This document is intended for users, and administrators of Oracle VM guests running the Microsoft Windows operating system. It includes a brief introduction of the Windows paravirtual (PV) drivers, how to install them, and describes potential issues and the corresponding workarounds you may encounter while using the drivers.

Oracle recommends that you read this document before installing and using the Windows PV drivers for Oracle VM.

This document may be updated after it is released. To check for updates to this document, and to view other Oracle documentation, refer to the Documentation section on the Oracle Technology Network (OTN) Web site:

http://www.oracle.com/technology/documentation/

This document includes the following topics:

■ Overview of the Windows Paravirtual Drivers
■ Supported Oracle VM Releases
■ Supported Guest Operating Systems
■ Installing the Windows PV Drivers
■ Uninstalling Windows PV Drivers
■ Known Limitations and Workarounds
■ Documentation Accessibility

1 Overview of the Windows Paravirtual Drivers

The Windows PV drivers for Oracle VM provide a performance boost for network and block (disk) devices on Microsoft Windows guests running in a virtual environment on Oracle VM.

Download the Windows PV drivers from:

http://edelivery.oracle.com/linux

The Windows PV drivers installer installs paravirtualized drivers for block (disk) and network devices.

2 Supported Oracle VM Releases

The Windows PV drivers are supported in the guest operating systems listed in Table 1, “Supported Guest Operating Systems” running on Oracle VM Server Release 2.1.5 or higher.
3 Supported Guest Operating Systems

The Windows PV drivers are supported on the Microsoft Windows operating systems listed in Table 1, "Supported Guest Operating Systems".

<table>
<thead>
<tr>
<th>Guest Operating System</th>
<th>X86 (32-bit)</th>
<th>X64 (64-bit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Windows Server 2003</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Microsoft Windows Server 2008</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Microsoft Windows Vista</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Microsoft Windows XP</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

4 Installing the Windows PV Drivers

There are two procedures for installing the Windows PV drivers, depending on the guest’s operating system.

- Installing Windows PV Drivers on Windows Server 2003, and Windows XP
- Installing Windows PV Drivers on Windows Server 2008, and Windows Vista

4.1 Installing Windows PV Drivers on Windows Server 2003, and Windows XP

To install the Windows PV drivers:

1. Create a new guest with one of the following operating systems installed:
   - Windows Server 2003 (X86 or X64)
   - Windows XP (X86 or X64)
2. Install the .Net Framework 2.0 on the guest.
3. Copy the Windows PV drivers (Setup.exe) to the guest.
4. Double click the Setup.exe file to start the Windows PV drivers installer. The Start Install window is displayed.
The installer prompts you to start the install. Click **Install** to start the Windows PV drivers installation. The installer copies files to the guest and installs the Windows PV drivers.

5. Due to a known issue, on some operating systems the Found New Hardware Wizard is displayed behind the Windows PV drivers Installer window.
Click **Cancel** to ignore the wizard. If you do not click Cancel, the Windows PV drivers Installer closes the wizard automatically.

6. Due to a known issue, the Software Installation window is displayed warning the driver has not been signed by Microsoft.
Click **Continue Anyway**.

7. You are prompted to restart the guest.

**Figure 3  Software Installation window**

**Figure 4  Installation complete window**
Check Yes, restart the system now and click Finish. The guest is restarted.

4.2 Installing Windows PV Drivers on Windows Server 2008, and Windows Vista

To install the Windows PV drivers:

1. Create a new guest with one of the following operating systems installed:
   - Windows Server 2008 (X86 or X64)
   - Windows Vista (X86 or X64)
2. Copy the Windows PV drivers (Setup.exe) to the guest.
3. Double click the Setup.exe file to start the Windows PV drivers installer. The Start Install window is displayed.

Figure 5 Start install window

The installer prompts you to start the install. Click Install to start the Windows PV drivers installation. The installer copies files to the guest and installs the Windows PV drivers.

4. The Windows Security window is displayed and prompts you to confirm the installation of the paravirtual device drivers and trust the certificate from Oracle.
Check **Always trust software from "Oracle USA Inc."** and select **Install**.

5. The installer copies the Windows PV drivers files, and installs the drivers in the guest. The Installation Complete window is displayed.
Check Yes, restart the system now and click Finish. The guest is restarted.

5 Uninstalling Windows PV Drivers

To uninstall the Windows PV drivers, run the Windows PV driver installer (Setup.exe). Do not use the Add/Remove Software in the Windows Control Panel as this does not properly remove all the registry keys and system configuration.

6 Known Limitations and Workarounds

This section contains information on known limitations and workarounds for the Windows PV drivers:

- Unsupported Features
- Found New Hardware Window Displayed During Installation or Uninstallation
- Network Devices May Fail
- Guest Cannot Use More Than Eight VCPUs
- .Net Framework 2.0 Required on Some Operating Systems

6.1 Unsupported Features

The following features are not supported with guests using the Windows PV drivers:

- Live migration
- Save
- Restore
6.2 Found New Hardware Window Displayed During Installation or Uninstallation

During the installation or uninstallation of the Windows PV drivers, the Found New Hardware window is displayed when the guest restarts.

**Workaround:** Click **Cancel** to ignore the message and close the window.

6.3 Network Devices May Fail

If you install the Windows PV drivers into a guest with the vif type set to **ioemu** in the guest configuration file (vm.cfg), the network device(s) may fail. The Windows Device Manager displays an error code 10 and an exclamation point (!) to show the network driver cannot be started.

This is caused by the network type being set incorrectly in the guest configuration file. The network card type can be set three ways:

- **type=ioemu:** Network card is available in QEMU mode only.
- **type=netfront:** Network card is available in paravirtualized mode.
- **No type entry:** Network card is available in both QEMU and paravirtualized modes.

**Workaround:** Change the network type from **ioemu** to **netfront** in the guest configuration file. Alternatively, delete the network type entry. You can make this change using Oracle VM Manager, or manually. To change the configuration manually:

1. Shut down the guest.
2. Edit the guest configuration file (vm.cfg) and change the **type=ioemu** entry to **type=netfront**, or delete the entry.
3. Restart the guest.

The network driver is started.

6.4 Guest Cannot Use More Than Eight VCPUs

If you use the Windows PV drivers, the maximum number of virtual CPUs (VCPUs) is eight.

6.5 .Net Framework 2.0 Required on Some Operating Systems

Some operating systems require the .Net Framework 2.0 be installed on the guest before you install the Windows PV drivers. The affected operating systems are:

- Windows Server 2003 (X86 and X64)
- Windows XP (X86 and X64)

Download the Microsoft .NET Framework Version 2.0 Redistributable Package (x86) from:


Download the Microsoft .NET Framework Version 2.0 Redistributable Package (x64) from:
7 Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at http://www.oracle.com/accessibility/.

Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

Accessibility of Links to External Web Sites in Documentation

This documentation may contain links to Web sites of other companies or organizations that Oracle does not own or control. Oracle neither evaluates nor makes any representations regarding the accessibility of these Web sites.

Deaf/Hard of Hearing Access to Oracle Support Services

To reach Oracle Support Services, use a telecommunications relay service (TRS) to call Oracle Support at 1.800.223.1711. An Oracle Support Services engineer will handle technical issues and provide customer support according to the Oracle service request process. Information about TRS is available at http://www.fcc.gov/cgb/consumerfacts/trs.html, and a list of phone numbers is available at http://www.fcc.gov/cgb/dro/trsphonebk.html.