Parallels Virtuozzo Containers 4.5 for Windows Release Candidate
Readme

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This document provides first-priority information on the Parallels Virtuozzo Containers 4.5 for Windows Release Candidate and supplements the included documentation.

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1. ABOUT THIS RELEASE

The Release Candidate version of Parallels Virtuozzo Containers 4.5 for Windows provides a number of new features and improvements in comparison with Parallels Virtuozzo Containers 4.0, which makes it a true next-generation virtualization solution suitable for large-scope enterprise deployments.

2. SYSTEM REQUIREMENTS

The hardware and software requirements for Parallels Virtuozzo 4.5 for Windows are the following:

- **Platform:**
  Any x86 or x64 platform that is supported by Windows Server 2003 and Windows Server 2008 (Pentium, AMD, and the like). IA64 platforms are also supported, but for Windows Server 2003 only.

- **Memory:**
  2 GB recommended. The required amount depends on the total number of Containers you wish to run on the Node (minimum 50 MB per Container).

- **Hard disk space:**
  20 GB or more free disk space. The required amount depends on the size of the software to be installed inside Containers.
Operating system:

**x86 full versions of Windows Server 2008 with or without Hyper-V (US English):**
- Windows Server 2008 Service Pack 1, Enterprise Edition
- Windows Server 2008 Service Pack 1, Standard Edition
- Windows Server 2008 Service Pack 1, Datacenter Edition

**x86 full versions of Windows Server 2008 without Hyper-V (German and Simplified Chinese):**
- Windows Server 2008 Service Pack 1, Datacenter Edition

**x86 versions of Windows Server 2003:**
- Standard or Enterprise Edition of Windows Server 2003 Service Pack 1 with or without R2: US English, German, French, Italian, Korean, Spanish, Traditional Chinese, Simplified Chinese, or Japanese
- Datacenter Edition of Windows Server 2003 Service Pack 1 with or without R2 (US English)
- Datacenter Edition of Windows Server 2003 Service Pack 2 with or without R2 (US English)

**x64 full versions of Windows Server 2008 with or without Hyper-V (US English):**
- Windows Server 2008 Service Pack 1, Enterprise Edition
- Windows Server 2008 Service Pack 1, Standard Edition
- Windows Server 2008 Service Pack 1, Datacenter Edition

**x64 full versions of Windows Server 2008 without Hyper-V (German and Simplified Chinese):**
- Windows Server 2008 Service Pack 1, Datacenter Edition

**x64 versions of Windows Server 2003:**
- Standard or Enterprise Edition of Windows Server 2003 x64 Service Pack 1 with or without R2 (US English or Japanese)
- Standard or Enterprise Edition of Windows Server 2003 x64 Service Pack 2 with or without R2 (US English or Japanese)
- Datacenter Edition of Windows Server 2003 x64 Service Pack 1 with or without R2 (US English)
- Datacenter Edition of Windows Server 2003 x64 Service Pack 1 with or without R2 (US English)
- Datacenter Edition of Windows Server 2003 x64 with Service Pack 2 (Japanese or Russian)

**IA64 versions of Windows Server 2003:**
- Standard or Enterprise Edition of Windows Server 2003 IA64 with Service Pack 2 (US English, German, French, or Japanese)

**NOTE:** The operating system must be activated before the Parallels Virtuozzo Containers 4.5 installation.
The hardware and software requirements for Parallels Management Console, Parallels Infrastructure Manager, and Parallels Power Panel include the following:

- **Platform:**
  450 MHz or higher Intel Pentium-compatible CPU.

- **Memory:**
  256 MB recommended. The required amount depends on the number of Hardware Nodes to be administered (minimum 5 MB per Hardware Node).

- **Hard Disk Space:**
  About 500 MB.

- **Operating System:**

- **Browsers:**
  - Internet Explorer 6 and 7
  - Mozilla 1.7 and above
  - Firefox 1.0 and above

3. NEW FEATURES AND IMPROVEMENTS

- The Release Candidate version of Parallels Virtuozzo Containers 4.5 provides support for the Windows Server 2008 operating system.

You can now install Parallels Virtuozzo on physical servers running the following editions of Windows Server 2008:

**x86 full versions of Windows Server 2008 with or without Hyper-V (US English):**
- Windows Server 2008 Service Pack 1, Enterprise Edition
- Windows Server 2008 Service Pack 1, Standard Edition
- Windows Server 2008 Service Pack 1, Datacenter Edition

**x64 full versions of Windows Server 2008 with or without Hyper-V (US English):**
- Windows Server 2008 Service Pack 1, Enterprise Edition
- Windows Server 2008 Service Pack 1, Standard Edition
- Windows Server 2008 Service Pack 1, Datacenter Edition

You can now create Containers running the following editions of Windows Server 2008:

**x86 full versions of Windows Server 2008 with or without Hyper-V (US English):**
- Windows Server 2008 Service Pack 1, Enterprise Edition
- Windows Server 2008 Service Pack 1, Standard Edition
- Windows Server 2008 Service Pack 1, Datacenter Edition

**x64 full versions of Windows Server 2008 with or without Hyper-V (US English):**
- Windows Server 2008 Service Pack 1, Enterprise Edition
- Windows Server 2008 Service Pack 1, Standard Edition
- Windows Server 2008 Service Pack 1, Datacenter Edition
In the Release Candidate version of Parallels Virtuozzo 4.5, you can create pools from logical CPUs and assign these CPU pools to particular Containers. You can also configure the number of CPUs that will be simultaneously available to a Container within the assigned pool.

Virtual disks of a Container can now be defragmented without the need to log in to the Container.

On NUMA-based Hardware Nodes, Containers can be automatically assigned to a group of processors within a NUMA node, which significantly improves the overall system performance. You can also define the number of CPUs that will be simultaneously available to a Container within the corresponding NUMA node.

The virtual CPUs of a Container can be dynamically assigned by the Parallels Virtuozzo scheduler to different logical CPUs for load balancing reasons. This allows to use server CPU resources more efficiently and gives significant performance gains.

It is now possible to configure the start order of Containers on the physical server boot by setting their start-up priority.

The Release Candidate version of Parallels Virtuozzo Containers 4.5 includes support for the Internet Protocol version 6 (IPv6) inside Containers.

In this Release Candidate version, the possibility of managing server roles, role services, and features inside Containers running Windows Server 2008 has been added to the Parallels Virtuozzo command line interface.

The registry virtualization framework has been improved in the Release Candidate version of Parallels Virtuozzo Containers 4.5 to increase system performance.

This Release Candidate version provides enhanced support for the MSCS (Microsoft Cluster Server) clustering technology. Now you can create active/active failover clusters where all servers act as active nodes and each node can host more than one group with Virtuozzo resources.

The iSCSI (Internet Small Computer System Interface) support can now be enabled for Containers, which allows them to act as iSCSI initiators.

This Release Candidate version provides you with the possibility to view the exact system uptime independently for each Container.

The Virtuozzo File System has been enhanced to provide support for Transactional NTFS inside Containers running Windows Server 2008.

New versions of Parallels Management Console and Parallels Infrastructure Manager - 4.1 - have been released in this Release Candidate version to support working with Parallels Virtuozzo Containers 4.5 on Hardware Nodes running the Windows Server 2008 operating system. The 4.1 versions of these tools are automatically installed on Nodes with Windows Server 2008 during the Parallels Virtuozzo 4.5 installation.
- Parallels Virtuozzo Containers 4.5 updates can now be installed from a local or network folder.

- In this Release Candidate version, you can change registered owner and organization names of your Containers directly from the Hardware Node using the Parallels Virtuozzo command line interface.

- The Customer Experience Program is introduced in the Release Candidate version of Parallels Virtuozzo 4.5. Your participation in this Program will help us get your feedback and improve our product based on this feedback.

- You can now install Parallels Virtuozzo on servers supporting Microsoft Hyper-V and use both virtualization technologies in parallel.

- The Submit Support Issue wizard has been enhanced to provide the possibility of setting a severity level for your report.

- The list of antiviruses compatible with Parallels Virtuozzo Containers 4.5 is as follows:
  - McAfee 8.7i
  - AVG 8.0 and 8.5
  - Symantec AntiVirus 10.1.5.5000, 10.1.7.7000, and 11.0 (on Windows Server 2003 only)

- The following third party backup tools are supported in the Release Candidate version of Parallels Virtuozzo 4.5:
  - * For installation on Hardware Nodes:
    - Symantec Backup Exec 12.5
  - * For installation inside Containers (for e-mail and SQL Server protection):
    - The 5.3, 5.4, and 5.5 versions of IBM Tivoli Storage Manager for Mail and IBM Tivoli Storage Manager for Database.

4. INSTALLING PARALLELS VIRTUOZZO CONTAINERS 4.5

Complete installation instructions on how to set up Parallels Virtuozzo Containers 4.5 for Windows on a dedicated server is provided in the Parallels Virtuozzo Containers 4.5 for Windows Installation Guide included in the current distribution set.

While following the installation instructions, please bear in mind the following:

- The Windows Server 2003 or 2008 OS installed on the Hardware Node must be activated before installing the Parallels Virtuozzo software.

- If the server where you are installing Virtuozzo Containers 4.5 is a member of a domain, make sure that the Secondary Logon service on this server is enabled before starting the Virtuozzo Containers installation.

- The Virtuozzo Containers data folder (C:\vz, by default) cannot be a mount point, i.e. an external disk partition or network drive cannot be mounted to this folder.
While adding the Windows components to your system during the Virtuozzo Containers 4.5 installation, you must use the same Windows Server distribution kit as the one installed on your Node.

After installing Parallels Virtuozzo Containers 4.5, do not remove any of the standard Windows components from the Hardware Node (e.g. Internet Information Services). Deleting an installed component might cause the corresponding application inside your Containers to malfunction. You can disable the unnecessary Windows components inside a Container instead.

5. KNOWN ISSUES AND RESTRICTIONS

A list of known issues for the Release Candidate version of Parallels Virtuozzo 4.5 for Windows is given below.

Setup:

* Virtuozzo Containers 4.5 does not function if the Virtuozzo Containers data directory (C:\vz, by default) is a mount point, i.e. an external disk partition or network drive is mounted to this directory.

* The setup program cannot uninstall Parallels Virtuozzo if any Container is running.

* This Release Candidate version cannot be installed on Hardware Nodes running Windows Server 2008 with Service Pack 2.

General:

* The p2v migration of physical servers to Containers on Hardware Nodes running the Windows Server 2008 operating system is not supported.

* The vzsvaddress hostname is reserved for internal Virtuozzo Containers purposes and cannot be used as a hostname for your regular Containers.

* In the Release Candidate version of Parallels Virtuozzo 4.5, Containers running Windows Server 2008 cannot participate in MSCS clusters.

* Backing up a Hardware Node using the Windows Server Backup feature may fail if one or more Containers on this Node are being started or stopped during the backup creation.

* This Release Candidate does not support setting up DHCP servers inside Containers that run Windows Server 2008.

* The AVG antivirus may not show warning messages about the viruses and other threats detected inside Containers, though the viruses themselves are properly identified and blocked.

* This Release Candidate does not support the TCP/IP offloading feature.
* Using Microsoft Forefront Threat Management Gateway on Hardware Nodes is not supported in this Release Candidate.

* By default, all newly created Containers are set to operate in the Remote Desktop for Administration mode. To enable the Terminal Server mode for a Container, do the following:

  - If the Container is running Windows Server 2003, execute this command:
    ```bash
    vzctl set CT_ID --tsmode app
    ```

  - If the Container is running Windows Server 2008, install the Terminal Services server role inside this Container. For example, you can do this by running the following command:
    ```bash
    vzctl addrole CT_ID --role TS-Terminal-Server
    ```

* When opening Share and Storage Management inside Containers running Windows Server 2008, the initialization of Virtual Disk Service (VDS) may fail. To solve the problem, execute the "vzctl set CT_ID --scsi yes" command before using Share and Storage Management.

* The Secure Socket Tunneling Protocol (SSTP) service may fail to start inside Containers. To work around this problem, execute the following commands on the Hardware Node:
  ```bash
  vzctl set CT_ID --vpn on
  vzctl restart CT_ID
  ```

* The functionality of viewing the exact system uptime independently for each Container does not work if Parallels Virtuozzo Containers 4.5 is installed inside a VMware virtual machine running an x86-based operating system.

* The installation of the Release Candidate version of Parallels Virtuozzo Containers 4.5 inside Xen virtual machines is not supported.

* Installing Microsoft Hyper-V inside Containers is not supported.

* These features of the IPv6 protocol are not supported in this Release Candidate:
  - network traffic accounting
  - network traffic shaping
  - tunneling

* To install .NET 3.5 inside a Container, you first need to enable the Virtual Private Network (VPN) support inside this Container. To do this, run the following commands on the Hardware Node:
  ```bash
  vzctl set CT_ID --vpn on
  vzctl restart CT_ID
  ```

* To successfully install a MUI pack inside a Container, the size of its virtual disk must be set to 1.5 GB or more. The required disk space must be allocated to the Container before you start it and initiate the MUI pack installation. For example, you can run the following commands to set the disk space size of Container 101 to 1.5 GB:
  ```bash
  vzctl stop 101 (if Container 101 is running)
  ```
vzctl set 101 --diskspace 1500000 --save
vzctl start 101

* The process of backing up Exchange 2007 databases using Symantec Backup Exec 12.5 may fail due to a known bug in the Symantec application. For more information, visit http://seer.entsupport.symantec.com/docs/321183.htm.

* When using the Volume Shadow Copy Service feature inside a Container, make sure that the Container has enough space for storing its snapshots. If not, use either the `vzctl` utility to increase the disk size of the Container or the `vssadmin` utility to increase the space reserved for snapshots.

* When using Symantec Backup Exec for backing up and restoring Microsoft Exchange, keep in mind the following:

  - When creating a new backup job for backing up and restoring Exchange, make sure that the Use GRT (Granular Recovery Technology) option in Microsoft Exchange Settings is not selected.

  - When defining the Diff Area for maintaining the Container disk snapshots, associate it explicitly with the disk where the Diff Area is to be stored by running this command:

    ```
vssadmin add shadowstorage /for=X: /on=X:
    ```

    **NOTE:** You cannot create snapshots of the C:\ drive as well as you cannot create the Diff Area on this drive.

* Running the `chkdsk` command inside a cloned Container for the first time may result in displaying a number of warning messages. Just ignore these messages and wait for the command to finish.

* IBM Tivoli Storage Manager for Mail and IBM Tivoli Storage Manager for Database can be installed in a Container only when the Remote Registry service is running in it.

* In this Release Candidate, all Containers on Hardware Nodes participating in MSCS clusters must have plain virtual hard disks.

* If you are going to install a Domain Controller inside a Container, you should enable the Virtual Private Network (VPN) support inside the Container before starting the installation. To do this, run the following commands on the Hardware Node:

  ```
vzctl set CT_ID --vpn on
vzctl restart CT_ID
  ```

* Backing up and restoring Containers using the `vzabackup` and `vzarestore` utilities may fail on Hardware Nodes with heavy disk activity.

* If you cannot start the Routing and Remote Access service inside a Container running Windows Server 2008, make sure that the Wanarp6 service is running inside this Container.
* If you are logged in to a Hardware Node running Windows Server 2008 under the renamed Administrator account or as a member of the local Administrator group, you may fail to install the Parallels Virtuozzo Containers software or to use some Parallels command line utilities. Use one of these procedures to work around this problem:
  - Disable the User Account Control option on the Hardware Node.
  - Run the necessary utility as Administrator using the "Run As" command.

* After installing the qWAVE feature inside a Container running Windows Server 2008, the QWAVE service may fail to start inside this Container.

* After installing the Peer Name Resolution Protocol feature inside a Container running Windows Server 2008, the MPIO and MSDSM drivers may fail to load inside this Container.

* After installing the BitLocker feature inside a Container running Windows Server 2008, the `fvevol.sys` driver may fail to load inside this Container.

* In Windows Server 2008-based Containers, firewall events are not logged even if the `Log dropped packets:` and `Log successful connections:` options in the Windows firewall settings are enabled.

* You may fail to connect to Containers running Windows Server 2003 via RDP even if you enable the `Remote Desktop` option in the Windows firewall settings.

* When creating an application template for use in Windows Server 2008-based Containers, the server roles installed inside the temporary Container are not saved in the template.

* Microsoft Visual Studio 2005 Pro SP1 installed inside a Container as a Parallels Virtuozzo template may fail to start.

* It is impossible to connect to a VPN server from inside a Windows Server 2008-based Container operating in the bridged mode if the VPN server and the Container reside on the same Hardware Node.

* Upgrading Hardware Nodes running Virtuozzo 3.5.1 to Parallels Virtuozzo Containers 4.5 may fail.

* SharePoint 3.0 Central Administration may not work inside Containers running Windows Server 2008.

* Tivoli Storage Manager may crash when performing a system state backup.

* Running the Microsoft iSCSI initiator installer inside a Container may fail with the following error: "Setup could not verify the integrity of the file Update.inf. Make sure the Cryptographic service is running on this computer".

* The Microsoft iSCSI initiator installation inside a Container may hang.
* It may be impossible to access shared iSCSI disks inside a Container from outside after the Container restart.

* The process of copying folders to an iSCSI disk inside a Container may hang.

* iSCSI disks inside a Container may become inaccessible after the Container restart if some files are being copied to/from these disks at the time when the Container is restarted.

6. STARTING TO WORK IN PARALLELS VIRTUOZZO CONTAINERS 4.5

Upon the installation completion, you can start managing the Virtuozzo Containers 4.5 software in one of the following ways:

- **Using Parallels Infrastructure Manager.**
  To log in to your Hardware Node with Parallels Infrastructure Manager, click **Programs > Parallels > Virtuozzo Tools > Parallels Infrastructure Manager Launcher** on the Windows Start menu and, in the displayed window, click **Connect**.
  For more information on using this tool, refer to the **Parallels Infrastructure Manager Administrator's Guide**.

- **Using Parallels Management Console.**
  To set up Parallels Management Console, do the following:
  1. Make sure that the computer where you are going to install Parallels Management Console meets the necessary system requirements.
  2. Download the Parallels Management Console installation file.
  3. Install Parallels Management Console by double-clicking the installation file and following the on-screen instructions.
  4. Launch Parallels Management Console by clicking **Programs > Parallels > Virtuozzo Tools > Parallels Management Console** on the Windows Start menu.
  For more information on using this tool, refer to the **Parallels Virtuozzo Containers 4.5 User's Guide**.

7. UPGRADING TO PARALLELS VIRTUOZZO CONTAINERS 4.5

The process of upgrading the Parallels Virtuozzo software from 4.0, 3.5.1, and 3.5.1 Service Pack 1 to 4.5 does differ from that of installing Parallels Virtuozzo Containers 4.5 on a fresh version of Windows Server only slightly and is described in the **Parallels Virtuozzo Containers 4.5 for Windows Installation Guide**.

8. TROUBLESHOOTING

To contact the Parallels support team and inform it of the problem you encounter, use the **Submit Support Issue Wizard** that can be accessed by selecting **Programs > Parallels > Parallels Virtuozzo Containers > Submit Support Issue** on the Windows Start menu or typing "vzreport.exe" in the command line.
The **Submit Support Issue** wizard collects the logs, network, system, and troubleshooting information into a single zip file and uploads it automatically to the Parallels technical support FTP server (if accessible) or stores it in the \( X:\vz\reports \) folder on your server (where \( X:\vz \) stands for the Virtuozzo data folder) to be sent to Parallels later. It DOES NOT send your private information to Parallels!

Please provide your first and last name, company name, e-mail, subject and detailed problem description on the **Description** page of the **Submit Support Issue** wizard. Otherwise, we will not be able to process your request.

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**9. FURTHER READING**

In addition to this README, there are a number of other resources shipped with Virtuozzo Containers 4.5 which can help you use the product more effectively. All the documents are available online at [http://www.parallels.com/download/virtuozzo45rc/windows/](http://www.parallels.com/download/virtuozzo45rc/windows/). You can also find them after the Virtuozzo Containers 4.5 installation under **Start > Programs > Parallels > Parallels Virtuozzo Containers > Parallels Virtuozzo Containers Guides**.

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