Parallels

Parallels® Power Panel

User's Guide

Contents

C H A P T E R 1

Introduction

Parallels Power Panel is a flexible and easy-to-use administration tool designed for managing a single Container or a virtual machine via a web browser.

In This Chapter

About Parallels Power Panel

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 users databases, configuration files, applications, etc. - with the help of any standard Web browser on any platform. Parallels Power Panel allows you to manage virtual environment residing on physical server running the Windows 2003 Server and Linux operating systems, or bare metal physical server with Parallels Server Bare Metal installed. Main principles of the Parallels Power Panel operation for the operating systems are very similar. However, there are some features peculiar to only Windows 2003 Server or Linux. In case of differences between the two versions, the steps written specifically for the Windows version are marked with the icon and the steps for the Linux version - with the icon.

A list of supported browsers is given below:

- Internet Explorer 8.x and 9.x for Windows
- Mozilla Firefox 8.x for all platforms
- Safari 5.x for Mac OS

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

Currently, you are able to manage your virtual environments in the following ways:

- Start, stop, or restart the virtual environment;
- Mount and unmount the Container in the repair mode;
- Reinstall the Container;
- Back up and restore the Container;
- Change the virtual environment root/Administrator password;
- Start, stop, or restart certain services inside the virtual environment;
- View the list of virtual environment processes and send them signals;
- View the current resources consumption and resources overusage alerts;
- View logs and monitors for the virtual environment;
- Customize the Parallels Power Panel interface;
- Connect to the Container by means of various control panels; (p. 61)
- Connect to the virtual machine by means of various control panels (p. 69);
- etc.

> **Note**: Hereinafter, the root/Administrator denotation is used to identify the main user in the Linux and Windows operating systems, respectively.

About This Guide

This guide is aimed at a wide range of users who are new to Parallels Power Panel 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 Parallels Power Panel User's Guide consists of the following sections

- The **Introduction** chapter (p. 6) provides basic information about the product and this guide.

- The **Getting Started With Parallels Power Panel** chapter (p. 12) provides information on logging in to Power Panel and organizing your work.

- The **Virtual Environment Operations** chapter (p. 20) provides information on managing virtual environments, such as creating, cloning, configuring, starting/stopping, reinstalling, repairing, backing up, etc.

- The **Managing Container Services and Processes** chapter (p. 43) provides information on managing Container services, firewall system and control panels.

- The **Managing virtual Machine Services and Processes** chapter (p. 68) provides information on managing virtual machine services and control panels.

- The **Monitoring operations and Viewing logs** chapter (p. 74) provides information on virtual environment resource consumption.

- The **Troubleshooting** chapter (p. 80) lists most common problems you might encounter during Parallels Virtual Automation operations and the ways to solve them.

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/).

Getting Started With Parallels Power Panel

The chapter provides the information on how to log in to Power Panel and explains what interface elements you may face and how to use them in the most effective way.

Logging in

To log in to your virtual environment, use the IPv4 or IPv6 address (or hostname) and TCP port of your virtual environment proper. Your provider should inform you of the IP address (or hostname) and TCP port to enter in the address line of your browser and of the credentials (user name and password) to use to log in to the virtual environment.

There are two possible ways to log in to your virtual environment:

1   Enter virtual environment administrator credentials: the user name (`root` for a Linux-based virtual environment and `Administrator` for a virtual environment run on Windows) and the password your provider has given you.

2   Enter `admin` as the user name and the password of the Plesk `admin` user. This is possible only if the Plesk control panel is installed inside your virtual environment and your provider has entitled you to do so.

Your provider may supply you with the credentials of the Plesk `admin` user for you to use the benefits of the Plesk control panel in your virtual environment management. If you have logged in to your virtual environment using the virtual environment IP address and the TCP port of Plesk (by default, it is 8443), and the Plesk control panel is not installed in your virtual environment, you will be asked to install it after you have logged in to the virtual environment. To do this, follow any of the links on the Plesk main menu in the left part of the displayed window. You will be warned with a message saying that Plesk is not installed in your virtual environment and offering you to install it. To complete the installation, you should follow the instructions on the screen. After you have successfully installed the Plesk control panel in your virtual environment, you can proceed with the normal course of work.

In either case, once you have connected to the virtual environment, you are recommended to:

1   Change your root/Administrator password at once by following the **Change password** link in the left pane of the Parallels Power Panel page.

2   Provide a valid email address on the Parallels Power Panel configuration page to be able to log in to Parallels Power Panel if you forget your password. In case, you are unable to reach your virtual environment due to password-related problems, you can follow the **Forgot your password?** link on the login page, which requests you to enter your user name and the email address provided on the Parallels Power Panel configuration page. On filling in these fields you will receive a URL at the email address entered informing you how to change your password.

Also, be aware that when you log in to the Container for the first time in Parallels Power Panel, the process of updating Container's packages is being executed in order to pre-populate list of applications installed on the Container and to check possible available updates. This process should not be interrupted. Once the process is successfully completed, the Container will be accessible in Power Panel without any delays.

Parallels Power Panel Interface Overview

The Parallels Power Panel interface has been designed for the virtual environment administrator to quickly perform all possible tasks through an intuitive navigation system.

All Parallels Power Panel pages have a *menu* on the left, a *toolbar* and a *status bar* on top, and the content part in the middle. If Parallels Power Panel is integrated in the Plesk control panel, the Parallels Power Panel menu will be replaced with the Plesk menu. The Parallels Power Panel menu looks like this:

Virtual Machine Management
- Change Password
- File Manager
- Maintenance
- Resources

Virtual Machine Services
- System Processes
- VNC Console
- Remote Desktop

Logs
- Status Changes
- Resource Alerts
- Tasks Log
- Traffic Log

Other
- Help
- Preferences
- Sign Out

The home page of Parallels Power Panel.
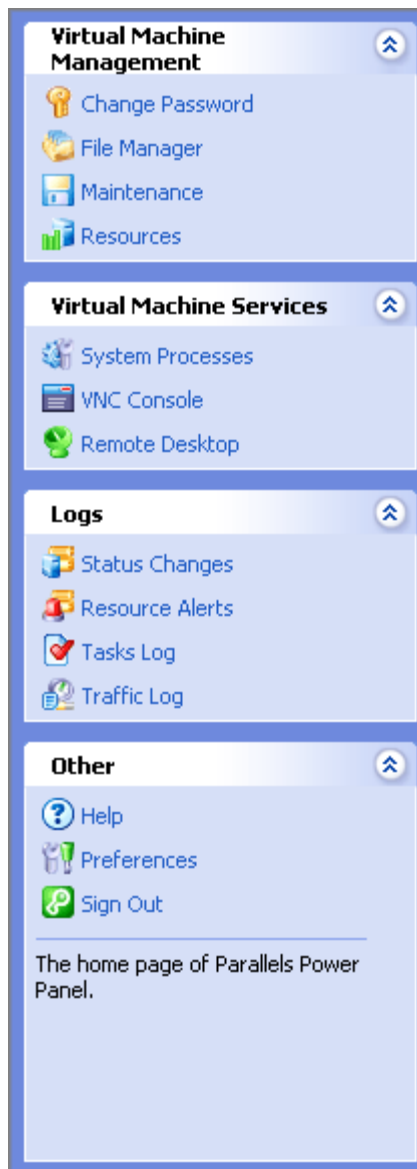
Bear in mind, that depending on whether you manage a Container or a virtual machine via the Power Panel application, the section names may differ.

It provides links to Parallels Power Panel pages where you can perform various tasks. The description of the corresponding page is displayed at the bottom of the menu. All links are gathered into four groups: **Container/Virtual Machine Management**, **Container/Virtual Machine Services**, **Logs**, and **Other**, the names of the first three groups being links themselves. When performing a particular task, you may first click the name of the group to open the corresponding dashboard and then choose a task, or you may select the task at once on the menu under the corresponding group.

The links on the menu do the following:

Link	Description
Container or Virtual Machine Management	Opens the **Management** dashboard of a Container or a virtual machine where you can learn more about various management tasks and perform any of them.
Change Password	Opens the page for changing the virtual environment root/administrator password.
File Manager	Opens the **File Manager** page where you can view a list of files and directories and perform all the essential file operations.
Maintenance	Opens the page where you can manage your Container backups, recover the original template files of your Container if something has gone wrong, or start your Container in the so-called repair mode to perform command line checks and fixes.
Resources	Opens the page where you can learn the current consumption of the hardware resources by your Container.
Applications (p. 37)	Container-related. Opens the page that lists the installed applications and shows their statuses.
Packages (p. 39)	Container-related. Opens the page that lists software packages for this Container.
Control Panels (p. 62)	Container-related. Opens the page that allows you to download and install Plesk Control Panel on the Container.
Container or Virtual Machine Services	Opens the **Service Management** dashboard, which lets you learn more about various service management tasks and perform any of them.
System Services	Container-related. Opens a list of principal services inside your virtual environment with the opportunity to start, stop, restart any of them and to control their behavior on the virtual environment startup.
System Processes	Opens a list of processes running inside your virtual environment with the opportunity to send various signals to any of them.
Firewall	Opens your firewall current settings.
The Plesk control panel	This link is displayed only if the Plesk application template is installed in the virtual environment being managed. It opens the **Plesk control panel** login window.

![] Confixx control panel	This link is displayed only if the Confixx application template is installed in the Container being managed. It opens the Confixx control panel login window.
VNC Console (p. 70)	Opens a VNC console for connecting to your virtual machine.
![] Remote Desktop	Opens a Remote Desktop session for connecting to your virtual environment via RDP.
![] SSH Connection	Opens a `ssh` terminal window for connecting to your virtual environment via SSH.
Logs	Opens the **Logs** dashboard where you can learn more about various logs available for your virtual environment and view any of them.
Status Changes	Opens a list of status changes your virtual environment has recently undergone.
Resource Alerts	Opens a list of alerts of your virtual environment overusing any hardware resources or coming close to the usage limits imposed on it.
Tasks Log	Opens a list of actions you have recently performed in Parallels Power Panel with the current virtual environment.
Traffic Log	Opens the page where you can view your traffic statistics for a specified period in the past.
Help	Opens this help system.
Preferences	Opens the page where you can customize the Parallels Power Panel interface.
Sign out	Following this link logs you out of Parallels Power Panel.

The toolbar is to be found on every Parallels Power Panel screen to allow you to easily perform the operations most frequently required in the course of virtual environment management with the help of the **Start**, **Stop**, **Restart**, **Backup** and **New** buttons.

C H A P T E R   2

Customizing Parallels Power Panel Interface

Clicking the **Preferences** link on the Parallels Power Panel left menu opens the Parallels Power Panel interface configuration page where you can set a number of parameters related to the Parallels Power Panel interface. The options provided on the **Configure** page are the following:

Option	Description
Interface Language	As Parallels Power Panel is localized into a number of languages, this drop-down menu lets you choose the default interface language for Parallels Power Panel. This setting affects the language of both your current Parallels Power Panel session, and all future sessions if **User Default** is chosen as the interface language on the Parallels Power Panel login screen.
Local Time Zone	This setting affects the date and time information found on such Parallels Power Panel pages as **Status Changes**, **Resource Alerts**, **Actions Log**. Choose the time zone you wish to apply when viewing different kinds of logs.
GUI Elements Style	This setting is effective for different types of GUI elements found on different screens. You may choose a visual mode for them, a textual mode, or a combination of both.
Interface Skin	Here you may choose a suitable interface skin for your Parallels Power Panel interface. The skin affects such elements as the Parallels Power Panel general layout (framed or non-framed), icons and images, and the color palette. Parallels Power Panel does not generate Windows skins, like Vista or XP.
Status Bar Refresh	This setting affects the refreshing period of the status bar located at the top of any Parallels Power Panel page (see Parallels Power Panel Interface Overview (p. 14)). If you select the **Smart Update** option, the status bar will be refreshed only when you follow Parallels Power Panel links, but not more than once per 60 seconds. If this option is disabled, it means that the chosen interface skin does not use frames; therefore, it is impossible to reload only part of the page.
Contact Email	This field should be filled in with a correct email address to enable the functionality of restoring the password, should the current user forget it. This email address pertains to the current user only; other Parallels Power Panel users of the given Container may fill in this field with other addresses. The link for restoring the password is located on the Parallels Power Panel login page.

After you decide on the suitable configuration and click the **Submit** button, the settings will be remembered for the current browser only. If you change the browser or move to another computer for working with Parallels Power Panel, the default settings will be used until you perform a new customization.

Using Parallels Power Panel Desktop

The **Desktop** allows you to have the most frequently used options at hand, available and organized in such an individual way that can considerably save your time reaching them. The Desktop screen displays every time you log in or on clicking on the Virtuozzo logotype. The Desktop is a remarkably customizable environment the ultimate appearance of which can be configured on the Customize Desktop page (p. 19).

The **Desktop** page allows you to exercise the overall control on the virtual environment activity, state, and configuration.

Virtual Environment Summary

In this section, you can view:

- The current status of the virtual environment.
- The hostname of the physical server where the virtual environment is hosted
- The OS template the virtual environment is based on
- The IP address and the ID number of the virtual environment

Download

Here you can download the Parallels Power Panel documentation from the Parallels web site.

Memo

Here you can leave important information or some memos relevant for you. Just click the **Edit Memo** link to type it down and then click the **Save Changes** link.

Actions

This section contains some useful links, such as the **Change Password**, **Manage System Processes**, **Manage Files** and some others. Click the **Customize Desktop** (p. 19) link to edit the list of links..

If you do not need some of the sections, you can fold them by clicking the triangle element in the right upper corner of every section.

Customizing Parallels Power Panel Desktop

If you clicked the **Customize Desktop** icon on the Parallels Power Panel toolbar to adapt its preferences to your current needs, on the **Customize Desktop** you can use the following options.

To start with, you can set up your Desktop appearance by placing its items either in two columns or in any of them in the **Desktop Layout** subsection: select the item and click the **<<** button to move it to the left column or the **>>** button to move it to the right column. To further adjust the distribution of the items, use the **Up** and **Down** buttons.

Further on, you can write, or edit, anything worth memorizing in the **Memo Contents** field - if you want this to be seen on your Desktop, select the **Show 'Memo' Section** checkbox.

To place to the Desktop an action, select this action in the **Available** table on the left of the following section and move it to the **Selected** table with the **>>** button. The **<<** button takes the action selected in the **Selected** table back to the **Available** table. You can regulate the actions position on the Desktop with the **Up** and **Down** buttons.

Select the **Show 'Actions' Section** checkbox to make the actions from the **Selected** table appear on your Desktop.

If you select the **Show 'Virtual Environment Summary' Section** checkbox, the Desktop will be displaying the summary information on the Container.

Finally, you can decide whether you need to have download links to the Parallels Power Panel documentation on your Desktop with the help of the **Show 'Download' Section** checkbox.

C H A P T E R 3

Virtual Environment Operations

The common Container or virtual machine operations are accessible in Parallels Power Panel from the Container/virtual machine **Management** accordingly.

The following Container operations are available either by following the links under the **Container Management** group on the menu or through the links on the **Container Management** dashboard itself:

- Changing the Container root/administrator password (the **Change Password** link);
- Working with Container files and directories (the **File Manager** link);
- Viewing the current resources consumption (the **Resources** link);
- Backing up and restoring the Container (the **Maintenance** link);
- Reinstalling the original template files into the Container (the **Maintenance** link);
- Mounting and unmounting the Container in the repair mode (the **Maintenance** link);
- Viewing the resource consumption (the **Resources** link);
- Viewing installed software packages (the **Software Packages** link);
- Accessing the Container via various control panels (the **Control Panels** link);

The following virtual machine operations are available either by following the links under the **Virtual Machine Management** group on the menu or through the links on the **Container Management** dashboard itself:

- Working with virtual machine files and directories (the **File Manager** link);
- Backing up and restoring the virtual machine (the **Maintenance** link);
- Changing the Container root/administrator password (the **Change Password** link);
- Viewing the resource consumption (the **Resources** link)

In This Chapter

Starting, Stopping, and Restarting Virtual Environment

A virtual environment may be started up, restarted, suspended and shut down like an ordinary computer. Depending on the virtual environment state, only those operations are accessible that comply with its current state. For example, a running virtual environment cannot be started for obvious reasons, and so on. The following virtual environment states can be characterized as stable:

Status	Description
Running	The virtual environment is running; therefore, it may only be started or stopped.
Down	The virtual environment is stopped; therefore, it may only be started.
Repairing	The virtual environment is being repaired. You cannot perform any action on the virtual environment until you click the **Finish Repair** button on the **Start Container in Repair Mode** page (p. 30).

Besides these states, during virtual environment operations a virtual environment may be in one of the transitional states: mounting, starting, stopping, etc. When in a transitional state, you cannot perform any action on the virtual environment until the operation is finished. The description of all possible virtual environment statuses is provided in the **Physical Server, Container and Virtual Machine Statuses** section.

Click the **Start**, **Stop**, **Suspend**, or **Restart** button to perform the corresponding action. On clicking one of these buttons, this action is logged.

If you are managing a virtual environment residing on the physical server with the Linux operating system installed and wish to stop your virtual environment, bear in mind that there is a two-minute timeout for the virtual environment shutdown scripts to be executed. If the virtual environment is not stopped in two minutes, the system forcibly kills all the processes in the virtual environment. The virtual environment will be stopped in any case, even if it is seriously damaged. To avoid waiting for two minutes if you are operating a virtual environment that is known to be corrupt, you may use the **Power Off** link. It is situated in the **Tasks** section of the Container dashboard.

Virtual Environment Statuses

At any point of time, any virtual environment is characterized by a status (or state). A virtual environment may have five stable statuses and a number of transitional statuses. If the virtual environment is in one of the stable states, it means that it is likely to continue in this state until its administrator performs a task that would change its status. If the virtual environment is in one of the transitional states, it means that it is currently passing from one stable state to another. During a transition stage, no operation can be performed on the virtual environment until the transition is finished.

The stable statuses are:

Status	Description	Possible Actions
down	The virtual environment is stopped and its private area is unmounted.	Starting/ repairing/ reinstalling
mounted	The virtual environment private area is initialized and ready to work, but the virtual environment is not running.	Starting
running	The virtual environment private area is mounted and the virtual environment is running.	Stopping/ restarting/ repairing
suspended	The virtual environment is stopped and its private area is unmounted. The difference between the suspended status and the down status is that the current state of a suspended virtual environment is written to the /vz/private/*CT_ID*/dump/Dump file on the Hardware Node, and can be quickly restored from there.	Resuming. Restarting, repairing and reinstalling are not recommended because these actions are most likely to alter the saved state of the virtual environment.
repairing	The virtual environment is mounted in the repair mode.	Exiting the repair mode.

The transition statuses are:

Status	Description
creating	The virtual environment is being created.
mounting	The virtual environment is being mounted.
starting	The virtual environment is starting.
stopping	The virtual environment is stopping.
restarting	The virtual environment is being restarted.
unmounting	The virtual environment is being unmounted.
destroying	The virtual environment is being deleted.
starting-repair	The virtual environment is entering the repair mode.
stopping-repair	The virtual environment is quitting the repair mode.

`setting`	The virtual environment parameters are being set.
`migrating`	The virtual environment is being migrated.
`moving`	The virtual environment is being moved.
`cloning`	The virtual environment is being cloned.
`updating`	The virtual environment is being updated.
`backing-up`	The virtual environment is being backed up.
`restoring`	The virtual environment is being restored from the backup.
`reinstalling`	The virtual environment is being reinstalled.
`suspending`	The virtual environment is being suspended.
`resuming`	The virtual environment is being resumed from the suspended state.

Managing Virtual Environment Files and Folders

For a running virtual environment, you can navigate inside the virtual environment directory structure, list the virtual environment files and directories and perform all essential file operations on the **File Manager** page. (Container. Right after opening this screen, you are presented with a list of drives inside the Container. Click a drive (e.g. C:) to see its contents.) The main information on the directory/drive contents is presented in the form of a table.

Column Name	Description
Type	The type of the object: a folder or a file.
Name	The name of the directory or file.
Size	The size of the file.
Modified	The date and time of the last modification of the directory or file.
Permissions	The first symbol in this column indicates if this is a directory (the letter d) or not (the minus sign). The following three symbols designate the permissions that the owner of the directory/file has on it, then go another three symbols for the permissions of the users belonging to the group assigned to the directory/file, and the final set of three symbols denotes the permissions of all the rest. The symbols in each of the set express consecutively the following permissions: read, write, and execute. The presence of a letter (correspondingly, r, w, or x) indicates that the permission is given, and the minus sign - that it is absent.
User	The owner of the file/directory.
Group	The users' group that has certain permissions on the file/folder. These permissions are presented by the 5th thru 7th symbols in the **Permissions** column.
Actions	Hyperlinks for performing certain operations with the directory or file (see below).

Note: If the Container is being repaired (p. 30), the file manager root directory (/) corresponds to the /repair directory of the temporary Container, in other words, it represents the root directory of the problem Container, not that of the newly-created one.

Apart from viewing a list of files and directories with their essential properties, you are able to perform the following operations:

- Create a new folder in the current directory (p. 25);
- Create a new text file in the current directory (p. 25);
- Edit existing text files (p. 25);
- Upload a file from your local computer to the current virtual environment directory (p. 26);

- Download a file from the current virtual environment directory to your local computer (by clicking the diskette icon in the **Actions** column);

- Copy any number of files or folders to another directory inside the virtual environment (p. 26);

- Move any number of files or folders to another directory inside the virtual environment (p. 26);

- Edit the properties of any folder or file (p. 27);

- Remove any number of files or folders by selecting them and following the **Remove** link.

To perform a certain operation (e.g. copying) on a number of directories or files, tick the corresponding check boxes. The uppermost check box allows you to select all the directories and files at once.

Creating Folder

On the Create Folder screen, you can add a new folder and specify its name in the Folder Name field. Upon finishing the operation, click **Create** to save the changes. The new folder will be created in the current directory (designated above the field).

You can access the **Create Folder** screen from the **File Manager** section by clicking the **Create Folder** button.

Creating Text File

The **Create File** page allows you to create simple text files directly inside the virtual environment, without uploading them from your local computer.

In the **Specify File** section, you should enter the name of the file to be created in the current directory (this directory is indicated under the page heading) to the **Name** field and, optionally, type the text of the file in the **Content** field. Click **Create** when you are finished to create the new file.

Editing Text File

Parallels Virtual Automation allows you to edit any text file inside your virtual environment directly through the Parallels Virtual Automation interface. The **Edit File** page can be accessed by clicking on the right icon in the **Actions** column for the corresponding text file on the **File Manager** page.

This page presents the contents of the file in an editable field. Make your modifications and click **Submit** to write a new version of the file.

Uploading File to Virtual Environment

The current version of Parallels Virtual Automation allows you to upload external files to the virtual environment, up to ten files at a time. The **Upload File** page is displayed after clicking the **Upload File** link on the **File Manager** page.

Click the **Browse** button, navigate to the local file you wish to upload and double-click it. The path to the file will be displayed in the corresponding **Specify File** field. Another way of indicating the file is to enter this path manually.

When you click **Upload**, the files that you have specified will be uploaded to the current directory inside the virtual environment. For your reference, this directory is indicated above the **Specify File** group.

Copying Files and Folders Inside Virtual Environment

The **Copy File(s)** page, where you can perform the copy operation, gets displayed after you have selected one or more files and/or folders by ticking the corresponding check boxes on the **File Manager** page and clicking **Copy**.

On the **Copy File(s)** page, click **Select** and, in the pop-up window, navigate to the folder where you want to copy the files and/or folders, check the radio button to the left of it, and press **Select**. The path to the target folder will be displayed in the **Destination Path** field. Click **Copy** to begin the copy process.

Moving Files and Folders Inside Virtual Environment

The **Move File(s)** page, where you can perform the move operation, gets displayed after you have selected one or more files and/or folders by ticking the corresponding check boxes on the **File Manager** page and clicked **Move**.

On the **Move File(s)** page, click **Select** and, in the pop-up window, navigate to the folder where you want to move the files and/or folders, check the radio button to the left of it, and press **Select**. The path to the target folder will be displayed in the **Destination Path** field. Click **Move** to begin the move process.

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Editing File or Folder Properties

The page where you can view and edit some properties of a certain file or folder is accessible by clicking the leftmost icon in the **Actions** column for the corresponding file or folder on the **File Manager** page.

The information is given on the following file or folder general properties, whether editable or not:

Field	Description	Editable?
Name	The name of the file or folder.	Yes.
Path	The path to the file or folder inside the virtual environment.	No. See Moving Files and Folders Inside virtual environment for information on how to change the path.
Size	The size of the file. To save the time needed to open the page, a link is given for a folder to calculate its overall size.	No.
Modified	The date and time of the last modification of the file or folder.	No.

Container. You can also change such file/folder properties as permissions and ownership.

When you click **Submit** on the **Change Properties** page, your changes will be applied to the given file or folder.

Working With Containers

Changing Container Root/Administrator Password

The **Change Administrative password** page is displayed on clicking the **Change Password** link on the Parallels Power Panel menu. Only the root/Administrator password for the current virtual environment can be changed. You should enter a new root/Administrator password for the current Container into the fields provided and click **Change**.

Note that Parallels Power Panel does not check the entered password as to its length and non-conformity to dictionary entries, so choosing a simple password rests entirely at your own risk. It is recommended to use a chaotic set of lowercase (a-z) and uppercase (A-Z) letters, digits (0-9), and punctuation marks as root/administrator password. The following punctuation marks are allowed: ! " $ % & , ( ) * + - . / ; : < = > ? [\ ] ^ _ { | }. The space character, #, and @ symbols are not allowed. The password should not be less than 5 or more than 14 characters.

Reinstalling Container

Container reinstallation means recovering the original state of a Container in case you have unintentionally modified, replaced, or deleted any file that is part of an application or OS template, and the action has brought about the Container malfunction. The Container reinstallation process restores these files as they were at the time when the Container was created or when other applications were added to the Container afterwards, if so.

Reinstallation is likely to bring about some irrevocable changes to your Container, therefore, to be on the safe side, it is recommended to back up your Container before reinstallation.

Click **Next** on the **Reinstall Container** introductory page to review the available options and to decide whether you really need to reinstall your Container and in what way.

> **Note:** To be reinstalled, each Container has to be stopped. The description of all possible Container statuses is provided in the **Container Statuses** section. If it is not stopped, the corresponding screen will inform you of the fact. In this case follow the **Stop Container** link in the **Possible Solutions** section. Afterwards it is recommended to refresh the page by clicking the **Refresh this page** link in the **Other possible actions** section.

Selecting Reinstallation Type

The page where you should choose the mode of reinstallation is displayed after you click **Next>** on the **Reinstall Container** introductory page. You shall select one of the two reinstallation options and specify whether to preserve or drop your Container password database.

When selecting a reinstallation option, bear in mind that there is one thing both options have in common: the original files of the OS and applications templates are restored in the Container. Pay attention to the fact that any customization changes you have made to these files will be lost during the Container reinstallation. In case you have not seriously modified any system configuration files, reinstalling the original files is likely to solve many problems.

However, you have probably already filled the Container with your personal files. If you are sure these files cannot cause problems or you need them in your Container, select the first option - **Keep the existing Container contents**. In this case, your Container is created anew with all existing files moved to the /old directory or c:\reinstall directory inside the Container. You shall be sure there is enough disk space to perform this operation, otherwise, it will fail. Be prepared to move the necessary files from the /old directory or c:\reinstall directory to the new existing installation manually. If such files are numerous, this may prove a tedious task.

If you think you have nothing to lose at all, select the second option: **Drop the existing Container contents**. Your Container will be erased and recreated from the original template(s). Naturally, all your personal files will be lost. That is why you should select this option only if you have no valuable data in your Container or if you have a backup of your personal files elsewhere.

Pay attention to the **Password Options** group. The **Keep the password database** option retains the information on the Container users and groups. Selecting the **Drop the password database** radio button will purge this information altogether and create only the root account with the password specified in the **Set the administrative account password** and **Retype the password** fields under the radio button. This option may prove useful if your Container has got a corrupted password database.

When you are done, click **Next>** to proceed to the **Reinstall Container:** Final confirmation page.

Confirming Reinstallation

Finally you shall confirm the reinstallation or give it up. The reinstallation option you have chosen at the previous step is displayed for you to have a last chance to revise what you are about to do. Click the **Reinstall** button to begin the reinstallation process.

Do not forget to start the Container when the operation is complete. To see the current status of the operation, click the **Details** link.

Repairing Container

Repairing a Container is another way to solve problems with the Container functioning. In Parallels Containers terminology, the Container is mounted in the repair mode. This means that a new Container is temporarily created from scratch with the same network and other parameters as the broken Container, and the root directory of the broken Container is mounted as `/repair` into the newly-created Container. Thereafter, the administrator is supposed to connect to the new Container via `ssh` or Parallels Virtual Automation file manager (p. 24) using the network and login parameters of the broken Container, go to the `/repair` directory, and perform one of the following actions:

1 Find the personal data that needs to be saved and copy it to a safe location elsewhere. Do not copy your personal data directly into your new Container, as it will be destroyed once you exit the repair mode. After quitting the repair mode, the broken Container can be reinstalled and the personal data can further be loaded into it from the place where you have saved them.

2 Identify the source of the problem and manually correct it. This method can be recommended to advanced Container administrators, as it presupposes some technical expertise. And it is still recommended to save first your personal data in a safe location, just in case something goes wrong.

> **Note:** When working inside the Container being repaired by means of the Parallels Virtual Automation file manager, the file manager root directory (`/`) corresponds to the `/repair` directory of the temporary Container, in other words, it represents the root directory of the problem Container, not that of the newly-created one.

Clicking the **Start Repair** button on the **Repair Container** screen mounts the Container in the repair mode. It is not necessary to stop the Container beforehand; if the Container is running at the moment of pressing the **Start Repair** button, it will be first automatically stopped. The description of all possible Container statuses is provided in the **Container Statuses** section.

When the page is refreshed after pressing the **Start Repair** button, click the **Details** link at the end of the **The Container has been scheduled to start in the repair mode** message to see if the repair mode has been successfully entered. Once the Container enters the repair mode, connect to the new Container via `ssh` or Parallels Virtual Automation file manager and do what you deem reasonable inside the Container. After closing your `ssh` session, click the **Repair** link on the Parallels Power Panel menu once again and press the **Finish Repair** button to exit the repair mode. After the repair mode is exited, the broken Container starts running, and you may check the repairing effect.

Backing Up and Restoring Container

Any Container is defined by its operating system files, applications installed, configuration files, and personal information. Parallels Power Panel allows you to back up all these components. A regular backing up of the existing Containers is essential for any Container reliability.

The **Maintenance** page, which allows you to perform backing up and restoring operations, opens after you click the **Maintenance** link on the main menu or selecting the **Maintenance** link on the **Container Management** dashboard accessible after clicking the **Container Management** link on the menu. If you already have backups of the given Container, it displays a table summarizing the backups.

Apart from dealing with Container backups, you may perform the operations that would guarantee the integrity and overall operability of your Container, that is reinstalling the Container (the **Reinstall Container** sub-tab) and mounting the Container in the Repair Mode (the **Repair Mode** sub-tab). To open the screen where you can check for, and, if necessary, download updates for OS and/or application packages in your Container, click the **Update Software** button.

Column Name	Description
Backed Up	The date and time when the backing up was performed.
Size	The size of the backup.
Description	The additional information on the backup.
Backup Type	Denotes if it is a full, incremental, or differential backup. An incremental backup stores not all the files and settings of the virtual environment at the given period of time, but only the changes the virtual environment has undergone since the last backup. A differential backup saves the data changed after the last full backup.

You can manage your backups on this page in the following ways:

- The **New Backup** (p. 32) button opens the **New Backup** screen where you will be able to back up the current state of your Container, be it running or not. The description of all possible Container statuses is provided in the **Container Statuses** section. This option is available only if you have not reached the maximal number of allowed backups for your Container. If you have, remove one of the backups first (see below for details). Parallels Power Panel allows you to place the backup of your Container only onto the physical server where your Container is hosted.

- The **Restore Virtual Environment** button restores the Container backup currently selected in the table. Only one backup should be selected for this operation. The page opened provides instructions to guide you through the process. The Container will be restored with all the values overwritten from the backup, including its IP address, password, application set, etc. The changes in the Container made after the date of this backup will be lost after the Container has been restored.

> **Note:** If you are using an IP address of your Container to connect to it, you may have to reconnect to the Container with the IP address retrieved from the backup after the Container is restored.

- The **Remove Backups** button removes the Container backup(s) currently selected in the table. Usually this is done to provide extra space for making new Container backups. Use the checkbox at the upper left corner to select/deselect all the backups at once.

- If you have reached the limit on the number of Container backups you are allowed to create, you can make use of the **Renew Backup** button to renew a Container backup without having to delete any of your existing Container backups. By default, the oldest backup is renewed. You can also renew another Container backup by selecting the checkbox opposite the corresponding backup and clicking on the **Renew Backup** button.

- Clicking on a backup date in the table opens the **Backup Details** (p. 33) page where you can also restore or remove the corresponding Container backup.

Creating Container Backup

On the **New Virtual Environment Backup** screen you are supposed to define all the parameters of the backup operation. This screen is available after you click the **New Backup** button on the **Backups** screen.

In the **Backup Description** section, enter any commentary you think can be practical for further backup operations.

(For Containers only) The **Exclude** section allows you to keep certain files and directories from backing up:

- Hidden files;

- System files;

- Single files or directories. If you do not want to back up a whole directory, type it into the corresponding field; to add more directories to be excluded from the backup, click the plus sign.

> **Warning!** If you exclude one or more system or hidden files/folders from the virtual environment backup (e.g. either the **Hidden files** or **System files** checkbox is selected), you'll be able to restore only separate files from this backup, but not the virtual environment as a whole.

(For Containers only) The **Include** section allows you to limit the backup process with a number of selected files or directories inside the virtual environment. In the field provided, type the absolute path to the file or directory you wish to back up. To include additional files or directories, click the plus icon to the right of an existing path and enter a new path.

Note: The backup will contain only those files and directories that you have indicated in the **Include** section. To back up the whole virtual environment, leave the **Include** section empty.

Backup Details

The **Backup Details** page provides general information on the virtual environment backup in the following table:

Column Name	Description
Creation Date	The date and time when the backing up was performed.
Backup Size	The size of the backup.
Backup Type	Denotes if it is a full, incremental, or differential backup. An incremental backup stores not all the files and settings of the virtual environment at the given period of time, but only the changes the virtual environment has undergone since the last backup. A differential backup saves the data changed after the last full backup.
Virtual Environment	The name of the backed up virtual environment.
IP Address(es)	The IP address of the backed up virtual environment.
Backup Node	The hostname of hardware node where the virtual environment was backed up.

If this backup has any description, you can view it in the **Backup Description** section.

To manage the backup you can use the following options on the Parallels Virtual Automation toolbar:

- The **Restore** button restores the virtual environment from the current backup. The changes in the virtual environment made after the date of this backup will be lost after the virtual environment has been restored. Mind that you have to confirm restoring the virtual environment on the **Restore Confirmation** page to accomplish the process.

- The **Browse** button (p. 34) allows you to browse the directory structure of the archived Container backup as if it had been already restored and to restore only the needed files and folders. Note, that the content of virtual machines backups cannot be browsed.

- The **Remove** button removes the current virtual environment backup. Usually this is done to provide extra space for making new virtual environment backups.

Browsing Backup Contents

Parallels Virtual Automation allows you to browse the directory structure of any Container backup as if this backup had already been restored and restore only the needed files and folders. The **Browse Backup** page opens after you follow the **Browse** button on the **Backup Details** .

The content of any directory inside the backup is presented in the table. The first table column indicates if the object is a directory or a file. The table on the whole provides the following information:

Column Name	Description
Name	The name of the directory or file.
Size	The size of the file.
Modified	The date and time of the last modification of the directory or file.
Permissions	The standard Linux permissions for the directory or file.
Actions	Allows you to download a file to your local computer provided it is not part of an OS or application template.

If you are browsing an incremental Container backup, the information is shown not only on the files and folders from this backup, but on all the contents of the Container, should it be restored from this incremental backup. In other words, the backed up Container is always presented in its integrity and not as a collections of sporadic changes from the incremental backup.

To restore separate files and folders from the backup to the actual Conatiner, just select them by ticking the corresponding check boxes in the rightmost column and click the **Restore** button.

Updating Container Software

The **Update Software** page allows you to update the OS and application packages in the given Container by adding available templates updates (in the case of standard Container templates) or updating Container packages directly (in the case of Virtuozzo EZ templates). The **Update Software** page is available on clicking the **Update Container Software** link on the Parallels Virtual Automation toolbar, which becomes visible if you are currently located on the **Application Templates** subtab of the Container **Software** tab.

The page will display the relevant information in one of three ways:

1 If no updated templates for the given Container have been installed on the physical server or no updated packages are found in the repository, the page just informs you of this fact.

2 If the Container uses standard Virtuozzo templates and one or more updated versions of the corresponding template(s) are installed on the physical server, you are able to select an updated version for adding to the Container.

3 If the Container uses Virtuozzo EZ templates and updated packages for the given Container can be found in the repository, you are able to select the packages that you wish to update inside the Container.

Two options for customizing the update process are available on clicking the **Configure Updating** group:

- The **Force software update** option tells the system to perform the update even if unresolved dependencies are met during the process;

- The **Jump over several upgrades instead of adding them sequentially** option can be used if two or more sequential updates are found for this or that template.

Click **Update** to update the templates/packages you have selected for the given Container.

Resources Overview

The **Overview** subtab summarizes the current CPU, system and disk usage by the Container in the following table:

CPU Usage	This is a positive integer or fractional number that determines the minimal guaranteed percentage share of the CPU time your Container will receive. For stopped Containers, this parameter is not available. **Load Average** for the CPU usage is the average number of active processes for the past 1, 5, and 15 minutes, respectively. Value 0.0 means that the CPU is idle, 1.0 that the CPU is fully used. Value 2.0 denotes that the CPU load exceeds the nominal value by two times.
Memory Usage	This is a cumulative figure presenting the average consumption of a number of critical memory-related parameters by your Container.
Disk Usage	**Disk Space** is a total amount of disk space allocated to the Container. When the space used by the Container hits the soft limit (or reaches 100% on the percent bar), the Container can be allowed additional disk space up to the hard limit during the grace period. **Disk I/O** is a cumulative figure presenting how much of the allowed disk i/o bandwidth is used by the Container and how much is still available up to the limit.

The information on the disk and memory usage is organized as follows:

Column Name	Description
Resource	The name of the resource: memory, disk space, disk i/o bandwidth or disk inodes.
Used	Consumed amount of memory, disk size, disk /o resource or the number of inodes.
Free	Available amount of memory, disk size, disk /o resource or inodes number.
Total	The total amount of memory, disk size, disk /o resource or inodes.

CPU Parameters

For the description of CPU Linux-related commands, refer to the **Linux Container Parameters: CPU** section.

For the description of CPU Windows-related commands, refer to the **Windows Container Parameters: CPU** section.

Disk Management

For the description of disk Linux-related commands, refer to the **Linux Container Parameters: Disk** section.

For the description of disk Windows-related commands, refer to the **Windows Container Parameters: Disk** section.

Memory Parameters

For the description of memory Linux-related commands, refer to the **Linux Container Parameters: Memory** section.

For the description of memory Windows-related commands, refer to the **Windows Container Parameters: Memory** section.

Managing Container Applications

Applications can either be added to the Container by means of the corresponding Virtuozzo templates or installed in the Container as individual software packages.

Clicking **Applications** on the Parallels Power Panel menu allows you to do the following:

- view the applications added to the Container as application templates (both EZ and standard) as well as their up-to-date status.

- if some of the applications are not up to date (i.e. the updated versions of the corresponding templates or template packages are available on the Hardware Node), update them by clicking the **Update Container Software** button on the toolbar.

- add more applications available on the physical server or delete unnecessary ones by clicking **Manage** and performing these actions on the screen that opens.

Managing Container Application Templates 03-02-01-03-14

Clicking **Applications** on the Parallels Power Panel menu and the **Manage Applications** button on the screen that opens allows you to manage applications available to the Container. On this page, you can:

- View the applications already installed in the Container. These applications are listed in the **Installed/Scheduled Applications** table in the right part of the page.

- Install new applications to the Container. To add any of the applications from the **Available Applications** table to the Container, tick the corresponding checkboxes and click on the **>>** button. After that, the applications appear in the **Installed/Scheduled Applications** table in the right part of the page. Clicking the **Submit** button starts the installation process.

- Delete those applications from the Container that are not needed any more. To remove any application, tick the corresponding checkbox in the **Installed/Scheduled Applications** table and click on the **<<** button. After that, the application appears in the **Available Applications** table in the left part of the page. Click the **Submit** button to start the deletion process.

- Check unresolved dependencies among the selected applications with the help of the **Resolve** button. To eliminate unresolved dependencies, you can remove one of the problem applications from the **Installed/Scheduled Applications** table as explained above.

> **Note:** Only standard template based Container application dependencies require resolving. If you are managing a Container based on an EZ template, the **Resolve** button is not present on the screen.

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Managing Software Packages in EZ Templates Based Container

Parallels Power Panel enables you to install, update and uninstall rpm and deb packages in Containers based on EZ OS templates. To find out what type of template the Container is based on, click the **General** tab and look at the **OS Template** in the **Container Summary** section; if it is **Standard**, this option is not available for the Container, and if it is **EZ** you will find the **Manage Software Packages** icon on the Container dashboard, on the screen that opens by the **Configuration** tab.

> **Note:** The Container you want to manage software packages in has to be running.

Clicking this icon displays the screen where you can obtain the information on the packages currently installed in the Container in the **Installed Packages** table, presented as follows:

Column Name	Description
Name	The name of the package.
Epoch	Indicates the version of a deb package or the version of an rpm package in case the version of the rpm package is not available.
Version	The version of an rpm package.
Arch	The processor architecture; if the column shows the "noarch" value, the packet is likely to be either non-executable or contain documentation.
Summary	A short description of the package.
Status	Shows if there is a fresher version of the package: **Up-to-date** or **Update Found**.

The **Installed Packages** table displays from 10 up to 80 packages, the default number is 20 and can be changed by clicking **10**, **40**, or **80** on top of the table. To see the next portion of packages, click either the number of the page next to the one you are having at the moment, or **next** (or **last**, to view the previous page).

If the status of a package in the **Installed Packages** table suggests that an update is available, you can select this package and click the **Update** link near the table. To update all those packages that you can see on the page, select the uppermost checkbox and click **Update**. If you need to run update for all the packages installed in the Container, do not select anything - simply click the **Update All Packages** icon in the **Actions** section.

To uninstall a package, select it (or select the uppermost checkbox to uninstall all the packages listed on the page), and click **Uninstall**.

Virtuozzo can query the repository where the packages for your distribution are stored for new packages available for downloading and install them in your Container. To connect to the repository, fetch a list of the packages, see the packages description, download and install in your Container the packages you need, click the **Install Packages** icon.

Installing Software Packages in EZ Container

Virtuozzo can connect to your Linux distribution download packages repository to form a list of packages ready to be downloaded to your host Hardware Node and installed in your Container. All these operations are available on the **Install New Packages** screen. To open this screen, click the **Configuration tab** on the Container dashboard, then the **Software Packages** icon to get the **Manage Software Packages** screen where you need to click the **Install Packages** icon.

> **Note:** A repository can be a place where multiple files are located for distribution over a network, or a repository can be a location that is directly accessible to the user without having to travel across a network. Therefore connecting to your repository might involve either going to the web site repository (e.g. Fedora Core or Red Hat), or to the repository, created on your Hardware Node. For information on creating a local repository, refer to the **Setting Up Repository for EZ Templates** section in the **Parallels Virtuozzo Containers Installation Guide**.

On the **Install New Packages** screen you can obtain the following information on the packages:

Column Name	Description
Name	The name of the package.
Epoch	Indicates the version of a deb package or the version of an rpm package in case the version of the rpm package is not available.
Version	The version of an rpm package.
Arch	The processor architecture; if the column shows the "noarch" value, the packet is likely to be either non-executable or contain documentation.

The **Available Packages** table can display 10, 20, 40 or 80 packages, the default number is 20 and can be changed by clicking **10**, **40**, or **80** on top of the table. To see the next portion of packages, click either the number of the page next to the one you are having at the moment, or **next** (or **last**, to view the previous page).

To install a package, select its checkbox (or the uppermost checkbox, to install all the packages shown in the table) and click **Install**.

Managing Container Control Panels

There are a number of control panels that can be installed on the physical server in the form of templates and added to any Container hosted on that physical server. Among such control panels are Plesk, 🪟 Sitebuilder, and 🐧 Confixx.

The **Control Panels** subtab of the **Software** tab of the Container dashboard provides a single place for managing all these control panels in this particular Container. It goes without saying that the control panel template must be installed on the Node for the panel to be manageable on this screen.

The two major management operations that can be performed here are:

- adding the control panel template to the Container (the **Install** link), which ensures that this Container can be managed by the given control panel.

- logging in to the control panel to begin managing the Container with its help (the **Login** link). This is possible only if the control panel template has already been added to the Container.

> **Note:** In the case of the Plesk control panel, the **Login** link is called **Manage** and leads to the screen where you can not only log in to Plesk but also change the Plesk `admin` password.

Working With Virtual Machines

Changing Virtual Machine Administrative password

The **Change Administrative password** page is displayed on clicking the **Change Password** link on the Parallels Power Panel menu. Only the root/Administrator password for the current virtual machine can be changed. You should enter a new root/Administrator password for the current virtual machine into the fields provided and click Change.

Note that Parallels Power Panel does not check the entered password as to its length and non-conformity to dictionary entries, so choosing a simple password rests entirely at your own risk. It is recommended to use a chaotic set of lowercase (a-z) and uppercase (A-Z) letters, digits (0-9), and punctuation marks as root/administrator password. The following punctuation marks are allowed: ! " $ % & , ( ) * + - . / ; : < = > ? [\ ] ^ _ { | }. The space character, #, and @ symbols are not allowed. The password should not be less than 5 or more than 14 characters.

Reinstalling Virtual Machine

Virtual machine reinstallation means recovering the original state of a virtual machine in case you have unintentionally modified, replaced, or deleted any file that is part of an application or OS template, and the action has brought about the Container malfunction. The virtual machine reinstallation process restores these files as they were at the time when the virtual machine was created or when other applications were added to the virtual machine afterwards, if so.

Reinstallation is likely to bring about some irrevocable changes to your virtual machine, therefore, to be on the safe side, it is recommended to back up your virtual machine before reinstallation.

Click **Reinstall** to start the process of reinstallation.

Click **Next** on the **Reinstall Container** introductory page to review the available options and to decide whether you really need to reinstall your Container and in what way.

> **Note:** To be reinstalled, each virtual machine has to be stopped.

Resources Overview

The **VM Monitor** subpane shows the graphical statistics on CPU, Memory and Disk resource consumption, i.e how much of the physical server resources this virtual machine consumes. The data are shown in percentage.

Each of the three resources has its own colour on the chart. If you need to monitor the changes only for one resource, whatever it is, you can disable the others. Use the **Select Graph** subsection.

The chart can reflect the live changes in the resource consumption (choose **Live Graph Type**) or show the changes for the defined period (choose **History Graph Type**). In the History mode, the chart can include the data for a particular date, month, year or for any other period of time. To implement the changes, click **Appl**y. the chart will change its appearance.

The **Export Data** link allows you save the graphical data in the format of a plain text (`.svs` file) on your computer.

C H A P T E R   4

Managing Container Services and Processes

Parallels Power Panel allows you to manage services and processes inside virtual environments in a number of ways by following the corresponding links on the **Container Services** or **Virtual Machine Services** dashboard depending on what virtual environment you manage via Power Panel. You can:

- Open a list of principal services inside your virtual environment through the **System Services** link with the opportunity to start, stop, restart any of them and control their autostart option.

- Open a list of processes running inside the virtual environment by clicking the **System Processes** link with the opportunity to send various signals to any of the processes.

- Log in to the Plesk control panel via the **Plesk Panel** link in case the corresponding template is installed in the virtual environment. If the Plesk template is not installed, the **Plesk Panel** link is not displayed. Instead you can make use of the **Install Plesk** link provided in lieu of the **Plesk Panel** link to install the Plesk control panel in the Container (this link is available for a virtual environment running the Linux operating system).

- Log in to the Confixx control panel by choosing the **Confixx control panel** link in case the corresponding template is installed in the virtual environment. If the template is not installed, the **Confixx control panel** link is not displayed. The feature is available for a Linux-based virtual environment.

- Open an `ssh` terminal window with the help the **SSH Connection** link for connecting to the virtual environment via SSH. This link is available if you are managing a virtual environment running the Linux operating system.

- Open a Remote Desktop terminal window through the **Remote Desktop** link for connecting to the Container via RDP (Remote Desktop Protocol). This link is available if you are managing a virtual environment running Windows 2003 Server.

- Open the virtual environment Firewall page through the **Firewall** link if the virtual environment you manage runs the Linux OS.

- Open the Sitebuilder application through the **Sitebuilder** link if the application template is installed on the virtual environment.

In This Chapter

Managing Container Services

The process of managing services inside Container running the Windows operating system and the Linux operating system varies slightly:

* To learn how to manage services in virtual environment running the Linux operating system, please see the **Managing Services in Linux** subsection.

* To learn how to manage services in virtual environment running the Windows operating system, please see the **Managing Services in Windows** subsection.

Managing Services in Linux

The **System Services** page is displayed after clicking the **System Services** link on the **Container Services** dashboard. The page has two tabs: **Standard** and **Xinetd** (p. 46).

The **Standard** tab is used to view all the services you are running on the Container except for the xinetd-dependent services. To see the xinetd-dependent services list, click the **Xinetd** tab. By default, 20 services are shown for each tab, but you may have more services displayed by pressing the appropriate link on top of the table. You may also have the **System Services** table display only those services that have a particular name or status. On top of the table, press the **Show Search** link to display the fields where you can specify the name or the status of the service you wish to view; then click on the **Search** link.

The **Standard** page presents a table reflecting the services inside the Container and providing the following information:

Column Name	Description
Name	The system ID of the service executable file.
Status	Indicates whether the service is running or not. A green arrow means that the service is running; a red cross - that it is stopped.
Autostart	If there is a green tick in this column, this service is started automatically on the Container startup; if a red cross - it is not.

You can perform the following actions on any service in the table:

- Stop the service by selecting its checkbox and clicking on the **Stop** button. Only running services are subject to this action.

- Restart the service by selecting its checkbox and clicking **Restart**. Only running services are subject to this action.

- Start the service by selecting its checkbox and clicking on the **Start** button. Only stopped services are subject to this action.

- Enable/disable the autostart feature by clicking the name of the service in the **Name** column and opening the **Services Details** page, where you can manage the option.

Note: If you have just started the Container and opened the **Services** page, not all the services may have had enough time to start. Wait a little and refresh the page to update the state of the services.

Managing xinetd-Dependent Services

The **System Services** page is displayed after clicking on the **System Services** link on the **Container Services** dashboard. The page has two tabs: **Standard** (p. 45) and **Xinetd**.

The **Xinetd** tab is used to view all the services you are running on this Container that are dependent on the `xinetd` service. To see the other services, click the **Standard** tab. By default, 20 services are shown for each tab, but you may have more services displayed by pressing the appropriate link on top of the table. You may also have the **System Services** table display only those services that have a particular name or status. On top of the table, press the **Show Search** link to display the fields where you can specify the name or the status of the service you wish to view; then click on the **Search** link.

The **Xinetd** page presents a table reflecting the `xinetd`-dependent services inside the Container and providing the following information:

Column Name	Description
Name	The system ID of the service executable file.
Status	Indicates whether the service is enabled or not. A green arrow means that the service is enabled; a red cross - that it is disabled.
Autostart	If there is a tick in this column, the `xinetd` service is started automatically on the Container startup, so is the given service; if a cross - it is not.

You can perform the following actions on any service in the table:

- Enable the service by selecting its checkbox and clicking on the **Enable** button. Only disabled services are subject to this action.

- Disable the service by selecting its checkbox and clicking on the **Disable** button. Only enabled services are subject to this action.

Viewing Service Details

The **Service Details** screen provides the principal information on the given service and lets you manage it.

The following information is provided:

- The description of the service;
- Whether the service is running or stopped;
- Whether the service is started automatically on the Container startup or not.

You may perform the following actions on any such service:

- Stop the service by clicking the **Stop Service** button. Only running services are subject to this action.
- Restart the service by clicking the **Restart Service** button. Only running services are subject to this action.
- Start the service by clicking the **Start Service** button. Only stopped services are subject to this action.
- Enable/disable the autostart feature by clicking the **Enable Autostart**/ **Disable Autostart** button, correspondingly.

Viewing xinetd-Dependent Service Details

The **Service Details** screen provides the principal information on the given service and lets you manage it.

As the service is dependent on the xinetd service, i.e. xinetd is charged with launching the service when necessary, you can only either enable or disable such a service - depending on its current state - by clicking the **Enable/Disable Service** button, correspondingly. Moreover, the `xinetd` service must be running to perform any such action; otherwise, the operation will result in an error. You cannot manage the autostart feature of `xinetd`-dependent services, as its value is inherited from the `xinetd` service.

Managing Services in Windows

The **System Services** page is displayed when clicking on the **System Services** link on the Parallels Power Panel main menu. It presents the table reflecting those services inside your Container that you can manage. The table provides the following information:

Column Name	Description
Name	The name of the service running inside your Container.
Status	Indicates whether the service is running or not.
Startup Type	Indicates whether: • The service is started automatically on the Container startup; • The startup type of the service is set to SERVICE_DISABLED.
Logon as	Indicates the user account (the LocalService account, the NetworkService account, etc.) that was used to start the service.

You can perform the following operations on any service in the table:

- Stop the service by selecting its checkbox and clicking on the **Stop** button. Only running services are subject to this action.

- Restart the service by selecting its checkbox and clicking **Restart**. Only running services are subject to this action.

- Start the service by selecting its checkbox and clicking on the **Start** button. Only stopped services are subject to this action.

- Open the **Services Details** page to enable/disable the autostart feature by clicking on the name of the service in the Name column.

To facilitate working with Container services, you may have the **System Services** table display only those services that have a particular name, startup type (automatic, manual, disabled), are in a certain state (running or stopped), or were started by a certain user. On top of the table, press the **Show Search** link to display the fields where you can specify the parameters your services should meet; then click on the **Search** link. To view all the services currently running inside your Container, click on the **Show All** link to the right of the parameter fields.

Viewing Service Details

The **Service Management** page opened on clicking the name of the service you have selected on the **System Services** page allows you to change the startup type of your Container services:

- Make a service automatically start on the Container startup by selecting **Automatic** in the drop-down list of the **Startup Type** field and clicking on the **Submit** button.

- Set a service as "manual" meaning that you should start the service manually before it can be loaded by the operating system and made available for use. To this effect, select **Manual** and click on the **Submit** button.

- Disable a service by selecting **Disabled** in the drop-down list and clicking on the **Submit** button.

Note: Changing the default service settings might prevent key services from running correctly. It is especially important to use caution when changing the startup type of services that are configured to start automatically.

In the **Dependencies** section you can find out what system components depend on the selected service. You can also view the system components your service depends on, if there are any. You should always take into account the service dependencies before changing its settings. This information is very important since if a service is stopped or is not functioning properly, the dependent services may also be affected.

Managing Container Processes

The **System Processes** page is displayed when clicking the **Service** > **System Processes** link. It presents a table reflecting all the running processes inside the Container. The table provides the following information:

Column Name	Description
PID	The process ID.
%CPU	The percent of the CPU time the process is currently using.
%MEM	The percent of the RAM size the process is currently using.
Command	The command that is used to launch the process.
Nice	The relative priority of the process assigned to it by the user. The negative values mean that the user has manually increased the priority, the positive values - that they have decreased it.
Pri	The absolute priority of the process assigned to it by the process scheduler. On a Linux physical server, the range is from 0 (the highest priority) to 39 (the lowest priority). The usual process priority is 30. On a Windows physical server, the range can be from 0 (the highest priority) to 31 (the lowest priority). The usual process priority is 8.
RSS	(Resident Segment Size) The size of physical memory the process really uses (in Kilobytes).
Stat	The state of the process. The possible states are: R - runnable, on the run queue; S - sleeping; T - traced or stopped; D - uninterruptable sleep; Z - defunct, "zombie". If two letters are shown, the second letter means the following: W - has no resident pages; < - high-priority process; N - low-priority task; L - has pages locked in memory; s - the process is a session leader; "+" means the process is in the foreground process group of its control terminal.
Time	The total amount of the CPU time the process has used so far.
User	The user the process belongs to.

To have the information in the table refreshed automatically with the current values, click the **Enable Autorefresh** button. It is worthy to note that only the table on the current page is refreshed, which takes much less resources in comparison with refreshing the whole Parallels Virtual Automation page.

> **Note:** The table is available only for a running Container. If the table cannot be accessed, Power Panel suggests possible actions.

On a Windows physical server, you may select any number of processes by ticking the check boxes against the corresponding processes (tick the uppermost check box to select all the processes at once) and end them by clicking the **End Process** button.

On a Linux physical server, you may select any number of processes by ticking the check boxes against the corresponding processes (tick the uppermost check box to select all the processes at once) and send them a standard signal. Choose the needed signal on the drop-down menu and click the **Send Signal** button. The following signals can be sent:

- SIGHUP - is a hang-up signal. It is often used to ask a daemon process to re-read its configuration.

- SIGTERM - sends the termination signal to the process. This is the best way to give the process a chance for an orderly shutdown and proper data saving. As the process might be able to catch this signal and stay alive, you may have to make use of the sigkill or sigint signals.

- SIGCONT - continues the process causing it to resume.

- SIGSTOP - stops (suspends) the process. The process will still be on the task list.

- SIGINT - causes the process to immediately interrupt. The signal is very close to sigkill, the difference being that, unlike sigkill, it can be caught by the process and ignored if the process gets out of hand. In this case you should send sigkill to shut down the process.

- SIGKILL - unconditionally kills the process. Mind that sending sigkill to any process removes any chance for it to do a tidy cleanup and shutdown, which might have unfortunate consequences.

Managing Container Firewall

A firewall is part of your OS and its security. Its main function is to block or permit traffic between two systems or two parts of a network. The Virtuozzo Containers software has a built-in firewall that can be managed through both Parallels Power Panel and Parallels Virtual Automation. Along with - and apart from - the Parallels Power Panel and Parallels Virtual Automation web interface, the command line is an effective tool to manage a firewall. Here are the basic principles that make a firewall work.

A firewall applies a control *policy* over the firewalled system. There are three policies:

- *accept* the packet: if the packet is accepted, it gains access to the system;
- *drop* the packet: if the policy is to drop the packet, the packet is denied access to the system;
- *reject* the packet: the system does not let the packet in, notifying the sender of the fact;

You can set one of the three policies when creating (p. 60) or editing (p. 60) an access rule in the advanced mode.

The policies, along with ports and protocols, are chains' attributes. A *chain* is a list (or a chain) of rules grouped by the criterion of what type of packets they process. There are three packets types:

- *input;*
- *output;*
- *forward.*

Therefore we can create three chains - the Input chain, the Output chain and the Forward chain. The Input chain examines the incoming packets. If there is a rule to process a packet, the latter is either let in (accept policy) or not (drop/reject policy). Otherwise, the packet is examined by the next rule. If, finally, there is not any rule to match, the default system policy is applied. The first rule applied to a packet is the first one on the list that forms a chain.

If a packet is created inside the system, it is sent to the Output chain.

Packets that pass through the system, traverse the Forward chain.

When configuring a firewall, you can change a rule's position on the list, delete a rule from the list, create, edit and add rules to the list.

To configure the firewall, click on the **Firewall** link on the Container dashboard.

Selecting Mode

If you have only just started using the firewall by clicking the **Firewall** link on the Container dashboard, the **Firewall Setup** page is the first one you have displayed.

On the **Firewall Setup** page, you can choose one of the following modes your firewall operates in:

- The normal mode. If the security strategy you are planning out does not require a complicated system of specific rules and all you are going to do is as simple as providing your system with access to the Internet and the maximum safety, then the best option is the normal mode. Hence, select the normal mode to configure your firewall using the 8 built-in access rules (p. 54) or to fix the firewall rules settings corrupted either in the advanced mode or in the normal mode.

- The advanced firewall mode with default policy Accept, or the advanced firewall mode with default policy Drop. The advanced mode takes more time and experience to configure, but then there is more flexibility and potential in it to make use of.

Besides, the **Firewall Setup** page can be reached with the **Firewall Setup** link from both advanced and normal mode pages. If so, the choice is quite the same. The only difference is that in this case the normal mode can also be used as an option if you want to roll back the changes in the firewall rule(s) settings you have made.

After selecting a mode, click **Submit**. Click **Cancel** to return to the previous screen.

Configuring Firewall in Normal Mode

In the normal mode, the rules you delete or add are called *access rules*. The Container access rules are pre-set groups of standard firewall rules. Each access rule refers to a most widely used service and corresponds to a number of standard firewall rules that ensure the availability of this service. In the normal mode, each access rule is dealt with as a single entity. This implies that enabling or disabling an access rule results in enabling or disabling all the standard firewall rules it corresponds to. By default, 8 preset access rules are active:

1 Access to outer world;

2 DNS server;

3 Internal Services;

4 Mail server;

5 Plesk service;

6 POP3 server;

7 SSH server;

8 WEB server.

The remaining access rules that are not enabled by default can be added on the page, which you can access by clicking **Add Access Rule**.

To delete a rule, select one of the check boxes on the right of the screen, click **Delete** over the check boxes, and then **OK** to confirm. To delete all the rules, select the uppermost check box, click **Delete** over the check boxes, and then **OK** to confirm. Note that no access rules can be permanently deleted from the system. A *deleted* rule is, in fact, temporarily disabled and can be enabled back as described on the **Adding Access Rule in Normal Mode** subsection (p. 55).

To change the mode, click **Firewall Setup**.

> **Note:** If this page informs you that you cannot manage firewall on this Container, refer to the **Dealing With Misconfigured Firewall** subsection (p. 55).

Dealing With Misconfigured Firewall

If your firewall has not been configured yet, you will most probably have the page informing you of the fact. The page can also appear if you did misconfigure your firewall. The common way to misconfigure a firewall is to add or edit your own specific rules in the advanced mode and then switch to the normal mode without deleting these rules first.

At this point you will have to decide upon one of two basic strategies: to select the normal mode or to select the advanced mode:

- select the normal mode to deny all services except those critical to connecting to the Internet. To select the normal mode, click **Switch the firewall back to the normal mode**.

- select the advanced mode to create a rule to permit, deny, or monitor the access to or from the system for each service you need. If you are going to separately edit each rule, click **Select the advanced firewall mode**.

Adding Access Rule in Normal Mode

To open this page, follow the **Add Access Rule** link on the **Firewall** page. Here you have the rules that have not been included into the list of active rules you can see on the **Firewall** page. To *add* a rule here means actually to *enable* it. To add a rule, select a check box on the opposite and click **Submit** - or **Cancel** if you want to restore the firewall settings prior to the last action.

Building Input Chain

To build and edit the *Input Chain*, select the **Input** tab. When you click either **Advanced firewall mode with default policy Accept** or **Advanced firewall mode with default policy Drop**, on the page described in the **Selecting mode** subsection (p. 53), the first chain of rules is the *Input Chain*. The *Input Chain* is a set of rules for the incoming traffic. If you once applied **Normal firewall mode** before selecting **Advanced firewall mode with default policy Accept/Drop**, the input chain consists of 13 default rules. If you selected **Advanced firewall mode with default policy Accept/Drop** while configuring the Container firewall at the first time, the input chain has the default system policy access rule only.

Here you can edit, add, delete, enable, disable, filter or change its position in the list of any of the default rules. In case you need to come back to the original advanced mode settings, the default rules are:

1 Web server input;

2 SSH server input;

3 Mail server input;

4 POP3 server input;

5 DNS server tcp input;

6 DNS server udp input;

7 All tcp input for hi port allowed;

8 All udp input for hi port allowed;

9 Plesk Panel proxy input;

10 Plesk Panel direct input;

11 Loopback tcp input;

12 Loopback udp input;

13 Default system policy.

Note: If, for some reason, you need to have this rule set back, click **Firewall setup** and select the **Normal firewall mode** radio button.

The table below describes the attributes of the rules in the chain:

Name	Description
Name	The name of a specific web service this rule applies to.
Policy	One of three policies: Accept, Drop or Reject (p. 52).
Protocol	One of two protocols used for package transmission - Transmission Control Protocol (TCP), defined by IETF RFC793 or User Datagram Protocol (UDP), defined by IETF RFC768.

Source Address	The internal address of the packets (e.g.: IPv4 or IPv6 address, the name of a network interface, etc.).
Source Port	The internal port of the packets.
Destination Address	The address where the packets are sent to.
Destination Port	The port where the packets are sent to.
Enabled	The current status of the rule (Enabled/Disabled). The green circle with a tick stands for "enabled", the red circle with a cross stands for "disabled".
Move	Moving the rule a level up or a level down from its current position.

The default system policy access rule cannot be changed as this rule decides the packet's destiny - to accept or to drop - when the packet has not any other rule to be processed by.

To edit a rule, click its name in the **Name** column. To add - or replace - a specific rule, click **New Rule.** To disable, enable or delete a rule, select its check box and then click **Disable**, **Enable** or **Delete**. To move a rule a level up, click ▲. To move a rule a level down, click ▼. To filter rules by the policy, the protocol, or the current status, click the **Show Search** link. You can have Parallels Virtual Automation display only those parameters you need at the moment. To show or hide certain columns, click the **Select Columns** link and select the parameters you want to be displayed or clear those you do not.

You can also switch to the normal mode by clicking **Firewall setup** and selecting normal mode there.

Building Output Chain

To build and edit the Output Chain, select the **Output** tab. The output chain regulates the outbound access. If you once applied **Normal firewall mode** before selecting **Advanced firewall mode with default policy Accept/Drop**, the output chain consists of 13 default rules. If you selected **Advanced firewall mode with default policy Accept/Drop** while configuring the Container firewall at the first time, the output chain has the default system policy access rule only.

The default rules list is the same as in the **Input Chain** (p. 56), the only difference being the *output*, instead of the *input* characteristic of the rules. The list of rules on this page is this:

1   Web server output;

2   SSH server output;

3   Mail server output;

4   POP3 server output;

5   DNS server tcp output;

6   DNS server udp output;

7   All tcp output allowed;

8   All udp output allowed;

9   Plesk Panel proxy output;

10 Plesk Panel direct output;

11 Loopback tcp output;

12 Loopback udp output;

13 Default system policy.

The default system policy access rule cannot be changed as this rule decides the packet's destiny - to accept or to drop - when the packet has not any other rule to be processed by.

If, for some reason, you need to have this rule set back, click **Firewall setup** and select the **Normal firewall mode** radio button.

The attributes of the rules in the chain are described on the **Building Input Chain** subsection (p. 56).

Here you can edit, add, delete, enable, disable, filter or move in the list any or all of the 13 default rules the output chain consists of. To edit a rule, click its name in the name column. To add a specific rule, click **New Rule** in the **Actions** group. To disable, enable or delete a rule select its check box and then click **Disable**, **Enable** or **Delete**. To move a rule a level up, click ▲. To move a rule a level down, click ▼. To filter rules by the policy, the protocol, or the current status, click the **Show Search** link. You can have Parallels Virtual Automation display only those parameters you need at the moment. To show or hide certain columns, click the **Select Columns** link and select the parameters you want to be displayed or clear those you do not.

You can also switch to the normal mode by clicking **Firewall Setup** and selecting normal mode there.

Building Forward Chain

To build and edit the Forward chain, select the **Forward** tab. Unlike the Input and Output chains, the only default rule the forward chain has is **Default system policy**. Conceivably, this one is not to be edited or deleted. Instead, you are free to decide upon any number and kinds of specific rules to create and add to the Forward chain by clicking on the **New Rule** link in the **Actions** group.

After the number of rules in your Forward chain becomes bigger, you may need to sort them out. To do that, click the **Show Search** link and pick the three possible values from the three drop-down menus: the policy, the port, and the current status of the rule(s). You can have Parallels Virtual Automation display only those parameters you need at the moment. To show or hide certain columns, click the **Select Columns** link and select the parameters you want to be displayed or clear those you do not. Click ▲ to take a rule a level up its current position in the chain, or ▼ to relocate it a level down. If two or more rules can be applied to the given packet, the uppermost rule takes priority.

The attributes of the rules in the chain are described on the **Building Input Chain** subsection (p. 56).

To switch to the normal mode of managing the firewall, click **Firewall Setup** link in the **Actions** group.

The default forward chain policy is the policy selected on the **Firewall Setup** (p. 53) menu.

Adding Rule in Advanced Mode

To get to this page, click the **Add Rule** icon on the **Input Chain** (p. 56), **Output Chain** (p. 58), or **Forward Chain** (p. 59) pages. On this page, you can elaborate your own specific rule. Below are the basics of the advanced mode rules adding:

- the **Name** field is marked because this field is an obligatory one;

- select one of three policies: Accept, Drop or Reject;

- select one of two protocols for package transmission - Transmission Control Protocol (TCP), defined by IETF RFC793 or User Datagram Protocol (UDP), defined by IETF RFC768.

- **Source Address and Netmask**, **Source Port or Port Range**, **Destination Address and Netmask** and **Destination Port or Port Range** fields are left to your own discretion, but in case of an error there is a pink stripe over the field that has to be corrected;

- the standard format for **Source/Destination Address and Netmask** field is 1.2.3.4/255.255.23.4;

- the standard **Port range** format is 80-123;

- to enable a rule, select the **Enable** check box;

- if you are creating this rule for future purposes, clear this box;

- to include the rule into one of three chains, select Input, Output, or Forward on the drop-down menu;

- on the **The rule's position in the chain** drop-down menu you are to decide what priority this rule will have in its chain. There are two options for you to choose between: the bottom and the top of the chain;

- for the changes you have made to become operational, click **Submit**, to undo the changes and return to the previous page, click **Cancel**.

Editing Rule in Advanced Mode

The main difference here from the operations described in the **Adding Rule in Advanced Mode** subsection (p. 60) is that the rules you edit are not those you create as you deem it expedient. If you edit a rule (with the exception of renaming it), the rule changes and works differently from the way it did. Before submitting the new settings make sure they meet your security strategy. Otherwise, click **Cancel**.

The other detail to be aware of is the possible consequences of changing the initial (default) firewall settings. If you feel your expertise in the security area permits some future development, do not change them at all. Applying the changes you are not completely certain of may decrease your system's security.

Control Panels for Containers

To manage the Container, you can use the following control panels:

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-
-
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Managing Plesk Control Panel

There are a number of control panels that can be installed on the physical server in the form of templates and added to any Container hosted on that physical server. Among such control panels are Plesk, 🪟 Sitebuilder, and 🅰 Confixx.

The **Control Panels** menu provides a single place for managing all these control panels in this particular Container. It goes without saying that the control panel template must be installed on the Node for the panel to be manageable on this screen.

> **Tip.** If the **Control Panel** menu does not exist in your Power Panel, it means that your provider disabled logging in and managing other control panels from this Container.

The two major management operations that can be performed here are:

- adding the control panel template to the Container (the **Install** link), which ensures that this Container can be managed by the given control panel.
- logging in to the control panel to begin managing the Container with its help (the **Login** link). This is possible only if the control panel template has already been added to the Container.

> **Note:** In the case of the Plesk control panel, the **Login** link is called **Manage** and leads to the screen where you can not only log in to Plesk but also change the Plesk `admin` password.

Installing Plesk

The **Install Plesk Control Panels** page allows you to install the Plesk control panel in the Container. This page can be accessed by clicking the **Install** link on the **Control Panels** page, which is displayed if the Plesk template is not installed in the Container. If upon the Container creation, you specified the Plesk template for Linux (the `slm.plesk` template) or for Windows (the `plesk` template), you won't need to install Plesk Control Panel and will be able to log in and work with Plesk.

To install Plesk in a Container, just follow the instructions on the screen to complete the installation. After you have successfully installed the Plesk Control Panel in the Container, the **Plesk Panel** link becomes visible on the Parallels Power Panel menu. Follow this link to start working in Plesk.

> **Note:** For the Plesk installation to be possible, the Container should be running. Moreover, you can install Plesk only if authorized to do so by your provider. If you have any problems initializing the Plesk control panel auto install, seek your provider's help. Mind though that the Plesk auto install denial may be due to the shortage in your Container resources. To check if this is the case, you can go to the Viewing Resource Alerts Log page where you'll be informed in the **Description** column which parameter has caused the auto install failure. You might have to consider the possibility of killing some unnecessary memory-demanding process from the Container or ask the Node administrator to allocate more resources as needed to run Plesk on your Container.

Bare in mind, that to install Plesk Control Panel in a Container, the physical server that hosts the Container, should have the Plesk application templates installed. When choosing the type of Plesk template, you should orient at the OS templates that are installed on this physical server. To learn more information on how to upload OS templates and application templates on the physical server and then install them in the Container, refer to the **Parallels Virtual Automation Administrator's Guide**, the *Managing Parallels Containers* section.

Working in Plesk Control Panel

When the Plesk control panel is installed inside the Container, you can use the **Login to Plesk** link on the **Control Panels** page to start a Plesk control panel session. A new browser window with the Plesk control panel is launched and you are able to get straight down to work there.

To change the Plesk `admin` password, click the **Change Password** link on the **Plesk Control Panel** page. Setting a new password from time to time is recommended to assure the maximum security of a Container.

Changing Plesk Administrator Password

Although logging in to Plesk from Parallels Virtual Automation is performed automatically and does not require specifying the credentials of the `admin` user, the Plesk `admin` user name and password may be of use for a Parallels Power Panel user willing to directly log in to the Container via Plesk (p. 13). To maintain the maximum security of the Container, it is recommended to change occasionally the current password of the `admin` user. The **Change Plesk Admin Password** page opened through the **Change Password** link on the **Plesk Control Panel** page allows you to edit the administrator password.

To set a new password, you need to type it into the **New admin password** field and then retype it in the **Retype new admin password** field below to ensure you have provided a correct password. The password should be no less than 5 characters and difficult enough to guess to guarantee the privacy of the Container.

After you have entered a new admin password, press **Change** to submit the changes made.

> **Note:** If your Plesk version is lower than 7.0.2, the option of changing the `admin` password is not provided for Parallels Virtual Automation.

Logging In to Plesk Control Panel

Using the **Login to Plesk** link on the **Plesk control panel** page you can open a pop-up window to start managing the Container via Plesk.

In this window, you should open the **Login to Plesk** link to start a Plesk control panel session. A new browser window with the Plesk control panel is launched and you are able to get straight down to work there.

The logging in to Plesk is performed automatically, you do not need to enter the name and password of the admin user since you have already been identified by your Parallels Virtual Automation user credentials.

You might wish to change the Parallels Power Panel user Plesk admin password used to log in to Parallels Power Panel via Plesk. The **Change Plesk Admin Password** page allows you to change the current password of the `admin` user, which should be done from time to time to maintain the maximum security of the Container.

> **Note:** If your Plesk version is lower than 7.0.2, the option of changing the `admin` password is not provided for Parallels Virtual Automation.

Logging in to Confixx Control Panel

In case the Confixx control panel is installed inside a Container, the **Confixx control panel** icon becomes visible on the Parallels Power Panel menu. You can click this icon to go to the **Confixx control panel** login window.

In this window, you should enter your credentials (login and password) into the corresponding fields and press the **Login to Confixx** button. You may learn the credentials from your provider. In case the credentials entered are correct, a new browser window with Confixx control panel is launched and you can get straight down to work there.

If you select the **Save Login data** check box, you won't have to type your login and password again when you later visit this page - the credentials will be filled in automatically. In this case, the credentials information is stored not on the server, but on the client side (i.e. on the computer where your browser window is launched).

> **Note:** The Confixx control panel with version below 3.0 is not supported.

Using SSH to Connect to Container

You can use the Secure Shell (ssh) application to remotely connect to your Container and work inside its directory tree using standard Linux command line tools. To connect to the Container by ssh, you should make sure that:

1   You are launching Parallels Virtual Automation in Internet Explorer. SSH connection to the Container is supported by other browsers only if you have a Java Virtual Machine on your computer.

2   The Container is running. If it is not, start it on the **Start/Stop Container** page.

> **Note**: If your Container is running the Windows Server 2003 operating system, please turn to the **Using Remote Desktop Connection to Access Container** section (p. 67) to learn to manage Containers by means of the Remote Desktop Connection application.

The **SSH Connection** window is opened upon clicking on the **Terminal Login** icon on the Parallels Power Panel menu. You are presented with the **Login** and **Password** fields where you should enter the relevant information (root or any other user name you might have created for this Container and this user's password) to be passed to the ssh server inside the Container.

After you have filled in these two fields, click the **Login** button. If you are doing this for the first time, your browser may display a window like this asking you to install additional components:

Figure 1: Installing Remote Desktop ActiveX Control

> **Note:** When connecting to your Container via SSH using a browser other than Internet Explorer, this window does not appear. The SSH connection through browsers on the Mozilla engine is provided by the Java technology.

Click **Yes** in this window and wait for the `ssh` terminal window to appear, whereupon you get connected to the Container and may start sending commands to it via `ssh`.

Using Remote Desktop Connection to Access Container

You can use Remote Desktop Connection - a standard Windows application - to connect to the Container by means of the Remote Desktop Protocol (RDP). The feature is available only for Internet Explorer. It is not supported by other browsers. To connect to the Container via RDP, you should make sure that the Container is running. If it is not, start it.

> **Note**: If you are managing a Linux-based Container, please turn to the **Using SSH to Connect to Container** section (p. 65) to learn to manage the Container by means of Secure Shell.

The **Remote Desktop** window is opened upon clicking the **Remote Desktop** icon on the Parallels Power Panel menu. You are presented with the **Login** button that you should click to open a Remote Desktop session. If you are doing this for the first time, your browser may display a window like this asking you to install additional components:

Figure 2: Installing Remote Desktop ActiveX Control

Click **Yes** in this window and wait for the Remote Desktop terminal window to appear, whereupon you will be presented with the **Login** and **Password** fields. After entering the necessary information (Administrator or any other user name you might have created for this Container and this user's password) in the fields provided, click **Enter** to get connected to the Container and start sending commands to it via Remote Desktop.

Managing Virtual Machine Services and Processes

Viewing System Processes

On the **System Processes** screen, you can view the list of all the processes running in the virtual machine and terminate any process or several processes. This screen is available if you click the **System Processes** link on the **Virtual Machine Services** dashboard.

By default, 20 services are shown for each tab, but you may have more services displayed by pressing the appropriate link on top of the table. You may also have the **System Services** table display only those services that have a particular name or status. On top of the table, press the **Show Search** link to display the fields where you can specify the name or the status of the service you wish to view; then click on the **Search** link.

The table below shows the following information

Column	Description
PID	The process ID.
%CPU	The volume of the CPU (in percentage) that is being used by the process.
Command	The name of the command associated with the running process.
Pri	The priority of the command. If the CPU time is not enough for the execution of all running command, the scheduler stat to execute them according to their priority.
RSS	The resident portion of shared memory that must stay in memory at all times (i.e. be resident). In kilobytes (KB).
Time	The amount of the CPU time used by this command when it is in the active state.
User	The user who initiated the process.

%MEM	The memory value that is free.
NICE	The priority of the command.
STAT	The process state.

If you need to terminate a process or several processes, tick them and click the **End Process** button above the table.

To refresh the table with the executed processes information, click the **Enable Autorefresh** button.

Control Panels for Virtual Machines

You can manage the virtual machine through various means:

Using VNC to Connect to Virtual Machine

Parallels Virtual Automation allows you to operate the virtual machine via Virtual Network Computing (VNC). It is a graphical desktop sharing system which remotely controls another computer. The connection via VNC becomes available if the **Remote Display Service** is enabled.

You can enable this option during the virtual machine creation and configure it later in the virtual machine **General Settings** screen.

With VNC console, you can connect to a virtual machine residing on a physical server with Parallels Server Bare Metal software installed.

> **Note:** To establish a remote connection to the virtual machine via VNC, you should have Sun Java(TM) plugin/JRE installed.

On the virtual machine **Console** tab, you will see the virtual machine desktop displayed. A number of additional buttons will help you to work with the virtual machine. These buttons are described in detail in the following table:

Button	Description
Install Tools	Clicking this button will initiate the procedure of installing Parallels Tools in the virtual machine. For the detailed instructions, refer to the **Installing Parallels Tools into Virtual Machine** section.
Change CD/DVD ROM	Clicking this button will lead you to the screen where you can view and configure the CD/DVD-ROM image file of the Virtual Machine.
Refresh Display	Clicking this button will update the displayed information.
Send Ctrl-Alt-Del	Click this button to send the Ctrl-Alt-Del combination to the virtual machine OS. You can also send this combination by successive pressing of the keys, if you click the Toggle Sticky Keys button.
Detach Console	Clicking this button will open the virtual machine remote display in a new browser window.

If you have another program for remote connection to the virtual machine, you can use it as well. To establish the connection, you will need to specify the IP address of the virtual machine.

When you create a virtual machine, you should define certain settings to be able to work wit it remotely via VNC console. So, you should define the IPv4 or IPv6 address of the server where the virtual machine is hosted and the port that will be used by the virtual machine. For more information, you can refer to the instructions **Creating Virtual Machine** section or in the **Changing Virtual Machine Configuration** section.

Note that you can easily redefine these settings after the virtual machine creation.

Using Remote Desktop

You can use Remote Desktop Connection - a standard Windows application - to connect to the virtual machine by means of the Remote Desktop Protocol (RDP). The feature is available only for Internet Explorer 5.0 or above. It is not supported by other browsers.

> **Note**: If you are managing a Linux-based virtual machine, please turn to the **SSH Connection to Virtual Machine** section (p. 72) to learn to manage the virtual machine by means of Secure Shell.

The **Remote Desktop** window is opened upon clicking on the **Remote Desktop** icon on the virtual machine toolbar or dashboard. You are presented with the **Login** button that you should click to open a Remote Desktop session. If you are doing this for the first time, your browser may display a window like this asking you to install additional components:

Figure 3: Installing Remote Desktop ActiveX Control

Click **Yes** in this window and wait for the Remote Desktop terminal window to appear, whereupon you will be presented with the **Login** and **Password** fields. After entering the necessary information (`Administrator` or any other user name you might have created for this virtual machine and this user's password) in the fields provided, click **Enter** to get connected to the virtual machine and start sending commands to it via Remote Desktop.

SSH Connection to Virtual Machine

If you are managing a virtual machine with the Linux operating system installed, you can use Secure Shell (`ssh`) to remotely connect to the virtual machine you are operating and work inside its directory tree using standard Linux command line tools. To connect to the virtual machine by `ssh`, you should make sure that you are launching Parallels Virtual Automation in Internet Explorer 5.0 or above.

> **Note**: If you are managing a virtual machine running Windows 2003 Server, please turn to the **Remote Desktop Connection to Virtual machine** section (p. 71) to learn to manage the physical server by means of the Remote Desktop Protocol.

The **Terminal Login** window is opened upon clicking on the **Terminal Login** icon on the virtual machine toolbar or dashboard. You are presented with the **Login** and **Password** fields where you should enter the relevant information (`root` or any other user name you might have created for this virtual machine and this user's password) to be passed to the `ssh` server inside the virtual machine.

After you have filled in these two fields, click the **Login** button. If you are doing this for the first time, your browser may display a window like this asking you to install additional components:
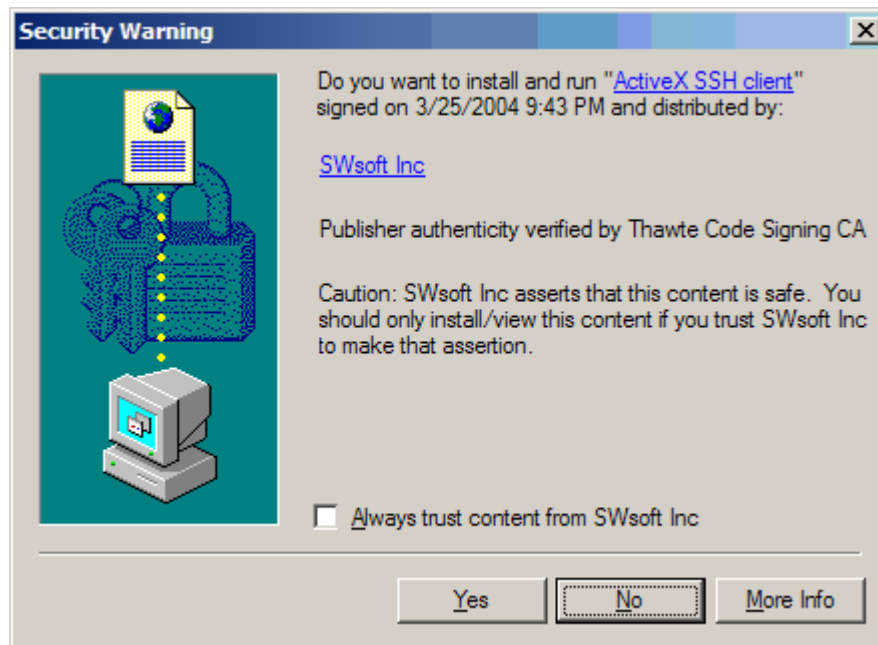

Figure 4: Installing Remote Desktop ActiveX Control

> **Note:** When SSH-connecting to your virtual machine using a browser other than Internet Explorer, this window does not appear. The SSH connection through browsers on the Mozilla engine is provided by the Java technology.

Click **Yes** in this window and wait for the `ssh` terminal window to appear, whereupon you get connected to the virtual machine and may start sending commands to it via `ssh`.

C H A P T E R   5

Monitoring Operations and Viewing Logs

Parallels Power Panel is able to display four kinds of logs maintained for your virtual environment:

- **Status Changes**. This log reflects such changes as starting, stopping, rebooting the virtual environment, or mounting it in the repair mode. These changes may have been invoked either through Parallels Power Panel or by other means.

- **Resource Alerts**. This log reflects those states of your virtual environment when it hits limits on some hardware resource. To know more about resources, read the **Resources Overview** section (p. 36).

- **Task Log**. This log reflects only those actions related to virtual environment management that were performed by means of Parallels Power Panel.

- **Traffic Log**. This log allows you to display your network traffic statistics for a specified period of time.

You may view all these logs by following the corresponding links from the **Logs** dashboard.

You can also monitor the Container operations that are either currently under way or have already been completed by viewing:

Parallels Power Panel also provides specific information in case of an operation failure for you to learn the error cause(s).

In This Chapter

Viewing History of Container Status Changes

The **Status Changes** page (accessible by clicking the **Status Changes** link on the **Logs** dashboard) keeps track of all the changes in the status of the virtual environment. These changes may happen due to the virtual environment routine management via Parallels Power Panel, or due to the operation of some programs. The three-column table presents the time when the virtual environment status changed, the old status of the virtual environment, and the status obtained. By default, 20 records are shown, but you may have more records displayed by clicking the appropriate link on top of the table. The description of all possible virtual environment statuses is provided in the **Virtual Environment Statuses** section.

You may have the **Status Changes** table display only those log records that have a particular date and time. On top of the table, click the **Show Search** link to display the fields where you can specify the boundaries of the time interval for which you wish to view the log; then click the **Search** link.

Viewing Alerts Log

Every time a virtual environment consumes more of a resource than is specified by the limit on that resource, or is coming close to that limit, an alert is generated and logged. Turn to the **Resources Overview** section (p. 36) to know more about the limits for corresponding resources. You shall pay attention to the problem resource and correct the situation.

The alerts log is shown on the **Resource Alerts** page available on clicking the **Resource Alerts** link on the **Logs** dashboard.

You may have the **Resource Alerts** table display only those alerts that have a particular date or are generated for a definite resource parameter. On top of the table, click the **Show Search** link to display the fields where you can specify the boundaries of the time interval or the resource parameter for which you wish to view the log; then click on the **Search** link.

The **Resource Alerts** table provides you with the following data:

Time	The date and time when the alert was generated.
Category	One of the two alert categories: *Resource* (alert on a single virtual environment resource consumption) or *Group* (alert on the whole Group's resource consumption).
Details	Detailed information on the alert.
Type	The alert sign displays the type of alert for the virtual environment. See the **Resources Overview** section for more details on the existing alert indicators.
Parameter	The type of the virtual environment resource that required the consumption value alert.

There are certain correspondencies between the alert zone indicators and the alert signs in the **Type** column. A green circle with a white tick stands for the green zone, an orange circle with a white exclamation mark points to the yellow zone, and a red circle with a white exclamation mark refers to the red zone. Depending on the parameter under alert, you can learn more about alert zones on the relevant resource type in the **CPU Parameters**, **Memory Parameters**, or **Disk Parameters** subsections of the **Resources Overview** section (p. 36).

Viewing Traffic Log

The **Traffic Usage** page enables you to view the information on all incoming and outgoing traffic for your virtual environment over a specified time period in the past. This page can be accessed by clicking the **Traffic Log** link on the Parallels Power Panel main menu.

To display traffic statistics, you should perform the following operations:

1 In the **Show traffic for** field, specify the time span for which you wish to see your traffic by selecting the corresponding duration unit on the drop-down menu. Depending on the selected unit, the field to the right of the drop-down menu changes and offers you a list of appropriate values to choose from. The duration units are listed below:

- `Day`: Click the calendar and specify the exact date (i.e. day, month, and year) for which you wish to view your network traffic statistics.

- `Month`: Specify the month and year to display your traffic statistics for.

- `Year`: Specify the year to display your traffic statistics for.

- `Period`: Specify the period for which you wish to view your traffic statistics by selecting the start and end dates on the calendar.

2 In the **Traffic class** field, specify the traffic accounting classes that will be displayed in the table.

- `All.` This option includes all specifically created accounting classes and those traffics that were not included into any class.

- `Other.` This option includes only those traffics that do not belong to any specific accounting class.

- Specific accounting classes. Apart from the `All` and `Other` classes, the list shows the classes created by you for specific needs. You can choose one concrete class to be displayed in the table. You can create new and view the detailed on the already existing ones by going to the hosting physical server and clicking the **Network tab --> Traffic subtab**.

3 In the **Traffic unit** field, specify the unit of measurement your traffic statistics will be displayed in.

4 Click on the **Update** button to display your traffic statistics for the specified period.

The results will be presented in the following table:

Column Name	Description
<Period>	Denotes the specified period. The name of this column depends on the duration unit selected in the **Period** field.

Incoming	The input traffic statistics (in the selected unit of measurement) during the specified period. This is the traffic that comes to the virtual environment from the Internet (e.g. requests from Internet surfers' web browsers to display a virtual environment website page).
Outgoing	The amount of output traffic (in the selected unit of measurement) during the specified period. This is the traffic that goes out of the virtual environment to the Internet (e.g. the virtual environment website pages sent to be displayed in the Internet surfers' web browsers).

The **Total** row at the bottom of the table summarizes all the incoming and outgoing network traffic for the specified time span.

Viewing Task Details

The **Task Details** window is available by clicking the **Details** link beside any task, be it **In progress**, **Completed**, or **Failed.**

The **Task Details** window serves for providing brief and most informative reference on the operation. The upper table of the window provides you with the task's type, the name of the virtual environment to which this task is applied, the physical server where the virtual environment resides, the user who initiated the task, and finally, the task's status.

The lower table consists of the following columns:

Column Name	Description
Time	The time when a certain operation stage began.
Operation	The corresponding utility message.
Status	The status of each of the steps the operation the operation consists of- **In progress**, **Completed**, or **Failed**.

Click **Detach** to have the message appear in a separated web-browser window.

Click **Close** to quit the window.

Viewing Error Details

The **Error Details** page provides specific information in case of an operation failure. When you are trying to perform an operation and it fails, the corresponding page is refreshed with a thick red line across the page informing you of the failure and providing the **Details** link to learn more about this failure.

This page presents a complete response as to why the operation failed. This response might help you understand the reason for the failure.

If an operation fails, and a green line is displayed informing that the operation has been scheduled, it means that the failure occurred after the operation had been scheduled. That is why it is desirable to always check the status of the scheduled operation by following the **Details** link at the right end of the green line to make sure that the operation has been successfully completed.

C H A P T E R 6

Troubleshooting

Parallels Virtual Automation is an indispensable means for solving various kinds of problems related to the virtual environment functioning. It is still more flexible due to its ability to work with not running virtual environments. The common groups of problems lending themselves readily to be handled by Parallels Power Panel boil down to the following:

- Services inaccessibility;
- Elusive problems.

You can also consult the **Network Problems** section to try to find out why the virtual environment is inaccessible by network, and the **File Problems** section.

> **Note**: The problem situations described in this chapter mainly concern virtual environment with the Linux operating system installed. However, it can be also of use for those managing the virtual environments running Windows 2003 Server.

In This Chapter

Services Inaccessibility

Various tasks you are accustomed to perform by means of your virtual environment (accessing your web site or sending email and the like) may fail if the corresponding services are inaccessible.

Try consecutively the following three steps to determine the reason for this and do away with it:

1   Check if your virtual environment is running. To this effect, log in to your virtual environment and look at the status bar to determine if the virtual environment is running or down. You can also check the status of your virtual environment on the **Service Unavailable** screen by clicking the corresponding link provided on this screen. If the virtual environment is down, click the **Start/Stop Container** link on the menu and click the **Start Container** button. Wait a little for the virtual environment and all the services to start.

2   Go to the **Services** page (p. 45) and check the status of the service in question. The service must be running for the corresponding functionality to be accessible. For example, `psa` and `mysqld` must be running for the Plesk control panel to handle your requests, `httpd` - for your web site to function properly, `sshd` - for the virtual environment to be accessible by `ssh`, `sendmail` - for you to be able to send email, `popa3d` - to receive email by the POP3 protocol, etc. You may also try to stop the `iptables` service to see if it solves the problem, because some `iptables` rules might prevent certain network connections.

3   Go to the **Resources** page (p. 36) to determine if your virtual environment is short of any resources. If some of the resources are marked in yellow or red, this is a hazardous situation that should be resolved immediately.

If the Plesk control panel is installed inside your virtual environment and you are working with this panel, the **Service Unavailable** screen may sometimes be displayed when you are trying to perform this or that Plesk-related operation. This situation is normally handled as described above. However, in case none of the recommended measures works, you may have to reinstall the Plesk control panel into the virtual environment, as the Plesk installation might be corrupted.

Elusive Problems

Sometimes it is hard to determine the exact reason for a problem. The problem might persist despite any actions undertaken. Such problems call for going back to an earlier state of the virtual environment with these problems missing. This change-over is usually effected by means of:

1   Restoring the Container from a working backup;

2   Reinstalling the Container (p. 28);

> **Note:** It is for you to decide which way suits you most. Generally, these two options are applicable if you can start your Container to copy the valuable information from it. To assure a safe data saving in the situation where you cannot start the Container, repairing your Container is the most advisable problem-solving option.

3   Mounting your Container in the repair mode and copying the valuable personal data to a secure place outside the Container. Using the repair mode is covered in the **Repairing Container** section (p. 30).

Login Problems

Problem

Your Container is inaccessible by its hostname or IP address, or you cannot log in as `Administrator/root`.

Possible Problems and Solutions

Problems with IP Address and Hostname

Solution 1. If you are using the hostname, try to use the IP address, and vice versa.

Solution 2. A Power Panel is able to connect to the PVA virtual environment using the virtual environment real hostname or IP address. PVA scans the <virtual_server configuration and the changes in its configuration due to the IP address. If you manually change the IP address inside the virtual environment guest OS or renew it with DHCP, Power Panels fails to connect to the virtual environment until the IP address is updated in the PVA infrastructure by your provider.

Problems with Credentials

The login operation may fail due to the corrupted credential information. Ask your provider to change the Administrator/root password for your virtual environment.

Problems with Parallels Tools

A Parallels virtual machine, to be managed via Power Panel, needs to have Parallels Tools installed inside the guest OS. If Parallels Tools have not been installed, turn to your provider with the corresponding request.

Problems with Ports

For a successful connection between PVA infrastructure and Power Panel, check that the 4643 port is open.

File Problems

Parallels Power Panel is tuned to not allow giant files to be uploaded to Containers. There is a maximal file size (e.g. 512 Mb, but it may be any other value) allowed to be uploaded to a Container. If you need to upload larger files to your Container, you should contact your service provider.

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