

Guest Operating System Installation Guide

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Guest Operating System Installation Guide

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VMware, Inc.

3401 Hillview Ave.
Palo Alto, CA 94304
www.vmware.com

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About This Book

The *Guest Operating System Installation Guide* provides users of VMware® ESX Server, VMware GSX Server, VMware Server, VMware ACE, VMware Workstation, and VMware Fusion™ information about choosing and installing guest operating systems for VMware virtual machines.

Revision History

This manual is revised with each release of a product or when necessary. A revised version can contain minor or major changes.

Table 1. Revision History

Revision	Description
20090120	■ Clarified support for 32-bit Windows Server 2003 on ESX Server. ■ Added support for Red Hat Enterprise Linux 5.3 on ESX 3.0.2, 3.0.3, and 3.5 Update 3. ■ Added known issue for Red Hat Enterprise Linux 5.2 running on ESX 3.5 Update 3. ■ Made minor corrections.
20090112	■ Added VMware Tools Operating System Specific Packages information to supported guests, including Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 4, SUSE Linux Enterprise Server 10, SUSE Linux Enterprise Server 9, and Ubuntu 8.04 LTS. ■ Reformatted support for Novell Open Enterprise Server on SUSE Linux Enterprise Server 10, SUSE Linux Enterprise Server 9, and NetWare 6.5 Server. ■ Clarified which version of MS-DOS is supported. ■ Revised index entries. ■ Incorporated minor edits.
20081215	■ Added a new section that describes support for VMware Tools Operating System Specific Packages. ■ Added support for Red Hat Enterprise Linux 5 on ESX Server 3.0.2, 3.0.3, 3.5, 3.5 Update 1, 3.5 Update 2, and 3.5 Update 3. ■ Added support information about Server Core functionality for Windows Server 2008.
20081211	■ Added support for 32-bit NetWare 6.5 Server, Support Pack 8 on ESX Server 2.5.5 for which VMware declared support on December 3, 2008. ■ Revised information about running 64-bit guest operating systems.
20081203	■ Added support for 32-bit NetWare 6.5 Server, Service Pack 8 on ESX Server 3.0.2, 3.0.3, and 3.5 Update 3. ■ Added support for Novell Open Enterprise Server 2, Support Pack 1 with 32-bit and 64-bit SUSE Linux Enterprise Server 10, Service Pack 2 and 32-bit NetWare 6.5 Server, Support Pack 8 on ESX Server 3.0.2, 3.0.3, and 3.5 Update 3.

Table 1. Revision History (Continued)

Revision	Description
20081201	■ Added the VMware Workstation 6.5.1 and ACE 2.5.1 releases. Revised support for SUSE Linux Enterprise Server 10, Service Pack 1 on Workstation and ACE. Changed all support to experimental for Open SUSE Linux 10.2 on Workstation and ACE. ■ Added information about creating a virtual machine for NetWare 6.5 and SUSE Linux Enterprise Server 9 and 10. ■ Added support for 32-bit and 64-bit Solaris 10, Update 6 on ESX Server 3.0.2, 3.0.3, and 3.5 Update 3. ■ Replaced the references to VMware knowledge base article 1420 that documents an issue about clocks running too slowly or too quickly with a reference to knowledge base article 1006427 that documents Linux timekeeping best practices.
20081119	■ Added support for 64-bit Windows Essential Business Server 2008 on ESX Server 3.5 Update 3. ■ Added support for 32-bit and 64-bit SUSE Linux Enterprise Desktop on ESX Server. ■ Added a note about requiring Windows Internet Explorer 4.0 or greater to view VMware Tools online help in a Windows NT 4.0 guest.
20081114	■ Added the Fusion 2.0.1 release.
20081112	■ Added support for 64-bit Windows Small Business Server 2008 on ESX Server 3.5 Update 3. ■ Removed a note that restricted support for VMware Tools to Solaris 10 1/06 (Update 1) and Solaris 10 6/06 (Update 2) on ESX server 3.x.
20081106	■ Added the ESX Server 3.5 Update 3 release that includes new support for the Ubuntu 8.04.1 guest operating system. ■ Added the VMware Workstation 5.5.9, ACE 1.0.8, and VMware Server 1.0.8 releases.
20081024	■ Added a known issue about running Windows Server 2008 64-bit with Microsoft Update 932596. ■ Added a known issue about installing Turbolinux 10 Server on VMware Workstation. ■ Added a known issue about the vmxnet3 network adapter displaying the incorrect link speed on Windows Server 2003 and Windows XP. ■ Added a known issue for enabling the vmxnet adapter for Windows Server 2003 on ESX Server. ■ Added a known issue about Linux virtual machines that stop responding or stall when using the TSC clocksource. Guests include Asianux 3.0, CentOS 5.0, Mandriva Linux 2008, Red Hat Enterprise Linux 5, Open SUSE Linux 10.3, Open SUSE Linux 10.2, Ubuntu 8.04 LTS, Ubuntu Linux 7.10, and Ubuntu Linux 7.04. ■ Revised installation instructions for SUSE Linux Enterprise Server 9 and 10. Replaced press F2 for text mode with enter boot option textmode=1.
20081008	■ Added support for 32-bit and 64-bit Red Hat Enterprise Linux 5 Desktop with Workstation option on ESX Server 3.5, 3.5 Update 1, and 3.5 Update 2. ■ Revised instructions for disabling IPv6 for SUSE Linux Enterprise Server 9, SUSE Linux Enterprise Server 10, Red Hat Enterprise Linux 4, Red Hat Enterprise Linux 5, and CentOS 5.0. ■ Removed “Guest Screen Saver” sections from Windows guest operating systems because the information did not apply.
20080925	Added support for 32-bit CentOS 5.2 on ESX Server 3.0.3 and support for 64-bit CentOS 5.2 on ESX Server 3.0.3 and 3.5 U2.

Table 1. Revision History (Continued)

Revision	Description
20080923	Added VMware Workstation 6.5 and ACE 2.5 releases to supported guest operating systems. ■ Experimental guest operating system support on Workstation 6.5: Windows Preinstallation Environment (all versions); Windows Recovery Environment; Windows Server 2008 Standard; and Ubuntu LTS 8.04.1 ■ Full guest operating system support on Workstation 6.5: Asianux 3.0; CentOS 5.0 to 5.2; Mandriva Linux 2008; Oracle Enterprise Linux 5.0 to 5.2; Red Hat Enterprise Linux 4, Update 7 (Workstation, Enterprise Server, and Advanced Server); Red Hat Enterprise Linux 5.1 and 5.2 (Advanced Platform, Desktop, and Server); Solaris 10 Operating System for x86 Platforms, 10 5/08 (Update 5); SUSE Linux Enterprise Desktop 10, Support Pack 1, and Support Pack 2; SUSE Linux Enterprise Server 10, Support Pack 2; and Ubuntu LTS 8.04 ■ Full guest operating system support on ACE 2.5: Red Hat Enterprise Linux 4, Update 7 (Workstation, Enterprise Server, and Advanced Server); Red Hat Enterprise Linux 5.1 and 5.2 (Advanced Platform, Desktop, and Server); Solaris 10 Operating System for x86 Platforms, 10 5/08 (Update 5); SUSE Linux Enterprise Desktop 10, Support Pack 1, and Support Pack 2; SUSE Linux Enterprise Server 10, Support Pack 2; and Ubuntu LTS 8.04
20080923	■ Added VMware Server 2.0 release to supported guest operating systems. New VMware Server 2.0 support: ■ Windows Server 2008 Enterprise and Standard; Windows Vista Business and Ultimate; Windows Server 2003 Web, Standard, and Enterprise Editions with Service Pack 2; and Windows XP Service Pack 2 ■ Mandriva Linux 2008 and Mandriva Linux 2007 ■ Open SUSE Linux 10.2 ■ Red Hat Enterprise Linux 5, Red Hat Enterprise Linux 5.1, and Red Hat Enterprise Linux 4, Update 5 ■ SUSE Linux Enterprise Server 10, Service Pack 1 and SUSE Linux Enterprise Server 9, Service Pack 4 ■ Ubuntu 8.04 LTS, Ubuntu Linux 7.10, Ubuntu Linux 7.04, and Ubuntu Linux 6.10 ■ Netware 6.5, Service Pack 6 ■ Solaris 10 Operating System for x86 Platforms, Update 3 and Update 4
20080915	■ Added VMware Fusion 2.0 release to supported guest operating systems. New support: ■ Mac OS X Server 10.5 (experimental support) ■ Windows Server 2008 Enterprise and Standard (experimental support); Windows Vista Home Basic, Home Premium, and Service Pack 1; Windows Server 2003 Enterprise Edition, Service Pack 2; and Windows XP Professional, Home Edition, and Service Pack 3 ■ Mandriva Linux 2008 ■ Red Hat Enterprise Linux 5.0 Advanced Server, Enterprise Server, and Workstation, Update 2; Red Hat Enterprise Linux 4.0, Update 6; and Red Hat Enterprise Linux 3.0, Update 9 ■ SUSE Linux Enterprise Desktop 10, Service Pack 2 and SUSE Linux Enterprise Server 10, Service Pack 2 ■ Turbolinux Server 10 ■ Ubuntu 8.0.4, Ubuntu 8.04.1, Ubuntu Linux 7.10, and Ubuntu 7.04 ■ FreeBSD 7 ■ Netware 6.5, Support Pack 7 ■ Solaris 10 Operating System for x86 Platforms, (Update 5)
20080908	Added support for 32-bit CentOS 5.2 on ESX Server 3.5, Update 2.

Table 1. Revision History (Continued)

Revision	Description
20080828	■ Added support for Workstation 5.5.8 and 6.0.5, ACE 1.0.7 and 2.0.5, and VMware Server 1.0.7. ■ Ubuntu 8.04 LTS 32-bit and 64-bit ■ Added support for Ubuntu 8.04 LTS on ESX Server 3.0.3 with required patch. ■ Added support for Ubuntu 8.04.1 LTS on ESX Server 3.0.3 with required patch. ■ Solaris 10 Operating System for x86 Platforms 32-bit and 64-bit ■ Added required patch to support Solaris 10, Update 4 on ESX Server 3.0.3. ■ Added support for Solaris 10, Update 5 with required patch on ESX Server 3.0.1. ■ Added required patch to support Solaris 10, Update 5 on ESX Server 3.0.2 and 3.0.3.
20080821	Added support for BusLogic SCSI adapter for 32-bit Red Hat Enterprise Linux 4, Update 6 and 7 on ESX Server 2.5.2, 2.5.3, 2.5.4, and 2.5.5. Added Service Pack 3 as one of the required service packs to run 32-bit Windows XP Professional on ESX Server. Removed VMI support mistakenly added to 64-bit Ubuntu Linux 7.10 on Workstation.
20080808	Added new ESX Server 3.0.3 release.
20080801	Documented known issue for Windows Server 2008 64-bit. Added support for Windows 2000 Professional, Service Pack 4 32-bit on ESX 3.0.1, 3.0.2, and 3.5 Update 2. Added support for Red Hat Enterprise Linux 4, Update 7 32-bit on ESX 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.5 Update 2 and for 64-bit on ESX 3.0.1, 3.0.2, 3.5 Update 2.
20080725	Added new ESX Server 3.5 Update 2 release. This release includes new support for these guests: ■ Windows Server 2008 Datacenter, Enterprise, Standard, and Windows Web Server 2008. ■ SUSE Linux Enterprise Server 10, Service Pack 2, including VMI on 32-bit. ■ Ubuntu 8.04 LTS Server, Desktop, and JeOS editions. Added support for SUSE Linux Enterprise Server 10, Service Pack 2 on ESX 3.0.1 (requires Patch ESX-1005100) and ESX 3.0.2 (requires Patch ESX-1005107).
20080714	Added support for Windows XP, Service Pack 3 on ESX 2.5.4 and 2.5.5. Added support for Solaris 10, Update 5 on ESX 3.0.2, 3.5, and 3.5 U1.
20080630	Added support for Windows Server 2003 Datacenter Edition on ESX Server 3.0.2. Clarified Fusion support for Red Hat Enterprise Linux 3 and 4. Updated instructions for disabling IPV6 on Ubuntu Linux guests.
20080530	Added new VMware Fusion 1.1.3 release.
20080529	Added new releases for VMware Workstation 5.5.7 and 6.0.4, ACE 1.0.6 and 2.0.4, and VMware Server 1.0.6. Added support for Windows Vista Service Pack 1 on Workstation 6.0.4, ACE 2.0.4, Visual Studio Integrated Virtual Debugger, and Eclipse Integrated Virtual Debugger. Modified Workstation support for Visual Studio and Eclipse integrated virtual debuggers.
20080528	Added support for Windows XP Service Pack 3 on ESX Server 3.0.1, 3.0.2, 3.5 and 3.5 Update 1. Revised support for Windows 2000 on Fusion. Added support for Red Hat Enterprise Linux 5.2 on ESX Server 3.0.2, 3.5, and 3.5 Update 1.
20080508	Added support for Novell Open Enterprise Server 2 for SUSE Linux Enterprise Server 10 Service Pack 1 on ESX Server 3.0.1, 3.0.2, 3.5, and 3.5 U1. Added support for Novell Open Enterprise Server 2 for NetWare 6.5 Support Pack 7 on ESX Server 3.0.1, 3.0.2, 3.5, and 3.5 U1. Added missing support for NetWare 6.5 Support Pack 7 on ESX Server 3.5 U1. Removed incorrectly listed support for SUSE Linux Enterprise Server 9, Service Pack 4 on ESX Server 3.5.
20080418	Added support for Windows Vista Service Pack 1 on ESX Server 3.5 and 3.5 Update 1. Added a note about an issue with screen resolution after installing VMware Tools on a Windows Vista Service Pack 1 virtual machine.
20080410	Updated with new ESX Server 3.5 Update 1 release. Added information about Ubuntu 7.10, 64-Bit SMP guest operating system behavior on an Intel Host. Revised installation instructions for Red Hat Enterprise Linux 5. Revised existing and added new ESX Server support notes for several guests. Added support for Netware 6.5, Support Pack 7 on ESX Server 2.x and 3.x. Added virtual SMP support to Ubuntu 7.04 on ESX Server.
20080314	Updated with new Workstation 5.5.6, ACE 1.0.5, and VMware Server 1.0.5 releases. Updated with new Workstation 6.0.3 and ACE 2.0.3 releases. Added support for Red Hat Enterprise Linux 5.1 on ESX Server 3.0.2. Modified information about using network and SCSI adapters with Red Hat Enterprise Linux 2.1 WS on ESX Server. Made miscellaneous edits.

Table 1. Revision History (Continued)

Revision	Description
20080225	Listed ESX-1002431 Patch required to support SUSE Linux Enterprise Server 9 Service Pack 4 on ESX Server 3.0.2. Removed known issues that were not relevant to Windows Vista.
20080220	Removed incorrectly listed experimental support for Windows Vista on VMware ACE, VMware Server, GSX Server, and Workstation. Added known issue for choosing 32-bit or 64-bit architecture when installing SUSE Linux 9.3 guest on 64-bit host.
20080124	Updated with new Fusion 1.1.1 release. Added note to Ubuntu 7.0.4 install instructions. Revised install instructions for Red Hat Linux 9.0
20071221	Added support for Red Hat Enterprise Linux 4, Update 6 on ESX Server. Removed September Patch requirement, which was incorrectly listed, for Solaris 10 8/07 (Update 4) on ESX Server 3.0.1. Removed virtual SMP support, which was incorrectly listed, for 64-bit Red Hat Enterprise Linux 3 on ESX Server 3.0.
20071220	Added support statement for VMware ESX Server 3i version 3.5. Included additional support for Red Hat Enterprise Linux 3 and Red Hat Enterprise Linux 4 Updates on ESX 3.0.1 and 3.0.2. Added support for SUSE Linux Enterprise Server 9, Service Pack 4 on ESX 2.5.4, 2.5.5, 3.0.1, and 3.0.2.
20071211	Added new ESX Server 3.5 release
20071126	Changed ESX Server 3.x network adapter driver support for 32-bit and 64-bit Solaris 10 guests
20071111	Updated with new Fusion 1.1 release. Revised statement for operating systems no longer supported by the operating system vendor. Added support for Solaris 10 6/06 (Update 2) on ESX 3.0.
20071105	Removed irrelevant information about network adapters for Workstation running Windows Server 2008. Corrected support for SUSE Linux Enterprise Server 10 SP1 on ESX Server.
20071019	Updated with new Workstation 6.0.2 and ACE 2.0.2 releases.
20071015	Adds support for Solaris 10 8/07 (Update 4), 32- and 64-bit on ESX 3.0.1 and 3.0.2. Removes information about sound driver needed for Windows Server 2008 64-bit guests and modifies information about network adapter support for Windows Server 2008 on VMware Workstation.
20071009	Adds support for Ubuntu 7.04 Server and Desktop editions, 32- and 64-bit on ESX Server 3.0.2. Adds support for SUSE Linux Enterprise Server 10 Service Pack 1 on ESX Server 3.0.1 and 3.0.2. Modifies VMware Workstation support for Solaris 10 Operating System for x86 Platforms.
20070919	Adds new VMware Workstation 6.0.1 and ACE 2.0.1 releases. Adds new Workstation 5.5.5, ACE 1.0.4, and VMware Server 1.0.4 releases. Adds support for para virtualization on Workstation, running Ubuntu 7.0.4. Reverses order of entries in Revision History table. Revises file and directory names for disabling IPv6 when installing VMware Tools on Ubuntu Linux guest operating systems.
20070906	Fixes incorrect linking in Table 1. Adds known issue to Windows Vista. Removes section for Red Hat Linux 4.5. Adds Update 5 to Red Hat Linux 4. Corrects virtual smp support for Red Hat Enterprise Linux 4. Adds Update 9 to Red Hat Enterprise Linux 3. Adds known issue to Red Hat Enterprise Linux 2.1. Corrects release number for FreeBSD 6.1. Corrects release number for Ubuntu 5.04. Adds known issue for Solaris 10.
20070806	Adds new product, VMware Fusion 1.0 for Mac OSX, to supported guest operating systems
20070731	Adds new VMware ESX Server 3.0.2 release to supported guest operating systems. Lists full support for Red Hat Enterprise Linux 4.5 guest operating system. Clarifies support for Red Hat Enterprise Linux 5. Adds previously supported FreeBSD 5.5, which had not been included in this guide. Also includes minor corrections.
20070530	Changes instructions for enabling sound to adding sound adapters for GSX and VMware Servers. Describes how 64-bit version of Ubuntu Linux 5.10 lacks the driver needed for correct operation of the X server. Revises install instructions for RHEL 5.0 and 4.5. Describes how 64-bit Linux guests on EM64T hardware require Execute Disable functionality. Removes support for 64-bit Windows 2003 Server on ESX Server. Clarifies support for Windows 2000 on ESX Server. Provides minor corrections and additions.

Table 1. Revision History (Continued)

Revision	Description
20070508	Lists new support for VMware Workstation 6.0 and ACE 2.0 releases. Lists new support for Visual Studio and Eclipse Integrated Virtual Debuggers. Lists new support for Service Pack 2 on ESX Server running 32-bit or 64-bit Windows Server 2003 guest operating system. Describes how to install drivers for multimedia audio controllers for Windows 2003 and Windows Vista. Includes information about lack of support for USB 2.0 drivers on Windows 95, 98, Me. Provides instructions for correcting display issues with Mandrake 10.1. Also provides minor updates and corrections.
20070327	Removes support for 32-bit Solaris 10, Update 3 on ESX Server 2.5.3 and 2.5.4 and 64-bit on ESX Server 3.0. Changes the date for Solaris 10 update 6/06. Adds statement about operating systems no longer supported by the vendor.
20070314	Updates support for Support Pack 6 on Netware 6.5 on ESX 2. 5.3, 2.5.4, 3.0, 3.0.1. Updates support for Intel VT on 32-bit Intel hosts running 64-bit guests. Adds LSI Logic adapter support for Red Hat Enterprise Linux 4. Updates support for Solaris 10 on ESX 2. 5.3, 2.5.4, 3.0, and 3.0.1 (32-bit) with Update 3. Also updates support for Solaris 10 on ESX 3.0.1 (64-bit) with Update 3. Provides “Latest Updates” section in the Preface.
20070202	Modified information about Upgrade Patch 1 support for ESX Server 2.5.4 for NetWare 6.5 Server and includes minor editorial changes.
20070126	Compared and merged data to the <i>Guest Operating System Installation Guide</i> from the VMware ESX Server 2.x and 3.x System Compatibility Guides.
20070102	Provides information about Updates 3 and 4 for Red Hat Enterprise Linux 4 and Service Pack 3 for SUSE Linux Enterprise Server 9 on ESX Server 3.0 and 3.0.1.
20061206	Updates information about ESX Server 3.0.x support for Windows Vista, Windows XP, Red Hat Enterprise Linux 4, and Red Hat Enterprise Linux 3.
20061129-20061130	Modifies information about ESX Server 3.0.1 and VMware Server 1.x support for SUSE Linux Enterprise Server 9.
20061116	Includes information for Workstation 5.5.3.
20061109	Adds ESX Server 3.0.1 support for 64-bit SUSE Linux Enterprise Server 9; modifies information about ESX Server support for Microsoft Clustering Service with Windows Server 2003 SP1.
20061023	Includes information for Workstation 4.5.3.
20061005	Includes information for ESX Server 2.5.4.
20061004	Minor changes.
20061002	Includes information for ESX Server 3.0.1.
20060816	Updates information for VMware Server 1.0.1 maintenance release.
20060810	Includes information for Workstation 5.5.2; updates information for ESX Server 2.5.3 and ESX Server 2.1.3 patch release.
20060727	Includes information for ESX Server 2.5.3 and ESX Server 2.1.3 patch release.
20060711	Includes information for VMware Server 1.0.
20060619-20060622	Minor changes.
20060614	Includes information for ESX Server 3.0 and VirtualCenter 2.0.
20060502	Includes information for ESX Server 2.5.3.

Intended Audience

This book is intended for anyone interested in the operating systems supported by VMware products, their installation instructions, and known issues.

Document Feedback

VMware welcomes your suggestions for improving our documentation. If you have comments, send your feedback to docfeedback@vmware.com.

Technical Support and Education Resources

The following sections describe the technical support resources available to you. To access the current version of this book and other books, go to <http://www.vmware.com/support/pubs>.

Online and Telephone Support

To use online support to submit technical support requests, view your product and contract information, and register your products, go to <http://www.vmware.com/support>.

Customers with appropriate support contracts should use telephone support for the fastest response on priority 1 issues. Go to http://www.vmware.com/support/phone_support.html.

Support Offerings

To find out how VMware support offerings can help meet your business needs, go to <http://www.vmware.com/support/services>.

VMware Professional Services

VMware Education Services courses offer extensive hands-on labs, case study examples, and course materials designed to be used as on-the-job reference tools. Courses are available onsite, in the classroom, and live online. For onsite pilot programs and implementation best practices, VMware Consulting Services provides offerings to help you assess, plan, build, and manage your virtual environment. To access information about education classes, certification programs, and consulting services, go to <http://www.vmware.com/services>.

Choosing and Installing Guest Operating Systems

The following sections provide information about the newest changes and additions to the *Guest Operating System Installation Guide*, supported guests, and general notes on installation and support. Be sure to read the general guidelines as well as the information specific to your guest operating system.

- [“Latest Updates”](#) on page 31
- [“Supported and Unsupported Guest Operating Systems”](#) on page 34
- [“General Guidelines for All VMware Products”](#) on page 36

Latest Updates

These are the changes or updates made to the *Guest Operating System Installation Guide* since it was last published. Find the latest version of the guide on the VMware Web site at: <http://www.vmware.com/support/pubs>. Check the date on the cover page to determine if your copy of the guide is the most current.

- Clarified support for 32-bit Windows Server 2003 on ESX Server. See [“Windows Server 2003”](#) on page 49.
- Added support for Red Hat Enterprise Linux 5.3 on ESX 3.0.2, 3.0.3, and 3.5 Update 3. See [“Red Hat Enterprise Linux 5”](#) on page 129.
- Added known issue for Red Hat Enterprise Linux 5.2 running on ESX 3.5 Update 3. See [“On Some Linux Guests with SELinux Enforcing Mode Turned On, Uninstalling VMware Tools Makes the File System Read-Only”](#) on page 133.
- Made minor corrections.

Supported 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 VMware Server—on which you are running the virtual machine.

Table 1. Supported Guest Operating Systems, by VMware Product

Guest Operating System	Workstation	VMware ACE	GSX Server	ESX Server	VMware Server	VMware Fusion
“Windows Preinstallation Environment” on page 38	6.5–6.5.1					
“Windows Recovery Environment” on page 39	6.5–6.5.1					
“Windows Server 2008” on page 40	6.0.1–6.5.1	2.0.1–2.5.1		3.5 U2–3.5 U3	2.0	2.0–2.0.1
“Windows Vista” on page 44	6.0–6.5.1	2.0–2.5.1		3.0–3.5 U3	2.0	1.0–2.0.1

Table 1. Supported Guest Operating Systems, by VMware Product (Continued)

Guest Operating System	Workstation	VMware ACE	GSX Server	ESX Server	VMware Server	VMware Fusion
“Windows Server 2003” on page 49	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–3.5 U3	1.0–2.0	1.0–2.0.1
“Windows XP” on page 56	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–3.5 U3	1.0–2.0	1.0–2.0.1
“Windows 2000” on page 62	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–3.5 U3	1.0–2.0	1.0–2.0.1
“Windows NT 4.0” on page 66	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–3.5 U3	1.0–1.0.8	1.0–2.0.1
“Windows Me” on page 69	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	1.0–2.0.1
“Windows 98” on page 71	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	1.0–2.0.1
“Windows 95” on page 73	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	1.0–2.0.1
“MS-DOS 6.22 and Windows 3.1x” on page 76	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	1.0–2.0.1
“Asianux Server 3.0” on page 78	6.0.3–6.5.1					
“CentOS 5.0” on page 80	6.5–6.5.1			3.0.3–3.5 U3		
“Mac OS X Server 10.5” on page 83						2.0–2.0.1
“Mandriva Corporate Desktop 4” on page 86	6.0–6.5.1	2.0–2.5.1				
“Mandriva Corporate Server 4” on page 89	5.5.3–6.5.1	2.0–2.5.1				
“Mandriva Linux 2008” on page 92	6.5–6.5.1				2.0	2.0–2.0.1
“Mandriva Linux 2007” on page 95	5.5.3–6.5.1	2.0–2.5.1			2.0	1.0–2.0.1
“Mandriva Linux 2006” on page 98	5.5.2–6.5.1	2.0–2.5.1			1.0–2.0	1.0–2.0.1
“Mandrake Linux 10.1” on page 101	5.5–6.5.1	2.0–2.5.1	3.2–3.2.1		1.0–1.0.8	
“Mandrake Linux 10” on page 104	5.0–6.5.1	2.0–2.5.1	3.2–3.2.1		1.0–1.0.8	
“Mandrake Linux 9.2” on page 107	5.0–6.5.1	2.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Mandrake Linux 9.1” on page 111			3.1–3.2.1			
“Mandrake Linux 9.0” on page 114	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Mandrake Linux 8.2” on page 117	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Mandrake Linux 8.0 and 8.1” on page 120			3.0–3.2.1			
“Novell Linux Desktop 9” on page 123	5.0–6.5.1	1.0–2.5.1			1.0–1.0.8	1.0–2.0.1
“Oracle Enterprise Linux 5” on page 126	6.5–6.5.1					
“Red Hat Enterprise Linux 5” on page 129	6.0–6.5.1	2.0–2.5.1		3.0.2–3.5 U3	2.0	1.0–2.0.1
“Red Hat Enterprise Linux 4” on page 135	5.0–6.5.1	1.0.1–2.5.1	3.2–3.2.1	2.5.2–3.5 U3	1.0–2.0	1.0–2.0.1
“Red Hat Enterprise Linux 3” on page 143	4.5–6.5.1	1.0–2.5.1	3.0.1–3.2.1	2.0.1–3.5 U3	1.0–1.0.8	1.0–2.0.1
“Red Hat Enterprise Linux 2.1” on page 150	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–3.5 U3	1.0–1.0.8	1.0–2.0.1
“Red Hat Linux 9.0” on page 155	4.0.1–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–2.5.5	1.0–1.0.8	1.0–2.0.1
“Red Hat Linux 8.0” on page 160	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–2.5.5	1.0–1.0.8	
“Red Hat Linux 7.3” on page 163	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–2.5.5	1.0–1.0.8	
“Red Hat Linux 7.2” on page 166	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–2.5.5	1.0–1.0.8	
“Red Hat Linux 7.1” on page 170	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Red Hat Linux 7.0” on page 173	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	1.0–2.0.1
“Red Hat Linux 6.2” on page 176			3.0–3.2.1			
“Sun Java Desktop System 2” on page 179	5.0–6.5.1	2.0–2.5.1			1.0–1.0.8	
“SUSE Linux Enterprise Desktop 10” on page 181	6.5–6.5.1	2.5–2.5.1		3.0.1–3.5 U3		2.0–2.0.1
“SUSE Linux Enterprise Server 10” on page 185	5.5.2–6.5.1	2.0–2.5.1		3.0.1–3.5 U3	1.0–2.0	1.0–2.0.1

Table 1. Supported Guest Operating Systems, by VMware Product (Continued)

Guest Operating System	Workstation	VMware ACE	GSX Server	ESX Server	VMware Server	VMware Fusion
“SUSE Linux Enterprise Server 9” on page 190	5.0–6.5.1	1.0.1–2.5.1	3.2–3.2.1	2.5–3.5 U3	1.0–2.0	
“SUSE Linux Enterprise Server 8” on page 196	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–3.5 U3	1.0–1.0.8	
“SUSE Linux Enterprise Server 7” on page 199	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Open SUSE Linux 10.3” on page 202	6.0.1–6.5.1	2.0.1–2.5.1				
“Open SUSE Linux 10.2” on page 205	6.0–6.5.1	2.0–2.5.1			2.0	
“SUSE Linux 10.1” on page 208	5.5.2–6.5.1	2.0–2.5.1			1.0–2.0	1.0–2.0.1
“SUSE Linux 10” on page 211	5.5–6.5.1	2.0–2.5.1			1.0–2.0	
“SUSE Linux 9.3” on page 214	5.5–6.5.1	2.0–2.5.1		2.5.2–2.5.5	1.0–2.0	1.0–2.0.1
“SUSE Linux 9.2” on page 218	5.0–6.5.1	1.0.1–2.5.1	3.2–3.2.1	2.5.1–2.5.5	1.0–2.0	
“SUSE Linux 9.1” on page 222	4.5.2–6.5.1	1.0–2.5.1	3.1–3.2.1	2.5–2.5.5	1.0–2.0	
“SUSE Linux 9.0” on page 226	4.5–6.5.1	1.0–2.5.1	3.0–3.2.1	2.1–2.5.5	1.0–2.0	
“SUSE Linux 8.2” on page 229	4.0.1–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0–2.5.5	1.0–1.0.8	
“SUSE Linux 8.1” on page 233	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“SUSE Linux 8.0” on page 236	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“SUSE Linux 7.3” on page 239	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Turbolinux 10 Server” on page 242	6.0.3–6.5.1	2.0.1–2.5.1				2.0–2.0.1
“Turbolinux 10 Desktop” on page 245	5.5–6.5.1	2.0–2.5.1			1.0–1.0.8	1.0–2.0.1
“Turbolinux Enterprise Server 8” on page 247	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	1.0–2.0.1
“Turbolinux Workstation 8” on page 250	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Turbolinux 7.0” on page 253	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Ubuntu 8.04 LTS” on page 256	6.5–6.5.1	2.5–2.5.1		3.5 U2–3.5 U3	2.0	2.0–2.0.1
“Ubuntu Linux 7.10” on page 260	6.0.2–6.5.1	2.5–2.5.1		3.5 U1–3.5 U3	2.0	2.0–2.0.1
“Ubuntu Linux 7.04” on page 263	6.0.1–6.5.1	2.0.1–2.5.1		3.0.2–3.5 U3	2.0	2.0–2.0.1
“Ubuntu Linux 6.10” on page 266	6.0–6.5.1	2.0–2.5.1			2.0	1.0–2.0.1
“Ubuntu Linux 6.06” on page 269	5.5.2–6.5.1	2.0–2.5.1			1.0–1.0.8	
“Ubuntu Linux 5.10” on page 272	5.5–6.5.1	2.0–2.5.1			1.0–1.0.8	1.0–2.0.1
“Ubuntu Linux 5.04” on page 275	5.5–6.5.1	2.0–2.5.1			1.0–1.0.8	
“FreeBSD 7.0” on page 278						2.0–2.0.1
“FreeBSD 6.2” on page 280	6.0.1–6.5.1	2.0.1–2.5.1				
“FreeBSD 6.1” on page 282	5.5.2–6.5.1	2.0–2.5.1				1.0–2.0.1
“FreeBSD 6.0” on page 284	5.5.2–6.5.1	2.0–2.5.1			1.0–1.0.8	
“FreeBSD 5.5” on page 286	5.5–6.5.1	2.0–2.5.1			1.0–1.0.8	1.0–2.0.1
“FreeBSD 5.4” on page 288	5.5–6.5.1	2.0–2.5.1			1.0–1.0.8	
“FreeBSD 5.3” on page 290	5.5–6.5.1	2.0–2.5.1			1.0–1.0.8	
“FreeBSD 5.2” on page 292	5.0–6.5.1	2.0–2.5.1	3.1–3.2.1		1.0–1.0.8	
“FreeBSD 5.1” on page 294	5.0–6.5.1	2.0–2.5.1	3.2–3.2.1		1.0–1.0.8	
“FreeBSD 5.0” on page 296	4.5–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“FreeBSD 4.11” on page 298				2.5.4–2.5.5		
“FreeBSD 4.10” on page 299				2.5–2.5.5		
“FreeBSD 4.9” on page 300			3.2–3.2.1	2.5		

Table 1. Supported Guest Operating Systems, by VMware Product (Continued)

Guest Operating System	Workstation	VMware ACE	GSX Server	ESX Server	VMware Server	VMware Fusion
“FreeBSD 4.4, 4.5, 4.6.2, 4.8” on page 302	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“FreeBSD 4.0, 4.1, 4.2, 4.3” on page 304	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“NetWare 6.5 Server” on page 308	4.5–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0.1–3.5 U3	1.0–2.0	1.0–2.0.1
“NetWare 6.0 Server” on page 313	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0.1–3.5 U3	1.0–1.0.8	
“NetWare 5.1 Server” on page 317	4.0–6.5.1	1.0–2.5.1	3.0–3.2.1	2.0.1–3.5 U3	1.0–1.0.8	
“NetWare 4.2 Server” on page 322	5.5.2–6.5.1	2.0–2.5.1	3.0–3.2.1		1.0–1.0.8	
“Solaris 10 Operating System for x86 Platforms” on page 325	5.5.3–6.5.1	1.0–2.5.1	3.1–3.2.1	3.0–3.5 U3	1.0–2.0	1.0–2.0.1
“Solaris 9 Operating System x86 Platform Edition” on page 331	4.5.2–6.5.1	1.0–2.5.1	3.1–3.2.1		1.0–2.0	

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 1.0, GSX Server 3.0, ESX Server 2.0, VMware Server 1.0, VMware Fusion 1.0, and later products.

The section for each guest operating system lists which VMware products support the operating system in a virtual machine. Operating systems that are not included in this guide are not supported by the VMware products listed in this guide.

VMware Tools Operating System Specific Packages

VMware Tools are available as separate downloadable, light-weight packages that are specific to each supported operating system and VMware product. Operating System Specific Packages (OSPs) are designed to facilitate easy installation, upgrade, and management, using the native software management tools of the operating systems they support. OSs are an alternative to the existing mechanism for installing VMware Tools.

For a complete set of instructions for downloading, installing, and upgrading VMware Tools OSs, see the *VMware Tools Installation Guide Operating System Specific Packages* at:

http://www.vmware.com/pdf/osp_install_guide.pdf

VMware products supported by VMware Tools OSs:

- ESX 3.5 Update 2
- ESX 3.5 Update 3

Guest operating systems supported by VMware Tools OSs:

- Red Hat Enterprise Linux 4
 - Update 1
 - Update 2
 - Update 3
 - Update 4
 - Update 5
 - Update 6

- Update 7
- Red Hat Enterprise Linux 5
 - Update 1
 - Update 2
- SUSE Linux Enterprise Server 9
 - Service Pack 1
 - Service Pack 2
 - Service Pack 3
 - Service Pack 4
- SUSE Linux Enterprise Server 10
 - Service Pack 1
 - Service Pack 2
- Ubuntu Linux 8.04 LTS
 - Ubuntu Linux 8.04.1 LTS

VMware ESX Server 3i Version 3.5 Support

VMware ESX Server 3i version 3.5 and VMware ESX Server 3.5 support the same guest operating systems. Please see the ESX Server column in [Table 1, “Supported Guest Operating Systems, by VMware Product,”](#) on page 31 for the list of operating systems supported by both VMware ESX Server 3i version 3.5 and VMware ESX Server 3.5.

Operating Systems That the Operating System Vendor No Longer Supports

For operating systems listed in this guide that the operating system vendor no longer supports, VMware may, at its sole discretion, provide support and fixes to VMware products to address problems that are exposed by running such operating systems on a VMware virtual machine. VMware is not responsible for resolving problems with, or providing support or fixes to, the operating system itself.

64-Bit Guest Operating Systems

Requirements for 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.

Running 64-Bit Guest Operating Systems

You can run 64-bit guests on supported 64-bit hardware (Intel or AMD) running either 32-bit or 64-bit host operating systems.

For 64-bit Intel hardware with VT support, running either 32-bit or 64-bit host operating systems, you must enable VT in the host machine BIOS.

NOTE For more information about hardware and firmware requirements for 64-bit guest operating systems, refer to knowledge base article 1901 at <http://kb.vmware.com/kb/1901>.

64-Bit Linux Guests and Execute Disable Functionality

When running a 64-bit Linux guest operating system on EM64T hardware, make sure that you have Execute Disable functionality enabled in the host BIOS. This helps to ensure that the Linux guest operating system will run without interruption.

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 or interface you use to configure the virtual machine depends on the VMware product you are using.

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

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

Installing a guest operating system inside a virtual machine is essentially the same as installing it on a physical computer.

The basic steps to install a typical operating system:

- 1 Start Workstation, VMware ACE Manager (release 1.x only) 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 2.x: 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 might wish to create an ISO image file from the installation CD-ROM. You can 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, and 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 might not be able to install it in a virtual machine. You might need to purchase a new copy of Windows to install in a virtual machine.

VMware Experimental Feature Support Definition

VMware includes certain experimental features in some of our product releases. These features are there for you to test and experiment with. We do not expect these features to be used in a production environment. However, if you do encounter any issues with an experimental feature, we are interested in any feedback you are willing to share. Please submit a support request through the normal access methods at <http://www.vmware.com/support>. We cannot, however, commit to troubleshoot, provide workarounds, or provide fixes for these experimental features.

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 6 and VMware Server, you can install VMware Tools in a Linux guest operating system while X is running. See the *VMware Workstation 6 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+spacebar, release the spacebar without releasing Ctrl and Alt, and 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 the spacebar and the function key.

Sound Adapters on GSX and VMware Servers

Sound adapters by default are not installed in a virtual machine for GSX or VMware Servers. To add a sound adapter, use the virtual machine settings editor (**VM > Settings**) after you have installed the operating system. For instructions on configuring sound for a virtual machine on a GSX or VMware Server, see the corresponding server documentation.

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 Preinstallation Environment

This section contains product support for the Windows Preinstallation Environment operating system.

32-Bit Support

The following VMware products support 32-bit Windows Preinstallation Environment:

- **VMware Workstation** – experimental support only

Windows Preinstallation Environment 1.0 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 1.1 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 1.2 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2004 (1.5) – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2005 (1.6) – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2.0 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2.1 – Workstation 6.5, 6.5.1

64-Bit Support

The following VMware products support 64-bit Windows Preinstallation Environment:

- **VMware Workstation** – experimental support only

Windows Preinstallation Environment 1.0 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 1.1 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 1.2 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2004 (1.5) – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2005 (1.6) – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2.0 – Workstation 6.5, 6.5.1

Windows Preinstallation Environment 2.1 – Workstation 6.5, 6.5.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 for general installation instructions.

For instructions specific to the Windows Preinstallation Environment, see the accompanying operating system documentation.

Windows Recovery Environment

This section contains product support for the Windows Recovery Environment operating system.

32-Bit Support

The following VMware products support 32-bit Windows Recovery Environment:

- **VMware Workstation** – experimental support only

Windows Recovery Environment – Workstation 6.5, 6.5.1

64-Bit Support

The following VMware products support 64-bit Windows Recovery Environment:

- **VMware Workstation** – experimental support only

Windows Recovery Environment – Workstation 6.5, 6.5.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 for general installation instructions.

For instructions specific to the Windows Recovery Environment, see the accompanying operating system documentation.

Windows Server 2008

This section contains product support, installation instructions, and known issues for the Windows Server 2008 operating system.

32-Bit Support

The following VMware products support 32-bit Windows Server 2008:

- **VMware Workstation**

Datacenter – Workstation 6.5, 6.5.1

Enterprise – Workstation 6.5, 6.5.1

Standard – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Experimental Support

Standard – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5

- **VMware ACE** – experimental support only

Windows Server 2008 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Enterprise – VMware Server 2.0

Standard – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware ESX Server**

Datacenter – ESX 3.5 U2, ESX 3.5 U3

Enterprise – ESX 3.5 U2, ESX 3.5 U3

Standard – ESX 3.5 U2, ESX 3.5 U3

Web Server 2008 – ESX 3.5 U2, ESX 3.5 U3

Additional Support

- SMP – full support on ESX 3.5 U2, ESX 3.5 U3

Support Considerations

- The Server Core role available in the Standard, Datacenter, and Enterprise editions of Windows 2008 Server is supported by ESX. VMware Tools still apply, unless Server Core disables parts of the operating system that are specifically supported by VMware Tools. See the Microsoft Developer Network Web site for more information about Server Core:

[http://msdn.microsoft.com/en-us/library/ms723891\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms723891(VS.85).aspx)

- **VMware Fusion** – experimental support only

Enterprise – Fusion 2.0, 2.0.1

Standard – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Windows Server 2008:

- **VMware Workstation**

Datacenter – Workstation 6.5, 6.5.1

Enterprise – Workstation 6.5, 6.5.1

Standard – Workstation 6.5, 6.5.1

Small Business Server – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Experimental Support

Standard – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5

- **VMware ACE** – experimental support only

Windows Server 2008 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Enterprise – VMware Server 2.0

Standard – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware ESX Server**

Datacenter – ESX 3.5 U2, ESX 3.5 U3

Enterprise – ESX 3.5 U2, ESX 3.5 U3

Standard – ESX 3.5 U2, ESX 3.5 U3

Web Server 2008 – ESX 3.5 U2, ESX 3.5 U3

Small Business Server 2008 – ESX 3.5 U3

Small Business Server 2008 Standard – ESX 3.5 U3

Small Business Server 2008 Premium – ESX 3.5 U3

Essential Business Server 2008 – ESX 3.5 U3

Essential Business Server 2008 Standard – ESX 3.5 U3

Essential Business Server 2008 Premium – ESX 3.5 U3

Additional Support

- SMP – full support on ESX 3.5 U2, ESX 3.5 U3

Support Considerations

- The Server Core role available in the Standard, Datacenter, and Enterprise editions of Windows 2008 Server is supported by ESX. VMware Tools still apply, unless Server Core disables parts of the operating system that are specifically supported by VMware Tools. See the Microsoft Developer Network Web site for more information about Server Core:

[http://msdn.microsoft.com/en-us/library/ms723891\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms723891(VS.85).aspx)

- **VMware Fusion** – experimental support only

Enterprise – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

You can install the Windows Server 2008 in a virtual machine using the Windows Server 2008 distribution CD. If your VMware product supports it, you can also install from a PXE server.

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 Server 2008, be sure the virtual machine’s hard drive is 16GB or larger. If you are installing the 64-bit version of Windows Server 2008, be sure the virtual machine’s hard drive is 24GB or larger.

If an Internet connection is not available while installing a 32-bit Windows Server 2008 guest, the driver for the multimedia audio controller will not be installed. The Windows Device Manager will indicate that the driver for the multimedia audio controller is missing. To install the required driver, configure an Internet connection, and run Windows Update on the Windows Server 2008 virtual machine.

Installing the Guest Operating System

- 1 Insert the Windows Server 2008 CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Windows Server 2008.
- 3 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 <http://kb.vmware.com/kb/340>.

Known Issues

Windows Server 2008 64-Bit Randomly Restarts with Microsoft Update 932596

If you install Microsoft Update 932596 on a computer running Windows Server 2008 64-bit, the computer randomly restarts and generates a Stop error. The Stop error might be 0x0000001E, 0x000000D1, or a different Stop error. See Microsoft KB article: <http://support.microsoft.com/kb/950772> for details.

The Microsoft KB article links to the Hotfix Request page where you can find a download to fix this problem: <http://support.microsoft.com/hotfix/KBHotfix.aspx?kbnum=950772&kbln=en-us>

NOTE A Hotfix specifically for Windows Server 2008 is not listed on the Microsoft Hotfix Request page. However, the Hotfix for Windows Vista (Windows Vista All (Global) x64 sp2 Fix232207) will also fix this problem for Windows Server 2008.

Opening VMware Tools Control Panel

To open the VMware Tools control panel on a Windows Server 2008 guest, you need to be logged in as an administrator user.

Warnings When Installing VMware Tools on Some VMware Products

Windows Server 2008 uses a new method to install drivers. As a result, and depending upon which VMware product you are using, you may see warning messages at several stages during installation of VMware Tools in Windows Server 2008 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 Server 2008. When you see one of these messages, click **Cancel** to continue installing VMware Tools.

You might 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**, and then restart the guest operating system when you are prompted to do so.

Windows Vista

This section contains product support, installation instructions, and known issues for the Windows Vista operating system.

32-Bit Support

The following VMware products support 32-bit Windows Vista:

■ VMware Workstation

Enterprise – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Business – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Home Basic – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Home Premium – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Ultimate – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Visual Studio Integrated Virtual Debugger support for Enterprise, Business, Ultimate – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1. Service Pack 1 – Workstation 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Enterprise, Business, Ultimate – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1. Service Pack 1 – Workstation 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Enterprise – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Business – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Home Basic – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Home Premium – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Ultimate – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

Business – VMware Server 2.0

Ultimate – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

■ VMware ESX Server

Enterprise – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Business – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Home Basic – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Home Premium – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Ultimate – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Experimental Support

Ultimate – ESX 3.0, 3.0.1, 3.0.2, 3.0.3

- **VMware Fusion**

Enterprise – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Business – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Ultimate – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Home Basic – Fusion 2.0, 2.0.1

Home Premium – Fusion 2.0, 2.0.1

Update Support

- Service Pack 1 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Windows Vista:

- **VMware Workstation**

Enterprise – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Business – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Home Basic – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Home Premium – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Ultimate – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Visual Studio Integrated Virtual Debugger support for Enterprise, Business, Ultimate – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1. Service Pack 1 – Workstation 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Enterprise – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1. Service Pack 1 – Workstation 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Enterprise – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Business – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Home Basic – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Home Premium – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Ultimate – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 2.0.4, 2.0.5, 2.5, 2.5.1

■ **VMware Server**

Ultimate – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

■ **VMware ESX Server**

Enterprise – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Business – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Home Basic – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Home Premium – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Ultimate – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Experimental Support

Ultimate – ESX 3.0, 3.0.1, 3.0.2, 3.0.3

■ **VMware Fusion**

Enterprise – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Business – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Ultimate – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Home Basic – Fusion 2.0, 2.0.1

Home Premium – Fusion 2.0, 2.0.1

Update Support

- Service Pack 1 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

You can install Windows Vista Enterprise, Vista Business, Vista Home Basic, Vista Home Premium, or Vista Ultimate in a virtual machine using the corresponding Windows Vista distribution CD. If your VMware product supports it, you can also install from a PXE server.

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

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

If an Internet connection is not available while installing a 32-bit Windows Vista guest, the driver for the multimedia audio controller will not be installed. The Windows Device Manager will indicate that the driver for the multimedia audio controller is missing. To install the required driver, configure an Internet connection, and run Windows Update on the Windows Vista virtual machine.

Instating 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 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 <http://kb.vmware.com/kb/340>.

NOTE After installing VMware Tools on a Windows Vista Service Pack (SP1) virtual machine, the screen resolution does not change to 1024 by 768 pixels automatically. Refer to knowledge base article 1004780 at <http://kb.vmware.com/kb/1004780>.

Known Issues

Opening VMware Tools Control Panel

To open the VMware Tools control panel on a Windows Vista guest, you need to be logged in as an administrator user.

Warnings When Installing VMware Tools on Some VMware Products

Windows Vista uses a new method to install drivers. As a result, and depending upon which VMware product you are using, you may see warning messages 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 might 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**, and then restart the guest operating system when you are prompted to do so.

Network Adapter Change Needed for Some VMware Products

The AMD Ethernet card driver is not included with Windows Vista. To use networking in a Windows Vista guest operating system on the VMware products specified in this section, you must change the network adapter. A driver for the vmxnet adapter is included in VMware Tools.

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. Then install VMware Tools. A driver for the vmxnet adapter is included in VMware Tools.

ESX Server 3.x: Install VMware Tools. A vmxnet driver for the network adapter is included in VMware Tools. Installing VMware Tools automatically switches the network adapter to vmxnet, and installs the vmxnet driver.

Alternatively, you can change the network adapter to e1000 (the Intel PRO/1000 MT Adapter) before installing Windows Vista. 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 = "e1000"
```

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 = "e1000"
```

Include a line for each Ethernet adapter configured for the virtual machine.

Windows Server 2003

This section contains product support, installation instructions, and known issues for the Windows Server 2003 operating system.

32-Bit Support

The following VMware products support 32-bit Windows Server 2003:

■ VMware Workstation

Web Edition – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Standard Edition – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Enterprise Edition – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Small Business Server 2003 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- R2 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Visual Studio Integrated Virtual Debugger support for Web Edition, Standard Edition, Enterprise Edition, Small Business Server 2003 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1. Support for R2.
- Eclipse Integrated Virtual Debugger support for Windows Server 2003 Web Edition, Standard Edition, Enterprise Edition, Small Business Server 2003 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1. Support for R2.

■ VMware ACE

Web Edition – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Standard Edition – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Enterprise Edition – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Small Business Server 2003 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Web Edition – GSX Server 3.0, 3.1, 3.2, 3.2.1

Standard Edition – GSX Server 3.0, 3.1, 3.2, 3.2.1

Enterprise Edition – GSX Server 3.0, 3.1, 3.2, 3.2.1

Small Business Server 2003 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Service Pack 1 – GSX Server 3.2, 3.2.1

■ **VMware Server**

Web Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Standard Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Enterprise Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Small Business Server 2003 Standard – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Small Business Server 2003 Premium – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Service Pack 1
 - Web Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Standard Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Enterprise Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Small Business Server 2003 Standard – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Small Business Server 2003 Premium – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- R2
 - Standard Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Enterprise Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 2
 - Standard Edition – VMware Server 2.0
 - Enterprise Edition – VMware Server 2.0
 - Web Edition – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ **VMware ESX Server**

Web Edition – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Standard Edition – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise Edition – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Small Business Server 2003 Premium – ESX 2.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Small Business Server 2003 Standard – ESX 2.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Datacenter Edition – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 2.1.2 (requires Upgrade Patch 4. See <http://vmware.com/support/esx21/doc/esx-212-200506-patch.html>), 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- R2 – ESX 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Support Considerations

- You need to manually configure the e1000 network adapter driver in ESX 3.0.2 to support Windows Server 2003 Datacenter Edition. Refer to knowledge base article 1003020 at <http://kb.vmware.com/kb/1003020>.

■ VMware Fusion

Enterprise Edition – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- R2 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
- Service Pack 2 – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Windows Server 2003:

■ VMware Workstation

Standard x64 Edition – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Enterprise x64 Edition – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- R2 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- Visual Studio Integrated Virtual Debugger support for Standard x64 Edition, Enterprise x64 Edition – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Standard x64 Edition, Enterprise x64 Edition – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Standard x64 Edition – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Enterprise x64 Edition – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

Standard x64 Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Enterprise x64 Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Update Support

- Service Pack 1 – VMware Server 2.0
- R2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 2 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ **VMware ESX Server**

Standard x64 Edition – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise x64 Edition – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Datacenter x64 Edition – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- R2
 - Standard x64 Edition – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Enterprise x64 Edition – ESX3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Datacenter x64 Edition – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Support Considerations

- You need to manually configure the e1000 network adapter driver in ESX 3.0.2 to support Windows Server 2003 Datacenter Edition. Refer to knowledge base article 1003020 at <http://kb.vmware.com/kb/1003020>.

■ **VMware Fusion**

Enterprise x64 Edition – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- R2 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can also install from a PXE server.

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

If an Internet connection is not available while installing a Windows Server 2003 guest, the driver for the multimedia audio controller will not be installed. The Windows Device Manager will indicate that the driver for the multimedia audio controller is missing. To install the required driver, configure an Internet connection, and run Windows Update on the Windows Server 2003 virtual machine.

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.

NOTE If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Sound Driver Needed for 64-Bit Guests

VMware Workstation 6.x and VMware Server: If you want to use sound in a 64-bit Windows Server 2003 guest operating system, you must use the driver available on the VMware Web site at www.vmware.com/download/ws/drivers_tools.html under VMAudio Driver (experimental).

Known Issues

Enabling Enhanced vmxnet Adapter for Windows Server 2003

You cannot select an enhanced vmxnet network adapter when configuring virtual machines running Microsoft Windows Server 2003 Standard Edition (32-bit and 64-bit), Microsoft Windows Server 2003 Web Edition, and Microsoft Windows Small Business Server 2003.

To enable the enhanced vmxnet network adapter option for these operating systems, follow the procedures in VMware knowledge base article <http://kb.vmware.com/kb/1007195>.

vmxnet3 Network Adapter Displays Incorrect Link Speed

The vmxnet3 network adapter (10 GBps) displays an incorrect link speed in this guest operating system, typically 1.4 GBps.

For more information, see the knowledge base article “A 10 GbE network adapter displays an incorrect link speed in Windows XP and Windows Server 2003” on the Microsoft Web site: <http://support.microsoft.com/kb/931857/en-us>

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 might 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 might 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, and 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**.

Hibernation

Should you experience difficulties with the hibernation feature for this guest operating system, suspend the virtual machine instead.

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
```

ESX Server and Support Microsoft Clustering Service with Windows Server 2003 SP1

For information about support of Microsoft Clustering Service (MSCS) with Windows 2003 SP1, see the knowledge base article at <http://kb.vmware.com/kb/2021>.

vlance Ethernet Adapter Fails to Start for Windows Server 2003 Virtual Machine in PAE Mode

VMware ESX Server, VMware Workstation: In a Windows Server 2003 virtual machine in PAE mode, the vlance Ethernet adapter fails to start. VMware recommends that you download and install the NDIS5 Driver for AMD PCnet Ethernet Adapter, version 4.5.1, from the AMD Web site at http://www.amd.com/us-en/ConnectivitySolutions/ProductInformation/0,,50_2330_6629_2452%5E2454%5E2486,00.html

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

ESX Server Virtual Machine Running Windows Might Fail to Power On if Not Rebooted After VMware Tools Installation

ESX Server 2.5.x: After you install VMware Tools on an ESX Server 2.5.x virtual machine that is running Microsoft Windows, the VMware Tools installer asks you to reboot the virtual machine. If you choose not to reboot at that time, and subsequently remove power from the virtual machine, either by using the button Power Off Virtual Machine in the remote console, or by shutting down the ESX Server, you might then be unable to power on the virtual machine again. When you attempt to do so, the virtual machine might fail to boot up, displaying the message STOP 0x0000007B: INACCESSIBLE_BOOT_DEVICE. To avoid this problem, after installing VMware Tools, be sure to reboot the virtual machine when the VMware Tools installer prompts you.

On Intel Woodcrest-Based Hosts, Installing 64-Bit Windows 2003 Enterprise Server R2 in Virtual Machine Might Cause Virtual Machine to Crash

ESX Server 3.0.1, 3.0.2, and 3.0.3: On ESX Server 3.0.1, 3.0.2, and 3.0.3 hosts running on Intel Woodcrest processors, installing 64-Bit Windows 2003 Enterprise Server R2 in a virtual machine might cause the virtual machine to crash to bluescreen with the stop code STOP: 0x00000109. Testing indicates that this problem occurs intermittently, in approximately 10 percent of installations.

Windows XP

This section contains product support, installation instructions, and known issues for the Windows XP operating system.

32-Bit Support

The following VMware products support 32-bit Windows XP:

■ VMware Workstation

Professional – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Home Edition – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 2 – Workstation 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Visual Studio Integrated Virtual Debugger support for Professional – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Professional – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Professional – VMware ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Home Edition – VMware ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – VMware ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 2 – VMware ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Professional – GSX Server 3.0, 3.1, 3.2, 3.2.1

Home Edition – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Service Pack 1 – GSX Server 3.0, 3.1, 3.2, 3.2.1
- Service Pack 2 – GSX Server 3.1, 3.2, 3.2.1

■ VMware Server

Professional – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Service Pack 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Service Pack 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ VMware ESX Server

Professional, Service Pack 1, 2, or 3 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 3 – ESX 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

■ VMware Fusion

Professional – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Home Edition – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
- Service Pack 3 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Windows XP

■ VMware Workstation

Professional x64 Edition – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- Visual Studio Integrated Virtual Debugger support for Professional x64 Edition – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Professional x64 Edition – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Professional x64 Edition, Service Pack 2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Professional x64 Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Service Pack 2 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware ESX Server**

Professional x64 Edition, Service Pack 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- **VMware Fusion**

Professional x64 Edition – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can also install from a PXE server.

VMware Workstation, VMware ACE, GSX Server, ESX Server: 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 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 <http://www.lsi.com/cm/DownloadSearch.do> and download for the LSI20320-R SCSI adapter driver for your guest operating system. For details on installing this driver, see the *VMware ESX Server Administration Guide*. The LSI Logic Web site also provides an *Installation Guide for the LSI Logic Fusion-MPT™ Driver: SYMMPI.SYS V1.xx.xx*, located (at the time of this *Guest Operating System Installation Guide's* publication) at www.lsi.com/files/support/ssp/fusionmpt/WinXP/symmpi_xp_12018.txt.

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.

NOTE If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Sound Driver Needed for 64-Bit Guests

VMware Workstation 5.5.x and VMware Server: if you want to use sound in a 64-bit Windows XP Professional guest operating system, you must use the driver available on the VMware Web site at www.vmware.com/download/ws/drivers_tools.html under VMaudio Driver (experimental).

Known Issues

vmxnet3 Network Adapter Displays Incorrect Link Speed

The vmxnet3 network adapter (10 GBps) displays an incorrect link speed in this guest operating system, typically 1.4 GBps.

For more information, see the knowledge base article “A 10 GbE network adapter displays an incorrect link speed in Windows XP and Windows Server 2003” on the Microsoft Web site: <http://support.microsoft.com/kb/931857/en-us>

Windows XP, Service Pack 3 Virtual Machines Fail to Transfer Data Through a Virtual Parallel Port

VMware ESX 2.5.x: When a virtual parallel port is added to a virtual machine running Windows XP Service Pack 3, data transfer using the virtual parallel port might fail, with a message similar to the following:

The system cannot write to the specified device.

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 might 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 5.0: If you are installing the guest operating system on a VMware Workstation, 5.0 or lower, on a host computer that has PAE technology, you might get an error message. The error message indicates the guest operating system is trying to use PAE. Discontinue the installation process if this occurs, and enable PAE for the affected virtual machine.

To enable PAE for the virtual machine

- 1 Make sure the virtual machine is powered off.
- 2 Edit the configuration (.vmx) file for the virtual machine by adding the following line to the file:
`paevm="true"`
- 3 Power on the virtual machine and install the guest operating system.

Hibernation

Should you experience difficulties with the hibernation feature for this guest operating system, suspend the virtual machine instead.

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

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

ESX Server Virtual Machine Running Windows Might Fail to Power On if Not Rebooted After VMware Tools Installation

ESX Server 2.5.x: After you install VMware Tools on an ESX Server 2.5.x virtual machine that is running Microsoft Windows, the VMware Tools installer asks you to reboot the virtual machine. If you choose not to reboot at that time, and subsequently remove power from the virtual machine, either by using the button Power Off Virtual Machine in the remote console, or by shutting down the ESX Server, you might then

be unable to power on the virtual machine again. When you attempt to do so, the virtual machine might fail to boot up, displaying the message `STOP 0x0000007B: INACCESSIBLE_BOOT_DEVICE`. To avoid this problem, after installing VMware Tools, be sure to reboot the virtual machine when the VMware Tools installer prompts you.

Windows 2000

This section contains product support, installation instructions, and known issues for the Windows 2000 operating system.

32-Bit Support

The following VMware products support 32-bit Windows 2000:

■ VMware Workstation

Professional – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Windows 2000 Server – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Advanced Server – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 2 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 3 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 4 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Visual Studio Integrated Virtual Debugger support for Professional, Windows 2000 Server, Windows 2000 Advanced Server – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Professional, Windows 2000 Server, Windows 2000 Advanced Server – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Professional – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Windows 2000 Server – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Advanced Server – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 2 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- Service Pack 4 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- **VMware GSX Server**
 - Professional – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Windows 2000 Server – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Advanced Server – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Update Support
 - Service Pack 1 – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Service Pack 2 – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Service Pack 3 – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Service Pack 4 – GSX Server 3.0, 3.1, 3.2, 3.2.1
 - Service Pack 4 checked build for Windows 2000 Professional – GSX Server 3.0, 3.1, 3.2, 3.2.1
- **VMware Server**
 - Professional – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Windows 2000 Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Advanced Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Update Support
 - Service Pack 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Service Pack 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Service Pack 3
 - Professional – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Windows 2000 Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Advanced Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Service Pack 4
 - Professional – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - Windows 2000 Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Advanced Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
 - Additional Support
 - SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- **VMware ESX Server**
 - Professional, Service Pack 4 – ESX 2.0.2, 2.1.3, 2.5.1, 2.5.3, 3.0.1, 3.0.2, 3.0.3, 3.5 U2, 3.5 U3
 - Windows 2000 Server, Service Pack 3 or 4 – ESX 2.0, 2.0.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Advanced Server, Service Pack 3 or 4 – ESX 2.0, 2.0.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 3 – ESX 2.0, 2.0.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 4 – ESX 2.0, 2.0.1, 2.1.1, 2.1.2, 2.1, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 4 – Update Rollup 1 for Terminal Services Edition – ESX 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.0.2, 2.1.1, 2.1.2, 2.1.3, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- **VMware Fusion**

Professional, Service Pack 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Windows 2000 Server, Service Pack 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Advanced Server, Service Pack 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 4 – 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 <http://www.lsi.com/cm/DownloadSearch.do> and download the LSI20320-R SCSI adapter driver for your guest operating system.

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

NOTE If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

After you install VMware Tools, you must 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.

Known Issues

Service Pack 3 Might Fail to Boot

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

You can resolve this problem by installing Service Pack 4. Refer to this VMware Knowledge Base article: <http://kb.vmware.com/kb/907>.

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, and 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 might need to assign a higher magicboot1 value. For faster boot times, you can 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 <http://kb.vmware.com/> for a possible answer to your problem.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

ESX Server Virtual Machine Running Windows Might Fail to Power On if Not Rebooted After VMware Tools Installation

ESX Server 2.5.x: After you install VMware Tools on an ESX Server 2.5.x virtual machine that is running Microsoft Windows, the VMware Tools installer asks you to reboot the virtual machine. If you choose not to reboot at that time, and subsequently remove power from the virtual machine, either by using the button Power Off Virtual Machine in the remote console, or by shutting down the ESX Server, you might then be unable to power on the virtual machine again. When you attempt to do so, the virtual machine might fail to boot up, displaying the message STOP 0x0000007B: INACCESSIBLE_BOOT_DEVICE. To avoid this problem, after installing VMware Tools, be sure to reboot the virtual machine when the VMware Tools installer prompts you.

Windows NT 4.0

This section contains product support, installation instructions, and known issues for the Windows NT 4.0 operating system.

32-Bit Support

The following VMware products support 32-bit Windows NT 4.0:

- **VMware Workstation**

Windows NT 4.0, Service Pack 6a – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Windows NT 4.0, Service Pack 6a – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Windows NT 4.0, Service Pack 6a – 3.0, 3.1, 3.2, 3.2.1

Support Considerations

- If you intend to run a Windows NT virtual machine with IDE virtual disks on a multiprocessor host computer, you might 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.

- **VMware Server**

Windows NT 4.0, Service Pack 6a – Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware ESX Server**

Windows NT 4.0, Service Pack 6a – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- **VMware Fusion**

Windows NT 4.0, Service Pack 6a – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

NOTE To view VMware Tools online help in a Windows NT 4.0 guest, Windows NT 4.0 must have Internet Explorer 4.0 or greater installed.

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, and 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.

Known Issues

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, and then set the memory size to the value you want.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server Virtual Machine Running Windows Might Fail to Power On if Not Rebooted After VMware Tools Installation

ESX Server 2.5.x: After you install VMware Tools on an ESX Server 2.5.x virtual machine that is running Microsoft Windows, the VMware Tools installer asks you to reboot the virtual machine. If you choose not to reboot at that time, and subsequently remove power from the virtual machine, either by using the button Power Off Virtual Machine in the remote console, or by shutting down the ESX Server, you might then be unable to power on the virtual machine again. When you attempt to do so, the virtual machine might fail to boot up, displaying the message STOP 0x0000007B: INACCESSIBLE_BOOT_DEVICE. To avoid this problem, after installing VMware Tools, be sure to reboot the virtual machine when the VMware Tools installer prompts you.

Windows Me

This section contains product support, installation instructions, and known issues for the Windows Me operating system.

32-Bit Support

The following VMware products support 32-bit Windows Me:

- **VMware Workstation**

Windows Me – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Windows Me – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Windows Me – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Windows Me – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

Windows Me – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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**, and 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**, and 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 <http://kb.vmware.com/kb/340>.

Known Issues

Lack of Support for USB 2.0 Drivers

Workstation 6.x: This guest operating system does not provide drivers for USB 2.0 on Workstation 6.x. As a result, when you install this operating system, a warning will display indicating that the device driver for USB 2.0 cannot be found. To resolve this issue, disable the **USB Controller** on the guest.

To disable the USB 2.0 controller

- 1 Open the virtual machine settings editor (**VM > Settings**).
- 2 Select **Settings** to open the **Virtual Machine Settings** dialog box.
- 3 Select **Hardware**, and deselect the **Enable USB 2.0** check box for the **USB Controller**.
- 4 Click **OK**.

Windows 98

This section contains product support, installation instructions, and known issues for the Windows 98 operating system.

32-Bit Support

The following VMware products support 32-bit Windows 98:

- **VMware Workstation**

Windows 98 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- Visual Studio Integrated Virtual Debugger support for Windows 98 – Workstation 6.0, 6.0.1, 6.0.2

- **VMware ACE**

Windows 98 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Windows 98 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Windows 98 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

Windows 98 SE – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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**, and 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**, and 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 <http://kb.vmware.com/kb/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 might want to add the TCP/IP protocol since Windows 98 does not install it by default.

Known Issues

Phantom COM Ports

After Windows 98 has been installed, you might 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 can remove them using the Windows device manager if you like.

Lack of Support for USB 2.0 Drivers

Workstation 6.x: This guest operating system does not provide drivers for USB 2.0 on Workstation 6.x. As a result, when you install this operating system, a warning will display indicating that the device driver for USB 2.0 cannot be found. To resolve this issue, disable the **USB Controller** on the guest.

To disable the USB 2.0 controller

- 1 Open the virtual machine settings editor (**VM > Settings**).
- 2 Select **Settings** to open the **Virtual Machine Settings** dialog box.
- 3 Select **Hardware**, and deselect the **Enable USB 2.0** check box for the **USB Controller**.
- 4 Click **OK**.

Windows 95

This section contains product support, installation instructions, and known issues for the Windows 95 operating system.

32-Bit Support

The following VMware products support 32-bit Windows 95:

- **VMware Workstation**

Windows 95 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Windows 95 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Windows 95 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Windows 95 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

Windows 95, Service Pack 1 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 1 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 might 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.

NOTE If you are installing a guest operating system through VMware VirtualCenter, be sure it is supported under the VMware product—ESX Server or VMware Server—on which you are running the 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, and 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 might 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 <http://kb.vmware.com/kb/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, and 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 might want to add the TCP/IP protocol since Windows 95 does not install it by default.

Known Issues

Networking Might Not Work

After you install Windows 95, you might 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 might need to use the Device Manager to remove the adapter, and then reinstall it using the Add New Hardware control panel.

Phantom COM Ports Might Appear

After you install Windows 95, you might 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 can remove them using the Windows Device Manager if you like.

Lack of Support for USB 2.0 Drivers

Workstation 6.x: This guest operating system does not provide drivers for USB 2.0 on Workstation 6.x. As a result, when you install this operating system, a warning will display indicating that the device driver for USB 2.0 cannot be found. To resolve this issue, disable the **USB Controller** on the guest.

To disable the USB 2.0 controller

- 1 Open the virtual machine settings editor (**VM > Settings**).
- 2 Select **Settings** to open the **Virtual Machine Settings** dialog box.
- 3 Select **Hardware**, and deselect the **Enable USB 2.0** check box for the **USB Controller**.
- 4 Click **OK**.

MS-DOS 6.22 and Windows 3.1x

This section contains product support, installation instructions, and known issues for MS-DOS 6.22 and the Windows 3.1x operating system.

32-Bit Support

The following VMware products support 32-bit MS-DOS 6.22 and Windows 3.1x:

- **VMware Workstation**

MS-DOS 6.22 and Windows 3.1x – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

MS-DOS 6.22 and Windows 3.1x – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

MS-DOS 6.22 and Windows 3.1x – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

MS-DOS 6.22 and Windows 3.1x – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

MS-DOS 6.22 and Windows 3.1x – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

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

MS-DOS 6.22 Installation Notes

You can install MS-DOS 6.22 inside a virtual machine using the Microsoft full-version MS-DOS 6.22 installation disks. If you have the upgrade disks, you must install an earlier version of MS-DOS 6.22 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 MS-DOS 6.22, VMware recommends that you install a CPU idle program within the virtual machine. Most versions of MS-DOS 6.22 do not idle the CPU when they are idle. Therefore, when you are running MS-DOS 6.22 in a virtual machine, the virtual machine takes up CPU time on the host even when MS-DOS 6.22 is idle. VMware products rely on the guest operating system to use the Halt instruction or advanced power management to unschedule the virtual machine when it is idle.

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.

Known Issues

Mouse Problems

You might 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.

VMware Tools Not Available

No VMware Tools package exists for MS-DOS 6.22 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 MS-DOS 6.22 or Windows 3.1x virtual machine.

Asianux Server 3.0

This section contains product support, installation instructions, and known issues for the Asianux Server 3.0 operating system.

32-Bit Support

The following VMware products support 32-bit Asianux Server 3.0:

- **VMware Workstation**

Asianux Server 3.0 – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

64-Bit Support

The following VMware products support 64-bit Asianux Server 3.0:

- **VMware Workstation**

Asianux Server 3.0 – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Asianux Server 3.0 in a virtual machine is to use the standard Asianux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Asianux 3.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 Asianux Server 3.0 CD-ROM in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Asianux Server 3.0.
- 3 Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
- 4 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 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 Asianux defaults.

You might 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.

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

This completes basic installation of the Asianux Server 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

CentOS 5.0

This section contains product support, installation instructions, and known issues for the CentOS 5.0 operating system.

32-Bit Support

The following VMware products support 32-bit CentOS 5.0:

- **VMware Workstation**

CentOS 5.0 – Workstation 6.5, 6.5.1

Update Support

- CentOS 5.1 – Workstation 6.5, 6.5.1

- CentOS 5.2 – Workstation 6.5, 6.5.1

- **VMware ESX Server**

CentOS 5.2 – ESX 3.0.3, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.3, 3.5 U2, 3.5 U3

64-Bit Support

The following VMware products support 64-bit CentOS 5.0:

- **VMware Workstation**

CentOS 5.0 – Workstation 6.5, 6.5.1

Update Support

- CentOS 5.1 – Workstation 6.5, 6.5.1

- CentOS 5.2 – Workstation 6.5, 6.5.1

- **VMware ESX Server**

CentOS 5.2 – ESX 3.0.3, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.3, 3.5 U2, 3.5 U3

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing CentOS 5.0 in a virtual machine is to use the standard CentOS distribution CD. The notes below describe an installation using the standard distribution CD; however, installing CentOS 5.0 via the boot floppy/network method is supported as well. If your VMware product supports it, you can also install from a PXE server.

Before installing the operating system, create and configure a new virtual machine.

When creating a virtual machine for CentOS 5.0:

- **ESX Server 3. x:** Select **Other Linux** or **Other Linux (64-bit)** for the guest operating system. ESX Server does not list CentOS as an option.
- Configure the virtual machine with a minimum of 512MB of memory. If the virtual machine has less than 512MB of memory, CentOS 5.0 displays an error message as it loads certain VMware drivers.
- Use the LSI Logic SCSI adapter. CentOS 5.0 does not include a driver for the BusLogic SCSI adapter.

Installation Steps

- 1 Insert the CentOS 5.0 CD-ROM in the CD-ROM drive.
- 2 Power on the virtual machine to start installing CentOS 5.0.
- 3 Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
- 4 Do not select the Virtualization Option during the installation. Refer to knowledge base article 9134325 at <http://kb.vmware.com/kb/9134325> for more information.
- 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 CentOS defaults.

You might 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.

- 6 Click **Yes** to partition the drive.

This completes basic installation of the CentOS 5.0 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modprobe.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might Be Needed to Use Networking in Copied Virtual Machine

In some cases, networking does not work properly in a copied 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 CentOS 5.0 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`, and then open it in a text editor.
- 2 Remove the line that begins with `HWAddr`.
- 3 Restart `eth0`.

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledgebase article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mac OS X Server 10.5

This section contains product support, installation instructions, and known issues for the Mac OS X Server 10.5 operating system.

32-Bit Support

The following VMware products support 32-bit Mac OS X Server 10.5:

- **VMware Fusion** – experimental support only

Mac OS X Server 10.5 – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Mac OS X Server 10.5:

- **VMware Fusion** – experimental support only

Mac OS X Server 10.5 – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

Before creating a virtual machine, you must obtain the operating system and any necessary product keys for installation in that virtual machine. VMware Fusion does not come with any operating systems to install in virtual machines you create.

Installation Steps

- 1 From the Virtual Machine Library window, click the **New** button, or choose **File > New**.
The New Virtual Machine Assistant starts.
- 2 In the Introduction panel, what you do depends on whether you are using an operating system installation CD, an operating system installation disk image file (ISO), or an existing virtual disk:

Option	Description
Operating system installation disk	Insert the disk into your Mac. VMware Fusion detects it and asks for confirmation that it is the operating system you want to install. If it is the correct OS, ensure that Install this operating system is selected and click Continue . If it is not the correct OS, select Install a different operating system and click Continue .
Operating system installation disk image file	Click Continue without disk .
Existing virtual disk	Click Continue without disk .

- 3 In the Installation Media panel, choose one of four options:

Option	Description
Use operating system installation disk	Use the pop-up menu to choose an operating system installation disk.
Use operating system installation disk image file	Use the pop-up menu to browse for the .iso file for the operating system. Click Choose to identify the file .
Use an existing virtual disk	Select this option to use an existing virtual disk. Use the pop-up menu to browse for the existing virtual disk (.vmdk) file. Click Choose to identify the file.
Create a custom virtual machine	Select this option if you are creating a custom virtual machine. For instance, you would use this if you are installing an older operating system off of floppy images.

- 4 Click **Continue** to go to the Operating System panel.
- 5 In the Operating System panel, ensure that the operating system and version for the new virtual machine are correct, or select the correct ones from the pop-up menus. Click **Continue**.
- 6 In the **Finish** panel:

Option	Description
To create the virtual machine according to the specifications listed in the Finish panel	Click Finish . Once you indicate the folder in which you want to save the virtual machine (default is your <user>/Documents/Virtual Machines folder), clicking Save launches the virtual machine.
To change disk size or other standard settings of the virtual machine	Click Customize Settings . Save the new virtual machine. Once you save the new virtual machine, Fusion displays the Settings window, with which you can make changes to the virtual machine's disk size, processor usage, removable devices, and so on. When you close the Settings window, VMware Fusion launches the virtual machine.

This completes basic set up of the virtual machine.

Next, install the Mac OS X Server 10.5 guest operating system. After you install Mac OS X Server, install VMware Tools.

VMware Tools

To install or Upgrade VMware Tools in a Mac OS X Server virtual machine follow these instructions.

[Step 1](#) is performed on the Mac, within VMware Fusion menus, and the remaining steps are performed inside the virtual machine.

- With the virtual machine powered on, choose **Install VMware Tools** from the **Virtual Machine** menu.
If VMware Tools is already installed, the **Virtual Machine** menu displays the choice **Upgrade VMware Tools** instead of **Install VMware Tools**.
- On the desktop of the guest Mac OS X Server virtual machine, open the **VMware Tools** CD icon.
- Double-click on **Install VMware Tools** and follow all the steps in the installer assistant. Click **OK** when done.

VMware Fusion reboots the virtual machine to have VMware Tools take effect.

Known Issues

Use the Mac OS X Disk Utility to Increase the Disk Partition Size

If you increase the size of the disk partition when creating the virtual machine, you will not gain access to additional space. Instead, use the Mac OS X disk utility to increase the size of the disk partition after installing the operating system.

Mandriva Corporate Desktop 4

This section contains product support, installation instructions, and known issues for the Mandriva Corporate Desktop 4 operating system.

32-Bit Support

The following VMware products support 32-bit Mandriva Corporate Desktop 4:

- **VMware Workstation**

Mandriva Corporate Desktop 4.0 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Corporate Desktop 4.0 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

64-Bit Support

The following VMware products support 64-bit Mandriva Corporate Desktop 4:

- **VMware Workstation**

Mandriva Corporate Desktop 4.0 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Corporate Desktop 4.0 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandriva Corporate Desktop 4 in a virtual machine is to use the standard Mandriva Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandriva Corporate Desktop 4 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 Mandriva Corporate Desktop 4 installation, you are offered a choice of XFree86 X servers. You can 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 Mandriva Corporate Desktop 4.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Mandriva Corporate Desktop 4 CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Mandriva Corporate Desktop 4.
- 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, and then enter **text** for text mode.
- 5 In the partitioning step, unless you have special requirements, it is all right to let Mandriva Linux automatically allocate the space. Select **Use free space**.

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

Select **Graphical Interface**, and 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 Mandriva Corporate Desktop 4 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 displays indicating 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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at vmware.com/kb/1006427.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandriva Corporate Server 4

This section contains product support, installation instructions, and known issues for the Mandriva Corporate Server 4 operating system.

32-Bit Support

The following VMware products support 32-bit Mandriva Corporate Server 4:

- **VMware Workstation**

Mandriva Corporate Server 4 – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Corporate Server 4 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

64-Bit Support

The following VMware products support 64-bit Mandriva Corporate Server 4:

- **VMware Workstation**

Mandriva Corporate Server 4 – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Corporate Server 4 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandriva Corporate Server 4 in a virtual machine is to use the standard Mandriva Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandriva Corporate Server 4 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 Mandriva Corporate Server 4 installation, you are offered a choice of XFree86 X servers. You can 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 Mandriva Corporate Server 4.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Mandriva Corporate Server 4 CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Mandriva Corporate Server 4.
- 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, and then enter **text** for text mode.

- 5 In the partitioning step, unless you have special requirements, it is all right to let Mandriva Linux automatically allocate the space. Select **Use free space**.
- 6 When you reach the Summary screen, configure the graphical interface.
Select **Graphical Interface**, and 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 Mandriva Corporate Server 4 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 indicating that 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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandriva Linux 2008

This section contains product support, installation instructions, and known issues for the Mandriva Linux 2008 operating system.

32-Bit Support

The following VMware products support 32-bit Mandriva Linux 2008:

- **VMware Workstation**

Mandriva Linux 2008 – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 6.5, 6.5.1

- **VMware Server**

Mandriva Linux 2008 – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware Fusion**

Mandriva Linux 2008 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Mandriva Linux 2008:

- **VMware Workstation**

Mandriva Linux 2008 – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 6.5, 6.5.1

- **VMware Server**

Mandriva Linux 2008 – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware Fusion**

Mandriva Linux 2008 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandriva Linux 2008 in a virtual machine is to use the standard Mandriva Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandriva Linux 2008 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 Mandriva Linux 2008 installation, you are offered a choice of XFree86 X servers. You can 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 Mandriva Linux 2008.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Mandriva Linux 2008 CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Mandriva Linux 2008.
- 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, and then enter **text** for text mode.
- 5 In the partitioning step, unless you have special requirements, it is all right to let Mandriva Linux automatically allocate the space. Select **Use free space**.
- 6 When you reach the Summary screen, configure the graphical interface.

Select **Graphical Interface**, and 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 Mandriva Linux 2008 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 indicating that 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:

```
MIID_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.

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandriva Linux 2007

This section contains product support, installation instructions, and known issues for the Mandriva Linux 2007 operating system.

32-Bit Support

The following VMware products support 32-bit Mandriva Linux 2007:

- **VMware Workstation**

Mandriva Linux 2007 – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Linux 2007 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Mandriva Linux 2007 – VMware Server 2.0

- **VMware Fusion**

Mandriva Linux 2007 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Mandriva Linux 2007:

- **VMware Workstation**

Mandriva Linux 2007 – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Linux 2007 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Mandriva Linux 2007 – VMware Server 2.0

- **VMware Fusion**

Mandriva Linux 2007 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandriva Linux 2007 in a virtual machine is to use the standard Mandriva Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandriva Linux 2007 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 Mandriva Linux 2007 installation, you are offered a choice of XFree86 X servers. You can 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 Mandriva Linux 2007.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Mandriva Linux 2007 CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Mandriva Linux 2007.
- 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, and then enter **text** for text mode.
- 5 In the partitioning step, unless you have special requirements, it is all right to let Mandriva Linux automatically allocate the space. Select **Use free space**.
- 6 When you reach the Summary screen, configure the graphical interface.

Select **Graphical Interface**, and 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 Mandriva Linux 2007 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 indicating that 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:

```
MIIM_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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandriva Linux 2006

This section contains product support, installation instructions, and known issues for the Mandriva Linux 2006 operating system.

32-Bit Support

The following VMware products support 32-bit Mandriva Linux 2006:

- **VMware Workstation**

Mandriva Linux 2006 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Linux 2006 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Mandriva Linux 2006 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware Fusion**

Mandriva Linux 2006 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Mandriva Linux 2006:

- **VMware Workstation**

Mandriva Linux 2006 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandriva Linux 2006 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Mandriva Linux 2006 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware Fusion**

Mandriva Linux 2006 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Mandriva Linux 2006 in a virtual machine is to use the standard Mandriva Linux distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Mandriva Linux 2006 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 Mandriva Linux 2006 installation, you are offered a choice of XFree86 X servers. You can 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 Mandriva Linux 2006.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Mandriva Linux 2006 CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Mandriva Linux 2006.
- 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, and then enter **text** for text mode.
- 5 In the partitioning step, unless you have special requirements, it is all right to let Mandriva Linux automatically allocate the space. Select **Use free space**.
- 6 When you reach the Summary screen, configure the graphical interface.

Select **Graphical Interface**, and 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 Mandriva Linux 2006 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 indicating that 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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandrake Linux 10.1

This section contains product support, installation instructions, and known issues for the Mandrake Linux 10.1 operating system.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 10.1:

- **VMware Workstation**

Mandrake Linux 10.1 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandrake Linux 10.1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Mandrake Linux 10.1 – GSX Server 3.2, 3.2.1

- **VMware Server**

Mandrake Linux 10.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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, and 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**, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 indicating that 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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Display Issues

You might encounter a display issue with the Mandrake Linux 10.1 console. To resolve this issue, you need to comment out the `vga=788` line in the `lilo.conf` file.

- 1 Log in as root at the command line.
- 2 Change directories to the `etc` directory.
- 3 Use a text editor to comment out the `vga=788` line in the `lilo.conf` file.

```
label="linux"
root=/dev/sda1
initrd=/boot/initrd.img
append="acpi=ht resume=/dev/sda5 splash=silent"
vga=788
read-only
```

- 4 Enter **lilo** at the command line to run the file.
- 5 Reboot the guest.

Any display issues should be resolved.

Mandrake Linux 10

This section contains product support, installation instructions, and known issues for the Mandrake Linux 10 operating system.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 10:

- **VMware Workstation**

Mandrake Linux 10 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandrake Linux 10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Mandrake Linux 10 – GSX Server 3.2, 3.2.1

- **VMware Server**

Mandrake Linux 10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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, and 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**, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can 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 indicating that 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:

```
MTI_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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandrake Linux 9.2

This section contains product support, installation instructions, and known issues for the Mandrake Linux 9.2 operating system.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 9.2:

- **VMware Workstation**

Mandrake Linux 9.2 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandrake Linux 9.2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Mandrake Linux 9.2 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Mandrake Linux 9.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

Installation Steps

- 1 Insert the Mandrake Linux 9.2 CD in the CD-ROM drive.
 - 2 Power on the virtual machine.
 - 3 Install this operating system as you would on a physical machine.
The following steps include only those steps that are specific to installing this guest on a VMware virtual machine.
 - 4 Click in the opening screen and press F1 to install using text mode.
 - 5 At the command line, type **text** and press Enter.
 - 6 In the DrakX Partitioning wizard found the following solutions screen, select **Use free space** and select **Next**.
Unless you have special disk requirements, let Mandrake Linux allocate the space.
 - 7 When you reach the Package Group Selection screen, select the type of computer on which you installed your VMware product.
If you installed your VMware product on a laptop computer, make the following selections:
 - a Click **Advanced**.
 - b Select **Individual** package selection and select **Next**.
 - c Scroll to **numlock** and deselect the asterisk and select **Next**.
If you do not disable numlock when you install the guest on a laptop, the number lock is always active in the guest. You cannot disable it by pressing the Num Lock key.
 - 8 When you reach the Summary screen, select **Graphical interface** and select **Do**.
 - 9 Make the following selections for the graphical interface:
 - A monitor for the guest
 - VMware virtual video card
 - XFree 4.3
 - The resolution and refresh rate for the guest
 - **No** to not test the configuration
 - **No** to not start X when you reboot
 When you complete the graphical interface selections, the Summary screen reappears.
 - 10 In the Summary screen, select **Next**.
 - 11 Select **No** to not install updates to the packages.
 - 12 Select **Reboot** to complete the basic installation of the Mandrake Linux 9.2 guest operating system.
- 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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
```

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandrake Linux 9.1

This section contains product support, installation instructions, and known issues for the Mandrake Linux 9.1 operating system.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 9.1:

- **VMware GSX Server**

Mandrake Linux 9.1 – GSX Server 3.1, 3.2, 3.2.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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.

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, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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
```

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandrake Linux 9.0

This section contains product support, installation instructions, and known issues for the Mandrake Linux 9.0 operating system.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 9.0:

- **VMware Workstation**

Mandrake Linux 9.0 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandrake Linux 9.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Mandrake Linux 9.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Mandrake Linux 9.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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`

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandrake Linux 8.2

This section contains product support, installation instructions, and known issues for the Mandrake Linux 8.2 operating system.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 8.2:

- **VMware Workstation**

Mandrake Linux 8.2 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Mandrake Linux 8.2 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Mandrake Linux 8.2 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Mandrake Linux 8.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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`

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Mandrake Linux 8.0 and 8.1

This section contains product support, installation instructions, and known issues for the Mandrake Linux 8.0 and 8.1 operating systems.

32-Bit Support

The following VMware products support 32-bit Mandrake Linux 8.0 and 8.1:

- **VMware GSX Server**

Mandrake Linux 8.0, 8.1 – GSX Server 3.0, 3.1, 3.2, 3.2.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 -`), and 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.

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 might have a performance impact.

Shutting Down Mandrake Linux 8.0

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

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Novell Linux Desktop 9

This section contains product support, installation instructions, and known issues for the Novell Linux Desktop 9 operating system.

32-Bit Support

The following VMware products support 32-bit Novell Linux Desktop 9:

■ VMware Workstation

Novell Linux Desktop 9 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 2 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Novell Linux Desktop 9 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

Novell Linux Desktop 9 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Service Pack 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware Fusion

Novell Linux Desktop 9 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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**, and 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 might copy or move this virtual machine, make the change described in [“Manual Changes Might Be Needed to Use Networking in Copied Virtual Machine”](#) on page 224.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might 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 might 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`

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Oracle Enterprise Linux 5

This section contains product support, installation instructions, and known issues for the Oracle Enterprise Linux 5 operating system.

32-Bit Support

The following VMware products support 32-bit Oracle Enterprise Linux 5:

- **VMware Workstation**

Oracle Enterprise Linux 5 – Workstation 6.5, 6.5.1

Update Support

- Oracle Enterprise Linux 5.1 – Workstation 6.5, 6.5.1
- Oracle Enterprise Linux 5.2 – Workstation 6.5, 6.5.1

64-Bit Support

The following VMware products support 64-bit Oracle Enterprise Linux 5:

- **VMware Workstation**

Oracle Enterprise Linux 5 – Workstation 6.5, 6.5.1

Update Support

- Oracle Enterprise Linux 5.1 – Workstation 6.5, 6.5.1
- Oracle Enterprise Linux 5.2 – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 6.5, 6.5.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Oracle Enterprise Linux 5 in a virtual machine is to use the standard distribution CD. The notes below describe an installation using the standard distribution CD; however, installing Oracle Enterprise Linux 5 via the boot floppy/network method is supported as well. If your VMware product supports it, you can also install from a PXE server.

When creating the virtual machine, be sure to select the LSI Logic SCSI adapter. Oracle Enterprise Linux 5 does not include a driver for the BusLogic SCSI adapter.

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 512MB of memory. If the virtual machine has less than 512MB of memory, Oracle Enterprise Linux 5 presents an error message as it loads certain VMware drivers.

Installation Steps

- 1 Insert the Oracle Enterprise Linux 5 CD-ROM in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Oracle Enterprise Linux 5.
- 3 Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.

- 4 Do not select Virtualization Option during the installation. Refer to knowledge base article 9134325 at <http://kb.vmware.com/kb/9134325> for more information.
- 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 defaults.

You might 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.

- 6 Click **Yes** to partition the drive.

This completes basic installation of the Oracle Enterprise Linux 5 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might 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 an Oracle Enterprise Linux 5 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`, and then open it in a text editor.
- 2 Remove the line that begins with `HWAddr`.
- 3 Restart `eth0`.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Red Hat Enterprise Linux 5

This section contains product support, installation instructions, and known issues for the Red Hat Enterprise Linux 5 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Enterprise Linux 5:

■ VMware Workstation

Advanced Platform – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Desktop – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Server – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

■ Red Hat Enterprise Linux 5.1 – Workstation 6.5, 6.5.1

■ Red Hat Enterprise Linux 5.2 – Workstation 6.5, 6.5.1

Additional Support

■ SMP – 2-way experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ Eclipse Integrated Virtual Debugger support for Advanced Platform, Desktop– Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Advanced Platform – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Desktop – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Server – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

■ Red Hat Enterprise Linux 5.1 – ACE 2.5, 2.5.1

■ Red Hat Enterprise Linux 5.2 – ACE 2.5, 2.5.1

■ VMware Server

Advanced Platform – VMware Server 2.0

Desktop – VMware Server 2.0

Update Support

■ Red Hat Enterprise Linux 5.1 – VMware Server 2.0

Additional Support

■ SMP – 2-way support on VMware Server 2.0

■ VMware ESX Server

Advanced Platform – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Desktop – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Desktop with Workstation option – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Server – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Red Hat Enterprise Linux 5.1
 - Advanced Platform – ESX 3.0.2 (requires Patch ESX-1003374. See <http://kb.vmware.com/kb/1003374>.), 3.0.3, 3.5 U1, 3.5 U2, 3.5 U3
 - Desktop – ESX 3.0.2 (requires Patch ESX-1003374. See <http://kb.vmware.com/kb/1003374>.), 3.0.3, 3.5 U1, 3.5 U2, 3.5 U3
 - Server – ESX 3.0.2 (requires Patch ESX-1003374. See <http://kb.vmware.com/kb/1003374>.), 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Red Hat Enterprise Linux 5.2
 - Advanced Platform – ESX 3.0.2, 3.0.3, 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>.), 3.5 U1, 3.5 U2, 3.5 U3
 - Desktop – ESX 3.0.2, 3.0.3, 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>.), 3.5 U1, 3.5 U2, 3.5 U3
 - Desktop with Workstation option – ESX 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>.), 3.5 U1, 3.5 U2, 3.5 U3
 - Server – ESX 3.0.2, 3.0.3, 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>.), 3.5 U1, 3.5 U2, 3.5 U3
- Red Hat Enterprise Linux 5.3
 - Advanced Platform – ESX 3.0.2, 3.0.3, 3.5 U3
 - Desktop – ESX 3.0.2, 3.0.3, 3.5 U3
 - Desktop with Workstation option – ESX 3.0.2, 3.0.3, 3.5 U3
 - Server – ESX 3.0.2, 3.0.3, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 32-bit Red Hat Enterprise Linux 5, 5.1, and 5.2 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf

Support Considerations

- To avoid a read-only file system issue with Red Hat Enterprise Linux 5 on ESX Server 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Red Hat Enterprise Linux 5.1. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.
- **VMware Fusion**

Red Hat Enterprise Linux 5 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

 - Red Hat Enterprise Linux 5.2 – Fusion 2.0, 2.0.1

Additional Support

 - SMP – full support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Red Hat Enterprise Linux 5:

- **VMware Workstation**

Advanced Platform – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Desktop – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Server – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Red Hat Enterprise Linux 5.1 – Workstation 6.5, 6.5.1
- Red Hat Enterprise Linux 5.2 – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Advanced Platform, Desktop – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ **VMware ACE**

Advanced Platform – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Desktop – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Server – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Red Hat Enterprise Linux 5.1 – ACE 2.5, 2.5.1
- Red Hat Enterprise Linux 5.2 – ACE 2.5, 2.5.1

■ **VMware Server**

Advanced Platform – VMware Server 2.0

Desktop – VMware Server 2.0

Update Support

- Red Hat Enterprise Linux 5.1 – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

■ **VMware ESX Server**

Advanced Platform – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Desktop – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Desktop with Workstation option – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Server – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Red Hat Enterprise Linux 5.1
 - Advanced Platform – ESX 3.0.2 (requires Patch ESX-1003374. See <http://kb.vmware.com/kb/1003374>), 3.0.3, 3.5 U1, 3.5 U2, 3.5 U3
 - Desktop – ESX 3.0.2 (requires Patch ESX-1003374. See <http://kb.vmware.com/kb/1003374>), 3.0.3, 3.5 U1, 3.5 U2, 3.5 U3
 - Server – ESX 3.0.2 (requires Patch ESX-1003374. See <http://kb.vmware.com/kb/1003374>), 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Red Hat Enterprise Linux 5.2
 - Advanced Platform – ESX 3.0.2, 3.0.3, 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>), 3.5 U1, 3.5 U2, 3.5 U3

- Desktop – ESX 3.0.2, 3.0.3, 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>), 3.5 U1, 3.5 U2, 3.5 U3
- Desktop with Workstation option – ESX 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>), 3.5 U1, 3.5 U2, 3.5 U3
- Server – ESX 3.0.2, 3.0.3, 3.5 (requires Patch ESX350-200803202-UG. See <http://kb.vmware.com/kb/1003696>), 3.5 U1, 3.5 U2, 3.5 U3
- Red Hat Enterprise Linux 5.3
 - Advanced Platform – ESX 3.0.2, 3.0.3, 3.5 U3
 - Desktop – ESX 3.0.2, 3.0.3, 3.5 U3
 - Desktop with Workstation option – ESX 3.0.2, 3.0.3, 3.5 U3
 - Server – ESX 3.0.2, 3.0.3, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 64-bit Red Hat Enterprise Linux 5, 5.1, and 5.2 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

Support Considerations

- To avoid a read-only file system issue with Red Hat Enterprise Linux 5 on ESX Server 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3 upgrade to Red Hat Enterprise Linux 5.1. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

■ VMware Fusion

Red Hat Enterprise Linux 5 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Red Hat Enterprise Linux 5.2 – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Enterprise Linux 5 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 5 via the boot floppy/network method is supported as well. If your VMware product supports it, you can also install from a PXE server.

When creating the virtual machine, be sure to select the LSI Logic SCSI adapter. Red Hat Enterprise Linux 5 does not include a driver for the BusLogic SCSI adapter. 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 512MB of memory. If the virtual machine has less than 512MB of memory, Red Hat Enterprise Linux presents an error message as it loads certain VMware drivers.

Installation Steps

- 1 Insert the Red Hat Enterprise Linux 5 CD-ROM in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Red Hat Enterprise Linux 5.
- 3 Follow the installation steps as you would for a physical machine. Be sure to make the choices outlined in the following steps.
- 4 Do not select Virtualization Option during the installation. Refer to knowledge base article 9134325 at <http://kb.vmware.com/kb/9134325> for more information.
- 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.

You might 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.

- 6 Click **Yes** to partition the drive.

This completes basic installation of the Red Hat Enterprise Linux 5 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modprobe.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

On Some Linux Guests with SELinux Enforcing Mode Turned On, Uninstalling VMware Tools Makes the File System Read-Only

ESX 3.5 Update 3: This problem occurs only if you uninstall the version of VMware Tools that was included with ESX 3.5 Update 3 and only if the Linux distribution has SELinux (Security-Enhanced Linux) enforcing mode enabled, such as Red Hat Enterprise Linux 5.2. See knowledgebase article <http://kb.vmware.com/kb/1008090> for more information.

PAE Message During Installation

VMware Workstation 5.x and 6.x: If you are installing the guest operating system on a VMware Workstation, 5.0 or lower, on a host computer that has PAE technology, you might get an error message. The error message indicates the guest operating system is trying to use PAE. Discontinue the installation process if this occurs, and enable PAE for the affected virtual machine.

To enable PAE for the virtual machine

- 1 Make sure the virtual machine is powered off.
- 2 Edit the configuration (.vmx) file for the virtual machine by adding the following line to the file:
`paevm="true"`
- 3 Power on the virtual machine and install the guest operating system.

Manual Changes Might 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 5 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`, and then open it in a text editor.
- 2 Remove the line that begins with `HWAddr`.
- 3 Restart `eth0`.

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Red Hat Enterprise Linux 4

This section contains product support, installation instructions, and known issues for the Red Hat Enterprise Linux 4 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Enterprise Linux 4:

■ VMware Workstation

Advanced Server (AS) – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Enterprise Server (ES) – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Workstation (WS) – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Update 1 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 2 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 3 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 4 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 5 – Workstation 6.0.1
- Update 6 – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 7 – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Advanced Server (AS), Enterprise Server (ES), Workstation (WS) – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1 (Eclipse Integrated Virtual Debugger does not support Update 6 on Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1)

■ VMware ACE

Advanced Server (AS) – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Enterprise Server (ES) – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Workstation (WS) – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Update 7 – ACE 6.5, 6.5.1

■ VMware GSX Server

Advanced Server (AS) – GSX Server 3.2, 3.2.1

Enterprise Server (ES) – GSX Server 3.2, 3.2.1

Workstation (WS) – GSX Server 3.2, 3.2.1

■ VMware Server

Advanced Server (AS) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
Enterprise Server (ES) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
Workstation (WS) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- Update 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 4 – experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 5 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ VMware ESX Server

Advanced Server (AS) – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise Server (ES) – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Workstation (WS) – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Update 1 supported on ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 2 supported on ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 3 – ESX 2.5.3 (requires Upgrade Patch 3. See <http://vmware.com/support/esx25/doc/esx-253-200607-patch.html>), 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 4 – ESX 2.5.3 (requires Upgrade Patch 3. See <http://vmware.com/support/esx25/doc/esx-253-200607-patch.html>), 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 5 – ESX 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 6 – ESX 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.0.3, 3.5 U1, 3.5 U2, 3.5 U3
- Update 7 – ESX 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.0.3, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 32-bit Red Hat Enterprise Linux 4 and Updates 1, 2, 3, 4, 5, 6, and 7 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf

Support Considerations

- SCSI adapter support
 - Red Hat Enterprise Linux 4, Update 1, 2, 3, 4, and 5: ESX Server 2.5.2, 2.5.3, 2.5.4, and 2.5.5 support only the BusLogic SCSI adapter on Red Hat Enterprise Linux 4, Update 1, 2, 3, 4, and 5.
 - Red Hat Enterprise Linux 4, Update 6 and Update 7: ESX Server 2.5.2, 2.5.3, 2.5.4, and 2.5.5 support both the LSI Logic and BusLogic SCSI adapter on Red Hat Enterprise Linux 4, Update 6 and Update 7.

- VMware provides a separate driver to support the BusLogic SCSI adapter. For instructions on downloading and installing the BusLogic driver, see www.vmware.com/download/esx/drivers_tools.html.
- VMware ESX Server 3.0, 3.0.1, 3.0.2, and 3.0.3 support only the LSI Logic SCSI adapter for Red Hat Enterprise Linux 4.
- To avoid a read-only file system issue with Red Hat Enterprise Linux 4, Update 3 or Update 4 on ESX Server 3.0, 3.0.1, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Update 5. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.
- **VMware Fusion**
 Red Hat Enterprise Linux 4, Update 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
 Update Support
 - Update 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
 - Update 6 – Fusion 2.0, 2.0.1
 Additional Support
 - SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Red Hat Enterprise Linux 4:

- **VMware Workstation**
 Advanced Server (AS) – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 Enterprise Server (ES) – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 Workstation (WS) – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 Update Support
 - Update 1 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 - Update 2 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 - Update 3 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 - Update 4 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 - Update 5 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 - Update 6 – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 Additional Support
 - SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
 - Eclipse Integrated Virtual Debugger support for Advanced Server (AS), Enterprise Server (ES), Workstation (WS) – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1 (Eclipse Integrated Virtual Debugger does not support Update 6 on Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1)

■ VMware ACE

Advanced Server (AS) – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5

Enterprise Server (ES) – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5

Workstation (WS) – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5

■ VMware Server

Advanced Server (AS) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Enterprise Server (ES) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Workstation (WS) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Update 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- Update 4 – experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- Update 5 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ VMware ESX Server

Advanced Server (AS) – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise Server (ES) – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Workstation (WS) – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Update 1 – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Update 2 – ESX 3.0 (experimental support), 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Update 3 – ESX 3.0 (experimental support), 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Update 4 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Update 5 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Update 6 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Update 7 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- VMware Tools Operating System Specific Packages (OSPs) – provide support for 64-bit Red Hat Enterprise Linux 4 and Updates 1, 2, 3, 4, 5, 6, and 7 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf

- Support Considerations

- VMware ESX Server 3.0, 3.0.1, 3.0.2, and 3.0.3 support only the LSI Logic SCSI adapter for Red Hat Enterprise Linux 4.

- To avoid a read-only file system issue with Red Hat Enterprise Linux 4, Update 3 or Update 4 on ESX Server 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, and 3.5 U3, upgrade to Update 5. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

■ VMware Fusion

Red Hat Enterprise Linux 4, Update 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Update 4 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
- Update 6 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Enterprise Linux 4 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 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 does not include a driver for the BusLogic SCSI adapter.

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.

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

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 CD-ROM in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Red Hat Enterprise Linux 4.
- 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 might 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can also set the networking parameters manually.

VMware ESX Server: If you are using the vlane network adapter in your virtual machine and your computer is connected to a LAN that provides DHCP support, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 to configure your network connection after you finish installing the guest operating system.

This completes basic installation of the Red Hat Enterprise Linux 4 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modprobe.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

PAE Message During Installation

VMware Workstation 5.0: If you are installing the guest operating system on a VMware Workstation, 5.0 or lower, on a host computer that has PAE technology, you might get an error message. The error message indicates the guest operating system is trying to use PAE. Discontinue the installation process if this occurs, and enable PAE for the affected virtual machine.

To enable PAE for the virtual machine

- 1 Make sure the virtual machine is powered off.
- 2 Edit the configuration (`.vmx`) file for the virtual machine by adding the following line to the file:


```
paevm="true"
```
- 3 Power on the virtual machine and install the guest operating system

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

Manual Changes Might 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 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`, and then open it in a text editor.
- 2 Remove the line that begins with `HWAddr`.
- 3 Restart `eth0`.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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 Linux virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Red Hat Enterprise Linux 4 Update 2 and Update 3 Guests Displayed with Incorrect Operating System Type in Virtual Infrastructure Client

ESX Server 3.x: ESX 3.x virtual machines running Red Hat Enterprise Linux 4 (AS, ES, WS) Update 3, with VMware Tools running, are shown in the Virtual Infrastructure Client as having Red Hat Enterprise Linux 3 as the guest operating system type. ESX 3.x virtual machines running Red Hat Enterprise Linux 4 (AS, ES, WS) Update 2, with VMware Tools running, are shown in the Virtual Infrastructure Client as having Red Hat Enterprise Linux 2 as the guest operating system type. This incorrect display is harmless and does not affect the proper operation of the virtual machine.

Red Hat Enterprise Linux 3

This section contains product support, installation instructions, and known issues for the Red Hat Enterprise Linux 3 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Enterprise Linux 3:

■ VMware Workstation

Advanced Server (AS) – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Enterprise Server (ES) – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Workstation (WS) – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Update 4 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 5 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 6 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 7 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 8 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Advanced Server (AS) – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Enterprise Server (ES) – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Workstation (WS) – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Update 3 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Update 4 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Advanced Server (AS) – GSX Server 3.0, 3.1, 3.2, 3.2.1

Enterprise Server (ES) – GSX Server 3.0, 3.1, 3.2, 3.2.1

Workstation (WS) – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Update 4 – GSX Server 3.2, 3.2.1

- **VMware Server**

Red Hat Enterprise Linux 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Update 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 4 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 5 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 6 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 7 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 8 – experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP– 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware ESX Server**

Advanced Server (AS) – ESX 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise Server (ES) – ESX 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Workstation (WS) – ESX 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Update 1 – ESX 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 2 – ESX 2.1 (with Virtual SMP), 2.5.3, 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 3 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 4 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 5 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 6 – ESX 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 7 – ESX 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 8 – ESX 2.5.3 (requires Upgrade Patch 3. See <http://vmware.com/support/esx25/doc/esx-253-200607-patch.html>), 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 9 – ESX 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

■ VMware Fusion

Red Hat Enterprise Linux, Update 8 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

■ Update 8 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

■ Update 9 – Fusion 2.0, 2.0.1

Additional Support

■ SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

A 64-bit Red Hat Enterprise Linux 3 guest (without any updates) and a Red Hat Enterprise Linux 3 guest Update 1 do not support more than 4GB of memory on VMware virtual hardware.

The following VMware products support 64-bit Red Hat Enterprise Linux 3:

■ VMware Workstation

Advanced Server (AS) – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Enterprise Server (ES) – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Workstation (WS) – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

■ Update 4 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ Update 5 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ Update 6 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ Update 7 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ Update 8 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

■ SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Advanced Server (AS) – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Enterprise Server (ES) – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Workstation (WS) – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

■ Update 3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ Update 4 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

Red Hat Enterprise Linux 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Update 6 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 7 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Update 8 – experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware ESX Server**

Advanced Server (AS) – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise Server (ES) – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Workstation (WS) – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Update 1 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 3 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 4 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 5 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 6 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 7 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 8 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Update 9 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX Server 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- **VMware Fusion**

Red Hat Enterprise Linux 3, Update 8 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Update 8 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
- Update 9 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Red Hat Enterprise Linux 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 Enterprise Linux 3 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 CD-ROM in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Red Hat Enterprise Linux 3.

You must install Red Hat Enterprise Linux 3 using the text mode installer, which you can choose when you first boot the installer. At the Red Hat Enterprise Linux 3 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, and 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 can 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 might 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can also set the networking parameters manually.

VMware ESX Server and VMware VirtualCenter: If you are using the vlane network adapter in your virtual machine and your computer is connected to a LAN that provides DHCP support, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 to configure your network connection after you finish installing the guest operating system.

This completes basic installation of the Red Hat Enterprise Linux 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

PAE Message During Installation

VMware Workstation 5.0: If you are installing the guest operating system on a VMware Workstation, 5.0 or lower, on a host computer that has PAE technology, you might get an error message. The error message indicates the guest operating system is trying to use PAE. Discontinue the installation process if this occurs, and enable PAE for the affected virtual machine.

To enable PAE for the virtual machine

- 1 Make sure the virtual machine is powered off.
- 2 Edit the configuration (`.vmx`) file for the virtual machine by adding the following line to the file:

```
paevm="true"
```

- 3 Power on the virtual machine and install the guest operating system.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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 Linux virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Installation on Uniprocessor Virtual Machines with More than 4GB of Memory

VMware ESX Server 3.x: If your virtual machine is configured as a uniprocessor system with more than 4GB of RAM, when you install Red Hat Enterprise Linux 3, the huge memory kernel might fail to install. As a result, the guest operating system will see only 4 GB of memory. To work around this problem, reboot the virtual machine and install the huge memory kernel manually, using the RPM installer.

Message About “Tainted” Driver

VMware ESX Server or VMware VirtualCenter: With Red Hat Enterprise Linux 3 Update 6 and later, when the 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.

X Windows System Fails to Start in Virtual Machine If Default Depth for Display Is Set to 24

ESX Server 3.x: In a virtual machine running Red Hat Enterprise Linux 3 or Red Hat Enterprise Linux 3 Update 7, if you choose the setup default of 24 for display depth, when you attempt to start the X windows system (with the `startx` command), the error message `No screens found` is displayed. You can work around this problem in either of the following ways:

- Install VMware Tools, or
- Manually edit the file `/etc/X11/XF86config`, setting the default depth for the display to 8

Red Hat Enterprise Linux 2.1

This section contains product support, installation instructions, and known issues for the Red Hat Enterprise Linux 2.1 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Enterprise Linux 2.1:

■ VMware Workstation

Advanced Server (AS) – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Enterprise Server (ES) – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Workstation (WS) – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Update 6 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Update 7 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Advanced Server (AS) – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Enterprise Server (ES) – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Workstation (WS) – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Update 6 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Advanced Server (AS) – GSX Server 3.0, 3.1, 3.2, 3.2.1

Enterprise Server (ES) – GSX Server 3.0, 3.1, 3.2, 3.2.1

Workstation (WS) – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Update 6 – GSX Server 3.2, 3.2.1

■ VMware Server

Red Hat Enterprise Linux 2.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

Advanced Server (AS) – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Enterprise Server (ES) – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Workstation (WS) – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Update 6 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3

- Update 7 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

■ VMware Fusion

Advanced Server (AS) – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Enterprise Server (ES) – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Workstation (WS) – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can also install from a PXE server.

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

Red Hat Enterprise Linux 2.1 WS on VMware ESX Server: When you install Red Hat Enterprise Linux 2.1 WS in a virtual machine on an ESX Server, use Update 6 or higher. This eliminates conflicts with the network and SCSI adapters and installation problems on a Red Hat Enterprise Linux 2.1 WS guest operating system.

If you do not install Update 6 or higher, use one of the following configurations for the network and SCSI adapters:

- vlance network adapter—Use an LSI Logic SCSI adapter.
- vmxnet network adapter—Use an LSI Logic SCSI adapter or BusLogic 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 must install Red Hat Enterprise Linux 2.1 using the text mode installer, which you can 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, and 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 can 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_esx213.html.
- 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 might 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Mouse Does Not Function Properly

The mouse does not function properly when you install VMware Tools on a Red Hat Enterprise Linux WS 2.1, Update 6 guest operating system in a virtual machine with either a single or multiple virtual processor on ESX 3.0.2 or 3.0.3. The VMware mouse is not supported by Linux guest operating systems running versions of X that are 4.2 or earlier.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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 Linux virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

Red Hat Linux 9.0

This section contains product support, installation instructions, and known issues for the Red Hat Linux 9.0 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 9.0:

- **VMware Workstation**

Red Hat Linux 9.0 – Workstation 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Red Hat Linux 9.0 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Red Hat Linux 9.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Red Hat Linux 9.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Red Hat Linux 9.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware ESX Server**

Red Hat Linux 9.0 – ESX 2.0, 2.0.1, 2.1.1, 2.1.2, 2.1, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.1.1, 2.1.2, 2.1, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

- **VMware Fusion**

Red Hat Linux 9.0 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 must install Red Hat Linux 9.0 using the text mode installer, which you can 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.
- 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 can choose **Generic Wheel Mouse (PS/2)**.
- 6 In the Installation Type screen, choose either **Server** or **Workstation** for the installation type.
- 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 might 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.
- 9 If your computer is connected to a LAN that provides DHCP support, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can also set the networking parameters manually.
- 10 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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.

Known Issues

Forcing the Installer to Read the Second Installation CD

VMware Workstation, VMware ACE or VMware GSX Server: The Red Hat installer might 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>`.

To force the installer to read the second CD correctly

- 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, and 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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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 might notice that the guest performs poorly or slowly, or you might 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 **LILLO**.

To modify 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 might 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.

To modify your LILLO 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 recommends you do not migrate a Linux virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to 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 might fail with an error message indicating that the link is down. On ESX Server, this happens only if you are using the `vlan` 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.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Red Hat Linux 8.0

This section contains product support, installation instructions, and known issues for the Red Hat Linux 8.0 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 8.0:

■ VMware Workstation

Red Hat Linux 8.0 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Red Hat Linux 8.0 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Red Hat Linux 8.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Red Hat Linux 8.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

Red Hat Linux 8.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
 - VMware ESX Server
- Red Hat Linux 8.0 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 must install Red Hat Linux 8.0 using the text mode installer, which you can 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, and 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 can choose **Generic Wheel Mouse (PS/2)**.
- 6 You might 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to 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.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Red Hat Linux 7.3

This section contains product support, installation instructions, and known issues for the Red Hat Linux 7.3 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 7.3:

- **VMware Workstation**

Red Hat Linux 7.3 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Red Hat Linux 7.3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Red Hat Linux 7.3 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Red Hat Linux 7.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware ESX Server**

Red Hat Linux 7.3 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 must install Red Hat Linux 7.3 using the text mode installer, which you can 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, and then in the Installation Type screen, choose either **Server** or **Workstation** for the installation type.
- 6 You might 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 <http://kb.vmware.com/kb/340>.

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

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Red Hat Linux 7.2

This section contains product support, installation instructions, and known issues for the Red Hat Linux 7.2 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 7.2:

■ VMware Workstation

Red Hat Linux 7.2 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Red Hat Linux 7.2 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Red Hat Linux 7.2 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

Red Hat Linux 7.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

Red Hat Linux 7.2 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 must install Red Hat Linux 7.2 using the text mode installer, which you can 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, and 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 <http://kb.vmware.com/kb/340>.

Do not start X until you have installed VMware Tools.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

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 might have a performance impact.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Red Hat Linux 7.1

This section contains product support, installation instructions, and known issues for the Red Hat Linux 7.1 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 7.1:

- **VMware Workstation**

Red Hat Linux 7.1 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Red Hat Linux 7.1 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Red Hat Linux 7.1 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Red Hat Linux 7.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 must install Red Hat Linux 7.1 using the text mode installer, which you can 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, and 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, in the Network Configuration screen, you can select the option **Use bootp/dhcp**. If you prefer, you can 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 <http://kb.vmware.com/kb/340>.

Do not start X until you have installed VMware Tools.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

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 might have a performance impact.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Red Hat Linux 7.0

This section contains product support, installation instructions, and known issues for the Red Hat Linux 7.0 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 7.0:

- **VMware Workstation**

Red Hat Linux 7.0 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Red Hat Linux 7.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Red Hat Linux 7.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Red Hat Linux 7.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

Red Hat Linux 7.0 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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**, and 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**, and then click **OK**.
- 6 At the Video Memory screen, choose **256Kb**, and then click **OK**.
- 7 At the Clockchip Configuration screen, choose **No Clockchip Setting (recommended)**, which is the default, and 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 <http://kb.vmware.com/kb/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.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off  
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Red Hat Linux 6.2

This section contains product support, installation instructions, and known issues for the Red Hat Linux 6.2 operating system.

32-Bit Support

The following VMware products support 32-bit Red Hat Linux 6.2:

- **VMware GSX Server**

Red Hat Linux 6.2 – GSX Server 3.0, 3.1, 3.2, 3.2.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 runs on Intel core processors. However, it 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 6.0.1 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 VMware 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Sun Java Desktop System 2

This section contains product support, installation instructions, and known issues for the Sun Java Desktop System 2 operating system.

32-Bit Support

The following VMware products support 32-bit Sun Java Desktop System 2:

■ VMware Workstation

Sun Java Desktop System 2 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Sun Java Desktop System 2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

Sun Java Desktop System 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 <http://kb.vmware.com/kb/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 can edit the X configuration file directly to make the change.

Virtual Machine Might 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 Desktop 10

This section contains product support, installation instructions, and known issues for the SUSE Linux Enterprise Desktop 10 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux Enterprise Desktop 10:

■ VMware Workstation

SUSE Linux Enterprise Desktop 10 – Workstation 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 6.5, 6.5.1
- Service Pack 2 – Workstation 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Desktop 10 – ACE 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 2.5, 2.5.1
- Service Pack 2 – ACE 2.5, 2.5.1

■ VMware ESX Server

SUSE Linux Enterprise Desktop 10 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.0.1 (requires Patch ESX-1002082. See <http://kb.vmware.com/kb/1002082>.), 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 3.0.1 (requires Patch ESX-1005100. See <http://kb.vmware.com/kb/1005100>.), ESX 3.0.2 (requires Patch ESX-1005107. See <http://kb.vmware.com/kb/1005107>.), 3.0.3, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMI – support for SUSE Linux Enterprise Desktop 10, Service Pack 2 on ESX 3.5 U2, ESX 3.5 U3

Support Considerations

- SUSE Linux Enterprise Desktop 10, Service Pack 2 provides a VMware VMI (Virtual Machine Interface) enabled kernel, which improves guest operating system performance if you enable paravirtual support in the virtual machine. For more information on paravirtualization in general, see the following VMware Web site: <http://www.vmware.com/interfaces/paravirtualization.html>.
- For instructions to enable VMI support for 32-bit SUSE Linux Enterprise Desktop 10, Service Pack 2 on ESX 3.5 U2, ESX 3.5 U3, read knowledge base article 1005701 at <http://kb.vmware.com/kb/1005701>.
- To avoid a read-only file system issue with SUSE Linux Enterprise Desktop 10 on ESX Server 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Service Pack 1. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

■ VMware Fusion

SUSE Linux Enterprise Desktop 10, Service Pack 2 – Fusion 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit SUSE Linux Enterprise Desktop 10:

■ VMware Workstation

SUSE Linux Enterprise Desktop 10 – Workstation 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 6.5, 6.5.1
- Service Pack 2 – Workstation 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Desktop 10 – ACE 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 2.5, 2.5.1
- Service Pack 2 – ACE 2.5, 2.5.1

■ VMware ESX Server

SUSE Linux Enterprise Desktop 10 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.0.1 (requires Patch ESX-1002082. See <http://kb.vmware.com/kb/1002082>), 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 3.0.1 (requires Patch ESX-1005100. See <http://kb.vmware.com/kb/1005100>), ESX 3.0.2 (requires Patch ESX-1005107. See <http://kb.vmware.com/kb/1005107>), 3.0.3, ESX 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Support Considerations

- To avoid a read-only file system issue with SUSE Linux Enterprise Desktop 10 on ESX Server 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Service Pack 1. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

■ VMware Fusion

SUSE Linux Enterprise Desktop 10, Service Pack 2 – Fusion 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE Linux Enterprise Desktop 10 (SLED 10) 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 SLED 10 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. Unless you are using ESX Server 2.5.x, VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the SLED 10 installation CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing SLED 10.
- 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**, and 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 might 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 SLED 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Do Not Use 4-Bit Color

If you change the screen resolution in the SLED 10 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 Might 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 Desktop 10 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 might 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
```

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux Enterprise Server 10

This section contains product support, installation instructions, and known issues for the SUSE Linux Enterprise Server 10 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux Enterprise Server 10:

■ VMware Workstation

SUSE Linux Enterprise Server 10 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – experimental support on Workstation 6.0.1, 6.0.2; full support on Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 2 – Workstation 6.5, 6.5.1

Additional Support

- Eclipse Integrated Virtual Debugger support for SUSE Linux Enterprise Server 10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Server 10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – experimental support on ACE 2.0.1, 2.0.2; full support on ACE 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 2 – ACE 2.5, 2.5.1

■ VMware Server

SUSE Linux Enterprise Server 10 – VMware Server 2.0

Update Support

- Service Pack 1 – VMware Server 2.0

Experimental Support

SUSE Linux Enterprise Server 10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

SUSE Linux Enterprise Server 10 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.0.1 (requires Patch ESX-1002082. See <http://kb.vmware.com/kb/1002082>.), 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 3.0.1 (requires Patch ESX-1005100. See <http://kb.vmware.com/kb/1005100>.), ESX 3.0.2 (requires Patch ESX-1005107. See <http://kb.vmware.com/kb/1005107>.), 3.0.3, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMI – support for SUSE Linux Enterprise Server 10, Service Pack 2 on ESX 3.5 U2, ESX 3.5 U3
- Novell Open Enterprise Server, Support Pack 1 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Novell Open Enterprise Server, Support Pack 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Novell Open Enterprise Server 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

- Novell Open Enterprise Server 2, Support Pack 1 – ESX 3.0.2, 3.0.3, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 32-bit SUSE Linux Enterprise Server 10 and Service Packs 1 and 2 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

Support Considerations

- SUSE Linux Enterprise Server 10, Service Pack 2 provides a VMware VMI (Virtual Machine Interface) enabled kernel, which improves guest operating system performance if you enable paravirtual support in the virtual machine. For more information on paravirtualization in general, see the following VMware Web site: <http://www.vmware.com/interfaces/paravirtualization.html>.
- For instructions to enable VMI support for 32-bit SUSE Linux Enterprise Server 10, Service Pack 2 on ESX 3.5 U2, ESX 3.5 U3, read knowledge base article 1005701 at <http://kb.vmware.com/kb/1005701>.
- To avoid a read-only file system issue with SUSE Linux Enterprise Server 10 on ESX Server 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Service Pack 1. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

- **VMware Fusion**

SUSE Linux Enterprise Server 10 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit SUSE Linux Enterprise Server 10:

- **VMware Workstation**

SUSE Linux Enterprise Server 10 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – experimental support on Workstation 6.0.1
- Service Pack 2 – Workstation 6.5, 6.5.1

Additional Support

- Eclipse Integrated Virtual Debugger support for SUSE Linux Enterprise Server 10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux Enterprise Server 10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 2 – ACE 2.5, 2.5.1

- **VMware Server**

SUSE Linux Enterprise Server 10 – VMware Server 2.0

Update Support

- Service Pack 1 – VMware Server 2.0

Experimental Support

SUSE Linux Enterprise Server 10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

SUSE Linux Enterprise Server 10 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.0.1 (requires Patch ESX-1002082. See <http://kb.vmware.com/kb/1002082>), 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 3.0.1 (requires Patch ESX-1005100. See <http://kb.vmware.com/kb/1005100>), ESX 3.0.2 (requires Patch ESX-1005107. See <http://kb.vmware.com/kb/1005107>), 3.0.3, ESX 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Novell Open Enterprise Server 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Novell Open Enterprise Server 2, Support Pack 1 – ESX 3.0.2, 3.0.3, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 64-bit SUSE Linux Enterprise Server 10 and Service Packs 1 and 2 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

Support Considerations

- To avoid a read-only file system issue with SUSE Linux Enterprise Server 10 on ESX Server 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Service Pack 1. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

■ VMware Fusion

SUSE Linux Enterprise Server 10 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 2 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE Linux Enterprise Server 10 (SLES 10) 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 10 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 When you create a virtual machine for SUSE Linux Enterprise Server 10 with Novell Open Enterprise Server on an ESX Server, select **Linux** for the guest operating system and **Open Enterprise Server** for the version.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. Unless you are using ESX Server 2.5.x, VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the SLES 10 installation CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing SLES 10.
- 3 Install using the text mode installer. In the first installation screen, use the arrow keys to select **Installation**, enter the boot option **textmode=1**, and 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 might 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 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modprobe.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Do Not Use 4-Bit Color

If you change the screen resolution in the SLES 10 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 Might 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 10 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 might 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
```

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux Enterprise Server 9

This section contains product support, installation instructions, and known issues for the SUSE Linux Enterprise Server 9 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux Enterprise Server 9:

■ VMware Workstation

SUSE Linux Enterprise Server 9 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 2 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 3 – experimental support on Workstation 5.5, 5.5.1; full support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 4 – experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Novell Open Enterprise Server – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Server 9 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 4 beta – experimental support on ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

SUSE Linux Enterprise Server 9 – GSX Server 3.2, 3.2.1

Update Support

- Service Pack 1 – GSX Server 3.2, 3.2.1

■ VMware Server

SUSE Linux Enterprise Server 9 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Service Pack 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- Service Pack 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 4 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ VMware ESX Server

SUSE Linux Enterprise Server 9 – 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 3 – ESX 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 4 – ESX 2.5.4, 2.5.5, 3.0.1, 3.0.2 (requires Patch ESX-1002431. See <http://kb.vmware.com/kb/1002431>.), 3.0.3, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Novell Open Enterprise Server, Support Pack 1 – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Novell Open Enterprise Server, Support Pack 2 – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 32-bit SUSE Linux Enterprise Server 9 and Service Packs 1, 2, 3, and 4 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

Support Considerations

- For host machines that use the AMD Opteron processor, see the known issue “[SLES 9 SP3 Guest Experiences Monitor Panic in SMP Mode on Host with AMD Opteron Processor](#)” on page 195.
- To avoid a read-only file system issue with SUSE Linux Enterprise 9, Service Pack 3 on ESX Server 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Service Pack 3 Maintenance Release Build 2.6.5-7.286 or Service Pack 4. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.
- The hugemem kernel is not supported on ESX Server 2.5.3, 2.5.4, or 2.5.5, refer to knowledge base article 8964517 at <http://kb.vmware.com/kb/8964517>.

■ VMware Fusion

SUSE Linux Enterprise Server 9 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 3 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit SUSE Linux Enterprise Server 9:

■ VMware Workstation

SUSE Linux Enterprise Server 9 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Service Pack 1 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 2 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 3 – experimental support on Workstation 5.5, 5.5.1, full support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Service Pack 4 – experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Server 9 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- Service Pack 4 beta – experimental support on ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

SUSE Linux Enterprise Server 9 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Service Pack 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Service Pack 4 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ VMware ESX Server

SUSE Linux Enterprise Server 9 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 1 – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 2 – ESX 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 3 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 4 – ESX 3.0.1, 3.0.2, 3.0.3 (requires Patch ESX-1002431. See <http://kb.vmware.com/kb/1002431>.), 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 64-bit SUSE Linux Enterprise Server 9 and Service Packs 1, 2, 3, and 4 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

Support Considerations

- To avoid a read-only file system issue with SUSE Linux Enterprise 9, Service Pack 3 on ESX Server 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Service Pack 3 Maintenance Release Build 2.6.5-7.286 or Service Pack 4. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.
- Only the BusLogic virtual SCSI adapter is supported in a SLES 9 virtual machine on ESX Server 2.5.x. The LSI Logic virtual SCSI adapter is supported for SLES9 virtual machines on ESX Server 3.x. Only the LSI Logic virtual SCSI adapter is supported in a SLES 9 virtual machine with more than 4GB of memory on ESX Server 3.x.

■ VMware Fusion

SUSE Linux Enterprise Server 9 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Service Pack 3 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 When you create a virtual machine for SUSE Linux Enterprise Server 9 with on an ESX Server, select **Linux** for the guest operating system and **Open Enterprise Server** for the version.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. Unless you are using ESX Server 2.5.x, VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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**, enter the boot option **textmode=1**, and then press Enter to select the text mode installer.
- 4 At the Installation Settings screen, go to the Change menu and choose **Bootimg**.
- 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 might 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modprobe.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

64-bit SLES 9 with SP 1 Spontaneously Resets on Intel EM64T Hardware

A 64-bit virtual machine with SUSE Linux Enterprise Server 9, Service Pack 1 might spontaneously reset on Intel EM64T hardware. If this should occur, check to see if the Execute Disable functionality is disabled in the host BIOS. Execute Disable must be enabled for all 64-bit Linux kernels to function properly.

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 Might 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 might 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
```

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

SLES 9 SP3 Guest Experiences Monitor Panic in SMP Mode on Host with AMD Opteron Processor

VMware Workstation 5.0 or VMware ESX Server 2.x.x: On a host machine with an AMD Opteron processor, a virtual machine running SUSE Linux Enterprise Server 9 SP3 in SMP mode (that is, with more than one virtual processor) fails to boot, with the monitor error BUG F(140):1913 bugNr-18415. The error is caused by specific CPU instructions executed by the guest kernel on AMD platforms.

To work around this problem, you can set the virtual machine to use only one virtual processor. For instructions, see your VMware product documentation.

This problem has been fixed in Workstation 5.5.x and ESX Server 3.x.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux Enterprise Server 8

This section contains product support, installation instructions, and known issues for the SUSE Linux Enterprise Server 8 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux Enterprise Server 8:

■ VMware Workstation

SUSE Linux Enterprise Server 8 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Server 8 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

SUSE Linux Enterprise Server 8 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Service Pack 3 – GSX Server 3.2, 3.2.1

■ VMware Server

SUSE Linux Enterprise Server 8 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

SUSE Linux Enterprise Server 8 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Service Pack 3 – ESX 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Service Pack 4 – ESX 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. Unless you are using ESX Server 2.5.x, VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

ESX Server 3.x: Note that disabling PAE also disables NX (no execute) and ED (execute disabled) features found in recent AMD and Intel processors. These features are not supported by ESX Server versions before ESX Server 3.x.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux Enterprise Server 7

This section contains product support, installation instructions, and known issues for the SUSE Linux Enterprise Server 7 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux Enterprise Server 7:

■ VMware Workstation

SUSE Linux Enterprise Server 7 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux Enterprise Server 7 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Service Pack 2 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

SUSE Linux Enterprise Server 7 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Service Pack 2 – GSX Server 3.2, 3.2.1

■ VMware Server

SUSE Linux Enterprise Server 7 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

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

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Open SUSE Linux 10.3

This section contains product support, installation instructions, and known issues for the Open SUSE Linux 10.3 operating system.

32-Bit Support

The following VMware products support 32-bit Open SUSE Linux 10.3:

- **VMware Workstation**

Open SUSE Linux 10.3 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Open SUSE Linux 10.3 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

64-Bit Support

The following VMware products support 64-bit Open SUSE Linux 10.3:

- **VMware Workstation**

Open SUSE Linux 10.3 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Open SUSE Linux 10.3 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Open SUSE Linux 10.3 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 Open SUSE Linux 10.3 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Open SUSE Linux 10.3 installation CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Open SUSE Linux 10.3.
- 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**, and 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**, and 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 Connection 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 Open SUSE Linux 10.3 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 <http://kb.vmware.com/kb/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 37.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might 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 Open SUSE Linux 10.3 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 might 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
```

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Open SUSE Linux 10.2

This section contains product support, installation instructions, and known issues for the Open SUSE Linux 10.2 operating system.

32-Bit Support

The following VMware products support 32-bit Open SUSE Linux 10.2:

- **VMware Workstation** – experimental support only
Open SUSE Linux 10.2 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
Additional Support
 - SMP – 2-way support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- **VMware ACE** – experimental support only
Open SUSE Linux 10.2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- **VMware Server**
Open SUSE Linux 10.2 – VMware Server 2.0
Additional Support
 - SMP – 2-way support on VMware Server 2.0

64-Bit Support

The following VMware products support 64-bit Open SUSE Linux Server 10.2:

- **VMware Workstation** – experimental support only
Open SUSE Linux 10.2 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
Additional Support
 - SMP – 2-way support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- **VMware ACE** – experimental support only
Open SUSE Linux 10.2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1
- **VMware Server**
Open SUSE Linux 10.2 – VMware Server 2.0
Additional Support
 - SMP – 2-way support on VMware Server 2.0

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Open SUSE Linux 10.2 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 Open SUSE Linux 10.2 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Open SUSE Linux 10.2 installation CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Open SUSE Linux 10.2.
- 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**, and 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**, and 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 Connection 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 Open SUSE Linux 10.2 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 <http://kb.vmware.com/kb/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 37.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might 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 an Open SUSE Linux 10.2 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 might 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
```

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 10.1

This section contains product support, installation instructions, and known issues for the SUSE Linux 10.1 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 10.1:

- **VMware Workstation**

SUSE Linux 10.1 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 10.1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

SUSE Linux 10.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware Fusion**

SUSE Linux 10.1 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit SUSE Linux 10.1:

- **VMware Workstation**

SUSE Linux 10.1 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 10.1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

SUSE Linux 10.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware Fusion**

SUSE Linux 10.1 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing SUSE Linux 10.1 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 10.1 via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the SUSE Linux 10.1 installation CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing SUSE Linux 10.1.
- 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**, and 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**, and 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 Connection 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 10.1 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 <http://kb.vmware.com/kb/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 37.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might 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 10.1 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 might 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
```

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 10

This section contains product support, installation instructions, and known issues for the SUSE Linux 10 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 10:

■ VMware Workstation

SUSE Linux 10 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for SUSE Linux 10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux 10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

SUSE Linux 10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

64-Bit Support

The following VMware products support 64-bit SUSE Linux 10:

■ VMware Workstation

SUSE Linux 10 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for SUSE Linux 10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux 10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

SUSE Linux 10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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**, and 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**, and 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 Connection 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 <http://kb.vmware.com/kb/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 37.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Manual Changes Might 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 10 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 might 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
```

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 9.3

This section contains product support, installation instructions, and known issues for the SUSE Linux 9.3 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 9.3:

- **VMware Workstation**

SUSE Linux 9.3 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

SUSE Linux 9.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware ESX Server**

SUSE Linux 9.3 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5

Support Considerations

- Only the BusLogic virtual SCSI adapter is supported in a SUSE Linux 9.3 virtual machine on ESX Server 2.5.x.

- **VMware Fusion**

SUSE Linux 9.3 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit SUSE Linux 9.3:

- **VMware Workstation**

SUSE Linux 9.3 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

SUSE Linux 9.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

■ VMware Fusion

SUSE Linux 9.3 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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**, and 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 might copy or move this virtual machine, make the change described in “[Manual Changes Might Be Needed to Use Networking in Copied Virtual Machine](#)” on page 224.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues**Choosing Architecture When Installing SUSE Linux 9.3 on a 64-Bit Host**

The SUSE Linux 9.3 operating system provides kernels for both 32-bit and 64-bit architecture. While installing SUSE Linux 9.3 guest operating system on a 64-bit host, press F6 to select the architecture for the guest.

If you created a 32-bit virtual machine and want to install SUSE Linux 9.3 in 32-bit mode, it is important that you select 32-bit for the architecture. If you do not select 32-bit, SUSE Linux 9.3 detects the host architecture, in this case 64-bit, and, by default, will install the corresponding kernel. As a result, the guest operating system will not install correctly, and the 32-bit version of VMware Tools included with the virtual machine will not work.

To correct this problem

- 1 Create the virtual machine.
- 2 Power off the virtual machine, and close the virtual machine window before you install the SUSE Linux 9.3 guest.
- 3 Open the virtual machine configuration (`.vmx`) file in a text editor and add the following line:


```
monitor_control.disable_longmode=1
```
- 4 Save the file.

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.

Manual Changes Might 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 might 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
```

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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 Linux virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 9.2

This section contains product support, installation instructions, and known issues for the SUSE Linux 9.2 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 9.2:

- **VMware Workstation**

SUSE Linux 9.2 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.2 – ACE 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

SUSE Linux 9.2 – GSX Server 3.2, 3.2.1

- **VMware Server**

SUSE Linux 9.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware ESX Server**

SUSE Linux 9.2 – ESX 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Support Considerations

- Only the BusLogic virtual SCSI adapter is supported in a SUSE Linux 9.2 virtual machine on ESX Server 2.5.x.

64-Bit Support

The following VMware products support 64-bit SUSE Linux 9.2:

- **VMware Workstation**

SUSE Linux 9.2 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

SUSE Linux 9.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. Unless you are using ESX Server 2.5.x, VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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**, and 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 might copy or move this virtual machine, make the change described in “[Manual Changes Might Be Needed to Use Networking in Copied Virtual Machine](#)” on page 216.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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.

Manual Changes Might 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 might 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
```

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 9.1

This section contains product support, installation instructions, and known issues for the SUSE Linux 9.1 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 9.1:

- **VMware Workstation**

SUSE Linux 9.1 – Workstation 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.1 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

SUSE Linux 9.1 – GSX Server 3.1, 3.2, 3.2.1

- **VMware Server**

SUSE Linux 9.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware ESX Server**

SUSE Linux 9.1 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Support Considerations

- Only the BusLogic virtual SCSI adapter is supported in a SUSE Linux 9.1 virtual machine on ESX Server 2.5.x.

64-Bit Support

The following VMware products support 64-bit SUSE Linux 9.1:

- **VMware Workstation**

SUSE Linux 9.1 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

SUSE Linux 9.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. Unless you are using ESX Server 2.5.x, VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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**, and 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 might copy or move this virtual machine, make the change described in “[Manual Changes Might Be Needed to Use Networking in Copied Virtual Machine](#)” on page 220.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Virtual Machine Might 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 Might Stop with an Error Message

Installation from a DVD might 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.

Manual Changes Might 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 might 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
```

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 9.0

This section contains product support, installation instructions, and known issues for the SUSE Linux 9.0 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 9.0:

- **VMware Workstation**

SUSE Linux 9.0 – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 9.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

SUSE Linux 9.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

SUSE Linux 9.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware ESX Server**

SUSE Linux 9.0 – ESX 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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**, and 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 <http://kb.vmware.com/kb/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.](#)”

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can boot your SUSE Linux 8.2 virtual machine with any of the selections offered in GRUB.

Known Issues

Virtual Machine Might 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 Might Stop with an Error Message

Installation from a DVD might 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.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 8.2

This section contains product support, installation instructions, and known issues for the SUSE Linux 8.2 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 8.2:

■ VMware Workstation

SUSE Linux 8.2 – Workstation 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

SUSE Linux 8.2 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

SUSE Linux 8.2 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

SUSE Linux 8.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

SUSE Linux 8.2 – ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Additional Support

- SMP – full support on ESX 2.0, 2.0.1, 2.1, 2.1.1, 2.1.2

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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**, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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.”](#)

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 can boot your SUSE Linux 8.2 virtual machine with any of the selections offered in GRUB.

Known Issues

Virtual Machine Might 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 Might Stop with an Error Message

Installation from a DVD might 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.

Disable PAE in ESX Server Virtual Machines

ESX Server 2.5.x: Although ESX Server 2.5.x virtual machines are compatible with Physical Address Extension (PAE), they are not optimized for it. As a result, guest operating systems with PAE enabled might experience poor performance. For best performance, VMware recommends that you disable PAE in guest operating systems. For more information and instructions on disabling PAE, see the knowledge base article at <http://kb.vmware.com/kb/2020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 8.1

This section contains product support, installation instructions, and known issues for the SUSE Linux 8.1 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 8.1:

- **VMware Workstation**

SUSE Linux 8.1 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 8.1 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

SUSE Linux 8.1 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

SUSE Linux 8.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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.”](#)

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 can boot your SUSE Linux 8.1 virtual machine with any of the selections offered in GRUB.

Known Issues

Virtual Machine Might 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.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 8.0

This section contains product support, installation instructions, and known issues for the SUSE Linux 8.0 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 8.0:

- **VMware Workstation**

SUSE Linux 8.0 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 8.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

SUSE Linux 8.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

SUSE Linux 8.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 can boot your SUSE 8.0 virtual machine with any of the selections offered in LILO.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

SUSE Linux 7.3

This section contains product support, installation instructions, and known issues for the SUSE Linux 7.3 operating system.

32-Bit Support

The following VMware products support 32-bit SUSE Linux 7.3:

- **VMware Workstation**

SUSE Linux 7.3 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

SUSE Linux 7.3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

SUSE Linux 7.3 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

SUSE Linux 7.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 <http://kb.vmware.com/kb/340>.

After you have installed VMware Tools, you can boot your SUSE 7.3 virtual machine with any of the selections offered in LILO.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Turbolinux 10 Server

This section contains product support, installation instructions, and known issues for the Turbolinux 10 Server operating system.

32-Bit Support

The following VMware products support 32-bit Turbolinux 10 Server:

- **VMware Workstation**

Turbolinux 10 Server – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

Turbolinux 10 Server – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

64-Bit Support

The following VMware products support 64-bit Turbolinux 10 Server:

- **VMware Workstation**

Turbolinux 10 Server – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

Turbolinux 10 Server – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Fusion**

Turbolinux 10 Server – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Turbolinux 10 Server 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 Server via the boot floppy/network method is supported as well. If your VMware product supports it, you can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Turbolinux 10 Server installation CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Turbolinux 10 Server.
- 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Screen Turns Black at the End of TurboLinux 10 Server Installation

Workstation 6.5.x: TurboLinux 10 Server has a problem with switching from XGA (Extended Graphics Array) to VGA (Video Graphics Array) such that the screen becomes black when installing on a VMware Workstation. You encounter this problem at the end of the process of installing the TurboLinux 10 Server operating system. After you click **Finish** in the installation wizard, the screen becomes black and the system does not reboot. To fix this problem, manually reboot the guest operating system.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Problem Switching from X to VGA

TurboLinux 10 Server has a problem with switching from X to VGA such that the screen becomes black. You encounter this problem at the end of the process of installing the Turbolinux 10 Server operating system. After you click **Finish** in the installation wizard, the screen becomes black and the system does not reboot.

Workaround: Press the Enter key to continue with the reboot.

Turbolinux 10 Desktop

This section contains product support, installation instructions, and known issues for the Turbolinux 10 Desktop operating system.

32-Bit Support

The following VMware products support 32-bit Turbolinux 10 Desktop:

- **VMware Workstation**

Turbolinux 10 Desktop – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Turbolinux 10 Desktop – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Turbolinux 10 Desktop – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- **VMware Fusion**

Turbolinux 10 Desktop – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can 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 With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues**Configuration Changes Might Be Necessary for Proper Timekeeping Behavior**

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Turbolinux Enterprise Server 8

This section contains product support, installation instructions, and known issues for the Turbolinux Enterprise Server 8 operating system.

32-Bit Support

The following VMware products support 32-bit Turbolinux Enterprise Server 8:

■ VMware Workstation

Turbolinux Enterprise Server 8 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Turbolinux Enterprise Server 8 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Turbolinux Enterprise Server 8 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

Turbolinux Enterprise Server 8 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware Fusion

Turbolinux Enterprise Server 8 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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.”](#)

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 can boot your TLES 8 virtual machine with any of the selections offered in GRUB.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Turbolinux Workstation 8

This section contains product support, installation instructions, and known issues for the Turbolinux Workstation 8 operating system.

32-Bit Support

The following VMware products support 32-bit Turbolinux Workstation 8:

- **VMware Workstation**

Turbolinux Workstation 8 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Turbolinux Workstation 8 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

Turbolinux Workstation 8 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

Turbolinux Workstation 8 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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, and 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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](#).”

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 can boot your Turbolinux Workstation 8 virtual machine with any of the selections offered in GRUB.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Turbolinux 7.0

This section contains product support, installation instructions, and known issues for the Turbolinux 7.0 operating system.

32-Bit Support

The following VMware products support 32-bit Turbolinux 7.0:

■ VMware Workstation

Turbolinux 7.0 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Turbolinux 7.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

Turbolinux 7.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

Turbolinux 7.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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 can 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the virtual machine.

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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Linux

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:

```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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 must 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/updates-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.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

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.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu 8.04 LTS

This section contains product support, installation instructions, and known issues for the Ubuntu 8.04 LTS operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu 8.04 LTS:

- **VMware Workstation**

Server Edition – Workstation 6.5, 6.5.1

Desktop Edition – Workstation 6.5, 6.5.1

Update Support

- Ubuntu 8.04.1 LTS – experimental support on Workstation 6.5, 6.5.1

- **VMware ACE**

Server Edition – ACE 2.5, 2.5.1

Desktop Edition – ACE 2.5, 2.5.1

- **VMware Server**

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

- **VMware ESX Server**

Server Edition – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U2, 3.5 U3

Desktop Edition – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U2, 3.5 U3

Server Edition JeOS – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U2, 3.5 U3

Update Support

- Ubuntu 8.04.1 LTS – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.3, ESX 3.5 U2, ESX 3.5 U3
- VMI – full support on ESX 3.5 U2, ESX 3.5 U3
- VMware Tools Operating System Specific Packages (OSPs) – provide support for 32-bit Ubuntu 8.04 LTS and 8.04.1 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

Support Considerations

- Ubuntu 8.04 provides a VMware VMI (Virtual Machine Interface) enabled kernel, which improves guest operating system performance if you enable paravirtual support in the virtual machine. For more information on paravirtualization in general, see the following VMware Web site: <http://www.vmware.com/interfaces/paravirtualization.html>

- **VMware Fusion**

Ubuntu 8.0.4 – Fusion 2.0, 2.0.1

Update Support

- Ubuntu 8.04.1 LTS – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Ubuntu 8.04 LTS:

- **VMware Workstation**

Server Edition – Workstation 6.5, 6.5.1

Desktop Edition – Workstation 6.5, 6.5.1

Update Support

- Ubuntu 8.04.1 LTS – experimental support on Workstation 6.5, 6.5.1

- **VMware ACE**

Server Edition – ACE 2.5, 2.5.1

Desktop Edition – ACE 2.5, 2.5.1

- **VMware Server**

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

- **VMware ESX Server**

Server Edition – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U2, 3.5 U3

Desktop Edition – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U2, 3.5 U3

Update Support

- Ubuntu 8.04.1 LTS – ESX 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>.), 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.3, 3.5 U2, 3.5 U3

- VMware Tools Operating System Specific Packages (OSPs) – provide support for 64-bit Ubuntu 8.04 LTS and 8.04.1 on ESX Server 3.5 Update 2 and Update 3. For more information, see the *VMware Tools Installation Guide Operating System Specific Packages* at: http://www.vmware.com/pdf/osp_install_guide.pdf.

- **VMware Fusion**

Ubuntu 8.04.1 LTS – Fusion 2.0, 2.0.1

Additional Support

- SMP – full support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu 8.04 LTS in a virtual machine is to use the standard Ubuntu 8.04 LTS distribution CD.

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

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

Installation Steps

- 1 Insert the Ubuntu 8.04 LTS CD in the CD-ROM drive.
- 2 Power on the virtual machine to start installing Ubuntu 8.04 LTS.
- 3 After the Ubuntu 8.04 LTS installer copies the files it needs to the virtual disk, it ejects the installation CD and displays a message indicating that 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.

NOTE As the installation progresses, the message `Configuring apt/ Scanning the mirror` appears indicating that the network is being scanned. If your site uses an HTTP proxy, this message might persist for 10 minutes or longer, indicating that the installation has been delayed. If you wait, network scanning eventually stops and the installation resumes. When the installation completes, in the Ubuntu 8.04 LTS user interface, choose **System > Preferences > Network Proxy** to set the HTTP proxy in the Network Proxy Preferences dialog 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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu 8.04 LTS.

Known Issues

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu Linux 7.10

This section contains product support, installation instructions, and known issues for the Ubuntu Linux 7.10 operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu Linux 7.10:

- **VMware Workstation**

Ubuntu Linux 7.10 – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- VMI – experimental support on Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Support Considerations

- Ubuntu Linux 7.10 provides a VMware VMI (Virtual Machine Interface) enabled kernel, which improves guest operating system performance if you enable paravirtual support in the virtual machine. For more information on paravirtualization in general, see the following VMware Web site:
<http://www.vmware.com/interfaces/paravirtualization.html>

- **VMware Server**

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

- **VMware ESX Server**

Server Edition – ESX 3.5 U1, 3.5 U2, 3.5 U3

Desktop Edition – ESX 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.5 U1, 3.5 U2, 3.5 U3
- VMI – full support on ESX 3.5 U1, 3.5 U2, 3.5 U3

Support Considerations

- Ubuntu Linux 7.10 provides a VMware VMI (Virtual Machine Interface) enabled kernel, which improves guest operating system performance if you enable paravirtual support in the virtual machine. For more information on paravirtualization in general, see the following VMware Web site:
<http://www.vmware.com/interfaces/paravirtualization.html>

64-Bit Support

The following VMware products support 64-bit Ubuntu Linux 7.10:

- **VMware Workstation**

Ubuntu Linux 7.10 – Workstation 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware Server**

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

- **VMware ESX Server**

Server Edition – ESX 3.5 U1, 3.5 U2, 3.5 U3

Desktop Edition – ESX 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.5 U1, 3.5 U2, 3.5 U3

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 7.10 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 indicating that 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.

NOTE As the installation progresses, the message **Configuring apt/ Scanning the mirror** appears indicating that the network is being scanned. If your site uses an HTTP proxy, this message might persist for 10 minutes or longer, indicating that the installation has been delayed. If you wait, network scanning eventually stops and the installation resumes. When the installation completes, in the Ubuntu Linux user interface, choose **System > Preferences > Network Proxy** to set the HTTP proxy in the Network Proxy Preferences dialog 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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu Linux.

Known Issues

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu Linux 7.04

This section contains product support, installation instructions, and known issues for the Ubuntu Linux 7.04 operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu Linux 7.04:

■ VMware Workstation

Ubuntu Linux 7.04 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- VMI – experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Support Considerations

- Ubuntu Linux 7.04 provides a VMware VMI (Virtual Machine Interface) enabled kernel, which improves guest operating system performance if you enable paravirtual support in the virtual machine. For more information on paravirtualization in general, see the following VMware Web site: <http://www.vmware.com/interfaces/paravirtualization.html>

■ VMware ACE

Ubuntu Linux 7.04 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware Server

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

■ VMware ESX Server

Server Edition – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Desktop Edition – ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Support Considerations

- To avoid a read-only file system issue with Ubuntu Linux 7.04 on ESX Server 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Ubuntu Linux 7.10. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

■ VMware Fusion

Ubuntu Linux 7.04 – Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Ubuntu Linux 7.04:

■ VMware Workstation

Ubuntu Linux 7.04 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Ubuntu Linux 7.04 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware ESX Server**

Server Edition – 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Desktop Edition – 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Support Considerations

- To avoid a read-only file system issue with Ubuntu Linux 7.04 on ESX Server 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, or 3.5 U3, upgrade to Ubuntu Linux 7.10. Refer to knowledge base article 51306 at <http://kb.vmware.com/kb/51306>.

- **VMware Fusion**

Ubuntu Linux 7.04 – Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 7.04 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 indicating that 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.

NOTE As the installation progresses, the message **Configuring apt/ Scanning the mirror** appears indicating that the network is being scanned. If your site uses an HTTP proxy, this message might persist for 10 minutes or longer, indicating that the installation has been delayed. If you wait, network scanning eventually stops and the installation resumes. When the installation completes, from the Ubuntu Linux user interface, choose **System > Preferences > Network Proxy** to set the HTTP proxy in the Network Proxy Preferences dialog 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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu Linux.

Although IPv6 is supported with bridged networking, many Ubuntu Linux distributions boot faster when IPv6 networking is disabled. If the virtual machine is unable to communicate using the IPv6 protocol when it is enabled, `vmware-config-tools.pl` might not be able to correctly configure VMware Tools after installation.

To prevent this problem in virtual machines, running some versions of Ubuntu Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Ubuntu Linux

- 1 Log on as root or superuser.
- 2 In the `/etc/modprobe.d/aliases` file change the line

```
alias net-pf-10 ipv6
```

to

```
alias net-pf-10 off
```
- 3 Save the file and reboot the system.

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

SMP Virtual Machines Running Linux Using the TSC Clocksource Stop Responding or Stall

This guest operating system might experience TSC Clocksource issues, which could cause the virtual machine to stop responding or stall. For more information, see the VMware knowledge base article <http://kb.vmware.com/kb/1007020>.

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu Linux 6.10

This section contains product support, installation instructions, and known issues for the Ubuntu Linux 6.10 operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu Linux 6.10:

- **VMware Workstation**

Ubuntu Linux 6.10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Ubuntu Linux 6.10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Experimental Support

Ubuntu Linux 7.04 – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7

Additional Support

- SMP – 2-way support for Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7

- **VMware ACE**

Ubuntu Linux 6.10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Server Edition – VMware Server 2.0

Desktop Edition – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware Fusion**

Ubuntu Linux 6.10 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Ubuntu Linux 6.10:

- **VMware Workstation**

Ubuntu Linux 6.10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Ubuntu Linux 6.10 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Experimental Support

Ubuntu Linux 7.04 – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7

Additional Support

- SMP – 2-way support for Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7

- **VMware ACE**

Ubuntu Linux 6.10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

- Server Edition – VMware Server 2.0

- Desktop Edition – VMware Server 2.0

- Additional Support

- SMP – 2-way support on VMware Server 2.0

- **VMware Fusion**

- Ubuntu Linux 6.10 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 6.10 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 indicating that 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.

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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu Linux.

Although IPv6 is supported with bridged networking, many Ubuntu Linux distributions boot faster when IPv6 networking is disabled. If the virtual machine is unable to communicate using the IPv6 protocol when it is enabled, `vmware-config-tools.pl` might not be able to correctly configure VMware Tools after installation.

To prevent this problem in virtual machines, running some versions of Ubuntu Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Ubuntu Linux

- 1 Log on as root or superuser.
- 2 In the `/etc/modprobe.d/aliases` file change the line
`alias net-pf-10 ipv6`
to
`alias net-pf-10 off`
- 3 Save the file and reboot the system.

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues**Configuration Changes Might Be Necessary for Proper Timekeeping Behavior**

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu Linux 6.06

This section contains product support, installation instructions, and known issues for the Ubuntu Linux 6.06 operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu Linux 6.06:

- **VMware Workstation**

Ubuntu Linux 6.06 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Ubuntu Linux 6.06 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Ubuntu Linux 6.06 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Server Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Desktop Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

64-Bit Support

The following VMware products support 64-bit Ubuntu Linux 6.06:

- **VMware Workstation – experimental support only**

Ubuntu Linux 6.06 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Eclipse Integrated Virtual Debugger support for Ubuntu Linux 6.06 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE – experimental support only**

Ubuntu Linux 6.06 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server – experimental support only**

Server Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Desktop Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 6.06 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 indicating that 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.

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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu Linux.

Although IPv6 is supported with bridged networking, many Ubuntu Linux distributions boot faster when IPv6 networking is disabled. If the virtual machine is unable to communicate using the IPv6 protocol when it is enabled, `vmware-config-tools.pl` might not be able to correctly configure VMware Tools after installation.

To prevent this problem in virtual machines, running some versions of Ubuntu Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Ubuntu Linux

- 1 Log on as root or superuser.
- 2 In the `/etc/modprobe.d/aliases` file change the line

```
alias net-pf-10 ipv6
```

to

```
alias net-pf-10 off
```
- 3 Save the file and reboot the system.

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu Linux 5.10

This section contains product support, installation instructions, and known issues for the Ubuntu Linux 5.10 operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu Linux 5.10:

- **VMware Workstation**

Ubuntu Linux 5.10 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Ubuntu Linux 5.10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Ubuntu Linux 5.10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

Ubuntu Linux 5.10 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Ubuntu Linux 5.10:

- **VMware Workstation** – experimental support only

Ubuntu Linux 5.10 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

Ubuntu Linux 5.10 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server** – experimental support only

Ubuntu Linux 5.10 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion** – experimental support only

Ubuntu Linux 5.10 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 indicating that 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.

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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu Linux.

Although IPv6 is supported with bridged networking, many Ubuntu Linux distributions boot faster when IPv6 networking is disabled. If the virtual machine is unable to communicate using the IPv6 protocol when it is enabled, `vmware-config-tools.pl` might not be able to correctly configure VMware Tools after installation.

To prevent this problem in virtual machines, running some versions of Ubuntu Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Ubuntu Linux

- 1 Log on as root or superuser.
- 2 In the `/etc/modprobe.d/aliases` file change the line

```
alias net-pf-10 ipv6
```

to

```
alias net-pf-10 off
```
- 3 Save the file and reboot the system.

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

VMware Tools and 64-bit Version of Ubuntu Linux 5.10

Workstation 5.5.x and Fusion 1.0: The 64-bit version of Ubuntu Linux 5.10 lacks the driver needed for correct operation of the X server in the virtual machine. The driver is installed when you install VMware Tools. To install VMware Tools in the 64-bit version of Ubuntu Linux 5.10, see knowledge base article at <http://kb.vmware.com/kb/1900>.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

Ubuntu Linux 5.04

This section contains product support, installation instructions, and known issues for the Ubuntu Linux 5.04 operating system.

32-Bit Support

The following VMware products support 32-bit Ubuntu Linux 5.04:

- **VMware Workstation**

Ubuntu Linux 5.04 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

Ubuntu Linux 5.04 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

Ubuntu Linux 5.04 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

64-Bit Support

The following VMware products support 64-bit Ubuntu Linux 5.04:

- **VMware Workstation** – experimental support only

Ubuntu Linux 5.04 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

Ubuntu Linux 5.04 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server** – experimental support only

Ubuntu Linux 5.04 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing Ubuntu Linux 5.04 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.

NOTE With many Linux guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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.

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 <http://kb.vmware.com/kb/340>.

NOTE You must use the tar installer to install VMware Tools in Ubuntu Linux.

Although IPv6 is supported with bridged networking, many Ubuntu Linux distributions boot faster when IPv6 networking is disabled. If the virtual machine is unable to communicate using the IPv6 protocol when it is enabled, `vmware-config-tools.pl` might not be able to correctly configure VMware Tools after installation.

To prevent this problem in virtual machines, running some versions of Ubuntu Linux, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running Ubuntu Linux

- 1 Log on as root or superuser.
- 2 In the `/etc/modprobe.d/aliases` file change the line

```
alias net-pf-10 ipv6
```

to

```
alias net-pf-10 off
```

- 3 Save the file and reboot the system.

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Configuration Changes Might Be Necessary for Proper Timekeeping Behavior

The default timekeeping configuration for this guest operating system might experience problems. For Linux timekeeping best practices, see the VMware knowledge base article at <http://kb.vmware.com/kb/1006427>.

Migration to a Different Processor

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

During installation, many distributions of Linux choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 Linux virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a Linux virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a Linux installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

FreeBSD 7.0

This section contains product support, installation instructions, and known issues for the FreeBSD 7.0 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 7.0:

- **VMware Fusion**

FreeBSD 7.0 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit FreeBSD 7.0:

- **VMware Fusion**

FreeBSD 7.0 – Fusion 2.0, 2.0.1

Additional Support

- SMP – 2-way support on Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 7.0 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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 6.2

This section contains product support, installation instructions, and known issues for the FreeBSD 6.2 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 6.2:

- **VMware Workstation**

FreeBSD 6.2 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 6.2 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

64-Bit Support

The following VMware products support 64-bit FreeBSD 6.2:

- **VMware Workstation**

FreeBSD 6.2 – Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 6.2 – ACE 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 6.2 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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 6.1

This section contains product support, installation instructions, and known issues for the FreeBSD 6.1 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 6.1:

- **VMware Workstation** – experimental support only

FreeBSD 6.1 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

FreeBSD 6.1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Fusion**

FreeBSD 6.1 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit FreeBSD 6.1:

- **VMware Fusion**

FreeBSD 6.1 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 6.1 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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 6.0

This section contains product support, installation instructions, and known issues for the FreeBSD 6.0 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 6.0:

- **VMware Workstation** – experimental support only

FreeBSD 6.0 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

FreeBSD 6.0 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server** – experimental support only

FreeBSD 6.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

64-Bit Support

The following VMware products support 64-bit FreeBSD 6.0:

- **VMware Server** – experimental support only

FreeBSD 6.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 6.0.1 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this guest operating system.

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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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 5.5

This section contains product support, installation instructions, and known issues for the FreeBSD 5.5 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 5.5:

- **VMware Workstation**

FreeBSD 5.5 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.5 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

FreeBSD 5.5 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

FreeBSD 5.5 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit FreeBSD 5.5:

- **VMware Workstation**

FreeBSD 5.5 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.5 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

FreeBSD 5.5 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

- **VMware Fusion**

FreeBSD 5.5 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 5.5 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 With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 5.4 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 5.4:

- **VMware Workstation**

FreeBSD 5.4 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.4 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

FreeBSD 5.4 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

64-Bit Support

The following VMware products support 64-bit FreeBSD 5.4:

- **VMware Workstation**

FreeBSD 5.4 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.4 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

FreeBSD 5.4 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 5.3 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 5.3:

- **VMware Workstation**

FreeBSD 5.3 – Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

FreeBSD 5.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

64-Bit Support

The following VMware products support 64-bit FreeBSD 5.3:

- **VMware Workstation**

FreeBSD 5.3 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.3 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware Server**

FreeBSD 5.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 5.2 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 5.2:

■ VMware Workstation

FreeBSD 5.2 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

FreeBSD 5.2 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

FreeBSD 5.2 – GSX Server 3.1, 3.2, 3.2.1

■ VMware Server

FreeBSD 5.2 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 5.1 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 5.1:

■ VMware Workstation

FreeBSD 5.1 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

FreeBSD 5.1 – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

FreeBSD 5.1 – GSX Server 3.2, 3.2.1

■ VMware Server

FreeBSD 5.1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 5.0 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 5.0:

- **VMware Workstation**

FreeBSD 5.0 – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

FreeBSD 5.0 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

FreeBSD 5.0 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

FreeBSD 5.0 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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 4.11

This section contains product support, installation instructions, and known issues for the FreeBSD 4.11 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 4.11:

- **VMware ESX Server**

FreeBSD 4.11– ESX 2.5.4, 2.5.5

Support Considerations

- VMware recommends that you configure ESX Server virtual machines that use this guest operating system to use the vmx Ethernet adapter. See your product documentation for instructions.

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 as well as this guide to installing your specific guest operating system.

The easiest method of installing FreeBSD 4.11 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 With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 4.10 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 4.10:

- **VMware ESX Server**

FreeBSD 4.10 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

Support Considerations

- VMware recommends that you configure ESX Server virtual machines that use this guest operating system to use the vmx Ethernet adapter. See your product documentation for instructions.

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 4.9 operating system.

32-Bit Support

The following VMware products support 32-bit FreeBSD 4.9:

- **VMware GSX Server**

FreeBSD 4.9 – GSX Server 3.2, 3.2.1

- **VMware ESX Server**

FreeBSD 4.9 – ESX 2.5

Support Considerations

- VMware recommends that you configure ESX Server virtual machines that use this guest operating system to use the vmx Ethernet adapter. See your product documentation for instructions.

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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.

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 <http://kb.vmware.com/kb/340>.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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

This section contains product support, installation instructions, and known issues for the FreeBSD 4.4, 4.5, 4.6.2, and 4.8 operating systems.

32-Bit Support

The following VMware products support 32-bit FreeBSD 4.4, 4.5, 4.6.2, and 4.8:

■ VMware Workstation

FreeBSD 4.4, 4.5, 4.6.2, 4.8 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

FreeBSD 4.4, 4.5, 4.6.2, 4.8 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

FreeBSD 4.4, 4.5, 4.6.2, 4.8 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

FreeBSD 4.4, 4.5, 4.6.2, 4.8 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

In many FreeBSD distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running FreeBSD, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running FreeBSD

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

Known Issues

Sound

VMware has not tested sound support in FreeBSD.

Guest Screen Saver

On a FreeBSD 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 FreeBSD virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of FreeBSD choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 FreeBSD virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a FreeBSD virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a FreeBSD installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

FreeBSD 4.0, 4.1, 4.2, 4.3

This section contains product support, installation instructions, and known issues for the FreeBSD 4.0, 4.1, 4.2, and 4.3 operating systems.

32-Bit Support

The following VMware products support 32-bit FreeBSD 4.0, 4.1, 4.2, and 4.3:

■ VMware Workstation

FreeBSD 4.0, 4.1, 4.2, 4.3 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

FreeBSD 4.0, 4.1, 4.2, 4.3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

FreeBSD 4.0, 4.1, 4.2, 4.3 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

FreeBSD 4.0, 4.1, 4.2, 4.3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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”](#) on page 305.

NOTE With many FreeBSD guest operating systems, various problems have been observed when the BusLogic virtual SCSI adapter is used with VMware virtual machines. VMware recommends that you use the LSI Logic virtual SCSI adapter with this 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 VMware Server—on which you are running the 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 <http://kb.vmware.com/kb/340>.

In many Linux distributions, if IPv6 is enabled, VMware Tools cannot be configured with `vmware-config-tools.pl` after installation. In this case, VMware Tools is unable to set the network device correctly for the virtual machine, and displays a message similar to

```
Unloading pcnet32 module
unregister_netdevice: waiting for eth0 to become free
```

This message repeats continuously until you reboot the virtual machine. To prevent this problem in virtual machines running FreeBSD, disable IPv6 before installing VMware Tools.

To disable IPv6 in a virtual machine running FreeBSD

- 1 If the file `/etc/sysconfig/network` contains the line `NETWORKING_IPV6=yes`, change the line to `NETWORKING_IPV6=no`.
- 2 In the file `/etc/modules.conf`, add the following lines:


```
alias ipv6 off
alias net-pf-10 off
```

After you disable IPv6, you should be able to install and configure VMware Tools successfully.

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, do one of two things:

- Use an IDE virtual disk in your virtual machine. You might 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

- 1 FreeBSD calculates an incorrect disk geometry before you arrive at the FDISK Partition Editor, as illustrated here.

```

Disk name: 1a0 FDISK Partition Editor
DISK Geometry: 2055 cyls/64 heads/32 sectors = 4208640 sectors (2055MB)

Offset      Size(ST)      End      Name  PType  Desc  Subtype  Flags
-----
0  4208640  4208640  -      6  unused  0

The following commands are supported (in upper or lower case):

A = Use Entire Disk  G = set Drive Geometry  C = Create Slice
D = Delete Slice    Z = Toggle Size Units  S = Set Bootable
T = Change Type     U = Undo All Changes  Q = Finish

Use F1 or ? to get more help, arrow keys to select.

```

- 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.

```

Disk name: 1a0 FDISK Partition Editor
DISK Geometry: 2055 cyls/64 heads/32 sectors = 4208640 sectors (2055MB)

Offset      Size(ST)      End      Name  PType  Desc  Subtype  Flags
-----
0  4208640  4208640  -      6  unused  0

Value Required
Please specify the new geometry in cyl/hd/sect format.
Don't forget to use the two slash (/) separator characters!
It's not possible to parse the field without them.
2055/64/32

The following commands are supported (in upper or lower case):

A = Use Entire Disk  G = set Drive Geometry  C = Create Slice
D = Delete Slice    Z = Toggle Size Units  S = Set Bootable
T = Change Type     U = Undo All Changes  Q = Finish

Use F1 or ? to get more help, arrow keys to select.

```

- 3 To calculate the correct geometry, find the total number of sectors by multiplying the number of cylinders, heads and sectors per head together, and 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 ($2055 \times 64 \times 32$) 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 ($4208640 / (255 \times 63) = 261$, rounded down).

```

Disk name: 1a0 FDISK Partition Editor
DISK Geometry: 2055 cyls/64 heads/32 sectors = 4208640 sectors (2055MB)

Offset      Size(ST)      End      Name  PType  Desc  Subtype  Flags
-----
0  4208640  4208640  -      6  unused  0

Value Required
Please specify the new geometry in cyl/hd/sect format.
Don't forget to use the two slash (/) separator characters!
It's not possible to parse the field without them.
261/255/63

The following commands are supported (in upper or lower case):

A = Use Entire Disk  G = set Drive Geometry  C = Create Slice
D = Delete Slice    Z = Toggle Size Units  S = Set Bootable
T = Change Type     U = Undo All Changes  Q = Finish

Use F1 or ? to get more help, arrow keys to select.

```

- 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 FreeBSD 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 FreeBSD virtual machine between hosts when one host is running on an AMD processor and the other is running on an Intel processor.

During installation, many distributions of FreeBSD choose a kernel that is optimized for the specific processor on which it is being installed, and some distributions install a generic kernel by default, but provide architecture-specific kernels that the user can choose to install. The kernel might 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 FreeBSD virtual machine created on a host with an AMD processor might not work if migrated to a host with an Intel processor. The reverse is also true: a FreeBSD virtual machine created on a host with an Intel processor might not work if migrated to a host with an AMD processor.

This problem is not specific to virtual machines and also occurs on physical computers. For example, if you move a hard drive with a FreeBSD installation from an AMD machine to an Intel machine, you are also likely to experience problems trying to boot from that drive.

NetWare 6.5 Server

This section contains product support, installation instructions, and known issues for the NetWare 6.5 Server operating system.

32-Bit Support

The following VMware products support 32-bit NetWare 6.5 Server:

■ VMware Workstation

NetWare 6.5 Server, Support Pack 1 – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3

NetWare 6.5 Server, Support Pack 3 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

NetWare 6.5 Server, Support Pack 5 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Support Pack 1 – Workstation 4.5, 4.5.1, 4.5.2, 4.5.3
- Support Pack 3 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Support Pack 5 – Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Novell Open Enterprise Server – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

NetWare 6.5 Server, Support Pack 1 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Support Pack 1 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

NetWare 6.5 Server, Support Pack 1 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Support Pack 1 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

NetWare 6.5 Server, Support Pack 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Support Pack 3 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Support Pack 6 – VMware Server 2.0

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Novell Open Enterprise Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0

- Novell Open Enterprise Server, Support Pack 1 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0
- Novell Open Enterprise Server, Support Pack 2– VMware Server 2.0
- **VMware ESX Server**

NetWare 6.5 Server – ESX 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

 - Support Pack 2 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0
 - Support Pack 3 – ESX 3.0
 - Support Pack 4(a) – ESX 2.5.3 (requires Upgrade Patch 1. See <http://vmware.com/support/esx25/doc/esx-253-200605-patch.html>.), 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3
 - Support Pack 5 – ESX 2.5.3 (requires Upgrade Patch 1. See <http://vmware.com/support/esx25/doc/esx-253-200605-patch.html>.), 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Support Pack 6 – ESX 2.5.3 (requires Upgrade Patch 8. See <http://vmware.com/support/esx25/doc/esx-253-200702-patch.html>.) ESX 2.5.4, 2.5.5 (requires Upgrade Patch 5. See <http://vmware.com/support/esx25/doc/esx-253-200611-patch.html>.), ESX 3.0 (requires Patch ESX-6530518. See <http://kb.vmware.com/kb/6530518>.), ESX 3.0.1 (requires Patch ESX-1271657. See <http://kb.vmware.com/kb/1271657>.), 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Support Pack 7 – ESX 2.5.4, 2.5.5, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Support Pack 8 – ESX 2.5.5, 3.0.2, 3.0.3, 3.5 U3

Additional Support

 - Novell Open Enterprise Server, Support Pack 1 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Novell Open Enterprise Server, Support Pack 2 – ESX 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Novell Open Enterprise Server 2 – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
 - Novell Open Enterprise Server 2, Support Pack 1 – ESX 3.0.2, 3.0.3, 3.5 U3
- **VMware Fusion**

NetWare 6.5 Server – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

 - Support Pack 5 – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
 - Support Pack 7 – Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

NOTE When you create a virtual machine for NetWare 6.5 with Novell Open Enterprise Server on an ESX Server, select **Novell NetWare** for the guest operating system and **Novell NetWare 6.x** for the version.

You can install NetWare 6.5 in a virtual machine using the standard Novell NetWare 6.5 Operating System and Product CD-ROMs.

Consider the following issues:

- 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.

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

Installation 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, and 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, 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, 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 Server 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 <http://kb.vmware.com/kb/340>.

Installing VMware Tools also installs and loads the CPU idle 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 might 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 6.5 Server SP3 and SP5 Installations Hang After Selection of Ethernet Driver on a Guest with Non-Passthrough Raw Device Mapping

When you install NetWare Server 6.5 SP3 or SP5 on a guest with non-passthrough Raw Device Mapping (RDM), the installation might hang after you select an Ethernet driver. VMware recommends that you use passthrough RDM with NetWare Server 6.5 SP3 and SP5.

NetWare Server Guest Inaccessible If Installed as RDM Virtual Machine Using the Same LUN as a Prior Windows NT RDM Guest Installation

If you install Novell NetWare Server in a Raw Device Mapping (RDM) virtual machine, and you use the same logical unit number (LUN) previously used to install Windows NT in an RDM virtual machine on the same host, the installation will take place on an existing FAT16 partition that was created by the prior Windows NT installation. The installation will proceed correctly until the final reboot, when it will load the Windows NT master boot record (MBR), but will crash to bluescreen due to an inaccessible device error. Even though NetWare is installed, you will not be able to access the NetWare operating system.

To work around this problem, format the LUN before you begin installing the NetWare virtual machine. This ensures that the old FAT16 partition is formatted and that NetWare will reboot correctly.

NetWare 6.0 Server

This section contains product support, installation instructions, and known issues for the NetWare 6.0 Server operating system.

32-Bit Support

The following VMware products support 32-bit NetWare 6.0 Server:

■ VMware Workstation

NetWare 6.0 Server, Support Pack 3 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3

NetWare 6.0 Server, Support Pack 4 – Workstation 5.0, 5.5, 5.5.1

NetWare 6.0 Server, Support Pack 5 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Support Pack 3 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3
- Support Pack 4 – Workstation 5.0, 5.5, 5.5.1
- Support Pack 5 – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

NetWare 6.0 Server, Support Pack 3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Support Pack 3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

NetWare 6.0 Server, Support Pack 3 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Support Pack 3 – GSX Server 3.0, 3.1, 3.2, 3.2.

■ VMware Server

NetWare 6.0 Server, Support Pack 5 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Support Pack 5 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

NetWare 6.0 Server – ESX 2.0.1, 2.1, 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Support Pack 3 – ESX 2.1.1, 2.1.2, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5

- Support Pack 5 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
Novell Open Enterprise Server, Support Pack 1 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
Novell Open Enterprise Server, Support Pack 2 – ESX 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
Update Support
- Support Pack 1 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Support Pack 2 – ESX 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

Consider the following issues:

- 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, and then a second time to install files from the CD.

On the reboot, you see the message `Operating System not found` and a dialog box with the message `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, and 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.

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

Installation 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, 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, 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 Server 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 <http://kb.vmware.com/kb/340>.

Installing VMware Tools also installs and loads the CPU idle 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 might 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\`.

To grab or ungrab the mouse pointer

- 1 In the virtual machine, switch to the system console, and 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 might 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 SP5 Crashes When Stack Dump Exceeds the Valid Memory Limit

ESX Server 3.x: Virtual machines running NetWare 6.0 Server SP5 crash when a stack dump exceeds the valid memory limit. This problem might be accompanied by either of the error messages:

```
Problem executing SYMCJIT.NLM or
cdbe gremlin process crashed due to invalid opcode
```

This problem has been observed more frequently on guests with non-passthrough Raw Device Mapping (RDM). To work around this problem, reinstall NetWare 6.0 Server SP5.

NetWare Server Guest Inaccessible If Installed as RDM Virtual Machine Using the Same LUN as a Prior Windows NT RDM Guest Installation

If you install Novell NetWare Server in a Raw Device Mapping (RDM) virtual machine, and you use the same logical unit number (LUN) previously used to install Windows NT in an RDM virtual machine on the same host, the installation will take place on an existing FAT16 partition that was created by the prior Windows NT installation. The installation will proceed correctly until the final reboot, when it will load the Windows NT master boot record (MBR), but will crash to bluescreen due to an inaccessible device error. Even though NetWare is installed, you will not be able to access the NetWare operating system.

To work around this problem, format the LUN before you begin installing the NetWare virtual machine. This ensures that the old FAT16 partition is formatted and that NetWare will reboot correctly.

NetWare 5.1 Server

This section contains product support, installation instructions, and known issues for the NetWare 5.1 Server operating system.

32-Bit Support

The following VMware products support 32-bit NetWare 5.1 Server:

■ VMware Workstation

NetWare 5.1 Server, Support Pack 6 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3

NetWare 5.1 Server, Support Pack 8 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Support Pack 6 – Workstation 4.0, 4.0.1, 4.0.2, 4.0.5, 4.5, 4.5.1, 4.5.2, 4.5.3
- Support Pack 8 – Workstation 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

NetWare 5.1 Server, Support Pack 3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Support Pack 3 – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

■ VMware GSX Server

NetWare 5.1 Server, Support Pack 6 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Support Pack 6 – GSX Server 3.0, 3.1, 3.2, 3.2.1

■ VMware Server

NetWare 5.1 Server, Support Pack 8 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Support Pack 8 – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way experimental support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX

NetWare 5.1 Server – ESX 2.0.1, 2.1, 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Support Pack 7 – ESX 2.5, 2.5.1, 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Support Pack 8 – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Novell Open Enterprise Server, Support Pack 1 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Novell Open Enterprise Server, Support Pack 2 – ESX 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Support Pack 1 – ESX 2.5.2, 2.5.3, 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Support Pack 2 – ESX 2.5.4, 2.5.5, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

General Installation Notes

Be sure to read [“General Guidelines for All VMware Products”](#) on page 36 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.

Consider the following issues:

- 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 320.

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, and a second time to install files from the CD.

On the reboot, you see the message `Operating System not found` and a dialog box with the message `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, and then press Enter.

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

Installation 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, and 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, 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 Server 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 <http://kb.vmware.com/kb/340>.

Installing VMware Tools also installs and loads the CPU idle 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 <http://kb.vmware.com/kb/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 might 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
```

If this occurs, then completely disconnect the virtual machine from the network, and ask your network administrator for the correct network number.

Grabbing the Mouse Pointer

If the virtual machine is unable to grab or ungrab the mouse, it might 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\`.

To grab or ungrab the mouse pointer

- 1 In the virtual machine, switch to the system console, and 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 might 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 Server Guest Inaccessible If Installed as RDM Virtual Machine Using the Same LUN as a Prior Windows NT RDM Guest Installation

If you install Novell NetWare Server in a Raw Device Mapping (RDM) virtual machine, and you use the same logical unit number (LUN) previously used to install Windows NT in an RDM virtual machine on the same host, the installation will take place on an existing FAT16 partition that was created by the prior Windows NT installation. The installation will proceed correctly until the final reboot, when it will load the Windows NT master boot record (MBR), but will crash to bluescreen due to an inaccessible device error. Even though NetWare is installed, you will not be able to access the NetWare operating system.

To work around this problem, format the LUN before you begin installing the NetWare virtual machine. This ensures that the old FAT16 partition is formatted and that NetWare will reboot correctly.

NetWare 4.2 Server

This section contains product support, installation instructions, and known issues for the NetWare 4.2 Server operating system.

32-Bit Support

The following VMware products support 32-bit NetWare 4.2 Server:

- **VMware Workstation**

NetWare 4.2 Server – Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE**

NetWare 4.2 Server – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server**

NetWare 4.2 Server, Support Pack 9 – GSX Server 3.0, 3.1, 3.2, 3.2.1

Update Support

- Support Pack 9 – GSX Server 3.0, 3.1, 3.2, 3.2.1

- **VMware Server**

NetWare 4.2 Server – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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.

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

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

- 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 a CPU idler program.
- 2 Install a CD-ROM driver or CD-ROM software for MS-DOS. If you have problems setting up the MS-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 MS-DOS boot floppy (along with the `mscdex.exe` file) as shown below. If you are using a MS-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 MS-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 MS-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 nwclex.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 might 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 MS-DOS prompt.

After you finish the installation, install VMware Tools, which installs and loads the CPU idler program.

VMware Tools for NetWare 4.2 Server 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 <http://kb.vmware.com/kb/340>.

Installing VMware Tools also installs and loads the CPU idle 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

NetWare Server Guest Inaccessible If Installed as RDM Virtual Machine Using the Same LUN as a Prior Windows NT RDM Guest Installation

If you install Novell NetWare Server in a Raw Device Mapping (RDM) virtual machine, and you use the same logical unit number (LUN) previously used to install Windows NT in an RDM virtual machine on the same host, the installation will take place on an existing FAT16 partition that was created by the prior Windows NT installation. The installation will proceed correctly until the final reboot, when it will load the Windows NT master boot record (MBR), but will crash to bluescreen due to an inaccessible device error. Even though NetWare is installed, you will not be able to access the NetWare operating system.

To work around this problem, format the LUN before you begin installing the NetWare virtual machine. This ensures that the old FAT16 partition is formatted and that NetWare will reboot correctly.

Solaris 10 Operating System for x86 Platforms

This section contains product support, installation instructions, and known issues for the Solaris 10 Operating System for x86 platforms operating system.

32-Bit Support

The following VMware products support 32-bit Solaris 10 Operating System for x86 platforms:

■ VMware Workstation

Solaris 10 Operating System for x86 platforms – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Solaris 10 1/06 (Update 1) – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Solaris 10 6/06 (Update 2) – experimental support on Workstation 5.5.3
- Solaris 10 11/06 (Update 3) – experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Solaris 10 5/08 (Update 5) – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Solaris 10 Operating System for x86 platforms – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Solaris 10 5/08 (Update 5) – ACE 2.5, 2.5.1

■ VMware GSX Server – experimental support only

Solaris 10 Operating System for x86 platforms – GSX Server 3.1, 3.2, 3.2.1

■ VMware Server

Solaris 10 Operating System for x86 platforms – VMware Server 2.0

Update Support

- Solaris 10 11/06 (Update 3) – VMware Server 2.0
- Solaris 10 8/07 (Update 4) – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

Experimental Support

Solaris 10 Operating System for x86 platforms – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Solaris 10 1/06 (Update 1) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8
- Solaris 10 6/06 (Update 2) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

Solaris 10 Operating System for x86 platforms – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Solaris 10 1/06 (Update 1) – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 6/06 (Update 2) – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 11/06 (Update 3) – ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 8/07 (Update 4) – ESX 3.0.1, 3.0.2, 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>), 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 05/08 (Update 5) – ESX supported on 3.0.1 (requires Patch ESX-1005108. See <http://kb.vmware.com/kb/1005108>), 3.0.2 (requires Patch ESX-1005110. See <http://kb.vmware.com/kb/1005110>), 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>), 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 10/08 (Update 6) – ESX supported on 3.0.2, 3.0.3, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0, 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

■ VMware Fusion

Solaris 10 Operating System for x86 platforms – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Solaris 10 11/06 (Update 3) – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
- Solaris 10 05/08 (Update 5) – Fusion 2.0, 2.0.1

64-Bit Support

The following VMware products support 64-bit Solaris 10 Operating System for x86 platforms:

■ VMware Workstation

Solaris 10 Operating System for x86 platforms – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Update Support

- Solaris 10 1/06 (Update 1) – Workstation 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Solaris 10 6/06 (Update 2) – Workstation 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Solaris 10 11/06 (Update 3) – experimental support on Workstation 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1
- Solaris 10 5/08 (Update 5) – Workstation 6.5, 6.5.1

Additional Support

- SMP – 2-way experimental support on Workstation 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

■ VMware ACE

Solaris 10 Operating System for x86 platforms – ACE 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

Update Support

- Solaris 10 5/08 (Update 5) – ACE 2.5, 2.5.1

■ VMware Server

Solaris 10 Operating System for x86 platforms – VMware Server 2.0

Update Support

- Solaris 10 11/06 (Update 3) – VMware Server 2.0
- Solaris 10 8/07 (Update 4) – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

Experimental Support

Solaris 10 Operating System for x86 platforms – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Update Support

- Solaris 10 6/06 (Update 2) – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

■ VMware ESX Server

Solaris 10 Operating System for x86 platforms – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

Update Support

- Solaris 10 1/06 (Update 1) – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 6/06 (Update 2) – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 11/06 (Update 3) – ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 8/07 (Update 4) – ESX 3.0.1, 3.0.2, 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>), 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 05/08 (Update 5) – supported on ESX 3.0.1 (requires Patch ESX-1005108. See <http://kb.vmware.com/kb/1005108>), 3.0.2 (requires Patch ESX-1005110. See <http://kb.vmware.com/kb/1005110>), 3.0.3 (requires Patch ESX303-200808405-BG. See <http://kb.vmware.com/kb/1006036>), 3.5, 3.5 U1, 3.5 U2, 3.5 U3
- Solaris 10 10/08 (Update 6) – ESX supported on 3.0.2, 3.0.3, 3.5 U3

Additional Support

- SMP – full support on ESX 3.0.1, 3.0.2, 3.0.3, 3.5, 3.5 U1, 3.5 U2, 3.5 U3

■ VMware Fusion

Solaris 10 Operating System for x86 platforms – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1

Update Support

- Solaris 10 11/06 (Update 3) – Fusion 1.0, 1.1, 1.1.1, 1.1.2, 1.1.3, 2.0, 2.0.1
- Solaris 10 05/08 (Update 5) – Fusion 2.0, 2.0.1

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 can also install from a PXE server.

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

Memory Requirements for Solaris 10

VMware Server or ESX Server: Solaris 10 requires more memory for successful installation than previous Solaris versions. For x86-based systems:

- Starting with the Solaris 10 1/06 release, Sun recommends 512MB of memory. 256MB is the minimum requirement.
- For the Solaris 10 3/05 release, Sun recommends 256MB of memory. 128MB is the minimum requirement.

Before upgrading a virtual machine's guest operating system to the Solaris 10 1/06 release or later, increase the virtual machine's RAM to at least 256MB. See your VMware product documentation for instructions. For more information see the System Requirements and Recommendations for Solaris 10 Installation, on the Sun Web site at: <http://docs.sun.com/app/docs/doc/817-0544/6mgbagb0v?a=view>

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

VMware Tools (ESX Server 3.x Only)

Be sure to install VMware Tools in your guest operating system, and reboot the virtual machine after installing VMware Tools. See “Known Issues,” for information that could affect your VMware Tools installation. For details on installing VMware Tools, see your ESX Server User's Manual or follow the appropriate link in the knowledge base article at <http://kb.vmware.com/kb/340>.

NOTE Support for VMware Tools in Solaris 10 prior to Solaris 10 1/06 is experimental.

Known Issues

Faults Reported on Solaris 10 and Solaris10 Update 1

ESX 3.0.1: For a description of the guest kernel fault reports, see the knowledgebase article at <http://kb.vmware.com/kb/3605018>.

ESX Server 3.x Network Adapter Driver Support for 32-Bit and 64-Bit Solaris 10 Guests

32-bit Solaris 10 guests support the Flexible network adapter driver. If VMware Tools is installed on the guest, the adapter driver identifies itself as vmxnet. If VMware Tools has not been installed on the guest, the adapter driver identifies itself as pcn.

After installing Solaris 10 on a virtual machine, the pcn driver appears. Install VMware Tools and reboot the virtual machine to ensure that the default pcn driver switches to vmxnet.

64-bit Solaris 10 guests support only the e1000 network adapter driver.

Using Solaris 10 in 32-Bit Mode on a 64-Bit Host

On a 64-bit host, when you install or run Solaris 10 as a guest operating system, Solaris 10 automatically attempts to install or boot up in 64-bit mode. To force Solaris 10 to boot up in 32-bit mode on a 64-bit host, see the knowledge base article at <http://kb.vmware.com/kb/2074>. To force Solaris 10 to install as a 32-bit guest on a 64-bit host, see the knowledge base article at <http://kb.vmware.com/kb/1975>.

Display Too Small After Installation

After installation, the Solaris 10 guest operating system starts with a display resolution of 640 x 480. When you install VMware Tools, the display will automatically be adjusted to an appropriate resolution.

VMware Tools is currently supported only for ESX Server 3.x. If you are using another VMware product that does not support VMware Tools for Solaris, you can switch to the Xsun X server to get a 1024 x 768 display (256 colors).

To change your display

- 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 spacebar to select **Xsun**, and 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 5.0: If you are installing the guest operating system on a VMware Workstation, 5.0 or lower, on a host computer that has PAE technology, you might get an error message. The error message indicates the guest operating system is trying to use PAE. Discontinue the installation process if this occurs, and enable PAE for the affected virtual machine.

To enable PAE for the virtual machine

- 1 Make sure the virtual machine is powered off.
- 2 Edit the configuration (.vmx) file for the virtual machine by adding the following line to the file:
paevm="true"
- 3 Power on the virtual machine and install the guest operating system.

Performance Problems in ESX Server 3.x Virtual Machines with Four Virtual Processors on Hosts with Hyperthreading

ESX Server 3.x: On ESX Server 3.x hosts with CPU hyperthreading, Solaris 10 1/06 (Update 1) virtual machines with four virtual processors experience significant degradation in performance, in both the time it takes for installation and the time it takes to write to disk. To minimize the impact on performance for Solaris 10 1/06 (Update 1) virtual machines with four virtual processors, VMware recommends that you use a host machine with four physical processors, rather than a host with two hyperthreaded processors.

Solaris 10 Guests Might Become Unresponsive When Halted

ESX Server 3.x: When you halt a Solaris 10 virtual machine, it might become unresponsive. This occurs because, while halting, the guest is unable to enter VGA screen mode and remains in SVGA screen mode. If the virtual machine remains unresponsive, you can work around this problem by powering off the virtual machine and powering it back on again.

Solaris 10 1/06 (Update 1) and Solaris 10 6/06 (Update 2) Guests with Virtual SMP Might Hang When Powering On

Virtual machines running Solaris 10 1/06 (Update 1) or Solaris 10 6/06 (Update 2), with Virtual SMP and either two or four virtual processors might occasionally hang when powering on. If this happens, reboot the virtual machine. This should fix the problem with no data loss.

Solaris 10 Guest Cannot Eject ISO Image Mounted as CD-ROM

In CDE and Java Desktop Environments, when an ISO image is mounted as a CDROM device, the file manager (in CDE) and Nautilus (in Java Desktop) programs let you view the contents of the CDROM. Ejecting the device using any of these programs fails. In CDE, the File Manager program menu has an Eject option. Clicking that option does not eject the CDROM. In Java Desktop, right-clicking the CDROM icon (on the desktop) and then clicking **Eject** does not eject the CDROM.

64-Bit Solaris 10 1/06 (Update 1) and Solaris 10 6/06 (Update 2) Fail with Triple Fault on Intel Pentium M-Based Systems Merom, Woodcrest, and Conroe

This problem occurs not only in virtual machines but also when you attempt to run Solaris 10 1/06 (Update 1) and Solaris 10 6/06 (Update 2) directly on Intel Pentium M-Based Merom, Woodcrest, and Conroe systems. It is expected that Sun will correct this problem in a future update of Solaris 10. In the meantime, Sun has provided a patch, Kernel Update 118855-19, to correct this problem. Depending on your Solaris installation, this patch may require any or all of the following dependent patches: 121264-01, 118844-30, 118344-13, 117435-02, 119255-27. Information on downloading and installing Solaris patches is in the article “Adding a Solaris Patch,” available (at the time this document was published) from the Sun Web site at: <http://docs.sun.com/app/docs/doc/816-4552/6maoo30pu?a=view>.

NOTE To apply Kernel Update 118855-19, you must boot the virtual machine in 32-bit mode. For instructions on forcing a Solaris 10 virtual machine on a 64-bit host machine to boot in 32-bit mode, see the VMware Knowledge Base: <http://kb.vmware.com/kb/2074>

Solaris 9 Operating System x86 Platform Edition

This section contains product support, installation instructions, and known issues for the Solaris 9 Operating System x86 Platform Edition operating system.

32-Bit Support

The following VMware products support 32-bit Solaris 9 Operating System for x86 Platform Edition:

- **VMware Workstation** – experimental support only

Solaris 9 Operating System x86 Platform Edition – Workstation 4.5.2, 4.5.3, 5.0, 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

Additional Support

- SMP – 2-way support on Workstation 5.5, 5.5.1, 5.5.2, 5.5.3, 5.5.4, 5.5.5, 5.5.6, 5.5.7, 5.5.8, 5.5.9, 6.0, 6.0.1, 6.0.2, 6.0.3, 6.0.4, 6.0.5, 6.5, 6.5.1

- **VMware ACE** – experimental support only

Solaris 9 Operating System x86 Platform Edition – ACE 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8, 2.0, 2.0.1, 2.0.2, 2.0.3, 2.0.4, 2.0.5, 2.5, 2.5.1

- **VMware GSX Server** – experimental support only

Solaris 9 Operating System x86 Platform Edition – GSX Server 3.1, 3.2, 3.2.1

- **VMware Server**

Solaris 9 Operating System x86 Platform Edition – VMware Server 2.0

Additional Support

- SMP – 2-way support on VMware Server 2.0

Experimental Support

Solaris 9 Operating System x86 Platform Edition – VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

Additional Support

- SMP – 2-way support on VMware Server 1.0, 1.0.1, 1.0.2, 1.0.3, 1.0.4, 1.0.5, 1.0.6, 1.0.7, 1.0.8

General Installation Notes

Be sure to read “[General Guidelines for All VMware Products](#)” on page 36 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 might 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.lsi.com/support/download_center/ and choose **LSI53C1030** from the **Select a Specific Product** drop-down list.

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

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, and 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, and 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)**, and then press F2 to continue.
- 15 Use the arrow keys to move to **Multifrequency 100KHz (up to 1600x1200 @ 80Hz)**, press Enter to select it, and 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.

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