containers and virtual machines, which are functionally identical to isolated standalone servers, with their own IP addresses, processes, files, their own user databases, configuration files, applications, etc. - with the help of any standard Web browser on any platform.

Settings up Power Panel policies is part of the Parallels Virtual Automation security policy.

To exercise control functions through Power Panel policies, go to the Power Panel Policies group of the Setup section.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Virtual Automation Security --> Managing Power Panel Policies.

Defining Power Panel Policies

When the Power Panel Policy is created, configured and applied to a physical server or a group of virtual environments, it restricts user access to certain Power Panel functionality and sets limitations on performing certain operations on the corresponding virtual environment or physical servers, such as the total amount and size of backups, and applications management. It can restrict Power Panel users' access to File Manager, Application Templates Management; define the update packages and template management actions.

To exercise control functions through Power Panel policies, go to the Power Panel Policies group of the Setup section.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Virtual Automation Security --> Managing Power Panel Policies.

Applying Power Panel Policies

Apply Power Panel Policies to the whole Parallels Virtual Automation system, to a physical server (and all virtual environments on it) or to a particular virtual environment.

To define the area of Power Panel policy application, use the Management Assistant that provides two columns: one column lists policies that can be assigned, the other - those that are already assigned to this element. To populate the list of available policies, go to the Power Panel Policies group of the Setup section.

To apply Power Panel Policies to the whole system: on the Infrastructure level, open it via clicking the Global permissions link in the Tasks table. The Policies screen will open with the Manage Assignments link at the bottom. Click it to open the assistant.

To apply Power Panel Policies to a server or a virtual environment: on the physical server or virtual environment levels, open the assistant via clicking the Power Panel Policies in the Tasks table. The Policies screen will open with the Manage Assignments link at the bottom. Click it to open the assistant.

You can read more detailed information in the *Parallels Virtual Automation Administrator's Guide*, see Managing Parallels Virtual Automation Security --> Managing Power Panel Policies.

CHAPTER 6

Using Additional Features

Parallels Virtual Automation 4.5 has a set of additional features serving for convenient, efficient work.

This chapter provides the list of these features together with a short explanation of their application.

In This Chapter

Using Parallels Virtual Automation Forum and Support Page

Now Parallels Virtual Automation 4.5 has its own forum and support page. If you face any difficulty and need technical assistance, click the Help link on any of Parallels Virtual Automation screens. In the right upper corner, click the Go to Parallels Forum or the Request Support link, depending on what kind of assistance you need.

The Parallels Virtual Automation forum has several subsections allowing to discuss general, installation or "How do I" questions, as well as to leave a feedback, etc.

Backing up and Restoring Master Server

With Parallels Virtual Automation 4.5, you can create Master Server backups, store them locally on the server, and restore the Master Server from any of the made backups, when needed. The PVA 4.5 `pvabackup.vbs` script is available for downloading on the Master Server from the Parallels KB article http://kb.parallels.com/en/6830.

Upon the default download procedure, the `pvabackup.vbs` script is put to the `C:\Program Files\Parallels\Parallels Virtual Automation\Management Server\bin\`location. To create a backup or to restore the server from the backup, go to the storage location and start the script with the appropriate parameters:

```
cscript.exe pvabackup.vbs COMMAND c:\mn_backups 20091027222544
```

Command	Description
BACKUP	To create a backup of the Master Server state.
RESTORE	To restore the Master Server from a certain backup.

Parameter	Description
c:\mn_backups	The automatically generated location where the backup is put upon creation and where it will be taken from when needed for restoration; You can specify other location manually, instead.
20091027222544	The automatically generated name of a backup. It consists of the year, month, date, hour, minute, second when the backup was created. You can specify other name manually, instead.

To read more on the Master server backup procedure, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Backing up and Restoring Master Server.

Using Full Set of Technical Documentation

Parallels Virtual Automation 4.5 apart from the software components, includes a set of technical reference documentation:

- Parallels Virtual Automation Installation Guide;
- Parallels Virtual Automation Getting Started Guide;
- Parallels Virtual Automation Administrator's Guide;
- Parallels Power Panel Guide;
- Parallels Virtual Automation Agent Programmer's Guide;
- Parallels Virtual Automation Agent XML API Reference;

You can use any of these guides for a circumstantial explanation or help.

Viewing Virtual Machine Screenshots

Now to keep an eye on the working process of the virtual machine, you do not need to open any additional remote display consoles. Monitor what is going on the virtual machine remote display right from the virtual machine dashboard screen. The virtual machine screenshot monitor works in the real-time regime, but you can refresh the screenshot by clicking the appropriate link in the Screenshot section.

To read more on the virtual machine management, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines.

Viewing Detailed Physical Server Summary Information

With the Parallels Server virtualization technology supported now, the physical server dashboard contents have been changed as well. Now it contains Parallels Server Bare Metal-related information as well:

- more detailed physical server state and configuration information;
- virtualization technology installed;
- number of Containers and virtual machines registered on the server;
- wide range of actions to be operated on virtual machines and Containers, etc;

Most of this information is displayed on the dashboard screen of the physical server.

To read a full description of the physical server summary screen, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Physical Server Dashboard Overview.

Scanning Network Automatically and Detecting New Physical Servers

Now you do not have to remember the physical server IP for its registration in Parallels Virtual Automation 4.5. Physical servers running Parallels Server Bare Metal and Parallels Virtuozzo Containers are automatically detected by Parallels Virtual Automation 4.5, and the process of their registration takes less time.

To this effect, go to the standard New Hardware Node: Set Up Connection page and initiate the searching process. The joined list of all physical servers will be displayed. Choose the physical server you need and register it.

To open the New Hardware Node: Set Up Connection page, click New on the upper menu and choose Hardware Node from the drop-down list.

To read more detailed information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Physical Servers --> Registering Physical Server in Parallels Virtual Automation.

Using Improved Logs Tree Structure

The logical structure of the Log trees has been improved in Parallels Virtual Automation 4.5.

Now the lists of the alert, task and event logs on the global, Infrastructure and physical server levels provide information on all elements irrespective of their virtualization technology. For example, the Infrastructure Logs tab shows logs on all physical servers, Containers and virtual machines together in single joined list.

To read more detailed information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Organizing Parallels Virtual Automation Infrastructure --> Viewing Infrastructure Logs; or see Managing Physical Server --> Viewing Physical Server Logs.

Using Flexible Memory Values

Convenience improvements have been implemented in the virtual machine Configuration Wizard, in Parallels Virtual Automation 4.5.

Now, when setting up the hardware configuration of the virtual machine, you can specify the metrics for the operating system. The value can be set either in MB or in GB.

To read more detailed information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Creating Virtual Machines --> Defining Virtual Machine Hardware Settings.

Choosing Between Browsers

A wider choice of front-end browsers to connect to Parallels Virtual Automation 4.5 has been implemented:

- Internet Explorer 6.x and 7.x for Windows;
- Mozilla Firefox 2.x and 3.x for all platforms;
- Safari 3.x for Mac;

Using Joined Installation Procedure

The Parallels Virtual Automation 4.5 installation procedure has been improved.

If you are going to use a Parallels Server Bare Metal physical server as a hosting server in the Parallels Virtual Automation 4.5 network, you do not need to perform a double installation to install both Agents. The Installation Wizard detects the physical server type and offers to install both agents (Virtuozzo and Parallels).

For more details on installing Parallels Virtual Automation 4.5 components, refer to the *Parallels Virtual Automation 4.5 Installation Guide*.

Viewing Parallels Tools Status

Now the virtual machine dashboard reflects the Parallels Tools status and automatically updates it if any changes occur.

To find out whether Parallels Tool are installed or not, whether they should be updated or not, just look at the Status table of the virtual machine dashboard. Thus, you do not need to start the virtual machine to get the information.

To read more information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Virtual Environments --> Managing Parallels Virtual Machines --> Virtual Machine Dashboard Overview.

Cloning Templates

Now any of the templates stored in the Resource Library-->Templates group can be cloned. The cloned template is added to the same list in Resource Library.

This function is useful, if you need to create a template configuration which is close to any of the existing ones. You should clone an existing template and edit the configuration of the final cloned template.

To read more information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Managing Resource Library Tools --> Operations on Library Templates.

Scheduling Joined Tasks

Schedule a single task for virtual machines and Containers. If you want to schedule a backup or a restart of virtual machines and Containers, you do not need to create separate tasks for virtual machines and for Containers. The virtual environments easily coexist in the same task.

In the Management section, click Scheduler and choose the task action. Also, you can set the execution time and populate the list of virtual environments.

To read more information, refer to the *Parallels Virtual Automation Administrator's Guide*, see Maintaining Parallels virtual automation Management Tools --> Scheduling Tasks.

Eliminated Service Container

Service Container was an integral component of Parallels Infrastructure Manager 4.0. It was used to install inside it the Parallels Agent for Virtuozzo component and, as the result, to manage all the Containers of the given physical server using Parallels Infrastructure Manager.

Parallels Virtual Automation 4.5 does not use Service Container for building an infrastructure. Now, Parallels Agents for Virtuozzo and Parallels Server are installed directly on the physical servers where the virtualization technologies are installed. This ensures business continuity and safety of data transmission between the Parallels Virtual Automation 4.5 components.

For more details on installing Parallels Virtual Automation 4.5 components, refer to the *Parallels Virtual Automation 4.5 Installation Guide*.

Working With Windows 2008 Physical Servers

Microsoft Windows 2008 has been added to the list of supported operating systems.

- It is supported on the physical servers to be used as Master servers. Note, in addition to Microsoft Windows 2008, you can also use Windows-based servers with Microsoft windows Server 2003. Both operating systems can be either of a 32-bit or x86-64-bit version.
- It is supported on physical servers to be used as Slave servers. Such servers necessarily have Parallels Virtuozzo Containers software installed. The Microsoft Windows 2008 operating system is supported both by the Parallels virtuozzo Containers 4.5 and by Parallels Virtual Automation 4.5

For the detailed information on system requirements, refer to the Parallels® Virtual Automation 4.5 Installation, Parallels® Virtuozzo Containers for Linux and Parallels® Virtuozzo Containers for Windows user guides.

Using RHCS Clustering Service

By supporting the RHCS (Red Hat Cluster Suite) failover clustering technology, Parallels Virtual Automation 4.5 provides you with constant availability of all the Containers, applications and other processes initiated by means of Parallels Virtual Automation on the physicals servers within the cluster. You can create a Virtuozzo Failover Cluster consisting of two or more physical servers and provide failover support for PVA mission-critical services and Containers. If one physical server in the cluster fails or is taken offline as part of a planned maintenance, the services and Containers from the problem server are automatically failed over to another physical server in the cluster. The failover cluster service is supported only on those physical servers that have all the following components installed:

- RHCS clustering service installed on every physical server;
- Parallels Containers virtualization technology, i.e. Parallels Virtuozzo Containers for Linux software installed on every physical server;
- Parallels Virtual Automation 4.5 software, i.e. PVA Agent for Virtuozzo component installed on every slave physical server;

The above mentioned components are to be installed and configured in the same order as they are listed. After you have installed PVA Agent for Virtuozzo on all the physical servers that will be added to the cluster, you are to edit the clustering service configuration the same way as it should be done when Parallels Virtuozzo Containers for Linux was installed.

For the detailed instructions on configuring the RHCS clustering service after the Parallels Virtuozzo Containers installation, refer to the Parallels *Virtuozzo Containers* documentation set available on the Parallels http://www.parallels.com web site.

For the detailed instructions on configuring the RHCS clustering service after the Parallels Virtual Automation 4.5 installation, refer to the *Parallels Virtual Automation 4.5 Administrator's Guide*, see the Using RHCS Failover Cluster Support section.

CHAPTER 7

Upgrading to Parallels Virtual Automation 4.5

Since the PIM 4.0 version, Parallels Virtual Automation 4.5 has been extensively developed. As a result, it has a number of major differences that prevent the 4.0 physical servers from participating in the 4.5 infrastructure. Such servers should be upgraded. The upgrading procedure retains all the data stored in the 4.0 system and transfers it to the 4.5 infrastructure.

Generally, the upgrading procedure can be divided into 4 stages.

Stage 1. Creating a PVA 4.5 Master Server.

The upgrading procedure starts with installing one of the Parallels Virtual Automation 4.5 components - the Management server component. This component can be installed on:

- a stand alone physical server without any virtualization technology installed.
- any remote cloud server/place without any virtualization technology installed.
- the same server where PIM 4.0 is installed (Management server). As this server already has a virtualization technology, Parallels Virtual Automation 4.5 cannot be installed directly on the same server. You should first create a Container and use it for the Parallels Virtual Automation 4.5 installation. Note, that the created Container should have the network settings configured.

Stage 2. Registering 4.0 Slave servers in 4.5 infrastructure.

The 4.0 Slave servers can be upgraded only after they are included into the 4.5 infrastructure (4.5 Master server). The registration procedure can be performed either in GUI mode, or in terminal mode. On having two and more 4.0 Slave servers, the same registration instructions are to applied to every server.

Stage 3. Registering 4.0 Master server in 4.5 infrastructure.

After the registration of 4.0 Slave servers, the 4.0 Master server should also be re-registered in the 4.5 infrastructure. Note, that the registration process converts the 4.0 Master server into a 4.0 Slave server. During the 4.0 Master registration, you can specify what 4.0 system settings are to be transmitted to the 4.5 infrastructure.

Stage 4. Upgrading 4.0 Slave servers to 4.5 version

The 4.0 Slave servers, that you have re-registered in the 4.5 infrastructure, should be upgraded. This is done due to the installation of the Parallels Virtual Automation 4.5 Agent for virtuozzo component on them. Right after the installation they acquire the online status and become manageable from the 4.5 Master servers. The upgrading procedure is over.

For the detailed instructions on upgrading, refer to the *Parallels Virtual Automation 4.5 Upgrading Guide*.

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