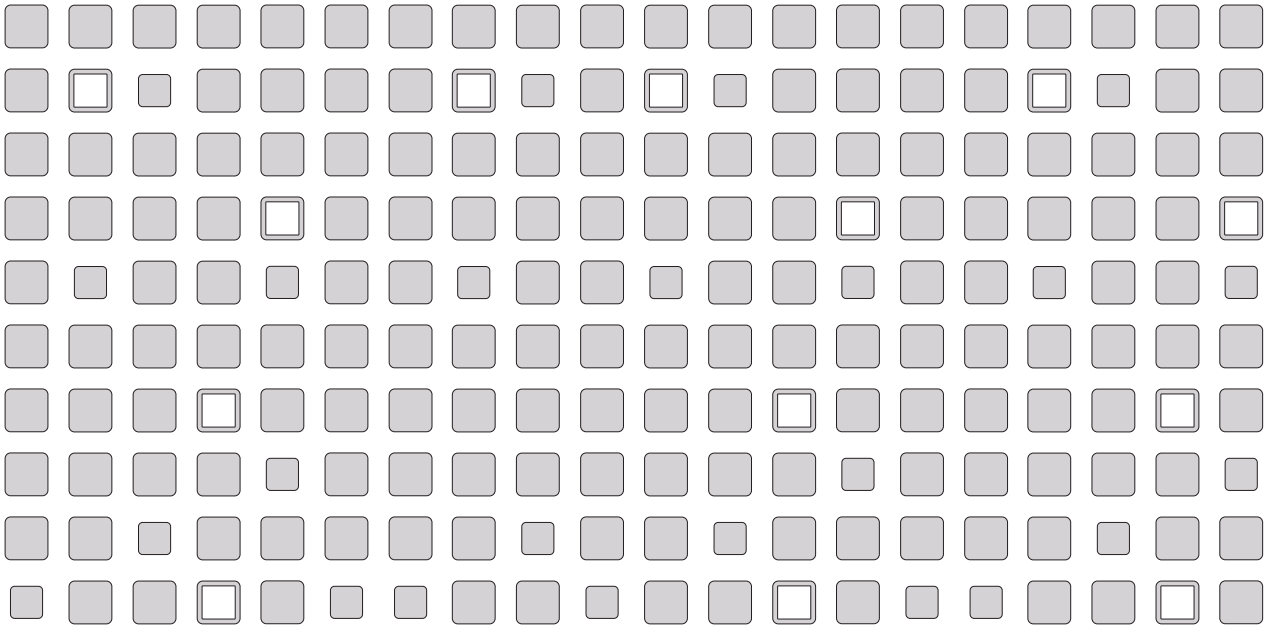
# Guest Operating System

## Installation Guide



vmware®

**VMware, Inc.**

3145 Porter Drive
Palo Alto, CA 94304
www.vmware.com

**Please note that you can always find the most up-to-date technical documentation on our Web site at http://www.vmware.com/support/.**
**The VMware Web site also provides the latest product updates.**

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# Choosing and Installing Guest Operating Systems

The following sections provide notes on installing specific guest operating systems under the VMware products that support each guest. Be sure to read the general guidelines as well as the guide to installing your specific guest operating system.

- Supported and Unsupported Guest Operating Systems on page 15
- General Guidelines for All VMware Products on page 16
- Installing Specific Guest Operating Systems

  The following table shows guest operating systems compatible with particular VMware products and provides links to installation instructions for each guest operating system.

  **Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

| Guest Operating System | Workstation | VMware ACE | GSX Server | ESX Server |
|---|---|---|---|---|
| Windows Vista Beta on page 19 | 4.5–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Windows Server 2003 on page 24 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |

| Guest Operating System | Workstation | VMware ACE | GSX Server | ESX Server |
|---|---|---|---|---|
| Windows XP on page 28 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Windows 2000 on page 32 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Windows NT 4.0 on page 35 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Windows Me on page 38 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Windows 98 on page 40 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Windows 95 on page 42 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| DOS and Windows 3.1x on page 46 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Mandrake Linux 10.1 on page 48 | 5.5 | | 3.2–3.2.1 | |
| Mandrake Linux 10 on page 51 | 5.0–5.5.1 | | 3.2–3.2.1 | |
| Mandrake Linux 9.2 on page 54 | 5.0–5.5.1 | | 3.0–3.2.1 | |
| Mandrake Linux 9.1 on page 57 | 5.0–5.5.1 | | 3.1–3.2.1 | |
| Mandrake Linux 9.0 on page 60 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Mandrake Linux 8.2 on page 63 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Mandrake Linux 8.0 and 8.1 on page 66 | | | 3.0–3.2.1 | |
| Novell Linux Desktop 9 on page 69 | 5.0–5.5.1 | 1.0.1–1.0.2 | | |
| Red Hat Enterprise Linux 4.0 on page 71 | 5.0–5.5.1 | 1.0.1–1.0.2 | 3.2–3.2.1 | 2.5.2 |
| Red Hat Enterprise Linux 3.0 on page 75 | 4.5–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0.1–2.5.2 |
| Red Hat Enterprise Linux 2.1 on page 79 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Red Hat Linux Advanced Server 2.1 on page 83 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Red Hat Linux 9.0 on page 87 | 4.0.1–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Red Hat Linux 8.0 on page 93 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Red Hat Linux 7.3 on page 97 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Red Hat Linux 7.2 on page 101 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| Red Hat Linux 7.1 on page 105 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Red Hat Linux 7.0 on page 109 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Red Hat Linux 6.2 on page 112 | | | 3.0–3.2.1 | |
| Sun Java Desktop System 2 on page 115 | 5.0–5.5.1 | | | |
| SUSE LINUX Enterprise Server 9 on page 117 | 5.0–5.5.1 | 1.0.1–1.0.2 | 3.2–3.2.1 | 2.5–2.5.2 |
| SuSE Linux Enterprise Server 8 on page 120 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |

| Guest Operating System | Workstation | VMware ACE | GSX Server | ESX Server |
|---|---|---|---|---|
| SuSE Linux Enterprise Server 7 on page 122 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| SUSE LINUX 10 on page 124 | 5.5–5.5.1 | | | |
| SUSE LINUX 9.3 on page 126 | 5.5–5.5.1 | | | 2.5.2 |
| SUSE LINUX 9.2 on page 129 | 5.0–5.5.1 | 1.0.1–1.0.2 | 3.2–3.2.1 | 2.5.2 |
| SUSE LINUX 9.1 on page 132 | 4.5.2–5.5.1 | 1.0–1.0.2 | 3.1–3.2.1 | 2.5–2.5.2 |
| SUSE LINUX 9.0 on page 135 | 4.5–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.1–2.5.2 |
| SuSE Linux 8.2 on page 138 | 4.0.1–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0–2.5.2 |
| SuSE Linux 8.1 on page 141 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| SuSE Linux 8.0 on page 144 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| SuSE Linux 7.3 on page 147 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Turbolinux 10 Desktop on page 149 | 5.5–5.5.1 | | | |
| Turbolinux Enterprise Server 8 on page 150 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Turbolinux Workstation 8 on page 152 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Turbolinux 7.0 on page 154 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| Ubuntu Linux 5.10 on page 156 | 5.5–5.5.1 | | | |
| Ubuntu Linux 5.0.4 on page 158 | 5.5–5.5.1 | | | |
| FreeBSD 5.4 on page 160 | 5.5–5.5.1 | | | |
| FreeBSD 5.3 on page 162 | 5.5–5.5.1 | | | |
| FreeBSD 5.2 on page 164 | 5.0–5.5.1 | | 3.1–3.2.1 | |
| FreeBSD 5.1 on page 165 | 5.0–5.5.1 | | | |
| FreeBSD 5.0 on page 166 | 4.5–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| FreeBSD 4.10 on page 168 | | | | 2.5–2.5.2 |
| FreeBSD 4.9 on page 170 | | | 3.2–3.2.1 | 2.5 |
| FreeBSD 4.4, 4.5, 4.6.2, 4.8 on page 172 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| FreeBSD 4.0, 4.1, 4.2, 4.3 on page 174 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | |
| NetWare 6.5 Server on page 178 | 4.5–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0.1–2.5.2 |
| NetWare 6.0 Server on page 182 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.1–2.5.2 |
| NetWare 5.1 Server on page 186 | 4.0–5.5.1 | 1.0–1.0.2 | 3.0–3.2.1 | 2.0.1–2.5.2 |
| NetWare 4.2 Server on page 191 | | | 3.0–3.2.1 | |
| Solaris 10 Operating System for x86 Platforms on page 195 | 4.5.2–5.5.1 | 1.0–1.0.2 | 3.1–3.2.1 | |

| Guest Operating System | Workstation | VMware ACE | GSX Server | ESX Server |
|---|---|---|---|---|
| Solaris 9 Operating System x86 Platform Edition on page 197 | 4.5.2–5.5.1 | 1.0–1.0.2 | 3.1–3.2.1 | |

# Supported and Unsupported Guest Operating Systems

If you are using VMware® Workstation 3.x, VMware GSX Server 2.x, VMware ESX Server 1.x or an earlier VMware product, see the user's manual that came with your product for instructions on installing guest operating systems supported by that product.

This guide covers Workstation 4.0, VMware ACE, GSX Server 3.0, ESX Server 2.0 and later products.

The section for each guest operating system begins with a note indicating which VMware products support use of the operating system in a virtual machine. Operating systems that are not included in this guide are not supported for use under the VMware products covered by the guide.

## Using 64-bit Guest Operating Systems

To install and run a 64-bit guest operating system, you must have a supported CPU in the host computer and you must be running a VMware product that supports 64-bit guests. For details, see the documentation for your VMware product.

# General Guidelines for All VMware Products

Before starting to install a guest operating system, create a virtual machine and be sure that its devices are set up as you expect. For example, if you would like networking software to be installed when you install the guest operating system, be sure the virtual machine's Ethernet adapter is configured and enabled.

The tool you use to configure the virtual machine depends on the VMware product you are using.

- In VMware Workstation, VMware ACE Manager, VMware GSX Server or VMware VirtualCenter, use the virtual machine settings editor to modify a virtual machine's configuration.
- In VMware ESX Server, use the VMware Management Interface to modify a virtual machine's configuration.

You should disable any screen saver that may be running on the host system before you start to install the guest operating system.

A new virtual machine is like a physical computer with a blank hard disk. Before you can use it, you need to partition and format the virtual disk and install an operating system. The operating system's installation program may handle the partitioning and formatting steps for you.

Installing a guest operating system inside a virtual machine is essentially the same as installing it on a physical computer. The basic steps for a typical operating system are:

1. Start Workstation, VMware ACE Manager or a VMware Virtual Machine Console and connect to the virtual machine.
2. Insert the installation CD-ROM or floppy disk for your guest operating system into the CD-ROM or floppy drive being used by your virtual machine.

   **ESX Server:** You must insert the installation CD-ROM or floppy disk in the drive on the server where the virtual machine is running. You cannot use the drives on your management workstation.

   **GSX Server:** If your guest operating system requires a floppy disk, you must insert it in the drive on the server where the virtual machine is running. You cannot use the floppy drive on your management workstation.

   **Note:** Rather than boot from a physical CD-ROM, you may wish to create an ISO image file from the installation CD-ROM. You may store the ISO file on the host

machine or on a network drive accessible from the host machine. Use the configuration tool for your VMware product to connect the virtual machine's CD drive to the ISO image file, then power on the virtual machine.

Using an ISO image file in this way can be particularly convenient if you need to install the same operating system in multiple virtual machines. It can also help you work around a problem seen in some host configurations, in which the virtual machine is not able to boot from the installation CD-ROM.

**Note:** If you plan to use a PXE server to install the guest operating system over a network connection, you do not need the operating system installation media. When you power on the virtual machine in the next step, the virtual machine detects the PXE server.

3. Power on your virtual machine by clicking the Power On button.
4. Follow the instructions provided by the operating system vendor.

As with physical computers, a separate operating system license is required for each virtual machine you run.

**Note:** Some Microsoft Windows OEM discs included with new computers are customized for those computers and include device drivers and other utilities specific to the hardware system. Even if you can install this Windows operating system on your physical computer, you may not be able to install it in a virtual machine. You may need to purchase a new copy of Windows to install in a virtual machine.

## Determining Memory Settings for a Virtual Machine

When you configure the memory settings for a virtual machine, you should consult the documentation for the guest operating system you plan to run in that virtual machine. The user interface of your VMware product provides general guidelines for the amount of memory required, but if the interface and the operating system documentation do not agree, you should rely on the operating system documentation.

## Installing VMware Tools in a Linux Guest Operating System

In VMware Workstation 5, you can install VMware Tools in a Linux guest operating system while X is running. See the *VMware Workstation 5 User's Manual* for details.

In all other VMware products, you must install VMware Tools from a text mode screen. You cannot install from a terminal in an X window session.

Some recent distributions of Linux are configured to run the X server when they boot and do not provide an easy way to stop the X server. However, you can switch to a

different workspace that is still in text mode and install VMware Tools from that workspace.

To switch between Linux workspaces in a virtual machine, press Ctrl-Alt-Space, release Space without releasing Ctrl and Alt, then press the function key for the workspace you want to use — for example, F2. If you change your hot key combination to something other than Ctrl-Alt, use that new combination with Space and the function key.

## Running a Guest Operating System

For information on running a guest operating system and using its features, see the documentation provided by the operating system vendor.

# Windows Vista Beta

## Support

### 32-Bit Version

This beta operating system has experimental support as a guest operating system on the following VMware products:

- VMware Workstation 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

### 64-Bit Version

This beta operating system has experimental support as a guest operating system on the following VMware products:

- VMware Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

Because Windows Vista is still in the beta stage of development, you should expect it to install and run more slowly than other guest operating systems.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install the Windows Vista beta in a virtual machine using the Windows Vista distribution CD. If your VMware product supports it, you may also install from a PXE server.

### Installation Steps

If you want to run Windows Vista in a virtual machine, be sure you have a full installation CD for the operating system.

Before installing the operating system, be sure that you have already created and configured a new virtual machine. Be sure the virtual machine has at least 512MB of RAM. The host computer must have more than 512MB of RAM to support this setting. If you are installing the 32-bit version of Windows Vista beta, be sure the virtual

machine's hard drive is 16GB or larger. If you are installing the 64-bit version of Windows Vista beta, be sure the virtual machine's hard drive is 24GB or larger.

**Note:** Special steps are required to install Windows Vista beta on a blank hard disk. This issue affects installation in a new virtual machine just as it affects installation on a physical computer with an unpartitioned hard disk. Microsoft documents the issue in the Windows Vista beta release notes. Steps to partition a blank hard disk are included in the installation instructions that follow. Another way to work around this problem is to install the corresponding version of Windows XP Pro (32-bit or 64-bit), then upgrade that guest operating system to Windows Vista beta.

**Installing the Guest Operating System**

1. Insert the Windows Vista CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Windows Vista.
3. **If using a blank hard disk:** When the Windows Vista installer menu appears, choose the first option, **Install Now**.

   **If installing over an existing guest operating system:** Skip to step 9.
4. Press Shift-F10 to open a command prompt.
5. Start the disk partitioning utility.

   ```
   diskpart
   ```
6. Enter the following commands to partition the hard disk:

   ```
   select disk 0
   create partition primary
   ```
7. When the partitioning process is complete, click the **Reset** button to reboot the virtual machine.
8. As the virtual machine begins to reboot, while the VMware logo appears on the screen, click inside the virtual machine window, then press Esc to get to the BIOS boot menu. Choose **CD-ROM Drive** as the boot device, then continue installing Windows Vista beta.
9. In certain Windows Vista builds, the installer chooses an incorrect default in the screen titled Choose your installation destination. It shows a partition with 0 MB free and makes that partition the default destination.

   At that screen, you must change the choice to the disk (instead of the partition), then click **Continue**.
10. Follow the remaining installation steps as you would for a physical machine.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound in a Windows Vista Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Warnings When Installing VMware Tools

Windows Vista uses a new method to install drivers. As a result, warning messages appear at several stages during installation of VMware Tools in Windows Vista guest operating systems. Sometimes these messages are hidden. The driver installation appears to hang. However, if you press Alt-Tab, you can bring the warning message to the foreground. There are two types of messages.

- A message that says the driver is not Authenticode signed. When you see one of these messages, click **Install Now** to continue installing VMware Tools.
- A message that says the driver package is not compatible with Windows Vista. When you see one of these messages, click **Cancel** to continue installing VMware Tools.

You may also see a message asking you to restart before the VMware Tools installer has finished. Do not restart the guest operating system at that time. Wait until the Installation Wizard Completed screen appears, click **Finish**, then restart the guest operating system when you are prompted to do so.

Ethernet Adapter in Certain Windows Vista Builds

The AMD Ethernet card driver included with certain Windows Vista builds — including 4074 and possibly others — does not work correctly. To use networking in these Windows Vista guest operating systems, you must switch to the vmxnet network adapter. A driver for this adapter is included in VMware Tools.

**VMware GSX Server on a Linux host:** Choose **VM** > **Settings**, select **Network Adapter**, then select **vmxnet** as the virtual device to use. You may install VMware Tools either before or after changing the virtual network adapter.

**VMware GSX Server on a Windows host:** Choose **VM** > **Settings**, select **NIC**, then select **vmxnet** as the virtual device to use. You may install VMware Tools either before or after changing the virtual network adapter.

**VMware Workstation on a Linux host:** Choose **VM** > **Settings**, select **Network Adapter**, then select **vmxnet** as the virtual device to use. You must install VMware Tools after changing the virtual network adapter.

**VMware Workstation or VMware ACE on a Windows host:** Use a text editor such as Notepad to edit the configuration (`.vmx`) file for your Windows Vista virtual machine. Add the following line:

```
Ethernet[n].virtualDev = "vmxnet"
```

Replace `[n]` with the number of the Ethernet adapter. The first Ethernet adapter is number 0, so the line for that adapter is

```
Ethernet0.virtualDev = "vmxnet"
```

Include a line for each Ethernet adapter configured for the virtual machine. You may install VMware Tools either before or after changing the virtual network adapter.

### Product Activation

The Windows Vista product activation feature creates a numerical key based on the virtual hardware in the virtual machine where it is installed. Changes in the configuration of the virtual machine may require you to reactivate the operating system. There are some steps you can take to minimize the number of significant changes.

- Set the final memory size for your virtual machine before you activate Windows Vista. When you cross certain thresholds — approximately 32MB, 64MB, 128MB, 256MB, 512MB and 1GB — the product activation feature sees the changes as significant.

  **Note:** The size reported to the Windows product activation feature is slightly less than the actual amount configured for the virtual machine. For example, 128MB is interpreted as falling in the 64MB–127MB range.

- Install VMware Tools before you activate Windows Vista. When the SVGA driver in the VMware Tools package is installed, it activates features in the virtual graphics adapter that make it appear to Windows Vista as a new graphics adapter.

- If you want to experiment with any other aspects of the virtual machine configuration, do so before activating Windows Vista. Keep in mind that typically you have 14 days for experimentation before you have to activate the operating system. (Your EULA may define a different period before activation is required.)

For more details on Windows Vista product activation, see the Microsoft Web site.

**Display Hardware Acceleration**
Windows Vista has display adapter hardware acceleration disabled by default. This slows down graphics performance and mouse responsiveness in the guest operating system.

To enable hardware acceleration in a Windows Vista guest, open the Control Panel, then open the Display Properties control panel. On the Settings tab, click **Advanced**. On the Troubleshoot tab, drag the **Hardware acceleration** slider all the way to **Full**.

**Guest Screen Saver**
On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

**Hibernation**
The hibernation feature is not supported. Instead of using the guest operating system's hibernate feature, suspend the virtual machine.

**Checked (Debug) Build**
**VMware GSX Server:** In order to install and run a checked (debug) build of Windows Vista in a virtual machine, you must first edit the virtual machine's configuration file (`.vmx`). Add the following line:

```
uhci.forceHaltBit = TRUE
```

# Windows Server 2003

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1 — Windows Server 2003 Web Edition, Standard Edition, Enterprise Edition; Windows Small Business Server 2003
  Service Pack 1 supported on Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Windows Server 2003 Web Edition, Standard Edition, Enterprise Edition; Windows Small Business Server 2003
  Service Pack 1 supported on VMware ACE 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — Windows Server 2003 Web Edition, Standard Edition, Enterprise Edition; Windows Small Business Server 2003
  Service Pack 1 supported on GSX Server 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2— Windows Server 2003 Web Edition, Standard Edition, Enterprise Edition
  Windows Small Business Server 2003 supported on ESX Server 2.5
  Service Pack 1 supported on ESX Server 2.1.2 Upgrade Patch 4
  Service Pack 1 supported on ESX Server 2.5, 2.5.1, 2.5.2
  Virtual SMP supported

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install Windows Server 2003, Web Edition, Standard Edition or Enterprise Edition or Windows Small Business Server 2003 in a virtual machine using the

corresponding Windows Server 2003 distribution CD. If your VMware product supports it, you may also install from a PXE server.

**VMware Workstation or VMware ACE:** If you are using the virtual LSI Logic SCSI adapter, Windows Server 2003 automatically installs the SCSI driver when you install the guest operating system. To use the virtual BusLogic SCSI adapter in a Windows Server 2003 virtual machine under VMware Workstation or VMware ACE, you need a special SCSI driver available from the download section of the VMware Web site at *www.vmware.com/download*. Follow the instructions on the Web site to use the driver with a fresh installation of Windows Server 2003. If you have a virtual machine with a SCSI virtual disk and a Windows 9x, Windows Me, Windows NT or Windows 2000 guest operating system and want to upgrade it to Windows Server 2003, install the new SCSI driver before upgrading the operating system.

**GSX Server, ESX Server or VirtualCenter:** If you are using the virtual LSI Logic SCSI adapter, Windows Server 2003 automatically installs the SCSI driver when you install the guest operating system. If you are using the virtual BusLogic SCSI adapter, you need a special SCSI driver available from the download section of the VMware Web site at *www.vmware.com/download*. Follow the instructions on the Web site to use the driver with a fresh installation of Windows Server 2003. If you have a virtual machine with a SCSI virtual disk and an earlier Windows guest operating system and want to upgrade it to Windows Server 2003, install the new SCSI driver before upgrading the operating system.

### Installation Steps

If you want to run Windows Server 2003 in a virtual machine, be sure you have a full installation CD for the operating system.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installing the Guest Operating System

1. Insert the Windows Server 2003 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Windows Server 2003.
3. If you are using the virtual BusLogic SCSI driver downloaded from the VMware Web site, you must take some special steps at this point in the installation process. As the Windows Server 2003 installer loads, press the F6 key. This allows you to select the additional SCSI driver required for installation. Press S to specify the additional driver. After you specify the SCSI driver, press Enter to continue with setup.
4. Follow the remaining installation steps as you would for a physical machine.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound in a Windows Server 2003 Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

In addition, Windows Server 2003 does not automatically detect and install drivers for ISA sound cards, such as the Creative Labs Sound Blaster emulated in a virtual machine. For details on installing the driver for the virtual machine's sound card, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Product Activation

The Microsoft Windows Server 2003 product activation feature creates a numerical key based on the virtual hardware in the virtual machine where it is installed. Changes in the configuration of the virtual machine may require you to reactivate the operating system. There are some steps you can take to minimize the number of significant changes.

- Set the final memory size for your virtual machine before you activate Windows Server 2003. When you cross certain thresholds — approximately 32MB, 64MB, 128MB, 256MB, 512MB and 1GB — the product activation feature sees the changes as significant.

  **Note:** The size reported to the Windows product activation feature is slightly less than the actual amount configured for the virtual machine. For example, 128MB is interpreted as falling in the 64MB–127MB range.

- Install VMware Tools before you activate Windows Server 2003. When the SVGA driver in the VMware Tools package is installed, it activates features in the virtual graphics adapter that make it appear to Windows Server 2003 as a new graphics adapter.

- If you want to experiment with any other aspects of the virtual machine configuration, do so before activating Windows Server 2003. Keep in mind that typically you have 14 days for experimentation before you have to activate the

operating system. (Your EULA may define a different period before activation is required.)

For more details on Windows Server 2003 product activation, see the Microsoft Web site.

**Display Hardware Acceleration**

Windows Server 2003 has display adapter hardware acceleration disabled by default. This slows down graphics performance and mouse responsiveness in the guest operating system.

To enable hardware acceleration in a Windows Server 2003 guest, open the Control Panel, then open the Display Properties control panel. On the Settings tab, click **Advanced**. On the Troubleshoot tab, drag the **Hardware acceleration** slider all the way to **Full**.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

**Hibernation**

The hibernation feature is not supported in this release. Instead of using the guest operating system's hibernate feature, suspend the virtual machine.

**Checked (Debug) Build**

**VMware GSX Server:** In order to install and run a checked (debug) build of Windows Server 2003 in a virtual machine, you must first edit the virtual machine's configuration file (`.vmx`). Add the following line:

```
uhci.forceHaltBit = TRUE
```

# Windows XP

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1 — Windows XP Professional and Home Edition
  Service Pack 1 supported on all listed versions
  Service Pack 2 supported on Workstation 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Windows XP Professional and Home Edition
  Service Pack 1 or 2 also supported
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1— Windows XP Professional and Home Edition
  Service Pack 1 supported on GSX Server 3.0, 3.1 and 3.2, 3.2.1
  Service Pack 2 supported on GSX Server 3.1 and 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2— Windows XP Professional, Service Pack 1or 2
  No support for Virtual SMP

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1 — Windows XP Professional

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install Windows XP Home Edition or Professional in a virtual machine using the corresponding Windows XP distribution CD. If your VMware product supports it, you may also install from a PXE server.

**VMware Workstation or VMware ACE:** To use the virtual BusLogic SCSI adapter in a Windows XP virtual machine, you need a special SCSI driver available from the

download section of the VMware Web site at *www.vmware.com/download*. Follow the instructions on the Web site to use the driver with a fresh installation of Windows XP. If you have a virtual machine with a SCSI virtual disk and a Windows 9x, Windows Me, Windows NT or Windows 2000 guest operating system and want to upgrade it to Windows XP, install the new SCSI driver before upgrading the operating system.

**GSX Server, ESX Server or VirtualCenter:** If you are using the virtual BusLogic SCSI adapter, you need a special SCSI driver available from the download section of the VMware Web site at *www.vmware.com/download*. Follow the instructions on the Web site to use the driver with a fresh installation of Windows XP.

**GSX Server or ESX Server:** If you are using the virtual LSI Logic SCSI adapter, you must download the driver from the download center at the LSI Logic Web site. Go to *www.lsilogic.com/support/* and look for the LSI20320 SCSI adapter driver for your guest operating system. For details on installing this driver, see the *VMware ESX Server Administration Guide*.

If you want to run Windows XP Home Edition or Professional in a virtual machine, be sure you have a full installation CD for the operating system.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing the guest operating system.
3. If you are using the virtual BusLogic SCSI driver downloaded from the VMware Web site or the LSI Logic SCSI driver downloaded from the LSI Logic Web site, you must take some special steps at this point in the installation process. As the Windows XP installer loads, press the F6 key. This allows you to select the additional SCSI driver required for installation. Press S to specify the additional driver. After you specify the SCSI driver, press Enter to continue with setup.
4. Follow the installation steps as you would for a physical machine.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound in a Windows XP Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system

has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Product Activation**

The Microsoft Windows XP product activation feature creates a numerical key based on the virtual hardware in the virtual machine where it is installed. Changes in the configuration of the virtual machine may require you to reactivate the operating system. There are some steps you can take to minimize the number of significant changes.

- Set the final memory size for your virtual machine before you activate Windows XP. When you cross certain thresholds — approximately 32MB, 64MB, 128MB, 256MB, 512MB and 1GB — the product activation feature sees the changes as significant.

  **Note:** The size reported to the Windows product activation feature is slightly less than the actual amount configured for the virtual machine. For example, 128MB is interpreted as falling in the 64MB–127MB range.

- Install VMware Tools before you activate Windows XP. When the SVGA driver in the VMware Tools package is installed, it activates features in the virtual graphics adapter that make it appear to Windows XP as a new graphics adapter.

- If you want to experiment with any other aspects of the virtual machine configuration, do so before activating Windows XP. Keep in mind that you have 30 days for experimentation before you have to activate the operating system.

For more details on Windows XP product activation, see the Microsoft Web site.

**PAE Message During Installation**

**VMware Workstation:** If your host computer has a processor that includes NX (no execute) technology you may get an error message during installation. The message says the guest operating system is trying to use PAE. The NX technology is present in AMD processors including Athlon64, Opteron and Sempron. It is also present in Intel EMT64-capable processors.

To avoid the problem, be sure the virtual machine is powered off, then use a text editor to edit the configuration (`.vmx`) file for the affected virtual machine. Add the following line to the file:

```
paevm="true"
```

You can then power on the virtual machine and install the guest operating system.

### Guest Screen Saver

**VMware Workstation:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Hibernation

The hibernation feature is not supported. Instead of using the guest operating system's hibernate feature, suspend the virtual machine.

### Checked (Debug) Build

**VMware GSX Server:** In order to install and run a checked (debug) build of Windows XP in a virtual machine, you must first edit the virtual machine's configuration file (`.vmx`). Add the following line:

```
uhci.forceHaltBit = TRUE
```

# Windows 2000

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1 — Windows 2000 Professional and Server, Service Pack 1, 2, 3, or 4 (listed versions also supported with no service pack)
  Windows 2000 Advanced Server, Service Pack 3 or 4
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Windows 2000 Professional, Server and Advanced Server, Service Pack 1, 2, 3 or 4 (listed versions also supported with no service pack)
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — Windows 2000 Professional, Server and Advanced Server, Service Pack 1, 2, 3, or 4
  Windows 2000 Professional Service Pack 4 checked build
- VMware ESX Server 2.0, 2.0.1, 2.1.1, 2.1.2, 2.1, 2.5, 2.5.1, 2.5.2— Windows 2000 Server, Advanced Server, and Terminal Services Edition, Service Pack 3 or 4
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install a supported version of Windows 2000 in a virtual machine using the corresponding Windows 2000 distribution CD. If your VMware product supports it, you may also install from a PXE server.

**ESX Server or VirtualCenter:** If you are using the virtual LSI Logic SCSI adapter, you must download the driver from the download center at the LSI Logic Web site. Go to *www.lsilogic.com/support/* and look for the LSI20320 SCSI adapter driver for your guest operating system. For details on installing this driver, see the *VMware ESX Server Administration Guide*.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Windows 2000 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Windows 2000.
3. Follow the installation steps as you would for a physical machine.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

After you install VMware Tools, you need to change your Windows 2000 screen area to be greater than 640x480 pixels; if you do not change it, Windows 2000 uses the standard VGA driver, and your performance will suffer.

### Enabling Sound in a Windows 2000 Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

**VMware Workstation:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Service Pack 3

A Windows 2000 guest with Service Pack 3 installed may fail to boot. A dialog box appears, saying "The Logon User Interface DLL msgina.dll failed to load."

**VMware Workstation, VMware ACE or VMware GSX Server:** For a workaround to this problem, see the VMware Knowledge Base: *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=907*.

**VMware ESX Server:** You can resolve this problem by installing Service Pack 4.

If you do not want to upgrade to Service Pack 4, you can work around the problem. Be sure the virtual machine is not running, then use a text editor to add the following line to the virtual machine's configuration file:

```
MAGICBOOT1 = 700
```

If a value of 700 (representing 700 microseconds) does not enable you to start the guest operating system, experiment with higher values. Increase the number to 800 for the second try, 900 for the third try and so on until the guest starts.

If you are booting multiple virtual machines or running other stressful workloads at the same time, you may need to assign a higher magicboot1 value. For faster boot times, you may experiment with values between 1 and 700 to find the smallest value that allows the virtual machine to boot.

**Installation Hangs**

**VMware GSX Server:** If the installation of the guest operating system hangs, search our Knowledge Base at *www.vmware.com/support/kb/enduser/std_alp.php* for a possible answer to your problem.

# Windows NT 4.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1 — Service Pack 6a required
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Service Pack 6a required
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — Service Pack 6a required
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2— Service Pack 6a required
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install Windows NT 4.0 (Workstation or Server) in a virtual machine using the standard Windows NT CD. If your VMware product supports it, you may also install from a PXE server.

**VMware GSX Server:** If you intend to run a Windows NT virtual machine with IDE virtual disks on a multiprocessor host computer, you may notice slower than expected disk input/output performance. For more information, see Disk Performance in Windows NT Guests on Multiprocessor Hosts in the GSX Server documentation.

Before installing the operating system, be sure that you have already created and configured a new virtual machine

### Installation Steps

1. Insert the Windows NT CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Windows NT.
3. Follow the installation steps as you would for a physical machine.
4. Virtual disks support DMA transfers for better performance.

You can enable the feature after installing Windows NT. You need the NT Service Pack 3 or 4 CD to enable this option. Once the virtual machine is running Windows NT, insert the SP3 or SP4 CD in the drive, run `DMACHECK.EXE` from the `\SUPPORT\UTILS\I386` folder on the CD and click the **Enabled** option for the IDE controller/channel that is configured with the virtual disk (typically channel 0 only, unless you have the virtual machine configured with multiple virtual disks).

**Note:** The DMA option should not be enabled for any IDE channel that has a CD-ROM drive configured for it. Enabling DMA for such a configuration causes an error. If you have a virtual disk and a CD-ROM attached as master and slave to the primary IDE controller (channel 0) and you want to enable DMA, power off the virtual machine and use the Configuration Editor to move the CD-ROM to the secondary IDE controller (channel 1) at IDE 1:0. Then boot the virtual machine with Windows NT, run `DMACHECK` and enable DMA for channel 0 only.

**Note:** DMA is always enabled on SCSI virtual disks.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Setting up a Windows NT 4.0 Guest with Multiple Disks

To set up a virtual machine running Windows NT 4.0 and using multiple disks, you must first create a virtual machine with only one disk. Install Windows NT on that disk. Then use the configuration tools in your VMware product to add the additional disks.

In addition, note that if you have a Windows NT 4.0 guest with a SCSI virtual disk, you cannot add both an additional SCSI disk and an IDE disk to the configuration.

### Enabling Networking After Installing Windows NT

If networking was disabled at the time you installed Windows NT, you can enable it after installing the operating system. Shut down Windows NT and power off the virtual machine. Add the network adapter to the virtual machine's configuration, then follow the instructions below to install the network driver in the Windows NT guest operating system.

1. Power on the virtual machine.
2. While Windows NT is booting, insert the Windows NT 4.0 CD in the CD-ROM drive.
3. Log on to Windows NT and install the AMD PCNET driver:

a. Open the Network properties page by double-clicking the Network icon in Control Panel. Change to the Network Adapters screen by clicking the **Adapters** tab.

b. Click the **Add** button and select the AMD PCNET Family Ethernet Adapter from the list.

c. A message pops up prompting you to enter a path for the Windows NT files. Specify the `\i386` folder on the CD in the path you enter (for example, type `D:\i386` if the CD is in drive D) and click Continue.

d. Windows NT setup prompts you for the Windows NT files again. Click **Continue**.

e. Use the default adapter settings; they do not need to be changed. Windows NT setup prompts you again for a path to the Windows NT files. Click **Continue** to finish installing the driver.

#### Enabling Sound in a Windows NT Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the product documentation.

## Known Issues

#### Guest Screen Saver

**VMware Workstation:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

#### Memory Limits if Installing with No Service Pack

If your Windows NT 4.0 installation disc does not include at least Service Pack 2, you cannot install the operating system in a virtual machine that has more than 3,444MB of memory. To work around the problem, temporarily reduce the memory size of the virtual machine to 3,444MB or less, install Windows NT, install Service Pack 6a, then set the memory size to the value you want.

# Windows Me

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  No support for Virtual SMP
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install Windows Millennium Edition in a virtual machine using the standard Windows Me CD. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Windows Me CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Windows Me.
3. Choose to boot from CD-ROM, then select the option **Start Windows Me Setup from CD-ROM**. The setup program runs `FDISK` and reboots.
4. Once again, choose to boot from CD-ROM, then select the option **Start Windows Me Setup from CD-ROM**. The setup program continues installing Windows Me.
5. Follow the Windows Me installation steps as you would for a physical machine.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound in a Windows Me Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (VM > Settings) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Windows 98

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  No support for Virtual SMP
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install Windows 98 in a virtual machine using the standard Windows 98 CD. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Windows 98 CD in the CD-ROM drive.

   **Note:** Some Windows 98 packages require that you boot from a floppy disk. If you have such a package, insert the boot floppy in the floppy disk drive. Follow the on-screen instructions. Be sure to run `FDISK` and `FORMAT` when the installer prompts you to do so.

2. Power on the virtual machine to start installing Windows 98.
3. Choose to boot from CD-ROM, then select the option **Start Windows 98 Setup from CD-ROM**. The setup program runs `FDISK` and reboots.
4. Once again, choose to boot from CD-ROM, then select the option **Start Windows 98 Setup from CD-ROM**. The setup program continues installing Windows 98.
5. Follow the Windows 98 installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Networking After Installing Windows 98

If networking was disabled at the time you installed Windows 98, you can enable it after the operating system has been installed. To set up networking for a virtual machine, power off the virtual machine and add a network adapter to the configuration. When you power on the virtual machine, Windows 98 automatically detects an AMD PCNET Family Ethernet Adapter (PCI-ISA) and prompts for the Windows 98 CD-ROM to install drivers. The default Ethernet adapter settings should work well and do not need to be changed. Use the Network icon in the Windows 98 Control Panel to view or change network settings. For example, you may want to add the TCP/IP protocol since Windows 98 does not install it by default.

### Enabling Sound in a Windows 98 Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Phantom COM Ports

After Windows 98 has been installed, you may notice COM5 and COM6 devices exist within the Windows Device Manager. These devices do not actually exist and are not consuming IRQ or other resources. You may remove them using the Windows device manager if you like.

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Windows 95

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  No support for Virtual SMP
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install Windows 95 in a virtual machine using a standard Windows 95 boot floppy and CD-ROM. If your VMware product supports it, you may also install from a PXE server.

**Note:** Some Windows 95 distributions provide instructions that do not include the steps to `FDISK` and `FORMAT` a `C:` drive. You must `FDISK` and `FORMAT` the virtual hard disk drives before running Windows 95 setup.

The instructions below are for the simplest case of one virtual IDE hard drive and one virtual IDE CD-ROM drive. If you have configured the virtual machine with more than one IDE hard drive, you should also `FDISK` and `FORMAT` these drives before installing Windows 95. If you have configured the virtual machine with more than one virtual hard drive or more than one virtual CD-ROM, you may need to use device letters that are different from those in the instructions below.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Windows 95 CD-ROM Setup Boot Disk in floppy drive `A:` used by your virtual machine and insert the Windows 95 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Windows 95.

3. After the virtual machine boots, if you are presented with a choice of CD-ROM drivers, select the first IDE driver option available (even if your computer has a SCSI CD-ROM drive).
4. Partition the virtual disk.
   `A:\> FDISK`
   Answer the questions.

   **Note:** If you create a primary partition that is smaller than the full size of the virtual disk, be sure the partition is marked active.
5. Reboot Windows 95. If the cursor is not already within the virtual machine window, click in the virtual machine display, then press Ctrl-Alt-Ins on a Windows host or Ctrl-Alt-Del on a Linux host. If prompted on reboot to select a CD-ROM driver, select the first IDE CD-ROM driver from the list.
6. Format the `C:` drive.
   `A:\> FORMAT C: /S`
7. Start the Windows 95 installation.
   `A:\> D:\WIN95\SETUP /IS`

   **Note:** An intermittent problem can occur during Windows 95 installations in a virtual machine. Shortly after the Windows 95 Setup program is started, Scandisk runs to completion, and when the Windows 95 Setup program should start its graphical user interface, the virtual machine returns to an MS-DOS prompt. VMware recommends you reboot the virtual machine and rerun Windows 95 Setup. You do not need to `FDISK` or `FORMAT` the drive again. If this problem occurs reproducibly, please report it to VMware technical support.
8. If the virtual machine's Ethernet adapter is enabled, you have to manually add an Ethernet driver because Windows 95 does not detect it during the Analyzing Computer phase (even if you selected the Network Adapter detection option). Do the following to enable networking:

   a. Continue with the Windows 95 installation until you get to the Windows 95 Setup Wizard/Setup Options screen. Change the default setting from **Typical** to **Custom** and click **Next** to continue.

   b. From the Network Configuration screen (which appears after the Analyzing Computer phase), click **Add**, select the **Adapter** component, select **Advanced Micro Devices** from the manufacturer window and **AMD PCNET Family Ethernet Adapter(PCI&ISA)** from the network adapter window.

   c. If you need TCP/IP networking, add it from the Network Configuration screen (Windows 95 Setup does not enable TCP/IP by default). If you don't do this,

the first phase of the Windows 95 installation does not copy some of the files it will need later, and the entire installation fails.

Also be sure that the Microsoft NetBEUI protocol is installed. It may not be installed by default.

9. Finish the Windows 95 installation.
10. VMware virtual disks support DMA transfers for better performance. The feature can be enabled after you have installed Windows 95 on a virtual IDE disk. Follow these steps to enable the feature:
    a. Right-click My Computer and select **Properties**.
    b. From the System Properties dialog box, click the **Device Manager** tab.
    c. Double-click the **Disk Drives** device category.
    d. Double-click the **GENERIC IDE DISK TYPE01** device.
    e. Click the **Settings** tab and select the **DMA** check box.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Networking After Installing Windows 95

If networking was disabled at the time you installed Windows 95, you can enable it after installing the operating system. Shut down Windows 95 and power off the virtual machine. Add the network adapter to the virtual machine's configuration, then follow the instructions below to install the network driver in the Windows 95 guest operating system.

1. Power on the virtual machine.
2. When Windows 95 reboots, it auto-detects an AMD PCNET Family Ethernet Adapter (PCI&ISA) and prompts for the Windows 95 CD-ROM to install drivers. The default Ethernet adapter settings should work fine and do not need to be changed.
3. Double-click the Network icon in the Control Panel to view or change network settings. For example, you may want to add the TCP/IP protocol since Windows 95 does not install it by default.

### Enabling Sound in a Windows 95 Guest

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system

has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Networking

After you install Windows 95, you may find that networking is not working in the guest operating system. There are several things you should check.

- Either remove your virtual machine's virtual USB adapter using the configuration tools in your VMware product or — if your release of Windows 95 includes USB support — be sure the USB drivers are installed.
- Check the Windows 95 Device Manager to see if COM5 and COM6 devices are listed. If they are, disable or remove them.
- Be sure that NetBEUI was installed when you set up networking.
- Be sure that Windows 95 Plug and Play properly detected the virtual Ethernet adapter. If it did not, you may need to use the Device Manager to remove the adapter, then reinstall it using the Add New Hardware control panel.

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Phantom COM Ports

After you install Windows 95, you may notice Unknown, COM5 and COM6 devices exist in the Windows Device Manager. These devices do not actually exist and are not consuming IRQ or other resources. You may remove them using the Windows Device Manager if you like.

# DOS and Windows 3.1x

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  No support for Virtual SMP
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### DOS Installation Notes

You can install MS-DOS 6.22 inside a virtual machine using the Microsoft full-version MS-DOS installation disks. If you have the upgrade disks, you must install an earlier version of DOS before you upgrade. To start installing MS-DOS 6.22, put the first disk in the floppy drive used by your virtual machine, power on the virtual machine and follow the instructions on the screen.

After you install DOS, VMware recommends that you install a CPU idle program within the virtual machine. Most versions of DOS do not idle the CPU when they are idle. Therefore, when you are running DOS in a virtual machine, the virtual machine takes up CPU time on the host even when DOS is idle. VMware products rely on the guest operating system to use the Halt instruction or advanced power management to deschedule the virtual machine when it is idle.

We have tested a program called `DOSIDLE.EXE` and have found it works successfully with VMware Workstation, VMware ACE and GSX Server. It can be downloaded from *www.vmware.com/software/dosidle210.zip*.

Follow the instructions provided with the `DOSIDLE.EXE` program. But be aware of the `-cpu` option, which causes the idle program to access the CPU at a low level in

order to optimize performance. There is a good chance that this will not work with some CPUs under VMware products. VMware suggests that you not use it.

**Windows 3.1x Installation Notes**
You can install Windows 3.1x using the standard installation disks. VMware Workstation, VMware ACE and GSX Server virtual machines support the networking features found in Windows 3.11 (or Windows for Workgroups). If you set up networking, choose the Advanced Micro Devices PCNET Family (NDIS2/NDIS3) Ethernet driver.

**Enabling Sound in a Windows 3.1x Guest**
**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Mouse Problems**
We intermittently encounter erratic mouse behavior in virtual machines running Windows 3.1x in window mode. This problem does not appear in the full screen mode.

**No VMware Tools**
No VMware Tools package exists for DOS or Windows 3.1x guest operating systems; therefore, Windows 3.1x is limited to VGA mode graphics and you must always use the Ctrl-Alt key combination to release the mouse from a DOS or Windows 3.1x virtual machine.

**Guest Screen Saver**
On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 10.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware GSX Server 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 10.1 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 10.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 10.1 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 10.1.

### Installation Steps

1. Insert the Mandrake Linux 10.1 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 10.1.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the text mode installer. At the opening screen, press F1 for options, then enter `text` for text mode.
5. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux automatically allocate the space. Select **Use free space**.

6. When you reach the Summary screen, configure the graphical interface.

   Select **Graphical Interface**, then click **Do**. Make the following selections:

   - The resolution and refresh rate you want your guest to use
   - **VMware virtual video card**
   - **No** when asked if you want to install updates to the packages
   - **No** when asked if you want to start X when you reboot

This completes basic installation of the Mandrake Linux 10.1 guest operating system.

**VMware Tools**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Enabling Sound in a Mandrake 10.1 Guest**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Clock in Guest Operating System May Run Too Quickly or Too Slowly**

If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

**Changing Resolution in the Guest Operating System**

To change the display resolution in the guest operating system, as root (`-su`) rerun the VMware Tools configuration program `vmware-config-tools.pl` and select the desired resolution from the list this program presents. If you prefer, you may edit the X configuration file directly to make the change.

**Getting a DHCP Address in the Guest Operating System**

When the guest operating system tries to get a DHCP address, the attempt fails and an error message says the link is down. To work around this problem, become root (`su -`) and use a text editor to edit the following files in the guest operating system:

```
/etc/sysconfig/network-scripts/ifcfg-eth<n>
/etc/sysconfig/networking/devices/ifcfg-eth<n>
```

In both cases, `<n>` is the number of the Ethernet adapter — for example, `eth0`.

In each of the two files, add the following line:

```
MII_NOT_SUPPORTED=yes
```

Then run the command `ifup eth<n>` (where `<n>` is the number of the Ethernet adapter) or restart the guest operating system.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 10

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware GSX Server 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 10 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 10 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 10 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 10.

### Installation Steps

1. Insert the Mandrake Linux 10 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 10.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the text mode installer. At the opening screen, press F1 for options, then enter `text` for text mode.
5. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux automatically allocate the space. Select **Use free space**.

6. When you reach the Summary screen, configure the graphical interface.

   Select **Graphical Interface**, then click **Do**. Make the following selections:

   - The resolution and refresh rate you want your guest to use
   - **VMware virtual video card**
   - **No** when asked if you want to install updates to the packages
   - **No** when asked if you want to start X when you reboot

This completes basic installation of the Mandrake Linux 10 guest operating system.

**VMware Tools**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Enabling Sound in a Mandrake 10 Guest**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Clock in Guest Operating System May Run Too Quickly or Too Slowly**

If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

**Changing Resolution in the Guest Operating System**

To change the display resolution in the guest operating system, as root (`-su`) rerun the VMware Tools configuration program `vmware-config-tools.pl` and select the desired resolution from the list this program presents. If you prefer, you may edit the X configuration file directly to make the change.

**Getting a DHCP Address in the Guest Operating System**

When the guest operating system tries to get a DHCP address, the attempt fails and an error message says the link is down. To work around this problem, become root (`su -`) and use a text editor to edit the following files in the guest operating system:

```
/etc/sysconfig/network-scripts/ifcfg-eth<n>
/etc/sysconfig/networking/devices/ifcfg-eth<n>
```

In both cases, `<n>` is the number of the Ethernet adapter — for example, `eth0`.

In each of the two files, add the following line:

```
MII_NOT_SUPPORTED=yes
```

Then run the command `ifup eth<n>` (where `<n>` is the number of the Ethernet adapter) or restart the guest operating system.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 9.2

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 9.2 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 9.2 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 9.2 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 9.2.

### Installation Steps

1. Insert the Mandrake Linux 9.2 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 9.2.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the text mode installer. At the opening screen, press F1 for options, then enter `text` for text mode.
5. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux automatically allocate the space. Click **Use free space**.

6. If you installed your VMware product on a laptop computer, on the Package Group Selection screen, click **Advanced**. Select **Individual package selection** and click **Next**. Scroll down to Services numlock and clear the asterisk to disable it. If you do not disable numlock when you install the guest, the number lock is always active in the guest and you cannot disable it by pressing the Num Lock key.
7. When you reach the Summary screen, configure the graphical interface.

   Select **Graphical Interface**, then click **Do**. Make the following selections:

   - The resolution and refresh rate you want your guest to use
   - VMware virtual video card
   - XFree 4.3
   - **No** when asked if you want to test the configuration
   - **No** when asked if you want to start X when you reboot
8. When the installer asks if you want to install updates to the packages, answer **No**.

This completes basic installation of the Mandrake Linux 9.2 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** With a Mandrake Linux 9.2 guest, you should install VMware Tools from the Linux console. Do not start X until you have installed VMware Tools.

**Note:** Provided you installed the XFree 4.3 X server when you installed the guest operating system (as advised in the install steps), when you start the VMware Tools installation script (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

**Note:** As you are installing and configuring VMware Tools, the configuration program asks for the location of `lspci`. When that prompt appears, enter the following path:

```
/usr/bin/lspcidrake
```

**Enabling Sound in a Mandrake 9.2 Guest**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 9.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware GSX Server 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 9.1 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 9.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 9.1 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 9.1.

### Installation Steps

1. Insert the Mandrake Linux 9.1 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 9.1.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the text mode installer. At the opening screen, press F1 for options, then enter `text` for text mode.
5. Use the Expert installer.

6. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux automatically allocate the space. Click **Use free space**.
7. **VMware GSX Server:** When selecting a boot loader, use **LILO with text menu**. Do not use the graphical version of LILO. It causes the virtual machine to hang.
8. Do not create a custom boot disk when prompted.
9. Near the end of the installation, after files have been copied, you reach the monitor setup screen. Select the resolution and refresh rate you want your guest to use. Select **VMware virtual video card**.
10. You are offered a choice of 2 XFree86 X servers to install. Choose **XFree 4.2.1**. This driver recognizes the VMware SVGA driver.
11. When the installer asks if you want to test the configuration, answer **No**.
12. When the installer asks whether to start X when you reboot, answer **No**.
13. When the installer asks if you want to install updates to the packages, answer **No**.

This completes basic installation of the Mandrake Linux 9.1 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** With a Mandrake Linux 9.1 guest, you should install VMware Tools from the Linux console. Do not start X until you have installed VMware Tools.

**Note:** Provided you installed the XFree 4.2.0 X server when you installed the guest operating system (as advised in the install steps), when you start the VMware Tools installation script (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

**Note:** As you are installing and configuring VMware Tools, the configuration program asks for the location of `lspci`. When that prompt appears, enter the following path:

```
/usr/bin/lspcidrake
```

**Enabling Sound in a Mandrake 9.1 Guest**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (VM > Settings) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 9.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 9.0 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 9.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 9.0 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 9.0.

### Installation Steps

1. Insert the Mandrake Linux 9.0 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 9.0.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the text mode installer. At the opening screen, press F1 for options, then enter `text` for text mode.
5. Use the Expert installer.

6. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux automatically allocate the space. Click **Use free space**.
7. **VMware GSX Server:** When selecting a boot loader, use **LILO with text menu**. Do not use the graphical version of LILO. It causes the virtual machine to hang.
8. Do not create a custom boot disk when prompted.
9. Near the end of the installation, after files have been copied, you reach the monitor setup screen. Select the resolution and refresh rate you want your guest to use. Select **VMware virtual video card**.
10. You are offered a choice of 2 XFree86 X servers to install. Choose **XFree 4.2.1**. This driver recognizes the VMware SVGA driver.
11. When the installer asks if you want to test the configuration, answer **No**.
12. When the installer asks whether to start X when you reboot, answer **No**.
13. When the installer asks if you want to install updates to the packages, answer **No**.

This completes basic installation of the Mandrake Linux 9.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** With a Mandrake Linux 9.0 guest, you should install VMware Tools from the Linux console. Do not start X until you have installed VMware Tools.

**Note:** Provided you installed the XFree 4.2.0 X server when you installed the guest operating system (as advised in the install steps), when you start the VMware Tools installation script (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

**Note:** As you are installing and configuring VMware Tools, the configuration program asks for the location of `lspci`. When that prompt appears, enter the following path:

```
/usr/bin/lspcidrake
```

**Enabling Sound in a Mandrake 9.0 Guest**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 8.2

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 8.2 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 8.2 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 8.2 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 8.2.

### Installation Steps

1. Insert the Mandrake Linux 8.2 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 8.2.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the Expert installer.
5. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux auto-allocate the space.

6. When selecting a boot loader, use **LILO with text menu**. Do not use the graphical version of LILO. It causes the virtual machine to hang.
7. Do not create a custom boot disk when prompted.
8. You are offered a choice of 2 XFree86 X servers to install. Choose **XFree 4.2.0**. This driver recognizes the VMware SVGA driver.
9. Near the end of the installation, after files have been copied, you reach the monitor setup screen. Choose the resolution and refresh rate you want your guest to use**.**
10. When the installer asks if you want to test the configuration, answer **No**.
11. When the installer asks if you want to install system updates, answer **No**.
12. When the installer asks whether to start X when you reboot, answer **No**.

This completes basic installation of the Mandrake Linux 8.2 guest operating system.

**VMware Tools**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** With a Mandrake Linux 8.2 guest, you should install VMware Tools from the Linux console. Do not start X until you have installed VMware Tools.

**Note:** Provided you installed the XFree 4.2.0 X server when you installed the guest operating system (as advised in the install steps), when you start the VMware Tools installation script (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

**Note:** As you are installing and configuring VMware Tools, the configuration program asks for the location of `lspci`. When that prompt appears, enter the following path:

```
/usr/bin/lspcidrake
```

**Enabling Sound in a Mandrake 8.2 Guest**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (VM > Settings) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Mandrake Linux 8.0 and 8.1

## Support

This guest operating system is supported on the following VMware products:

- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandrake Linux 8.0 or 8.1 in a virtual machine is to use the standard Mandrake Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandrake Linux 8.0 or 8.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Mandrake Linux 8.0 or 8.1 installation, you are offered a choice of XFree86 X servers. You may choose either one, but do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Mandrake Linux 8.0 or 8.1 and create one symbolic link as described in the steps that follow.

### Installation Steps

1. Insert the Mandrake Linux 8.0 or 8.1 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Mandrake Linux 8.0 or 8.1.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Use the Expert installer.
5. In the partitioning step, unless you have special requirements, it is all right to let Mandrake Linux auto-allocate the space.
6. When selecting a boot loader, use **LILO with text menu**. Do not use the graphical version of LILO. It causes the virtual machine to hang.

7. On the Select a Graphic Card screen, choose **Other** > **Generic VGA compatible**.
8. Near the end of the installation, after files have been copied, you reach the monitor setup screen. Choose **Super VGA, 800x600 @ 56 Hz**.
9. When the installer asks whether to start X when you reboot, answer **No**.

This completes basic installation of the Mandrake Linux 8.0 or 8.1 guest operating system.

#### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** With a Mandrake Linux 8.0 or 8.1 guest, you should install VMware Tools from the Linux console. Do not start X until you have installed VMware Tools and set up a symbolic link to the XFree86 configuration file.

#### Setting Up a Symbolic Link to XFree86

Be sure you are logged on as root (`su -`), then take the following steps to set up a symbolic link to the correct XFree86 configuration file.

```
cd /etc
ln -s /etc/X11/XF86Config.vm XF86Config
```

Use the `startx` command to start your X server.

#### Enabling Sound After Installing Mandrake Linux 8.0 or 8.1

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM** > **Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

#### Installation of Mandrake Linux 8.0 Hangs

Installation of Mandrake Linux 8.0 sometimes hangs at `running /sbin/loader` for no apparent reason. The hang is caused by a bug in early versions of the 2.4 Linux kernel. The bug has been fixed in kernel 2.4.5. Distributions based on this kernel should install without problems.

For earlier 2.4-series kernels, a workaround is available. Although the Linux kernel bug is not related to CD-ROM drives, the workaround involves changing a configuration setting for the virtual DVD/CD-ROM drive.

Power off the virtual machine and close the virtual machine window. Open the virtual machine's configuration file (`.vmx` file on a Windows host or `.cfg` file on a Linux host) in a text editor and add the following line:

```
cdrom.minvirtualtime=100
```

Save the file. Now you should be able to install the guest operating system as described above. After you finish installing the guest operating system, remove this setting from the configuration file, as it may have a performance impact.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

**Shutting Down Mandrake Linux 8.0**

The shutdown process in the guest operating system may hang when shutting down the network interface because of the way the Mandrake Linux 8.0 shutdown script handles `dhcpd`. This problem does not occur with Mandrake Linux 8.1 guests.

# Novell Linux Desktop 9

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Service Pack 1 supported on Workstation 5.5, 5.5.1
  Experimental support for Service Pack 2 beta on Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0.1, 1.0.2

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Novell Linux Desktop 9 in a virtual machine is to use the standard Novell Linux Desktop distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing Novell Linux Desktop 9 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Novell Linux Desktop 9 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Novell Linux Desktop 9.
3. Install using the text mode installer. In the first installation screen, press the F2 key, use the arrow keys to select text mode, then press Enter to select the text mode installer.
4. During final configuration, after all packages are installed, do not perform the Internet connection test.
5. Follow the remaining installation steps as you would for a physical machine.
6. If you may copy or move this virtual machine, make the change described in Manual Changes May Be Needed to Use Networking in Copied Virtual Machine on page 70.

This completes basic installation of the Novell Linux Desktop 9 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Clock in Guest Operating System May Run Too Quickly or Too Slowly

If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

### Manual Changes May Be Needed to Use Networking in Copied Virtual Machine

In some cases, networking does not work properly in a copied or cloned virtual machine or a virtual machine deployed to end users as part of a VMware ACE package. If you copy a virtual machine and specify that the copy should have a unique identifier, the MAC addresses for any virtual Ethernet adapters attached to the virtual machine change. When a Novell Linux Desktop 9 guest operating system is installed, it includes the MAC address as part of a key configuration filename. When the virtual machine's MAC address changes, the guest operating system may fail to associate this configuration file with the virtual Ethernet adapter. If you experience this problem, you can work around it by copying or renaming the file. For `eth0`, for example, make the following change:

Old name:

```
/etc/sysconfig/network/ifcfg-eth0-id-<MAC_address>
```

New name:

```
/etc/sysconfig/network/ifcfg-eth0
```

# Red Hat Enterprise Linux 4.0

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1 — AS, ES, WS
  Update 1 and 2 supported on Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0.1, 1.0.2 — AS, ES, WS
- VMware GSX Server 3.2, 3.2.1 — AS, ES, WS
- VMware ESX Server 2.5.2 with special driver and updated VMware Tools — AS, ES, WS
  Update 2 required

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1 — AS, ES, WS
  Update 1 and 2 supported on Workstation 5.5, 5.5.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Enterprise Linux 4.0 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Enterprise Linux 4.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**VMware Workstation, VMware ACE, VMware GSX Server:** When creating the virtual machine, be sure to select the LSI Logic SCSI adapter. Red Hat Enterprise Linux 4.0 does not include a driver for the BusLogic SCSI adapter.

**VMware ESX Server:** When creating the virtual machine, be sure to select the BusLogic SCSI adapter. You must download a driver for the BusLogic adapter and an updated version of VMware Tools from the VMware Web site. Go to *www.vmware.com/download/esx/esx2-rhel4-update.html* for the files you need and instructions on how to install them.

**Note:** Be sure the virtual machine is configured with at least 256MB of memory. If the virtual machine has less than 256MB of memory, Red Hat Enterprise Linux presents an error message as it loads certain VMware drivers.

**Installation Steps**

**Note:** Pay particular attention to the notes in step 4 about how to avoid installing an inappropriate kernel.

1. Insert the Red Hat Enterprise Linux 4.0 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Enterprise Linux 4.0.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. **VMware GSX Server:** In the Package Group Selection screen, choose **Software Development** and **Select individual packages**. In the Individual Package Selection screen, use the arrow keys to move down to **System Environment/ Kernel** and press Enter. Be sure that **kernel-smp** is deselected (no asterisk should appear between the brackets). The SMP kernel is not supported in a GSX Server virtual machine. You do not need to change any other selections.
5. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen or partition the virtual disk manually if you do not want to use the Red Hat defaults.
6. You may see a warning that begins "The partition table on device <devicename> was unreadable. To create new partitions it must be initialized, causing the loss of ALL DATA on the drive." This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted.

   Click **Yes** to partition the drive.
7. **VMware GSX Server:** If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.

**VMware ESX Server:** If you are using the vlance network adapter in your virtual machine and your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually. If you are using the vmxnet network adapter in your virtual machine, use the network configuration tools in Red Hat Enterprise Linux 4.0 to configure your network connection after you finish installing the guest operating system.

This completes basic installation of the Red Hat Enterprise Linux 4.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

## Known Issues

### PAE Message During Installation

**VMware Workstation:** If your host computer has a processor that includes NX (no execute) technology you may get an error message during installation. The message says the guest operating system is trying to use PAE. The NX technology is present in AMD processors including Athlon64, Opteron and Sempron. It is also present in Intel EMT64-capable processors.

To avoid the problem, be sure the virtual machine is powered off, then use a text editor to edit the configuration (`.vmx`) file for the affected virtual machine. Add the following line to the file:

```
paevm="true"
```

You can then power on the virtual machine and install the guest operating system.

### Manual Changes May Be Needed to Use Networking in Copied Virtual Machine

In some cases, networking does not work properly in a copied or cloned virtual machine or a virtual machine deployed to end users as part of a VMware ACE package. If you copy a virtual machine and specify that the copy should have a unique identifier, the MAC addresses for any virtual Ethernet adapters attached to the virtual machine change. When a Red Hat Enterprise Linux 4.0 guest operating system is installed, it includes the MAC address in a key configuration file. This can cause errors when the virtual machine's MAC address changes. If you experience this problem, you

can work around it by removing a line from the file. For `eth0`, for example, make the following change:

1. Make a backup copy of the file `/etc/sysconfig/network-scripts/ifcfg-eth0`, then open it in a text editor.
2. Remove the line that begins with `HWAddr`.
3. Restart `eth0`.

**Clock in Guest Operating System May Run Too Quickly or Too Slowly**
If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

**Enabling Sound After Installing Red Hat Enterprise Linux 4.0**
**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

**Guest Screen Saver**
**VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

**Migration to a Different Processor**
VMware recommends you do not migrate a Red Hat Enterprise Linux 4.0 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, Red Hat Enterprise Linux 4.0 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are available only on that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Enterprise Linux 4.0 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a Red Hat Enterprise Linux 4.0 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Enterprise Linux 4.0 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Enterprise Linux 3.0

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1 — AS, ES, WS
  Update 4 supported on Workstation 5.0, 5.5, 5.5.1
  Update 5 and 6 supported on Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — AS, ES, WS
  Update 3 or 4 supported on VMware ACE 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1— AS, ES, WS
  Update 4 supported on GSX Server 3.2, 3.2.1
- VMware ESX Server 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2— AS, ES, WS
  Update 1 supported on ESX Server 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Update 2 supported on ESX Server 2.1 with Virtual SMP
  Update 3 supported on ESX Server 2.5, 2.5.1, 2.5.2
  Update 4 supported on ESX Server 2.5, 2.5.1, 2.5.2
  Update 5 supported on ESX Server 2.5.2
  Virtual SMP supported

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1 — AS, ES, WS
  Update 4, 5, and 6 supported on Workstation 5.5, 5.5.1

**Caution:** Update 2 is not supported.

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Enterprise Linux 3.0 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation

using the standard distribution CD; however, installing Red Hat Enterprise Linux 3.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** Be sure the virtual machine is configured with at least 256MB of memory. If the virtual machine has less than 256MB of memory, Red Hat Enterprise Linux presents an error message as it loads certain VMware drivers.

**Installation Steps**

**Note:** Pay particular attention to the notes in step 6 about how to avoid installing an inappropriate kernel.

1. Insert the Red Hat Enterprise Linux 3.0 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Enterprise Linux 3.0.

   You need to install Red Hat Enterprise Linux 3.0 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Enterprise Linux 3.0 CD boot prompt, you are offered a number of choices, including the following:

   ```
   To install or upgrade Red Hat Linux ... in graphical mode ...
   To install or upgrade ... in text mode, type: text <ENTER>...
   ...
   Use the function keys listed below ...
   ```

   To choose the text mode installer, type `text` and press Enter.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Advanced Server** or **Custom** for the installation type.
5. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the **Emulate 3 Buttons** option for three-button mouse support in the virtual machine. If you have a wheel mouse, you may choose **Generic Wheel Mouse (PS/2)**.
6. **VMware GSX Server only:** In the Package Group Selection screen, choose **Software Development** and **Select individual packages**. In the Individual Package Selection screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter. Be sure that **kernel-smp** is deselected (no asterisk should appear between the brackets). The SMP kernel is not supported in a GSX Server virtual machine. You do not need to change any other selections.

7. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen or partition the virtual disk manually if you do not want to use the Red Hat defaults.
8. You may see a warning that says:
   ```
   The partition table on device sda was unreadable. To
   create new partitions, it must be initialized,
   causing the loss of ALL DATA on the drive.
   Would you like to initialize this drive?
   ```
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Select the **Yes** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
9. **VMware GSX Server:** If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.

   **VMware ESX Server and VMware VirtualCenter:** If you are using the vlance network adapter in your virtual machine and your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually. If you are using the vmxnet network adapter in your virtual machine, use the network configuration tools in Red Hat Enterprise Linux 3.0 to configure your network connection after you finish installing the guest operating system.

This completes basic installation of the Red Hat Enterprise Linux 3.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

### Enabling Sound After Installing Red Hat Enterprise Linux 3.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system

has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### PAE Message During Installation

**VMware Workstation:** If your host computer has a processor that includes NX (no execute) technology you may get an error message during installation. The message says the guest operating system is trying to use PAE. The NX technology is present in AMD processors including Athlon64, Opteron and Sempron. It is also present in Intel EMT64-capable processors.

To avoid the problem, be sure the virtual machine is powered off, then use a text editor to edit the configuration (`.vmx`) file for the affected virtual machine. Add the following line to the file:

```
paevm="true"
```

You can then power on the virtual machine and install the guest operating system.

### Guest Screen Saver

**VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Migration to a Different Processor

VMware recommends you do not migrate a Red Hat Enterprise Linux 3.0 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, Red Hat Enterprise Linux 3.0 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are available only on that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Enterprise Linux 3.0 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a Red Hat Enterprise Linux 3.0 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Enterprise Linux 3.0 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Enterprise Linux 2.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1 — AS, ES, WS
  Update 6 supported on Workstation 5.0, 5.5, 5.5.1
  Update 7 supported on Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — AS, ES, WS
  Update 6 supported on VMware ACE 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — AS, ES, WS
  Update 6 supported on GSX Server 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2— AS, ES, WS
  Update 6 supported on ESX Server 2.5, 2.5.1, 2.5.2
  Update 7 supported on ESX Server 2.5.2
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Enterprise Linux 2.1 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Enterprise Linux 2.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**RHEL 2.1 WS on VMware ESX Server:** If you use a vlance network adapter in the virtual machine, you must use an LSI Logic SCSI adapter. If you use a vmxnet network adapter, you may use either a BusLogic or an LSI Logic SCSI adapter.

**Note:** You should not run the X server that is installed when you set up Red Hat Enterprise Linux 2.1. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Enterprise Linux 2.1.

**Installation Steps**

**Note:** Unless you are running a multiprocessor virtual machine under VMware ESX Server, pay particular attention to the notes in step 6 about how to avoid installing an inappropriate kernel.

1. Insert the Red Hat Enterprise Linux 2.1 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Enterprise Linux 2.1.

   You need to install Red Hat Enterprise Linux 2.1 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Enterprise Linux 2.1 CD boot prompt, you are offered a number of choices, including the following:

   ```
   To install or upgrade Red Hat Linux ... in graphical mode ...
   To install or upgrade ... in text mode, type: text <ENTER>...
   ...
   Use the function keys listed below ...
   ```

   To choose the text mode installer, type `text` and press Enter.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Advanced Server** or **Custom** for the installation type.
5. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the **Emulate 3 Buttons** option for three-button mouse support in the virtual machine. If you have a wheel mouse, you may choose **Generic Wheel Mouse (PS/2)**.
6. **VMware GSX Server only:** In the Package Group Selection screen, choose **Software Development** and **Select individual packages**. In the Individual Package Selection screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter. Be sure that **kernel-smp** is deselected (no asterisk should appear between the brackets). The SMP kernel is not supported in a GSX Server virtual machine. You do not need to change any other selections.

   **VMware ESX Server or VirtualCenter if installing to an ESX Server machine without virtual SMP:** In the **Individual Package Selection** screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter. Be sure that

the following kernels are deselected (no asterisk should appear between the brackets):

- kernel-enterprise
- kernel-smp
- kernel-summit

**VMware ESX Server or VirtualCenter if installing to an ESX Server machine with virtual SMP:** In the **Individual Package Selection** screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter.

- If you are installing a multiprocessor virtual machine, be sure kernel-smp is selected.
- If you are installing a uniprocessor virtual machine, be sure the following kernels are deselected: kernel-enterprise, kernel-smp and kernel-summit.

For additional information on using uniprocessor and multiprocessor kernels with a Red Hat Enterprise Linux 2.1 virtual machine under VMware ESX Server, see the release notes at *www.vmware.com/support/esx21/doc/releasenotes_esx21.html#vmpkernel*.

7. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen or partition the virtual disk manually if you do not want to use the Red Hat defaults.
8. You may see a warning that says:
   ```
   The partition table on device sda was unreadable. To
   create new partitions, it must be initialized,
   causing the loss of ALL DATA on the drive.
   Would you like to initialize this drive?
   ```
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Select the **Yes** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
9. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
10. In the Video Card Configuration screen, choose **Generic SVGA**.

This completes basic installation of the Red Hat Enterprise Linux 2.1 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

### Enabling Sound After Installing Red Hat Enterprise Linux 2.1

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

**VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Migration to a Different Processor

VMware recommends you do not migrate a Red Hat Enterprise Linux 2.1 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, Red Hat Enterprise Linux 2.1 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are available only on that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Enterprise Linux 2.1 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a Red Hat Enterprise Linux 2.1 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Enterprise Linux 2.1 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Linux Advanced Server 2.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Update 6 supported on Workstation 5.0, 5.5, 5.5.1
  Update 7 supported on Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Update 6 supported on ESX Server 2.5, 2.5.1, 2.5.2
  Update 7 supported on ESX Server 2.5.2
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux Advanced Server 2.1 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux Advanced Server 2.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** You should not run the X server that is installed when you set up Red Hat Linux Advanced Server 2.1. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux Advanced Server 2.1.

### Installation Steps

**Note:** Pay particular attention to the notes in step 6 about how to avoid installing an inappropriate kernel.

1. Insert the Red Hat Linux Advanced Server 2.1 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux Advanced Server 2.1.

   You need to install Red Hat Linux Advanced Server 2.1 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Linux Advanced Server 2.1 CD boot prompt, you are offered a number of choices, including the following:

   ```
   To install or upgrade Red Hat Linux ... in graphical mode ...
   To install or upgrade ... in text mode, type: text <ENTER>...
   ...
   Use the function keys listed below ...
   ```

   To choose the text mode installer, type `text` and press Enter.
3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Advanced Server** or **Custom** for the installation type.
5. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the **Emulate 3 Buttons** option for three-button mouse support in the virtual machine. If you have a wheel mouse, you may choose **Generic Wheel Mouse (PS/2)**.
6. **VMware GSX Server only:** In the Package Group Selection screen, choose **Software Development** and **Select individual packages**. In the Individual Package Selection screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter. Be sure that **kernel-smp** is deselected (no asterisk should appear between the brackets). The SMP kernel is not supported in a GSX Server virtual machine. You do not need to change any other selections.

   **VMware ESX Server or VirtualCenter if installing to an ESX Server machine without virtual SMP:** In the **Individual Package Selection** screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter. Be sure that the following kernels are deselected (no asterisk should appear between the brackets):

   - kernel-enterprise
   - kernel-smp
   - kernel-summit

**VMware ESX Server or VirtualCenter if installing to an ESX Server machine with virtual SMP:** In the **Individual Package Selection** screen, use the arrow keys to move down to **System Environment/Kernel** and press Enter.

- If you are installing a multiprocessor virtual machine, be sure kernel-smp is selected.
- If you are installing a uniprocessor virtual machine, be sure the following kernels are deselected: kernel-enterprise, kernel-smp and kernel-summit.

For additional information on using uniprocessor and multiprocessor kernels with a Red Hat Linux Advanced Server 2.1 virtual machine under VMware ESX Server, see the release notes at *www.vmware.com/support/esx21/doc/releasenotes_esx21.html#vmpkernel*.

7. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen or partition the virtual disk manually if you do not want to use the Red Hat defaults.
8. You may see a warning that says:
   ```
   The partition table on device sda was unreadable. To
   create new partitions, it must be initialized,
   causing the loss of ALL DATA on the drive.
   Would you like to initialize this drive?
   ```
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Select the **Yes** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
9. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
10. In the Video Card Configuration screen, choose **Generic SVGA**.

This completes basic installation of the Red Hat Linux Advanced Server 2.1 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

## Known Issues

### Guest Screen Saver

**VMware Workstation:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Migration to a Different Processor

VMware recommends you do not migrate a Red Hat Linux Advanced Server 2.1 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, Red Hat Linux Advanced Server 2.1 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are available only on that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Linux Advanced Server 2.1 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a Red Hat Linux Advanced Server 2.1 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Linux Advanced Server 2.1 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Linux 9.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1.1, 2.1.2, 2.1, 2.5, 2.5.1, 2.5.2
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 9.0 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 9.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** You should not run the X server that is installed when you set up Red Hat Linux 9.0. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 9.0.

### Installation Steps

1. Insert the Red Hat Linux 9.0 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 9.0.

   You need to install Red Hat Linux 9.0 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Linux 9.0 CD boot prompt, you are offered the following choices:

```
To install or upgrade Red Hat Linux ... in graphical mode ...
To install or upgrade ... in text mode, type: linux text <ENTER>.
Use the function keys listed below ...
```

To choose the text mode installer, type `linux text` and press Enter.

**Note:** If you attempt to use the graphical installer, it fails and launches the text mode installer.

3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Server** or **Workstation** for the installation type.
5. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the **Emulate 3 Buttons** option for three-button mouse support in the virtual machine. If you have a wheel mouse, you may choose **Generic Wheel Mouse (PS/2)**.
6. You may see a warning that says:
   `Bad partition table. The partition table on device sda is corrupted. To create new partitions, it must be initialized, causing the loss of ALL DATA on the drive.`
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Select the **Initialize** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
7. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen or partition the virtual disk manually if you do not want to use the Red Hat defaults.
8. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
9. In the Video Card Configuration screen, choose **Skip X Configuration**.

This completes basic installation of the Red Hat Linux 9.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

**Note:** When you are installing VMware Tools, the configuration program asks you to specify a resolution for the guest operating system's display. Be sure to set the resolution to 1152 x 864 or lower. If you set a higher resolution, the guest operating system instead switches to a default resolution of 800 x 600.

### Enabling Sound After Installing Red Hat Linux 9.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Forcing the Installer to Read the Second Installation CD

**VMware Workstation, VMware ACE or VMware GSX Server:** The Red Hat installer may fail to read the second installation CD correctly if the CD drive in your virtual machine is set up using the defaults.

The specific failure message depends on the set of packages you choose to install. In many cases, the first package the installer tries to read from the second CD is the XPDF package, so the error message reports a problem with `xpdf-<version number>`.

You can force the installer to read the second CD correctly by taking the following steps:

1. When the installer asks for the second CD, remove the first CD from the drive and leave the drive empty.
2. Tell the installer to continue. It closes the CD drive tray, then gives an error message when it finds no CD.
3. Insert the second CD and tell the installer to continue. It should read the second CD correctly and installation should continue with no problems.

### Guest Screen Saver

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen

savers that demand a lot of processing power can cause the X server on the host to freeze.

**INIT Errors, Slow or Poor Performance**

**VMware GSX Server:** While installing the Red Hat Linux 9.0 guest operating system, you may notice that the guest performs poorly or slowly, or you may see `INIT` errors when you first boot the guest. To work around this issue and install the guest more easily, pass the `nosysinfo` option when you boot the Linux kernel at the beginning of the installation. At the `boot:` prompt in the guest, type `text nosysinfo`.

After you install the guest operating system, if you notice that the virtual machine runs slowly or if you still see `INIT` errors, you can modify your boot loader to always use the option when the guest operating system boots. Choose the steps for your boot loader — choose GRUB or LILO.

**Modifying Your GRUB Boot Loader**

1. In a text editor, edit `/etc/grub.conf`.
2. Look for the following section in the file. Note that you may see a different kernel instead of the 2.4.20-8 kernel shown below.
```
title Red Hat Linux (2.4.20-8)
    root (hd0,0)
    kernel /vmlinuz-2.4.20-8 ro root=LABEL=/
    initrd ....
```
3. At the end of the `kernel /vmlinuz-2.4.20-8 ro root=LABEL=/` line, add `nosysinfo`.
4. Save and close the file. You can now boot the guest.
5. Restart the guest operating system.

**Note:** If you are not confident with changing this configuration file, copy the above four line section and change the title from `Red Hat Linux` to `RH Linux Guest`, and add `nosysinfo` to the end of the line beginning with `kernel` in the newly created section. At boot time, you can choose to boot either the `RH Linux Guest` for optimal performance or `Red Hat Linux` for your original setup.

**Modifying Your LILO Boot Loader**

1. In a text editor, edit `/etc/lilo.conf`.
2. Look for the following line
```
append="....."
```
3. Add `nosysinfo` to the line like this:
```
append="..... nosysinfo"
```

4. If there is no `append=` line in `/etc/lilo.conf`, add the following line:
   `append="nosysinfo"`
   at the beginning of `/etc/lilo.conf`, before the first `image=` or `other=` directive.
5. Save and close the file.
6. Run the `lilo` command again so your changes can take effect.
7. Restart the guest operating system.

**Migration to a Different Processor**

**VMware Workstation, VMware ACE or VMware GSX Server:** VMware recommends you do not migrate a Red Hat Linux 9.0 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During the Red Hat Linux 9.0 installation, Red Hat 9.0 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are only available for that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Linux 9.0 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a Red Hat Linux 9.0 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Linux 9.0 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

**Getting a DHCP Address in a Red Hat Linux 9.0 Virtual Machine**

When a Red Hat Linux 9.0 guest operating system tries to get a DHCP address, the attempt may fail with an error message that states the link is down. On ESX Server, this happens only if you are using the `vlance` driver for your network connection.

To work around this problem, become root (`su -`) and use a text editor to edit the following files in the guest operating system. If only one of these files exists, make the change for that file only.

```
/etc/sysconfig/network-scripts/ifcfg-eth<n>
/etc/sysconfig/networking/devices/ifcfg-eth<n>
```

In both cases, `<n>` is the number of the Ethernet adapter — for example, `eth0`.

Add the following section to each of these two files:

```
check_link_down () {
return 1;
}
```

Then run the command `ifup eth[n]` (where [n] is the number of the Ethernet adapter) or restart the guest operating system.

**Message about "Tainted" Driver**

**VMware ESX Server or VMware VirtualCenter:** When a Red Hat Linux 9.0 guest operating system loads the `vmxnet` networking driver, it reports that the driver is tainted. This does not mean that there is anything wrong with the driver. It simply indicates that this is a proprietary driver, not licensed under the GNU General Public License.

# Red Hat Linux 8.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 8.0 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 8.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** You should not run the X server that is installed when you set up Red Hat Linux 8.0. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 8.0.

### Installation Steps

1. Insert the Red Hat Linux 8.0 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 8.0.

   You need to install Red Hat Linux 8.0 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Linux 8.0 CD boot prompt, you are offered the following choices:

```
To install or upgrade Red Hat Linux ... in graphical mode ...
To install or upgrade ... in text mode, type: linux text <ENTER>.
Use the function keys listed below ...
```

To choose the text mode installer, type `linux text` and press Enter.

**Note:** If you attempt to use the graphical installer, it fails and launches the text mode installer.

3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Server** or **Workstation** for the installation type.
5. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the **Emulate 3 Buttons** option for three-button mouse support in the virtual machine. If you have a wheel mouse, you may choose **Generic Wheel Mouse (PS/2)**.
6. You may see a warning that says:
   `Bad partition table. The partition table on device sda is corrupted. To create new partitions, it must be initialized, causing the loss of ALL DATA on the drive.`
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Select the **Initialize** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
7. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen or partition the virtual disk manually if you do not want to use the Red Hat defaults.
8. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
9. In the Video Card Configuration screen, choose **Skip X Configuration**.

This completes basic installation of the Red Hat Linux 8.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

### Enabling Sound After Installing Red Hat Linux 8.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Migration to a Different Processor

**VMware Workstation, VMware ACE or VMware GSX Server:** VMware recommends you do not migrate a Red Hat Linux 8.0 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During the Red Hat Linux 8.0 installation, Red Hat 8.0 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are only available for that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Linux 8.0 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a Red Hat Linux 8.0 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Linux 8.0 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

**Message about "Tainted" Driver**

**VMware ESX Server or VMware VirtualCenter:** When a Red Hat Linux 8.0 guest operating system loads the `vmxnet` networking driver, it reports that the driver is tainted. This does not mean that there is anything wrong with the driver. It simply indicates that this is a proprietary driver, not licensed under the GNU General Public License.

# Red Hat Linux 7.3

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 7.3 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 7.3 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** You should not run the X server that is installed when you set up Red Hat Linux 7.3. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 7.3.

### Installation Steps

1. Insert the Red Hat Linux 7.3 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 7.3.

   You need to install Red Hat Linux 7.3 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Linux 7.3 CD boot prompt, you are offered the following choices:

```
To install or upgrade a system ... in graphical mode ...
To install or upgrade a system ... in text mode, type: text <ENTER>.
To enable expert mode, ...
Use the function keys listed below ...
```

To choose the text mode installer, type `text` and press Enter.

3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the option **Emulate 3 Buttons** for three-button mouse support in the virtual machine.
5. Choose the language and keyboard, then in the Installation Type screen, choose either **Server** or **Workstation** for the installation type.
6. You may see a warning that says:
   `Bad partition table. The partition table on device sda is corrupted. To create new partitions, it must be initialized, causing the loss of ALL DATA on the drive.`
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Select the **Initialize** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
7. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen.
8. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
9. In the Video Card Selection screen, choose any card from the list.
10. In the Video Card Configuration screen, choose **Skip X Configuration**.

This completes basic installation of the Red Hat Linux 7.3 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

**Note:** When you start installing VMware Tools (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual booting the virtual machine.

If you do not intend to dual boot the virtual machine, answer **No** to keep the existing driver.

#### Enabling Sound After Installing Red Hat Linux 7.3

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

#### Guest Screen Saver

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

#### Migration to a Different Processor

**VMware Workstation, VMware ACE or VMware GSX Server:** VMware recommends you do not migrate a Red Hat Linux 7.3 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During the Red Hat Linux 7.3 installation, Red Hat 7.3 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are only available for that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Linux 7.3 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is also true: a

Red Hat Linux 7.3 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Linux 7.3 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Linux 7.2

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 7.2 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 7.2 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** You should not run the X server that is installed when you set up Red Hat Linux 7.2. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 7.2.

### Installation Steps

1. Insert the Red Hat Linux 7.2 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 7.2.

   You need to install Red Hat Linux 7.2 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Linux 7.2 CD boot prompt, you are offered the following choices:

```
To install or upgrade a system ... in graphical mode ...
To install or upgrade a system ... in text mode, type: text <ENTER>.
To enable expert mode, ...
Use the function keys listed below ...
```

To choose the text mode installer, type `text` followed by Enter.

3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Server** or **Workstation** for the installation type.

   A warning appears that says:

   ```
   Bad partition table. The partition table on device sda
   is corrupted. To create new partitions, it must be
   initialized, causing the loss of ALL DATA on the
   drive.
   ```

   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Click the **Initialize** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
5. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen.
6. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
7. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the option **Emulate 3 Buttons** for three-button mouse support in the virtual machine.
8. In the Video Card Selection screen, choose the default selection.
9. During the configuration of the X server, select the defaults and proceed through this section as quickly as possible, as this X server is replaced by an X server specific to your guest operating system when you install VMware Tools in this virtual machine.
10. Continue to the Starting X screen and click the **Skip** button to skip testing the configuration.

This completes basic installation of the Red Hat Linux 7.2 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start X until you have installed VMware Tools.

### Enabling Sound After Installing Red Hat Linux 7.2

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Installation Hang

Installation sometimes hangs at `running /sbin/loader` for no apparent reason. The hang is caused by a bug in early versions of the 2.4 Linux kernel. The bug has been fixed in kernel 2.4.5. Distributions based on this kernel should install without problems.

For earlier 2.4-series kernels, a workaround is available. Although the Linux kernel bug is not related to CD-ROM drives, the workaround involves changing a VMware configuration setting for the virtual DVD/CD-ROM drive.

Power off the virtual machine and close the virtual machine window. Open the virtual machine's configuration file (`.vmx` or `.cfg` file) in a text editor and add the following line:

```
cdrom.minvirtualtime=100
```

Save the file. Now you should be able to install the guest operating system as described above. After you finish installing the guest operating system, remove this setting from the configuration file, as it may have a performance impact.

**Migration to a Different Processor**

**VMware Workstation, VMware ACE or VMware GSX Server:** VMware recommends you do not migrate a Red Hat Linux 7.2 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During the Red Hat Linux 7.2 installation, Red Hat Linux 7.2 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are only available for that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Linux 7.2 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is true; a Red Hat Linux 7.2 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Linux 7.2 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Linux 7.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 7.1 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 7.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** You should not run the X server that is installed when you set up Red Hat Linux 7.1. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 7.1.

### Installation Steps

1. Insert the Red Hat Linux 7.1 CD-ROM in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 7.1.

   You need to install Red Hat Linux 7.1 using the text mode installer, which you may choose when you first boot the installer. At the Red Hat Linux 7.1 CD boot prompt, you are offered the following choices:

   ```
   To install or upgrade a system ... in graphical mode ...
   To install or upgrade a system ... in text mode, type: text <ENTER>.
   To enable expert mode, ...
   Use the function keys listed below ...
   ```

To choose the text mode installer, type `text` followed by Enter.

3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. Choose the language and keyboard, then in the Installation Type screen, choose either **Server** or **Workstation** for the installation type.

   A warning appears that says:
   `Bad partition table. The partition table on device sda is corrupted. To create new partitions, it must be initialized, causing the loss of ALL DATA on the drive.`
   This does not mean that anything is wrong with the hard drive on your physical computer. It simply means that the virtual hard drive in your virtual machine needs to be partitioned and formatted. Click the **Initialize** button and press Enter. Also note that `sda` appears in the message as the device name if the virtual disk in question is a SCSI disk; if the virtual disk is an IDE drive, `hda` appears in the message as the device name instead.
5. Allow automatic partitioning of the disk to occur in the Automatic Partitioning screen.
6. If your computer is connected to a LAN that provides DHCP support, then in the Network Configuration screen, you may select the option **Use bootp/dhcp**. If you prefer, you may also set the networking parameters manually.
7. In the Mouse Selection screen, choose **Generic – 3 Button Mouse (PS/2)** and select the option **Emulate 3 Buttons** for three-button mouse support in the virtual machine.
8. In the Video Card Selection screen, choose the default selection.
9. During the configuration of the X server, select the defaults and proceed through this section as quickly as possible, as this X server is replaced by an X server specific to your guest operating system when you install VMware Tools in this virtual machine.
10. Continue to the Starting X screen and click the **Skip** button to skip testing the configuration.

This completes basic installation of the Red Hat Linux 7.1 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start X until you have installed VMware Tools.

### Enabling Sound After Installing Red Hat Linux 7.1

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

### Installation Hang

Installation sometimes hangs at `running /sbin/loader` for no apparent reason. The hang is caused by a bug in early versions of the 2.4 Linux kernel. The bug has been fixed in kernel 2.4.5. Distributions based on this kernel should install without problems.

For earlier 2.4-series kernels, a workaround is available. Although the Linux kernel bug is not related to CD-ROM drives, the workaround involves changing a VMware configuration setting for the virtual DVD/CD-ROM drive.

Power off the virtual machine and close the virtual machine window. Open the virtual machine's configuration file (`.vmx` file on a Windows host or `.cfg` file on a Linux host) in a text editor and add the following line:

```
cdrom.minvirtualtime=100
```

Save the file. Now you should be able to install the guest operating system as described above. After you finish installing the guest operating system, remove this setting from the configuration file, as it may have a performance impact.

### Migration to a Different Processor

VMware recommends you do not migrate a Red Hat Linux 7.1 virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During the Red Hat Linux 7.1 installation, Red Hat Linux 7.1 chooses a kernel that is optimized for the specific processor on which it is running. The kernel may contain instructions that are only available for that processor. These instructions can have adverse effects when run on a host with the wrong type of processor.

Thus, a Red Hat Linux 7.1 virtual machine created on a host with an AMD processor may not work if migrated to a host with an Intel processor. The reverse is true; a Red Hat Linux 7.1 virtual machine created on a host with an Intel processor may not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and would also occur on physical computers. For example, if you moved a hard drive with a Red Hat Linux 7.1 installation from an AMD machine to an Intel machine, you would experience problems trying to boot from that drive.

# Red Hat Linux 7.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 7.0 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 7.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Red Hat Linux 7.0 text mode installation, a standard XFree86 version 4 server (without support for VMware SVGA or standard VGA) will be installed. Do not run that X server. Instead, to get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 7.0.

### Installation Steps

1. Insert the Red Hat Linux 7.0 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 7.0.

   We recommend you install the operating system with the text mode installer. At the Red Hat 7.0 CD boot prompt, you are offered the following choices:

   ```
   To install or upgrade a system ... in graphical mode ...
   To install or upgrade a system ... in text mode, type: text <ENTER>.
   ```

```
To enable expert mode, ...
Use the function keys listed below ...
```

Choose the text mode installer by typing `text` followed by Enter.

3. Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
4. In Video Card Selection choose **Generic VGA compatible**, then click **OK**.
5. Near the end of the installation, after files have been copied, you reach the Monitor Setup screen. Choose **Generic Standard VGA, 640x480 @ 60 Hz**, then click **OK**.
6. At the Video Memory screen, choose **256Kb**, then click **OK.**
7. At the Clockchip Configuration screen, choose **No Clockchip Setting (recommended)**, which is the default, then click **OK**.
8. At the Probe for Clocks screen, click **Skip**.
9. At the Select Video Modes screen, don't choose anything. Just click **OK**.
10. At the Starting X screen, click **Skip**.

    **Note:** This is the most important step. Clicking **OK** runs the XFree86 version 4 server, which fails, and the installer aborts.

This completes basic installation of the Red Hat Linux 7.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** With a Red Hat Linux 7.0 guest, you should install VMware Tools from the Linux console. Do not start X until you have installed VMware Tools.

### Enabling Sound After Installing Red Hat Linux 7.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Red Hat Linux 6.2

## Support

This guest operating system is supported on the following VMware products:

- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Linux 6.2 in a virtual machine is to use the standard Red Hat distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Red Hat Linux 6.2 via the boot floppy/network method is supported as well.

Before installing the operating system, be sure that you have already created a new virtual machine and configured it using the New Virtual Machine Wizard (on Windows hosts) or Configuration Wizard (on Linux hosts).

**Caution:** Red Hat Linux 6.2 does not run on Pentium 4 processors. It also does not run on Xeon processors that are branded Xeon, with no qualifier, or Xeon-MP (Pentium III Xeon processors are OK).

**Note:** Due to VGA performance issues installing Red Hat 6.2 with the graphics mode installer, we highly recommend you install the operating system with the text mode installer. At the Red Hat 6.1 or 6.2 CD boot prompt, you are offered the following choices:

```
To install or upgrade a system ... in graphical mode ...
To install or upgrade a system ... in text mode, type: text <ENTER>.
To enable expert mode, ...
Use the function keys listed below ...
```

Choose the text mode installer by typing `text` followed by Enter.

**Note:** During the Red Hat Linux 6.x installation, a standard VGA16 X server (without support for the Click here to change product name; don't use VMware in name X server) is installed. To get an accelerated SVGA X server running inside the virtual machine, you should install the VMware Tools package immediately after installing Red Hat Linux 6.x.

## Installation Steps

1. Insert the Red Hat Linux 6.2 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Red Hat Linux 6.2.

   We recommend you install the operating system with the text mode installer. At the Red Hat 6.2 CD boot prompt, you are offered the following choices:

   ```
   To install or upgrade a system ... in graphical mode ...
   To install or upgrade a system ... in text mode, type: text <ENTER>.
   To enable expert mode, ...
   Use the function keys listed below ...
   ```

   Choose the text mode installer by typing `text` followed by Enter.
3. Follow the installation steps as you would for a physical machine.

   **Note:** If the virtual machine's Ethernet adapter has been enabled, the installation program auto-detects and loads the AMD PC/Net 32 driver (no command line parameter is necessary to load the driver).

   **Note:** The text mode installer in Red Hat Linux 6.2 presents a Hostname Configuration screen. If you are installing this guest with DHCP in a virtual machine with host-only networking, do not specify a host name. Just respond **OK** and continue. (Specifying a host name will cause an installer error later.) At the next screen — Network Configuration — respond **OK** to use the default: **Use bootp/dhcp**.
4. During the Linux installation, select the standard VGA16 X server.
5. In the Choose a Card screen, select the **Generic VGA compatible/Generic VGA** card from the list.
6. In the Monitor Setup screen, select **Generic Monitor** from the list.
7. Select the **Probe** button from the Screen Configuration dialog box.
8. Select **OK** from the Starting X dialog box. After Linux is installed, the generic X server is replaced with the accelerated X server included in the VMware Tools package when you install VMware Tools.
9. Finish installing Red Hat Linux 6.2 as you would on a physical machine.

At this point Red Hat 6.2 boots and a login screen appears.

This completes basic installation of the Red Hat Linux 7.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound After Installing Red Hat Linux 6.2

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Sun Java Desktop System 2

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Sun Java Desktop System 2 in a virtual machine is to use the standard Sun Java Desktop System distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing Sun Java Desktop System 2 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Sun Java Desktop System 2 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Sun Java Desktop System 2.
3. Follow the remaining installation steps as you would for a physical machine.

This completes basic installation of the Sun Java Desktop System 2 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Changing Resolution in the Guest Operating System

To change the display resolution in the guest operating system, as root (`-su`) rerun the VMware Tools configuration program `vmware-config-tools.pl` and select the desired resolution from the list this program presents. If you prefer, you may edit the X configuration file directly to make the change.

**Virtual Machine May Hang during Guest Operating System Installation**

On some host systems, the Sun Java Desktop System 2 installer attempts to use a kernel that is incompatible with the ACPI features of the virtual hardware. To work around this problem, open the virtual machine's configuration file in a text editor and add the following line:

```
acpi.present = FALSE
```

You should then be able to install and run a Sun Java Desktop System 2 guest operating system.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SUSE LINUX Enterprise Server 9

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Service Pack 1 supported on Workstation 5.0, 5.5, 5.5.1
  Service Pack 2 supported on Workstation 5.5, 5.5.1
  Experimental support forService Pack 3 beta on Workstation 5.5, 5.5.1
  Novell Open Enterprise Server services supported on SUSE LINUX Enterprise Server 9 Service Pack 1 and higher
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0.1, 1.0.2 — Service Pack 1
- VMware GSX Server 3.2, 3.2.1
  Service Pack 1 also supported
- VMware ESX Server 2.5, 2.5.1, 2.5.2
  Service Pack 1 supported on ESX Server 2.5, 2.5.1, 2.5.2
  Service Pack 2 supported on ESX Server 2.5.2
  Virtual SMP supported

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1
  Service Pack 1 supported on Workstation 5.5, 5.5.1
  Service Pack 2 supported on Workstation 5.5, 5.5.1
  Experimental support forService Pack 3 beta on Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE LINUX Enterprise Server 9 (SLES 9) in a virtual machine is to use the standard SUSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SLES 9 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

**ESX Server:** Only the BusLogic virtual SCSI adapter is supported in a SLES 9 virtual machine on ESX Server 2.5.x.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the SLES 9 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SLES 9.
3. Install using the text mode installer. In the first installation screen, use the arrow keys to select **Installation**, press the F2 key, use the arrow keys to choose text mode, then press Enter to select the text mode installer.
4. At the Installation Settings screen, go to the **Change** menu and choose **Booting**.
5. The Boot Loader Setup screen appears. Set the Boot Loader Type to **LILO** instead of the default GRUB.
6. The installer displays a warning that indicates you may lose some settings and prompts you to select a course of action. Select **Convert current configuration** and continue.
7. Select **Finish** to return to the Installation Settings screen.
8. Follow the remaining installation steps as you would for a physical machine.

This completes basic installation of the SLES 9 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound After Installing SLES 9

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor **(VM > Settings)** after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Do Not Use 4-Bit Color

If you change the screen resolution in the SLES 9 guest operating system, be sure you also set a color bit depth greater than 16 colors (4 bit). If you attempt to use a setting of 16 colors (4 bit), it can cause a fatal error in the X server.

**Manual Changes May Be Needed to Use Networking in Copied Virtual Machine**
In some cases, networking does not work properly in a copied or cloned virtual machine or a virtual machine deployed to end users as part of a VMware ACE package. If you copy a virtual machine and specify that the copy should have a unique identifier, the MAC addresses for any virtual Ethernet adapters attached to the virtual machine change. When a SUSE LINUX Enterprise Server 9 guest operating system is installed, it includes the MAC address as part of a key configuration filename. When the virtual machine's MAC address changes, the guest operating system may fail to associate this configuration file with the virtual Ethernet adapter. If you experience this problem, you can work around it by copying or renaming the file. For `eth0`, for example, make the following change:

Old name:
`/etc/sysconfig/network/ifcfg-eth0-id-<MAC_address>`

New name:
`/etc/sysconfig/network/ifcfg-eth0`

**Clock in Guest Operating System May Run Too Quickly or Too Slowly**
If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

**Guest Screen Saver**
**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SuSE Linux Enterprise Server 8

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
  Service Pack 3 supported on GSX Server 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Service Pack 3 supported on ESX Server 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SuSE Linux Enterprise Server 8 (SLES 8) in a virtual machine is to use the standard SuSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SLES 8 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the SLES 8 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SLES 8.
3. Follow the installation steps as you would for a physical machine until you get to the selection screens described in the next steps.
4. Part way through the installation, the installer reboots the virtual machine. At the LILO screen, let the boot proceed using the default selection of `linux`.
5. At the Desktop Settings screen, select **640x480 256 colors**.

6. Finish installing SLES 8 as you would on a physical machine.

This completes basic installation of the SLES 8 guest operating system.

**VMware Tools**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Enabling Sound After Installing SLES 8**

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Guest Screen Saver**

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SuSE Linux Enterprise Server 7

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE1.0, 1.0.1, 1.0.2
  Service Pack 2 supported
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
  Service Pack 2 supported on GSX Server 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SuSE Linux Enterprise Server 7 (SLES 7) in a virtual machine is to use the standard SuSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SLES 7 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the SLES 7 installation, a standard VGA16 X server should be installed. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing SLES 7.

### Installation Steps

1. Insert the SLES 7 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SLES 7.
3. Follow the installation steps as you would for a physical machine until you get to the selection screens described in the next steps.
4. Part way through the installation, the installer reboots the virtual machine. At the LILO screen, let the boot proceed using the default selection of `linux`.

5. At the Desktop Settings screen, select **640x480 256 colors**.
6. Finish installing SLES 7 as you would on a physical machine.

This completes basic installation of the SLES 7 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound After Installing SLES 7

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SUSE LINUX 10

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE LINUX 10 in a virtual machine is to use the standard SUSE LINUX distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SUSE LINUX 10 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the SUSE LINUX 10 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SUSE LINUX 10.
3. Install using the text mode installer. In the first installation screen, press the F3 key to get boot options. Press the F3 key again and use the arrow keys to select text mode, then press Enter to select the text mode installer.
4. Be sure to install gcc and the kernel source so the VMware Tools installer can compile modules for SUSE Linux 10.

   At the Installation Settings screen, choose **Change**, then choose **Software**. From the Filter menu, choose **RPM Groups.** Choose the **Development** group, press Enter to open it, and add **gcc**, **gcc-c++**, and **kernel-source** by highlighting those items in the list and pressing the spacebar.

5. At the Test Internet Cconnection screen — during final configuration, after all packages are installed — do not perform the Internet connection test.
6. Follow the remaining installation steps as you would for a physical machine.

This completes basic installation of the SUSE LINUX 10 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** If the initial X display is not usable, you must install VMware Tools from a text-mode console, as described in Installing VMware Tools in a Linux Guest Operating System on page 17.

# SUSE LINUX 9.3

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ESX Server 2.5.2
  Virtual SMP supported

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE LINUX 9.3 in a virtual machine is to use the standard SUSE LINUX distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SUSE LINUX 9.3 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**ESX Server:** Only the BusLogic virtual SCSI adapter is supported in a SUSE LINUX 9.3 virtual machine on ESX Server 2.5.x.

### Installation Steps

1. Insert the SUSE LINUX 9.3 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SUSE LINUX 9.3.
3. Install using the text mode installer. In the first installation screen, press the F2 key, use the arrow keys to select text mode, then press Enter to select the text mode installer.
4. During final configuration, after all packages are installed, do not perform the Internet connection test.

5. Follow the remaining installation steps as you would for a physical machine.
6. If you may copy or move this virtual machine, make the change described in Manual Changes May Be Needed to Use Networking in Copied Virtual Machine on page 127.

This completes basic installation of the SUSE LINUX 9.3 guest operating system.

#### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

#### Do Not Use 4-Bit Color

If you change the screen resolution in the SUSE LINUX 9.3 guest operating system, be sure you also set a color bit depth greater than 16 colors (4 bit). If you attempt to use a setting of 16 colors (4 bit), it can cause a fatal error in the X server.

#### Clock in Guest Operating System May Run Too Quickly or Too Slowly

If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

#### Manual Changes May Be Needed to Use Networking in Copied Virtual Machine

In some cases, networking does not work properly in a copied or cloned virtual machine or a virtual machine deployed to end users as part of a VMware ACE package. If you copy a virtual machine and specify that the copy should have a unique identifier, the MAC addresses for any virtual Ethernet adapters attached to the virtual machine change. When a SUSE LINUX 9.3 guest operating system is installed, it includes the MAC address as part of a key configuration filename. When the virtual machine's MAC address changes, the guest operating system may fail to associate this configuration file with the virtual Ethernet adapter. If you experience this problem, you can work around it by copying or renaming the file. For `eth0`, for example, make the following change:

Old name:

```
/etc/sysconfig/network/ifcfg-eth0-id-<MAC_address>
```

New name:

```
/etc/sysconfig/network/ifcfg-eth0
```

**Guest Screen Saver**

**VMware Workstation:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SUSE LINUX 9.2

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Service Pack 1 supported on Workstation 5.5, 5.5.1
  Service Pack 2 supported on Workstation 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0.1, 1.0.2
- VMware GSX Server 3.2, 3.2.1
- VMware ESX Server 2.5.1, 2.5.2
  No support for Virtual SMP

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1
  Service Pack 1 also supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE LINUX 9.2 in a virtual machine is to use the standard SUSE LINUX distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SUSE LINUX 9.2 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

**ESX Server:** Only the BusLogic virtual SCSI adapter is supported in a SUSE LINUX 9.2 virtual machine on ESX Server 2.5.x.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the SUSE LINUX 9.2 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SUSE LINUX 9.2.
3. Install using the text mode installer. In the first installation screen, press the F2 key, use the arrow keys to select text mode, then press Enter to select the text mode installer.
4. During final configuration, after all packages are installed, do not perform the Internet connection test.
5. Follow the remaining installation steps as you would for a physical machine.
6. If you may copy or move this virtual machine, make the change described in Manual Changes May Be Needed to Use Networking in Copied Virtual Machine on page 131.

This completes basic installation of the SUSE LINUX 9.2 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

### Enabling Sound After Installing SUSE LINUX 9.2

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (VM > Settings) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Do Not Use 4-Bit Color

If you change the screen resolution in the SUSE LINUX 9.2 guest operating system, be sure you also set a color bit depth greater than 16 colors (4 bit). If you attempt to use a setting of 16 colors (4 bit), it can cause a fatal error in the X server.

### Clock in Guest Operating System May Run Too Quickly or Too Slowly

If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

**Manual Changes May Be Needed to Use Networking in Copied Virtual Machine**

In some cases, networking does not work properly in a copied or cloned virtual machine or a virtual machine deployed to end users as part of a VMware ACE package. If you copy a virtual machine and specify that the copy should have a unique identifier, the MAC addresses for any virtual Ethernet adapters attached to the virtual machine change. When a SUSE LINUX 9.2 guest operating system is installed, it includes the MAC address as part of a key configuration filename. When the virtual machine's MAC address changes, the guest operating system may fail to associate this configuration file with the virtual Ethernet adapter. If you experience this problem, you can work around it by copying or renaming the file. For `eth0`, for example, make the following change:

Old name:

```
/etc/sysconfig/network/ifcfg-eth0-id-<MAC_address>
```

New name:

```
/etc/sysconfig/network/ifcfg-eth0
```

**Guest Screen Saver**

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SUSE LINUX 9.1

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.1, 3.2, 3.2.1
- VMware ESX Server 2.5, 2.5.1, 2.5.2
  Virtual SMP supported

### 64-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE LINUX 9.1 in a virtual machine is to use the standard SUSE LINUX distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SUSE LINUX 9.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

**ESX Server:** Only the BusLogic virtual SCSI adapter is supported in a SUSE LINUX 9.1 virtual machine on ESX Server 2.5.x.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the SUSE LINUX 9.1 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SUSE LINUX 9.1.

3. Install using the text mode installer. In the first installation screen, press the F2 key, use the arrow keys to select text mode, then press Enter to select the text mode installer.
4. Follow the remaining installation steps as you would for a physical machine.
5. If you may copy or move this virtual machine, make the change described in Manual Changes May Be Needed to Use Networking in Copied Virtual Machine on page 134.

This completes basic installation of the SUSE LINUX 9.1 guest operating system.

#### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

#### Enabling Sound After Installing SUSE LINUX 9.1

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (VM > Settings) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

#### Virtual Machine May Hang during Guest Operating System Installation

On some host systems, the SUSE LINUX 9.1 installer attempts to use a kernel that is incompatible with the ACPI features of the virtual hardware. To work around this problem, open the virtual machine's configuration file in a text editor and add the following line:

```
acpi.present = FALSE
```

You should then be able to install and run a SUSE LINUX 9.1 guest operating system.

#### Installation from DVD May Stop with an Error Message

Installation from a DVD may stop at the Software item under Installation Settings with the following error message: No base selection available. ERROR: No proposal. SUSE has seen this problem on both physical and virtual machines. To work around the problem inside a virtual machine, type the following at the boot prompt as you begin the installation:

```
linux cdromdevice=/dev/hdc
```

Replace `/dev/hdc` with the appropriate device name if your CD-ROM device is not the master device on the second IDE channel. The installation should then proceed normally.

**Do Not Use 4-Bit Color**

If you change the screen resolution in the SUSE LINUX 9.1 guest operating system, be sure you also set a color bit depth greater than 16 colors (4 bit). If you attempt to use a setting of 16 colors (4 bit), it can cause a fatal error in the X server.

**Clock in Guest Operating System May Run Too Quickly or Too Slowly**

If the clock in your guest operating system runs too quickly or too slowly, use one of the workarounds described in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1420*.

**Manual Changes May Be Needed to Use Networking in Copied Virtual Machine**

In some cases, networking does not work properly in a copied or cloned virtual machine or a virtual machine deployed to end users as part of a VMware ACE package. If you copy a virtual machine and specify that the copy should have a unique identifier, the MAC addresses for any virtual Ethernet adapters attached to the virtual machine change. When a SUSE LINUX 9.1 guest operating system is installed, it includes the MAC address as part of a key configuration filename. When the virtual machine's MAC address changes, the guest operating system may fail to associate this configuration file with the virtual Ethernet adapter. If you experience this problem, you can work around it by copying or renaming the file. For `eth0`, for example, make the following change:

Old name:

```
/etc/sysconfig/network/ifcfg-eth0-id-<MAC_address>
```

New name:

```
/etc/sysconfig/network/ifcfg-eth0
```

**Guest Screen Saver**

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SUSE LINUX 9.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Virtual SMP supported

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE LINUX 9.0 in a virtual machine is to use the standard SUSE LINUX distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SUSE LINUX 9.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the SUSE LINUX 9.0 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SUSE LINUX 9.0.
3. Install using the text mode installer. In the first installation screen, press the F2 key, use the arrow keys to select text mode, then press Enter to select the text mode installer.
4. Follow the remaining installation steps as you would for a physical machine.

This completes basic installation of the SUSE LINUX 9.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools and run the SaX2 configuration utility. See Before You Start the X Server below.

### Before You Start the X Server

After you have installed VMware Tools, but before you start the X server, as the root user, run the SaX2 configuration utility to configure your X server. At a command prompt, type `SaX2` and use the wizard to configure your X server. If you intend to connect to this virtual machine with the VMware Virtual Machine Console, configure the color resolution for 65536 (16-bit) colors or less.

After you run SaX2 you may boot your SuSE Linux 8.2 virtual machine with any of the selections offered in GRUB.

### Enabling Sound After Installing SUSE LINUX 9.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Virtual Machine May Hang during Guest Operating System Installation

On some host systems, the SUSE LINUX 9.0 installer attempts to use a kernel that is incompatible with the ACPI features of the virtual hardware. To work around this problem, open the virtual machine's configuration file in a text editor and add the following line:

```
acpi.present = FALSE
```

You should then be able to install and run a SUSE LINUX 9.0 guest operating system.

### Installation from DVD May Stop with an Error Message

Installation from a DVD may stop at the **Software** item under **Installation Settings** with the following error message: No base selection available. ERROR: No proposal.

SUSE has seen this problem on both physical and virtual machines. To work around the problem inside a virtual machine, type the following at the boot prompt as you begin the installation:

```
linux cdromdevice=/dev/hdc
```

Replace `/dev/hdc` with the appropriate device name if your CD-ROM device is not the master device on the second IDE channel.

The installation should then proceed normally.

**Do Not Use 4-Bit Color**

If you change the screen resolution in the SUSE LINUX 9.0 guest operating system, be sure you also set a color bit depth greater than 16 colors (4 bit). If you attempt to use a setting of 16 colors (4 bit), it can cause a fatal error in the X server.

**Guest Screen Saver**

**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SuSE Linux 8.2

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1
- VMware ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Virtual SMP supported on ESX Server 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SuSE Linux 8.2 in a virtual machine is to use the standard SuSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SuSE Linux 8.2 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the SuSE Linux 8.2 installation, do not install an X server. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing SuSE Linux 8.2.

### Installation Steps

1. Insert the SuSE Linux 8.2 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SuSE Linux 8.2.
3. Follow the installation steps as you would for a physical machine until you get to the selection screens described in the next steps.
4. Install using the text mode installer. In the first installation screen, press the F2 key, type `linux`, then press Enter to select the text mode installer.

5. When prompted, do not install an X server. In the Configure Monitor screen, choose Text Mode Only. Click Accept and finish the installation.

This completes basic installation of the SuSE Linux 8.2 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools and run the SaX2 configuration utility. See Before You Start the X Server below.

**Note:** When you start installing VMware Tools (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

### Before You Start the X Server

After you have installed VMware Tools, but before you start the X server, as the root user, run the SaX2 configuration utility to configure your X server. At a command prompt, type `SaX2` and use the wizard to configure your X server. If you intend to connect to this virtual machine with the VMware Virtual Machine Console, configure the color resolution for 65536 (16-bit) colors or less.

After you run SaX2 you may boot your SuSE Linux 8.2 virtual machine with any of the selections offered in GRUB.

### Enabling Sound After Installing SuSE Linux 8.2

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system

has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Virtual Machine May Hang during Guest Operating System Installation**
On some host systems, the SuSE Linux 8.2 installer attempts to use a kernel that is incompatible with the ACPI features of the virtual hardware. To work around this problem, open the virtual machine's configuration file in a text editor and add the following line:

```
acpi.present = FALSE
```

You should then be able to install and run a SuSE Linux 8.2 guest operating system.

**Installation from DVD May Stop with an Error Message**
Installation from a DVD may stop at the **Software** item under **Installation Settings** with the following error message: No base selection available. ERROR: No proposal.

SUSE has seen this problem on both physical and virtual machines. To work around the problem inside a virtual machine, type the following at the boot prompt as you begin the installation:

```
linux cdromdevice=/dev/hdc
```

Replace `/dev/hdc` with the appropriate device name if your CD-ROM device is not the master device on the second IDE channel.

The installation should then proceed normally.

**Guest Screen Saver**
**VMware Workstation or VMware GSX Server:** On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SuSE Linux 8.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SuSE Linux 8.1 in a virtual machine is to use the standard SuSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SuSE Linux 8.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the SuSE Linux 8.1 installation, do not install an X server. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing SuSE Linux 8.1.

### Installation Steps

1. Insert the SuSE Linux 8.1 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SuSE Linux 8.1.
3. Follow the installation steps as you would for a physical machine until you get to the selection screens described in the next steps.
4. Install using the text mode installer. In the first installation screen, press the F2 key, then press Enter to select the text mode installer.
5. When prompted, do not install an X server. In the Configure Monitor screen, choose Text Mode Only. Click Accept and finish the installation.

This completes basic installation of the SuSE Linux 8.1 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools and run the SaX2 configuration utility. See Before You Start the X Server below.

**Note:** When you start installing VMware Tools (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

### Before You Start the X Server

After you have installed VMware Tools, but before you start the X server, as the root user, run the SaX2 configuration utility to configure your X server. At a command prompt, type `SaX2` and use the wizard to configure your X server. If you intend to connect to this virtual machine with the VMware Virtual Machine Console, configure the color resolution for 65536 (16-bit) colors or less.

After you run SaX2 you may boot your SuSE Linux 8.1 virtual machine with any of the selections offered in GRUB.

### Enabling Sound After Installing SuSE Linux 8.1

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

**Virtual Machine May Hang during Guest Operating System Installation**
On some host systems, the SuSE Linux 8.1 installer attempts to use a kernel that is incompatible with the ACPI features of the virtual hardware. To work around this problem, open the virtual machine's configuration file in a text editor and add the following line:

```
acpi.present = FALSE
```

You should then be able to install and run a SuSE Linux 8.1 guest operating system.

**Guest Screen Saver**
On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SuSE Linux 8.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SuSE Linux 8.0 in a virtual machine is to use the standard SuSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SuSE Linux 8.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the SuSE Linux 8.0 installation, do not install an X server. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing SuSE Linux 8.0.

### Installation Steps

1. Insert the SuSE Linux 8.0 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SuSE Linux 8.0.
3. Follow the installation steps as you would for a physical machine until you get to the selection screens described in the next steps.
4. Install using the text mode installer.
5. When prompted, do not install an X server. In the Configure Monitor screen, choose No X11. The installer asks you to confirm. Click Continue and finish the installation.

This completes basic installation of the SuSE Linux 8.0 guest operating system.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

**Note:** When you start installing VMware Tools (by typing `./vmware-install.pl` in the `vmware-tools-distrib` directory), the following message appears:

```
Found an installed version of the VMware SVGA driver for
XFree86 4. Some versions of this driver included with the
XFree86 4 distributions do not work properly. Would you
like to install a stable (but possibly older) version of
the driver over the currently installed one?
```

If you plan to dual-boot the virtual machine, answer **Yes** to allow the driver to be installed. Answer **Yes** again to back up the existing video driver files and also copy the `XF86Config-4.dist` file to `XF86Config-4.vm`. The latter file is used when dual-booting the virtual machine.

If you do not intend to dual-boot the virtual machine, answer **No** to keep the existing driver.

### Before You Start the X Server

After you have installed VMware Tools, but before you start the X server, as root user, run the SaX2 configuration utility to configure your X server. At a command prompt, type `SaX2` and use the wizard to configure your X server.

After you run SaX2 you may boot your SuSE 8.0 virtual machine with any of the selections offered in LILO.

### Enabling Sound After Installing SuSE Linux 8.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# SuSE Linux 7.3

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing SuSE Linux 7.3 in a virtual machine is to use the standard SuSE distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing SuSE Linux 7.3 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the SuSE Linux 7.3 installation, do not install an X server. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing SuSE Linux 7.3.

### Installation Steps

1. Insert the SuSE Linux 7.3 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing SuSE Linux 7.3.
3. Follow the installation steps as you would for a physical machine until you get to the selection screens described in the next steps.
4. Install using the text mode installer.
5. When prompted, do not install an X server. In the Configure Monitor screen, choose No X11. The installer asks you to confirm. Click Continue and finish the installation.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

After you have installed VMware Tools you may boot your SuSE 7.3 virtual machine with any of the selections offered in LILO.

### Enabling Sound After Installing SuSE Linux 7.3

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Turbolinux 10 Desktop

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Turbolinux 10 Desktop in a virtual machine is to use the standard Turbolinux distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing Turbolinux 10 Desktop via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Turbolinux 10 Desktop installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Turbolinux 10 Desktop.
3. Follow the installation steps as you would for a physical machine.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Turbolinux Enterprise Server 8

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Turbolinux Enterprise Server 8 (TLES 8) in a virtual machine is to use the standard Turbolinux distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing TLES 8 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Caution:** During the TLES 8 installation, do not install an X server. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing TLES 8.

### Installation Steps

1. Insert the TLES 8 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing TLES 8.
3. Follow the installation steps as you would for a physical machine, until you get to the selection screens described in the next steps.
4. Install using the text mode installer. In the first installation screen, press the F2 key, then press Enter to select the text mode installer.
5. When prompted, do not install an X server. In the Desktop Settings screen, choose **Text Mode Only**. Click **Accept** and finish the installation.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools and run the SaX2 configuration utility. See Before You Start the X Server below.

### Before You Start the X Server

After you have installed VMware Tools, but before you start the X server, as root user, run the SaX2 configuration utility to configure your X server. At a command prompt, type `SaX2` and use the wizard to configure your X server.

**GSX Server:** If you intend to connect to this virtual machine with the VMware Virtual Machine Console, configure the color resolution for 65536 (16-bit) colors or less.

After you run SaX2 you may boot your TLES 8 virtual machine with any of the selections offered in GRUB.

### Enabling Sound After Installing TLES 8

**GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Turbolinux Workstation 8

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Turbolinux Workstation 8 in a virtual machine is to use the standard Turbolinux distribution CDs. The notes below describe an installation using the standard distribution CD; however, installing Turbolinux Workstation 8 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Caution:** During the Turbolinux Workstation 8 installation, do not install an X server. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing Turbolinux Workstation 8.

### Installation Steps

1. Insert the Turbolinux Workstation 8 installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Turbolinux Workstation 8.
3. Follow the installation steps as you would for a physical machine, until you get to the selection screens described in the next steps.
4. Install using the text mode installer. In the first installation screen, press the F2 key, then press Enter to select the text mode installer.
5. When prompted, do not install an X server. In the Desktop Settings screen, choose **Text Mode Only**. Click **Accept** and finish the installation.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools and run the SaX2 configuration utility. See Before You Start the X Server below.

### Before You Start the X Server

After you have installed VMware Tools, but before you start the X server, as root user, run the SaX2 configuration utility to configure your X server. At a command prompt, type `SaX2` and use the wizard to configure your X server.

**GSX Server:** If you intend to connect to this virtual machine with the VMware Virtual Machine Console, configure the color resolution for 65536 (16-bit) colors or less.

After you run SaX2 you may boot your Turbolinux Workstation 8 virtual machine with any of the selections offered in GRUB.

### Enabling Sound After Installing Turbolinux Workstation 8

**GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Turbolinux 7.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Turbolinux 7.0 in a virtual machine is to use the standard Turbolinux 7.0 distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Turbolinux 7.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** During the Turbolinux 7.0 installation, a standard VGA16 X server (without support for the VMware display adapter) is installed. To get an accelerated SVGA X server running inside the virtual machine, install the VMware Tools package immediately after installing Turbolinux 7.0, before you start the X server.

### Installation Steps

1. Insert the Turbolinux 7.0 CD No. 1 in the CD-ROM drive.
2. Power on the virtual machine to start installing Turbolinux 7.0.
3. Follow the installation steps as you would for a physical PC until you get to the selection screen described in the next step.
4. In the Configure Monitor screen, follow the defaults to configure an X server. This is necessary even though you will install a different X server with VMware Tools after you finish installing the guest operating system.

5. Finish installing Turbolinux 7.0 as you would on a physical computer.

At this point Turbolinux 7.0 boots and a login screen appears.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Do not start the X server in the guest operating system until you install VMware Tools.

**VMware GSX Server:** If you plan to test scripts in a Turbolinux 7.0 guest operating system, you need to update the Turbolinux guest operating system. This is a known issue with Turbolinux. Go to *ftp://ftp.turbolinux.com/pub/TurboLinux/TurboLinux/ia32/Workstation/7/updates/RPMS/initscripts-7.0.0-18.i586.rpm*. For more information about running scripts in a guest operating system, see Executing Scripts When the Virtual Machine's Power State Changes in the GSX Server documentation.

### Enabling Sound After Installing Turbolinux 7.0

**VMware GSX Server:** The sound device is disabled by default and must be enabled with the virtual machine settings editor (**VM > Settings**) after the operating system has been installed. To set up the virtual machine to play sound, see Configuring Sound in the GSX Server documentation.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Ubuntu Linux 5.10

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

### 64-Bit Version

This operating system has experimental support as a guest operating system on the following VMware products:

- VMware Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 5.10 in a virtual machine is to use the standard Ubuntu Linux distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Ubuntu Linux CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Ubuntu Linux.
3. After the Ubuntu Linux installer copies the files it needs to the virtual disk, it ejects the installation CD and displays a message saying the computer will restart. If the virtual machine fails to restart as expected, click the Reset button to restart it.
4. Follow the installation steps as you would for a physical PC.
5. After completing the installation, create a password for the root user. You need to become root to install VMware Tools.

   Enter the following command:

   ```
   sudo -s -H
   ```

   At the password prompt, enter the password for the normal user — the same password you used when you logged on to Ubuntu Linux.

You are now logged in as root. Enter the following command to set the root password:

```
passwd
```

At the prompt, enter the password you want to use for the root account.

You can now become root at any time using the normal `su -` command and the root password you just created.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** You must use the tar installer to install VMware Tools in Ubuntu Linux.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# Ubuntu Linux 5.0.4

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

### 64-Bit Version

This operating system has experimental support as a guest operating system on the following VMware products:

- VMware Workstation 5.5, 5.5.1

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 5.0.4 in a virtual machine is to use the standard Ubuntu Linux distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Ubuntu Linux CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Ubuntu Linux.
3. If your host computer is on a network that uses a proxy server for Internet access, enter information about the proxy server name and port at the boot prompt.

   ```
   linux http_proxy=http://<proxy_server>:<port_number>
   ```
4. Follow the installation steps as you would for a physical PC.
5. After completing the installation, create a password for the root user. You need to become root to install VMware Tools.

   Enter the following command:

   ```
   sudo -s -H
   ```

   At the password prompt, enter the password for the normal user — the same password you used when you logged on to Ubuntu Linux.

You are now logged in as root. Enter the following command to set the root password:

```
passwd
```

At the prompt, enter the password you want to use for the root account.

You can now become root at any time using the normal `su -` command and the root password you just created.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

**Note:** You must use the tar installer to install VMware Tools in Ubuntu Linux.

## Known Issues

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 5.4

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

### 64-Bit Version

This operating system has experimental support as a guest operating system on the following VMware products:

- VMware Workstation 5.5, 5.5.1

**Note:** No VMware Tools package is available for the 64-bit version of FreeBSD 5.4.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 5.4 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 5.3

## Support

### 32-Bit Version

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.5, 5.5.1

### 64-Bit Version

This operating system has experimental support as a guest operating system on the following VMware products:

- VMware Workstation 5.5, 5.5.1

**Note:** No VMware Tools package is available for the 64-bit version of FreeBSD 5.3.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 5.3 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 5.2

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware GSX Server 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 5.2 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 5.1

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware GSX Server 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 5.1 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 5.0

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 5.0 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 4.10

## Support

This guest operating system is supported on the following VMware products:

- VMware ESX Server 2.5, 2.5.1
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 4.10 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. In the FreeBSD Disklabel Editor step, do not use the installer's default option `A` partitioning. Use option `C` to create the mounts. In order to install VMware Tools, you need more space in `/usr` than is provided by the installer's defaults. Be sure your partitioning scheme includes at least 4,000,000 blocks for `/usr`.
4. Follow the rest of the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 4.9

## Support

This guest operating system is supported on the following VMware products:

- VMware GSX Server 3.2, 3.2.1
- VMware ESX Server 2.5
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 4.9 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. In the FreeBSD Disklabel Editor step, do not use the installer's default option `A` partitioning. Use option `C` to create the mounts. In order to install VMware Tools, you need more space in `/usr` than is provided by the installer's defaults. Be sure your partitioning scheme includes at least 4,000,000 blocks for `/usr`.
4. Follow the rest of the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 4.4, 4.5, 4.6.2, 4.8

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 4.4, 4.5, 4.6.2 or 4.8 in a virtual machine is to use the standard FreeBSD distribution CD.

**Note:** FreeBSD 4.6 is not supported. Use FreeBSD 4.6.2 instead. It resolves an issue that interferes with installation of FreeBSD 4.6 in a virtual machine.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Sound

VMware has not tested sound support in FreeBSD.

**Guest Screen Saver**

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# FreeBSD 4.0, 4.1, 4.2, 4.3

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 4.0, 4.1, 4.2 or 4.3 in a virtual machine is to use the standard FreeBSD distribution CD.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** If you create your virtual machine with a virtual IDE disk, installation proceeds as it would on a physical machine. If you create your virtual machine with a SCSI virtual disk that is 2GB or larger, see Setting the Disk Geometry for a FreeBSD SCSI Virtual Disk below.

### Installation Steps

1. Insert the FreeBSD CD in the CD-ROM drive.
2. Power on the virtual machine to start installing FreeBSD.
3. Follow the installation steps as you would for a physical PC.

### VMware Tools

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

## Known Issues

### Setting the Disk Geometry for a FreeBSD SCSI Virtual Disk

If you install FreeBSD 4.0, 4.1, 4.2 or 4.3 as the guest operating system on a 2GB or larger SCSI virtual disk, the guest operating system does not boot unless you take the special steps described in this section.

It fails to boot because the virtual disk geometry is not probed correctly by FreeBSD when you install the guest operating system. FreeBSD installs the boot loader in the wrong location on the virtual disk. When FreeBSD tries to boot, the FreeBSD boot loader asks the BIOS for important data that is now on a different section of the virtual disk, so FreeBSD cannot boot.

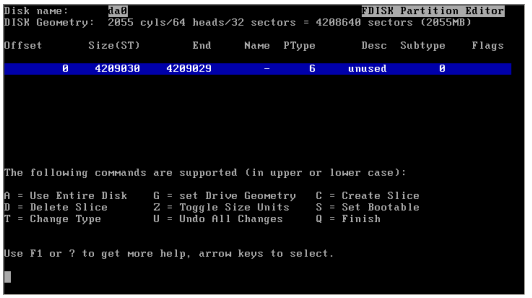
This problem has been fixed in FreeBSD 4.4. This and later versions correctly boot SCSI virtual disks of any size.

To use FreeBSD 4.0, 4.1, 4.2 or 4.3 in your virtual machine, you can do one of two things:

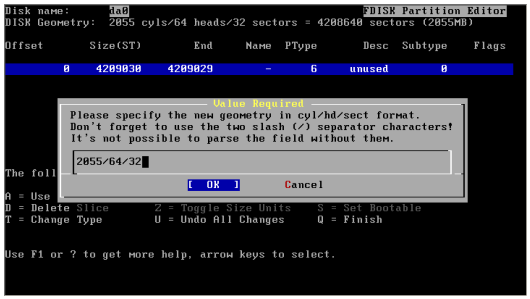
- Use an IDE virtual disk in your virtual machine. You may need to add the IDE virtual disk to the virtual machine with the Configuration Editor.
- Set the disk geometry by hand when installing FreeBSD. These steps are outlined below.

To set the disk geometry manually, take these steps.

1. FreeBSD calculates an incorrect disk geometry before you arrive at the FDISK Partition Editor, as illustrated here.



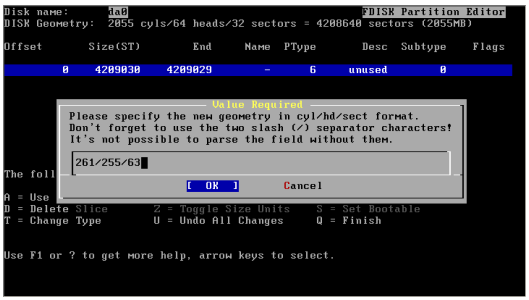
2. To set the disk geometry, press G to select the option Set Drive Geometry. A dialog box appears, containing numbers like 2055/64/32, representing the incorrect geometry in cylinders, heads and sectors per head.




3. To calculate the correct geometry, find the total number of sectors by multiplying the number of cylinders, heads and sectors per head together, then dividing the number of sectors by the correct number of heads and sectors per head.

   In the above illustration, the virtual disk is a 2055MB disk with 2055 cylinders, 64 heads and 32 sectors per head (these numbers represent the incorrect geometry). The product of these three numbers (2055 x 64 x 32) equals 4,208,640 sectors.

   To determine the correct geometry for the BusLogic compatible virtual SCSI adapter used by the virtual machine, calculate the number of cylinders, which is 4,208,640 sectors divided by the product of the actual number of heads and sectors per head (255 heads times 63 sectors per head). This results in a total of 261 actual cylinders (4208640/(255 * 63) = 261, rounded down).



4. You can now enter the correct geometry of 261 cylinders, 255 heads and 63 sectors per head by typing `261/255/63` in the dialog box. Then click **OK** and continue installing FreeBSD.

### Sound

VMware has not tested sound support in FreeBSD.

### Guest Screen Saver

On a Linux host with an XFree86 3.x X server, it is best not to run a screen saver in the guest operating system. Guest screen savers that demand a lot of processing power can cause the X server on the host to freeze.

# NetWare 6.5 Server

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.5, 4.5.1, 4.5.2 — Support Pack 1
  VMware Workstation 5.0, 5.5, 5.5.1 — Support Pack 3
  Novell Open Enterprise Server services supported on NetWare 6.5 Support Pack 3 running under Workstation 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Support Pack 1
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — Support Pack 1
- VMware ESX Server 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Support Pack 2 supported on ESX Server 2.5, 2.5.1, 2.5.2
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install NetWare 6.5 in a virtual machine using the standard Novell NetWare 6.5 Operating System and Product CD-ROMs.

Keep the following issues in mind:

- VMware recommends you install NetWare 6.5 on a computer with at least 512MB of memory.
- **Guests without Support Pack 1:** Be sure to read the Novell technical information document at *support.novell.com/cgi-bin/search/searchtid.cgi?/2967370.htm*. This document describes the steps necessary to download and install a NetWare patch that you must use when you install a NetWare 6.5 Server guest operating system without SP1.
- When you configure a virtual machine for a NetWare 6.5 guest, use the virtual LSI Logic SCSI adapter. NetWare 6.5 does not include a driver for the virtual BusLogic SCSI adapter.

### Installation Steps

To install NetWare 6.5 in a virtual machine, take the following steps.

1. Insert the Novell NetWare 6.5 Product CD in the CD-ROM drive.
2. Power on the virtual machine to start installing NetWare 6.5.
3. Read and accept the license agreement.

   **Note:** A few prompts appear before you reach the license agreement. Accept the defaults for installing NetWare, the CD-ROM drive type, how to restore the floppy drive and the run mode, then continue.
4. When prompted, choose IDE CD-ROM.
5. Create a new boot partition. The guest operating system reboots. The installation continues.
6. **VMware ESX Server:** Jump to step 7.

   **VMware Workstation, VMware ACE and VMware GSX Server:** To configure IP networking, do one of the following:

   - If you chose bridged networking for the virtual machine, enter its IP address.

     When NetWare tries to load the LAN driver (using `pcntnw.lan`), it fails because it broadcasts for its own IP address. This causes IP networking to fail.

     To work around this, open the System Console (press Ctrl-Esc) and type
     `set allow ip address duplicates=on`

     Press Alt-Esc to return to the installation.
   - If you chose host-only networking for the virtual machine, look up the host machine's IP address.

     At a command prompt on a Windows host, type
     `ipconfig /all`

     At a command prompt on a Linux host, type
     `ifconfig`

     Note the host's IP address for VMnet1 and change the last octet so it is greater than the last octet in the IP address of the host.

     For example, if the host IP address is 192.168.160.1, then the virtual machine's IP address is 192.168.160.###, where ### is any number greater than 1 and less than 128.

     For the subnet mask, enter 255.255.255.0.

For the router gateway, enter the host's IP address (192.168.160.1 in our example).

- If you chose network address translation (NAT) for the virtual machine, look up the host machine's IP address.

  At a command prompt on a Windows host, type
  `ipconfig /all`

  At a command prompt on a Linux host, type
  `ifconfig`

  Note the host's IP address for VMnet8 and change the last octet so it is greater than the last octet in the IP address of the host.

  For example, if the host IP address is 192.168.160.1, then the virtual machine's IP address is 192.168.160.###, where ### is any number greater than 2 and less than 128.

  For the subnet mask, enter 255.255.255.0.

  For the router gateway, enter the NAT service's IP address (192.168.160.2 in our example).

  Note that with Network Address Translation, there are 2 IP addresses in use on the host:

  * The IP address assigned to the interface for VMnet8 (which shows up in the `ipconfig` output with a ".1" in the last octet).

  * The IP address used by the NAT device itself (which always uses ".2" as the last octet).

7. Finish the installation by following the on-screen instructions.

   After you finish the installation, install VMware Tools, which installs and loads the CPU idler program.

**VMware Tools for NetWare 6.5 Guest Operating Systems**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Installing VMware Tools also installs and loads the CPU idler program. NetWare servers do not idle the CPU when the operating system is idle. As a result, a virtual machine takes CPU time from the host regardless of whether the NetWare server software is idle or busy. To prevent unnecessary slowdowns, VMware recommends that, after you install VMware Tools, you keep the NetWare CPU idle program loaded.

## Known Issues

### Regaining Keyboard and Mouse Control After Reboot

Whenever you reboot the guest operating system, it can take up to six minutes before you can regain control of the keyboard or mouse.

### Navigating in Text Mode

If you are using text mode and want to browse the file system, you may notice that the arrow keypad and Insert key do not allow you to navigate directories. To work around this issue, use the numeric keypad, but first turn off the number lock by pressing the Num Lock key.

# NetWare 6.0 Server

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2 — Support Pack 3
  VMware Workstation 5.0, 5.5, 5.5.1 — Support Pack 4
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Support Pack 3
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — Support Pack 3
- VMware ESX Server 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Support Pack 3 supported on ESX Server 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2
  Support Pack 5 supported on ESX Server 2.5, 2.5.1, 2.5.2
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install NetWare 6.0 in a virtual machine using the standard Novell NetWare 6.0 CD-ROM.

Keep the following issues in mind:

- VMware recommends you install NetWare 6 on a computer with at least 256MB of memory.
- In the NetWare installation process, you must boot from the installation CD twice —once to format the virtual machine's disk drive, then a second time to install files from the CD.

  On the reboot, you see a message that says "Operating System not found" and a dialog box with a message that says "No bootable CD, floppy or hard disk was detected."

  In order to boot from the CD the second time, you must change the boot order.

As the virtual machine boots, click inside the virtual machine window. When the VMware logo appears, press Esc. Use the arrow keys to select the CD drive as the boot device, then press Enter.

- When you configure a virtual machine for a NetWare 6.0 guest, use the virtual LSI Logic SCSI adapter. NetWare 6.0 does not include a driver for the virtual BusLogic SCSI adapter.

**Installation Steps**

To install NetWare 6 in a virtual machine, take the following steps.

1. Insert the Novell NetWare 6.0 CD in the CD-ROM drive.
2. Power on the virtual machine to start installing NetWare 6.0.
3. Read and accept the license agreement.
4. When prompted, choose **IDE CD-ROM**.
5. Create a new boot partition. The guest operating system reboots.
6. To configure IP networking, do one of the following:
   - If you chose bridged networking for the virtual machine, enter its IP address.

     When NetWare tries to load the LAN driver (using `pcntnw.lan`), it fails because it broadcasts for its own IP address. This causes IP networking to fail.

     To work around this, open the System Console (press Ctrl-Esc) and type
     `set allow ip address duplicates=on`

     Press Alt-Esc to return to the installation.
   - If you chose host-only networking for the virtual machine, look up the host machine's IP address.

     At a command prompt on a Windows host, type
     `ipconfig /all`

     At a command prompt on a Linux host, type
     `ifconfig`

     Note the host's IP address for VMnet1 and change the last octet so it is greater than the last octet in the IP address of the host.

     For example, if the host IP address is 192.168.160.1, then the virtual machine's IP address is 192.168.160.###, where ### is any number greater than 1 and less than 128.

     For the subnet mask, enter 255.255.255.0.

For the router gateway, enter the host's IP address (192.168.160.1 in this example).

- If you chose network address translation (NAT) for the virtual machine, look up the host machine's IP address.

  At a command prompt on a Windows host, type
  `ipconfig /all`

  At a command prompt on a Linux host, type
  `ifconfig`

  Note the host's IP address for VMnet8 and change the last octet so it is greater than the last octet in the IP address of the host.

  For example, if the host IP address is 192.168.160.1, then the virtual machine's IP address is 192.168.160.###, where ### is any number greater than 2 and less than 128.

  For the subnet mask, enter 255.255.255.0.

  For the router gateway, enter the NAT service's IP address (192.168.160.2 in this example).

  Note that with Network Address Translation, there are two IP addresses in use on the host:

  The IP address assigned to the interface for VMnet8 appears in the `ipconfig` output with a 1 in the last octet.

  The IP address used by the NAT device itself always uses 2 as the last octet.

7. Finish the installation.

   After you finish the installation, install VMware Tools, which installs and loads the CPU idler program.

**VMware Tools for NetWare 6.0 Guest Operating Systems**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Installing VMware Tools also installs and loads the CPU idler program. NetWare servers do not idle the CPU when the operating system is idle. As a result, a virtual machine takes CPU time from the host regardless of whether the NetWare server software is idle or busy. To prevent unnecessary slowdowns, VMware recommends that, after you install VMware Tools, you keep the NetWare CPU idle program loaded.

## Known Issues

### Disconnecting VMware Tools ISO File

After the virtual machine reboots while installing VMware Tools, make sure the virtual machine releases the VMware Tools ISO image. Choose **Edit** > **Removable Devices** > **CD-ROM**, and if the CD-ROM's configuration shows the VMware Tools ISO image, change it back to **Use physical drive**.

### Installation Failure on First Try

During the installation of the guest operating system, if you get an `ABEND` error in the `JVM.NLM` module, try installing the operating system again. This is a third-party problem that occurs rarely, but when it does, it occurs during installation only. Once you complete the installation, you should not see this error again.

### Grabbing the Mouse Pointer

If the virtual machine is unable to grab or ungrab the mouse, it may be due to a Java class not being referenced in the virtual machine. In the NetWare 6.0 guest operating system, check the `xinitrc` file, which is located in `sys:\java\nwgfx\`. Take the following steps.

1. In the virtual machine, switch to the system console, then type:
   ```
   load edit
   ```
2. Press the **Insert** key to browse to the `sys:\java\nwgfx\xinitrc` file.
3. In the file, look for this line:
   ```
   java -classpath
   $JAVA_HOME\classes\VMWtool.jar;$CLASSPATH VMWTool -iw
   ```
4. If the line does not exist, add it to the file. Press the **Esc** key. Save the file.
5. Restart the guest operating system. In the system console, type
   ```
   restart server
   ```
   The virtual machine should be able to grab and ungrab the mouse now.

### Cannot Browse File System with Arrow Keys

If you are using text mode and want to browse the file system, you may notice that the arrow keypad and Insert key do not allow you to navigate directories. To work around this issue, use the numeric keypad, but first turn off the number lock by pressing the Num Lock key.

# NetWare 5.1 Server

## Support

This guest operating system is supported on the following VMware products:

- VMware Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2 — Support Pack 6
  VMware Workstation 5.0, 5.5, 5.5.1 — Support Pack 8
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2 — Support Pack 3
- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1 — Support Pack 6
- VMware ESX Server 2.0.1, 2.1, 2.5, 2.5.1, 2.5.2
  Support Pack 7 supported on ESX Server 2.5, 2.5.1, 2.5.2
  No support for Virtual SMP

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install NetWare 5.1 in a virtual machine using the standard Novell NetWare 5.1 CD-ROM.

Keep the following issues in mind:

- VMware recommends you install NetWare 5.1 on a computer with at least 256MB of memory.
- For SCSI support, be sure to download the latest LSI Logic driver as described in Updated LSI Logic SCSI Driver on page 189.

  When you configure a virtual machine for a NetWare 5.1 guest, use the virtual LSI Logic SCSI adapter. NetWare 5.1 Support Pack 6 does not include a driver for the virtual BusLogic SCSI adapter.
- In the NetWare installation process, you must boot from the installation CD twice —once to format the virtual machine's disk drive, then a second time to install files from the CD.

On the reboot, you see a message that says "Operating System not found" and a dialog box with a message that says "No bootable CD, floppy or hard disk was detected."

In order to boot from the CD the second time, you must change the boot order.

As the virtual machine boots, click inside the virtual machine window. When the VMware logo appears, press Esc. Use the arrow keys to select the CD drive as the boot device, then press Enter.

**Installation Steps**

To install NetWare 5.1 in a virtual machine, take the following steps.

1. Insert the Novell NetWare 5.1 CD into the CD-ROM drive.
2. Power on the virtual machine to start installing NetWare 5.1.
3. Read and accept the license agreement.
4. Create a new boot partition. The guest operating system reboots. The installation continues.
5. **VMware ESX Server:** Skip to step 6.

   **VMware Workstation, VMware ACE and VMware GSX Server:** To configure IP networking, do one of the following:

   - If you chose bridged networking for the virtual machine, enter its IP address.

     When NetWare tries to load the LAN driver (using `pcntnw.lan`), it fails because it broadcasts for its own IP address. This causes IP networking to fail.

     To work around this, open the System Console (press Ctrl-Esc) and type
     `set allow ip address duplicates=on`

     Press Alt-Esc to return to the installation.

   - If you chose host-only networking for the virtual machine, look up the host machine's IP address.

     At a command prompt on a Windows host, type
     `ipconfig /all`

     At a command prompt on a Linux host, type
     `ifconfig`

     Note the host's IP address for VMnet1 and change the last octet so it is greater than the last octet in the IP address of the host.

For example, if the host IP address is 192.168.160.1, then the virtual machine's IP address is 192.168.160.###, where ### is any number greater than 1 and less than 128.

For the subnet mask, enter 255.255.255.0.

For the router gateway, enter the host's IP address (192.168.160.1 in this example).

- If you chose network address translation (NAT) for the virtual machine, look up the host machine's IP address.

  At a command prompt on a Windows host, type
  `ipconfig /all`

  At a command prompt on a Linux host, type
  `ifconfig`

  Note the host's IP address for VMnet8 and change the last octet so it is greater than the last octet in the IP address of the host.

  For example, if the host IP address is 192.168.160.1, then the virtual machine's IP address is 192.168.160.###, where ### is any number greater than 2 and less than 128.

  For the subnet mask, enter 255.255.255.0.

  For the router gateway, enter the NAT service's IP address (192.168.160.2 in this example).

  Note that with Network Address Translation, there are two IP addresses in use on the host:

  The IP address assigned to the interface for VMnet8 shows up in the `ipconfig` output with a 1 in the last octet.

  The IP address used by the NAT device itself always uses 2 as the last octet.

6. Finish the installation by following the on-screen instructions.

   After you finish the installation, install VMware Tools, which installs and loads the CPU idler program.

**VMware Tools for NetWare 5.1 Guest Operating Systems**

Be sure to install VMware Tools in your guest operating system. For details, see the manual for your VMware product or follow the appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Installing VMware Tools also installs and loads the CPU idler program. NetWare servers do not idle the CPU when the operating system is idle. As a result, a virtual machine

takes CPU time from the host regardless of whether the NetWare server software is idle or busy. To prevent unnecessary slowdowns, VMware recommends that, after you install VMware Tools, you keep the NetWare CPU idle program loaded.

## Known Issues

### Updated LSI Logic SCSI Driver

If you are running NetWare 5.1 Support Pack 6, you should install the latest LSI Logic SCSI driver. For information on obtaining and installing the driver, see *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=1181*.

### Disconnecting VMware Tools ISO File

After the virtual machine reboots while installing VMware Tools, make sure the virtual machine releases the VMware Tools ISO image. Choose **Edit** > **Removable Devices** > **CD-ROM**, and if the CD-ROM's configuration shows the VMware Tools ISO image, change it back to **Use physical drive**.

### Pentium 4 Host Page Fault

During the installation of the guest operating system on an Intel Pentium 4 host, you may encounter a Page Fault error. If this error occurs, you must apply a NetWare 5.1 patch on the host machine. For details, see *support.novell.com/cgi-bin/search/searchtid.cgi?/2958220.htm*.

### Cannot Mount a CD-ROM as a Volume

If you are not running NetWare 5.1 with Support Pack 6, you cannot mount the CD-ROM as a volume. To mount a CD-ROM with the support pack installed, do one of the following:

- Set the primary hard drive to IDE 0:0 and the CD-ROM drive to IDE 0:1.
- Copy the original driver files (`IDEATA.DDI` and `IDEATA.HAM`) from the `Drivers\Storage` directory of the installation CD-ROM that shipped with NetWare 5.1 to the `c:\nwserver` directory.

**Note:** If you cannot mount CD-ROMs, you cannot install VMware Tools in the virtual machine.

For more information, see *support.novell.com/cgi-bin/search/searchtid.cgi?/10058758.htm*.

### Using More than One Virtual Network Adapter on the Same Network

If you use more than one virtual network adapter connected to the same network, error messages appear in the System Console.

Examples of error messages you might see include:

```
Router configuration error detected
Router at node 000C29D02242 claims network 511F827 should
be 2010F5EA
Router configuration error detected
Router at node 000C29D0224C claims network 2010F5EA should
be 511F827
```

You can ignore these errors safely. However, to avoid seeing the errors, connect the virtual network adapters to separate networks.

**Grabbing the Mouse Pointer**

If the virtual machine is unable to grab or ungrab the mouse, it may be due to a Java class not being referenced in the virtual machine. In the NetWare 5.1 guest operating system, check the `xinitrc` file, which is located in `sys:\java\nwgfx\`. Take the following steps.

1. In the virtual machine, switch to the system console, then type:
   `load edit`
2. Press the **Insert** key to browse to the `sys:\java\nwgfx\xinitrc` file.
3. In the file, look for this line:
   `java -classpath`
   `$JAVA_HOME\classes\VMWtool.jar;$CLASSPATH VMWTool -iw`
4. If the line does not exist, add it to the file. Press the **Esc** key. Save the file.
5. Restart the guest operating system. In the system console, type
   `restart server`

   The virtual machine should be able to grab and ungrab the mouse now.

**Cannot Browse File System with Arrow Keys**

If you are using text mode and want to browse the file system, you may notice that the arrow keypad and Insert key do not allow you to navigate directories. To work around this issue, use the numeric keypad, but first turn off the number lock by pressing the Num Lock key.

# NetWare 4.2 Server

## Support

This guest operating system is supported on the following VMware products:

- VMware GSX Server 3.0, 3.1, 3.2, 3.2.1— Support Pack 9

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

You can install NetWare 4.2 in a virtual machine using the standard Novell NetWare 4.2 installation CD. VMware recommends you install NetWare 4.2 on a host with at least 256MB of memory.

### Creating and Configuring the NetWare Virtual Machine

1. If you created this virtual machine on a Linux host, open the configuration file (`<netware>.cfg`) in a text editor and add the following line:
   `gui.iconLEDS = false`

   This removes all the LED icons in the console window, which prevents the virtual machine display from appearing incorrectly when you power it on while the host is in 8 bit/256 color mode.
2. Install the guest operating system and VMware Tools, which includes the CPU idler program. See below for details.

### Installing the Guest Operating System

To install NetWare 4.2 in a virtual machine, complete the following steps.

1. VMware recommends that you install MS-DOS 5.0 or higher in a small (50MB FAT16) partition as described in these guidelines. The rest of the free space on the virtual disk is used for the NetWare partition. Even if the virtual machine is to run NetWare most of the time, it is a good idea to install the `DOSIDLE.EXE` program, which you can download from *www.vmware.com/software/dosidle210.zip*.
2. Install a CD-ROM driver or CD-ROM software for DOS. If you have problems setting up the DOS virtual machine to access the CD-ROM drive, you can use the `mtmcdai.sys` driver, which can be found at *www.mitsumi.com*. Under **Drivers**

**and Manuals** look for `ide158.exe`. Modify the `config.sys` and `autoexec.bat` files on your DOS boot floppy (along with the `mscdex.exe` file) as shown below. If you are using a DOS boot partition, adjust the drive letters accordingly.

```
config.sys

device=himem.sys /testmem:off
device=NEC_IDE.SYS /D:MSCD001
files=12
buffers=15
stacks=9,256
lastdrive=z


autoexec.bat

@ECHO OFF
set EXPAND=YES
SET DIRCMD=/O:N
cls
set temp=c:\
set tmp=c:\
path=c:\

IF "%config%"=="NOCD" GOTO QUIT
a:\NWCDEX.EXE /D:mscd001

:QUIT
```

After you have configured the CD-ROM software, verify that the virtual machine can read a CD from the host system's CD-ROM drive.

3. If the virtual machine is not running, power it on and wait for DOS to finish its boot process.
4. Insert the NetWare 4.2 CD in the CD-ROM drive on the GSX Server host.
5. In the virtual machine, at the DOS prompt, run `fdisk` to create a partition for NetWare.
   `A:\>fdisk`
6. After you create the partition, reboot the virtual machine. Press Ctrl-Alt-Insert.
7. Format the C: drive. Type the following:
   `format c: /s /x`

8. Copy the following files to your C: drive from your floppy. Type the following:
   ```
   Copy autoexec.bat c:
   Copy config.sys c:
   Copy himem.sys c:
   Copy nwcdex.exe c:
   Copy nec_ide.sys c:
   ```
9. Modify the `autoexec.bat` file so it points to the CD-ROM directory on the hard drive instead of the floppy drive.

   A. To modify `autoexec.bat`, type the following at the `C:` prompt:
   ```
   a:edit autoexec.bat
   ```

   B. The line
   ```
   a:\NWCDEX.EXE /D:mscd001
   ```
   Must be changed to
   ```
   c:\NWCDEX.EXE /D:mscd001
   ```

   C. Save the changes you just made.
   ```
   cd d:
   ```
10. Run `INSTALL.BAT` to start the NetWare server installation process. Install the software in a virtual machine as you would for a physical PC.
11. If the virtual machine has been configured for networking (bridged, host-only, NAT or custom), the installation program detects a PCI Ethernet adapter and prompts you with a list of possible drivers. At this point, do not select or load any LAN drivers; press the F3 key to continue installing without a LAN driver.

    **Note:** Once the installation has been completed, you can load and bind the appropriate LAN driver. Selecting or loading a LAN driver during the NetWare 4.2 installation may hang the installation process.
12. Finish the NetWare 4.2 installation by following the on-screen instructions.

    Then shut down the server and type `exit` to return to a DOS prompt.

    After you finish the installation, install VMware Tools, which installs and loads the CPU idler program.

**VMware Tools for NetWare 4.2 Guest Operating Systems**

Be sure to install VMware Tools in your guest operating system. In NetWare 4.2 virtual machines, VMware Tools provides CPU idling, sends a heartbeat from the guest operating system to the host and gives the virtual machine the ability to be gracefully powered on or off. For details, see the manual for your VMware product or follow the

appropriate link in the knowledge base article at *www.vmware.com/support/kb/enduser/std_adp.php?p_faqid=340*.

Installing VMware Tools also installs and loads the CPU idler program. NetWare servers do not idle the CPU when the operating system is idle. As a result, a virtual machine takes CPU time from the host regardless of whether the NetWare server software is idle or busy. To prevent unnecessary slowdowns, VMware recommends that, after you install VMware Tools, you keep the NetWare CPU idle program loaded.

# Solaris 10 Operating System for x86 Platforms

## Support

### 32-Bit Version

This guest operating system has experimental support on the following VMware products:

- VMware Workstation 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.1, 3.2, 3.2.1

### 64-Bit Version

This guest operating system has experimental support on the following VMware products:

- VMware Workstation 5.5, 5.5.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

VMware products support only the version for x86 platforms. You cannot install the version for SPARC platforms in a VMware virtual machine.

The easiest method of installing the Solaris 10 Operating System in a virtual machine is to use the standard Solaris 10 for x86 installation media. The notes below describe an installation using the CD set or DVD. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

### Installation Steps

1. Insert the Solaris 10 Operating System for x86 Platforms DVD or the Solaris 10 Software 1 CD in the DVD or CD-ROM drive.

2. Power on the virtual machine to start installing Solaris 10.
3. Follow the installation steps as you would for a physical machine.

This completes basic installation of the Solaris 10 guest operating system.

**Note:** There is no VMware Tools package for Solaris guest operating systems.

## Known Issues

### Display Too Small After Installation

After installation, the Solaris 10 guest operating system starts with a display resolution of 640 x 480. You can switch to the Xsun X server to get a 1024 x 768 display (256 colors). To make this change, take the following steps:

1. Log in as root and run the keyboard, display, and mouse configuration program from a command prompt.

   ```
   kdmconfig
   ```

2. Use the arrow keys and space bar to select **Xsun**, then press F2 to continue.
3. The configuration program detects the virtual machine's configuration and should display results similar to the following list:

   ```
   Video Device:  VMWare Inc vmware0405
   Video Driver:  XF86-VMWARE
   Resolution/colors:1024X768 256 colors @70 hz
   Monitor type:  Multifrequency 56 khz
   ```

   Press F3 to accept the configuration.

4. Exit the current log-in session. The next time CDE or the Java Desktop System starts, Xsun runs with a resolution of 1024 x 768.

### PAE Message During Installation

**VMware Workstation:** If your host computer has a processor that includes NX (no execute) technology you may get an error message during installation. The message says the guest operating system is trying to use PAE. The NX technology is present in AMD processors including Athlon64, Opteron and Sempron. It is also present in Intel EMT64-capable processors.

To avoid the problem, be sure the virtual machine is powered off, then use a text editor to edit the configuration (`.vmx`) file for the affected virtual machine. Add the following line to the file:

```
paevm="true"
```

You can then power on the virtual machine and install the guest operating system.

# Solaris 9 Operating System x86 Platform Edition

## Support

This guest operating system has experimental support on the following VMware products:

- VMware Workstation 4.5.2, 5.0, 5.5, 5.5.1
  Experimental support for 2-way Virtual SMP on Workstation 5.5, 5.5.1
- VMware ACE 1.0, 1.0.1, 1.0.2
- VMware GSX Server 3.1, 3.2, 3.2.1

**Note:** If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product — ESX Server or GSX Server — on which you are running the virtual machine.

## General Installation Notes

Be sure to read General Guidelines for All VMware Products on page 16 as well as this guide to installing your specific guest operating system.

VMware products support only the x86 Platform Edition. You cannot install the SPARC Platform Edition in a VMware virtual machine.

The easiest method of installing the Solaris 9 Operating System in a virtual machine is to use the standard Solaris x86 Platform Edition Installation CD. The notes below describe an installation using the CD. If your VMware product supports it, you may also install from a PXE server.

Before installing the operating system, be sure that you have already created and configured a new virtual machine.

**Note:** If you want to use a SCSI hard disk in your virtual machine, configure the virtual machine to use the LSI Logic adapter and use Solaris 9 9/04 or a later release. An LSI Logic driver is included in releases beginning with Solaris 9 9/04. If you use an earlier release of Solaris 9 and configure the virtual machine to use a SCSI hard disk, you must get the LSI Logic driver and install it as an install time update. To locate the driver, go to the LSI Logic download page at *www.lsilogic.com/support/download_center/* and choose **LSI53C1030** from the **Select a Specific Product** drop-down list.

**Installation Steps**

1. Insert the Solaris x86 Platform Edition Installation CD in the CD-ROM drive.
2. Power on the virtual machine to start installing Solaris 9.
3. In most respects, you should follow the installation steps as you would for a physical machine. The following steps outline the special choices you should make for installation in a virtual machine. In particular, note that it is more convenient to delay configuration of the KDM X server until near the end of the installation.
4. When you reach the screen titled Boot Solaris, press F4 to go to the Boot Tasks screen.
5. At the Boot Tasks screen, use the arrow keys to navigate to **View/Edit Property Settings**, press Enter to select it, then press F2.
6. At the View/Edit Property Settings screen, use the arrow keys to navigate to **ata-dma-enabled**, press Enter to select it, then press F3 to change the value.
7. At the **Specify Value** prompt, type 1 and press Enter to enable DMA.
8. When you return to the View/Edit Property Settings screen, press F2. Then on the Boot Tasks screen, press F3.
9. Choose **CD** if you are installing from the CD-ROM set and continue with the normal installation steps.
10. When the kdmconfig - Introduction screen appears, press F4 to skip configuration of the X server for now.

    **Note:** It is important to skip configuration of the X server both at this point and at the point mentioned in the next step. Wait until the third opportunity — after all the software is installed — before configuring the X server.
11. After the first reboot and before installing the Solaris software, the installer again displays the kdmconfig - Introduction screen. Again, press F4 to skip configuration of the X server for now.
12. After installing all the software and rebooting, the installer again displays the kdmconfig - Introduction screen. This time, press F2 to continue with the configuration steps.
13. Press F2 to configure the video device and monitor.
14. Press Enter to select **16 color Standard VGA 640x480 (256K)**, then press F2 to continue.

15. Use the arrow keys to move to **Multifrequency 100KHz (up to 1600x1200 @ 80Hz)**, press Enter to select it, then press F2 to continue.
16. Keep the default screen size of 17 inches and press F2 to continue.
17. Keep the default of **No changes needed – Test/Save and Exit**. Press F2 to continue.
18. Press F4 to bypass the tests.
19. Continue with the normal installation steps.

This completes basic installation of the Solaris 9 guest operating system.

**Note:** There is no VMware Tools package for Solaris guest operating systems.

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