Getting Started with VMware Fusion

VMware Fusion for Mac OS X

vmware®

You can find the most up-to-date technical documentation on our Web site at

http://www.vmware.com/products/fusion/support.html

The VMware Web site also provides the latest product updates.

If you have comments about this documentation, submit your feedback to:

docfeedback@vmware.com

Getting Started with VMware Fusion

Introduction

VMware Fusion™ allows you to run your favorite PC applications on your Intel-based Mac. Designed from the ground up for the Mac user, VMware Fusion makes it easy to take advantage of the security, flexibility, and portability of virtual machines to run Windows and other x86 operating systems side-by-side with Mac OS X.

What Is a Virtual Machine?

A virtual machine is software that behaves just as a physical computer does. A virtual machine contains a display, a hard disk, one or more processors, memory, a CD/DVD drive, a network adapter, and a USB controller—all virtualized. That is, these elements of a virtual machine are all created by software and stored in files on your Mac.

The virtual machine runs in a window on your Intel-based Mac. You install an operating system and applications in the virtual machine and operate it as you would a physical computer.

The Mac that you run a virtual machine on is sometimes referred to as the *host*. In this context, the virtual machine is referred to as a *guest*.

What You Can Do with VMware Fusion

With VMware Fusion, Intel-based Mac users can:

■ **Run your favorite Windows and Linux applications on an Intel-based Mac**–With VMware Fusion, you can run virtual machines with a wide range of Windows and Linux operating systems, so you can run your favorite applications side by side with Mac applications, without rebooting.

■ **Create virtual machines** – VMware Fusion provides a New Virtual Machine Assistant to guide you through the process of creating a virtual machine.

■ **Run multiple operating systems while protecting the integrity of your Mac** – VMware Fusion lets you safely run virtual machines isolated from the Mac by making use of the hardware-level security and fault isolation of virtualization solutions.

■ **Evaluate and use prebuilt applications easily** – With VMware Fusion, you can download and safely run prebuilt applications designed to solve specific problems in virtual machines that are available from the growing library of virtual appliances. See the Virtual Appliance Marketplace at http://vam.vmware.com/.

The Virtual Appliance Marketplace includes virtual machines from various software vendors, as well as virtual machines that are preconfigured with popular open source software. With VMware Fusion you can download and try a completely configured Linux virtual machine without having to be a Linux expert or you can try preconfigured business appliances with applications from leading software vendors, including Oracle, Red Hat, Novell, BEA, SpikeSource, IBM, and MySQL.

Features of VMware Fusion

VMware Fusion provides the following features:

- With the powerful Unity feature, VMware Fusion transforms your Windows applications to work like Mac applications and gives you the seamless Mac experience you expect. Minimize Windows applications to the Dock, switch between Windows and Mac applications with Exposé, and find and instantly launch any Windows application just as you would a Mac application. For more details and the latest information on Unity support for your Windows operating system, see the VMware Fusion release notes at http://www.vmware.com/support/pubs/fusion_pubs.html.

- VMware Fusion's New Virtual Machine Assistant guides you through the process of creating a virtual machine. The Windows Easy Install feature automatically installs Windows and optimizes your Windows virtual machine for use on the Mac.

- Experimental support for hardware accelerated 3-D graphics lets you run DirectX 9.0 applications (without shader support) and play select 3-D games in Windows XP Service Pack 2 virtual machines.

- Only VMware Fusion supports both 32-bit and 64-bit guest operating systems on most Macs. As the world moves to 64-bit with the Intel Core 2 Duo and Xeon processors and 64-bit native operating systems, you are ready today with VMware Fusion and its exclusive support for 64-bit operating systems in virtual machines.

- You can use VMware Virtual SMP™. On Macs with more than one processor core, you can use VMware Fusion to power on a virtual machine that has either one or two virtual processors assigned, taking advantage of the multi-core Intel processors in the Intel-based Macs.

- Take a snapshot of your entire virtual machine in a known good state, and revert to that snapshot when something goes wrong in your virtual machine—for example, when your virtual machine picks up a virus, or when a software upgrade causes problems.

- VMware Fusion supports high-speed USB 2.0 for a huge range of devices. Even devices that do not have drivers for Mac OS X will work in a virtual machine.

- Network with your Mac seamlessly. Or, you can set the type of network connection for the virtual machine, letting the virtual machine share or obtain its own IP address or isolate it from the network and host. Networking options are: bridged, NAT, and host-only. VMware Fusion provides full support for Airport wireless networking, including virtual machines behind a NAT firewall and bridged to the local Airport network. VMware Fusion supports up to ten virtual network interfaces.

- You can connect and disconnect any preconfigured devices in your virtual machine, and configure some features of virtual hardware and devices. You can add virtual hard disks to your virtual machine for increased capacity and adjust the allotment of virtual memory for your virtual machine.

- You can move text between the virtual machine and the host quickly and easily by copying and pasting, and you can move files by dragging and dropping. You can also set up shared folders on your host computer, so you can easily share files and folders between your virtual machine and your host computer. To use these features, you must have VMware Tools installed.

For instructions on using these features, see the Help provided in VMware Fusion (choose **Help** > **VMware Fusion Help**).

System Requirements for VMware Fusion

The minimum system requirements for installing and using VMware Fusion are:

- Any Mac with an Intel 1.5GHz or faster processor.

- 512MB of RAM, 1GB recommended.

- 275MB of free disk space for VMware Fusion, and at least 1GB of free disk space for each virtual machine.

- Mac OS X version 10.4.9 or higher

NOTE You must have enough memory to run Mac OS X, plus the memory required for each guest operating system and for applications on the Mac and in the virtual machine. See your guest operating system and application documentation for their memory requirements.

Supported Guest Operating Systems

VMware Fusion supports over 60 guest operating systems, including Windows 3.1 through Windows Vista, Linux, Solaris, and FreeBSD. The operating systems listed here have been tested in VMware Fusion virtual machines and are officially supported. For the most recent list of guest operating systems supported by VMware products, with notes on installing the most common guest operating systems, see the *VMware Guest Operating System Installation Guide*: http://pubs.vmware.com/guestnotes/.

Supported 32-Bit Guest Operating Systems

VMware Fusion supports the following 32-bit guest operating systems:

- Windows Vista Business, Enterprise, Ultimate Editions

- Windows XP Professional SP2, Home Edition SP2

- Windows 98 SE

- Windows Server 2003 Enterprise Edition, R2 Enterprise Edition

- Windows 2000 Server SP4, Advanced Server SP4

- Windows NT 4.0 Server SP6a, Workstation SP6a

- Windows Me, Windows 3.1, Windows 95 SP1, MS-DOS 6.x

- SUSE Linux Enterprise Server 10, 9 SP3

- SUSE Linux 10.1, 9.3

- Novell Netware 6.5 SP5

- Novell Linux Desktop 9 SP2

- Novell Open Enterprise Server SP2

- Red Hat Enterprise Linux 5.0, 4.0 Update 4, 3.0 Update 8

- Red Hat Enterprise Linux 2.1—stock 2.4.9-e3 (Advanced Server, Enterprise Server, Workstation)

- Red Hat Linux 9.0—stock 2.4.20-8, upgrade 2.4.20-20.9

- Red Hat Linux 7.0—stock 2.2.16-22, upgrade 2.2.17-14

- Solaris x86 10 11/06 (Update 3)

- Ubuntu Linux 6.10, 5.10

- Mandriva Linux 2007, 2006

- FreeBSD 6.1, 5.5

- Turbolinux Enterprise Server 8

- Turbolinux Desktop 10

Supported 64-Bit Guest Operating Systems

VMware Fusion supports the following 64-bit guest operating systems:

- Windows Vista Business, Enterprise, Ultimate Editions

- Microsoft Windows XP Professional

- Windows Server 2003 SP1 Enterprise Edition, R2 Enterprise Edition

- SUSE Linux Enterprise Server 10, 9 SP3

- SUSE Linux 10.1, 9.3

- Red Hat Enterprise Linux 5.0, 4.0 Update 4, 3.0 Update 8

- Solaris x86 10 11/06 (Update 3)

- Ubuntu Linux 6.10, 5.10

- Mandriva Linux 2007, 2006

- FreeBSD 6.1, 5.5

Installing or Upgrading VMware Fusion

If you are upgrading VMware Fusion, you do not need to uninstall the version installed on your computer. VMware Fusion upgrades the existing version automatically.

NOTE   In rare circumstances, the operating system in a virtual machine can quit unexpectedly in a way that leaves some virtual machine processes running. This situation can prevent you from upgrading or uninstalling VMware Fusion. In this case, the installation or uninstallation Assistant might display a message indicating that you cannot install or uninstall VMware Fusion. To work around this problem, you can use the Mac Activity Monitor to force virtual machine processes to quit. See the topic
Troubleshooting > **Forcing Virtual Machine Processes to Quit** in your VMware Fusion Help.

To install or upgrade VMware Fusion from CD-ROM

1   If you are upgrading an existing VMware Fusion installation, make sure that no virtual machines are open and that VMware Fusion is not running.

2   Insert the VMware Fusion CD-ROM into the drive.

    The contents of the CD-ROM are displayed in a VMware Fusion Finder window

3   Double-click the **VMware Fusion** icon to launch the Installation Assistant.

4   Follow the instructions in the Assistant to install VMware Fusion.

    At the end of the installation, the Assistant prompts for your serial number.

5   Enter your serial number.

    If you do not have a serial number, click **Get Serial Number** to go to the VMware Web site, where you can license VMware Fusion and get a serial number.

You can continue without entering a serial number, but you cannot power on a virtual machine until you have entered a valid serial number. You can enter your serial number at any time by choosing **VMware Fusion > Licensing**.

To install or upgrade VMware Fusion from a download

1   If you are upgrading an existing VMware Fusion installation, make sure that no virtual machines are open and that VMware Fusion is not running.

2   Download VMware Fusion from the VMware Web site at www.vmware.com/mac/.

    Click the **Buy Now** link and follow the subsequent links for an Electronic Download Distribution. Click the download link and save the application to your Mac. The VMware Fusion disk image is saved to your default download directory: VMware-Fusion-<1.x.x>-<xxxxx>.dmg, where <1.x.x> is the application version and <xxxxx> is the build number for the download release.

3   Double-click **VMware-Fusion-<1.x.x>-<xxxxx>.dmg** to mount it.

    The contents of the disk image are displayed in a VMware Fusion Finder window

4   Browse to the VMware Fusion volume, and double-click the **VMware Fusion** icon to launch the Installation Assistant.

5   Follow the instructions in the Assistant to install VMware Fusion.

    At the end of the installation, the Assistant prompts for your serial number.

6   Enter your serial number.

    If you do not have a serial number, click **Get Serial Number** to go to the VMware Web site, where you can license VMware Fusion and get a serial number.

You can continue without entering a serial number, but you cannot power on a virtual machine until you have entered a valid serial number. You can enter your serial number at any time by choosing **VMware Fusion > Licensing**.

Starting VMware Fusion

To start VMware Fusion

In the **Applications** folder, double-click **VMware Fusion**.

The Virtual Machine Library window is displayed. From this window, you can create a virtual machine, browse for an existing virtual machine to open, open a virtual machine you have used recently, or go to the VMware Technology Network Web site to download preconfigured virtual machines.

For instructions on configuring, running, and closing VMware Fusion, see the VMware Fusion help.

Creating Your Windows Virtual Machine with Windows Easy Install

When you create a Windows virtual machine, you can use VMware Fusion's Windows Easy Install feature to automatically install Windows and VMware Tools in your virtual machine. VMware Fusion will create your virtual machine, automatically select the default Windows installation options, and install VMware Tools, which loads the drivers required to optimize your virtual machine's performance. You can also choose to have Windows Easy Install automatically make your home folder available to Windows as a shared folder, so you can share files between the virtual machine and your Mac.

Windows Easy Install is available for the following Windows operating systems:

■   Windows Vista 32-bit, Windows XP, Windows 2000

■ Server: Windows Longhorn (experimentally supported only), Windows Server 2003, Windows 2000 Server

If you are not using one of these Windows operating systems in your virtual machine, or you want to install the operating system manually, see the VMware Fusion Help for details on creating virtual machines.

To create a Windows virtual machine using Windows Easy Install

1 From the Virtual Machine Library window, click the **New** button or choose **File** > **New**.

The New Virtual Machine Assistant launches.

2 In the **Introduction** panel, click **Continue**.

3 In the **Operating System** panel, select an operating system and version for the new virtual machine.

4 In the **Name** panel, enter the name for the virtual machine in the **Save as** field.

By default, the virtual machine will be saved in your <user>/Documents/Virtual Machines folder. To browse for a different location, select **Other** from the **Where** field.

5 In the **Virtual Hard Disk** panel, set the maximum size for the virtual hard disk.

The **Advanced Disk Options** section provides the following choices:

■ **Allocate all disk space now** – This option gives somewhat better performance for your virtual machine. However, if you allocate all the disk now, you will not be able to use the VMware Tools shrink disk feature later. Allocating all disk space now is a time-consuming operation that cannot be canceled, and requires as much physical disk space as you specify for the virtual disk.

■ **Split disk into 2GB files** – Select this option if your virtual machine will be used in a hard drive with a file system that does not support files larger than 2GB.

■ **Use an Existing Virtual Disk** – Select this option to use an existing virtual disk. Enter the existing virtual disk (.vmdk) file, including the path, or click **Choose** to browse for the file.

6   In the **Windows Easy Install** panel, select **Use Easy Install.**

a   Enter your **Name**, **Password** (optional) and **Windows Product key**.

The entry in the **Name** field is displayed in information boxes as the name your Windows software is registered to. It is not the Windows user name. The entry in the **Password** field is the password for the windows administrator account only. The Product key is not provided by VMware. It is on the sticker attached to the packaging for the Windows operating system CD-ROM.

b   Select **Make your home folder accessible to the virtual machine** to have Windows Easy Install configure your home folder as a shared folder, so you can share files between the virtual machine and your Mac.

c   Select whether the virtual machine can **Read only** or **Read & Write**.

7   In the **Finish** panel:

a   Leave the option **Start virtual machine and install operating system now** selected.

b   If you are installing Windows from an installation disc, put the disc in your Mac CD/DVD drive and select the option **Use operating system installation disc**.

If you are installing from a disc image file, select the option **Use operating system installation disc image file**, and browse to the file.

8   Click **Finish**.

VMware Fusion installs Windows. This can take up to 45 minutes. After installing Windows, VMware Fusion installs VMware Tools, and powers on the virtual machine.

Creating a Virtual Machine from the Boot Camp Partition

Boot Camp is Apple software that enables an Intel-based Mac to run Windows XP and Windows Vista Home Basic, Home Premium, Business, and Ultimate (no multi-disc versions). But Boot Camp requires you to choose between Mac or Windows at boot time. Boot Camp creates separate Mac and Windows partitions on your hard disk to create a dual-boot environment. You can use your Windows XP or Windows Vista Boot Camp partition as a VMware Fusion virtual machine. This enables you to

■   Use your Boot Camp virtual machine and your Mac without rebooting and switching between them.

■   Share files easily between your Boot Camp virtual machine and your Mac, through shared folders, and by dragging and dropping files or cutting and pasting text.

NOTE   If VMware Tools is not installed, and you reactivate Windows in your Boot Camp virtual machine, and subsequently boot your Boot Camp partition natively, you will be prompted to reactivate Windows. Reactivating Windows in your native Boot Camp partition will result in your Boot Camp virtual machine requiring reactivation the next time you power it on, and so forth. Installing VMware Tools solves this problem. If you have VMware Tools installed, you will need to reactivate Windows only when you first power on your Boot Camp virtual machine.

To create a virtual machine from the Boot Camp partition

1   From the Virtual Machine Library window, select **Boot Camp partition**, which is automatically detected, and click **Run**.

2   Enter your Mac password to access the Boot Camp partition.

You must have administrator privileges to use the Boot Camp as a virtual machine. VMware Fusion creates a virtual machine from your Boot Camp partition and starts Windows.

3   After Windows boots from your Boot Camp virtual machine, VMWare Fusion starts the installation of VMware Tools to enable full virtual machine functionality and optimize performance for your Boot Camp partition when used as a virtual machine. Follow the onscreen instructions and restart your virtual machine when prompted.

4   When the VMware Tools installation is complete, reboot your computer.

The first time you power on your Boot Camp virtual machine after installing VMware Tools, you will need to reactivate Windows.

Using Mac Keyboards in a Virtual Machine

PC and Mac keyboards differ, so you will need to press certain key combinations to enable certain PC commands on a Mac keyboard. See Table 1.

Table 1. PC and Mac Keyboards.

PC Keyboard	Apple External Keyboard	MacBook and MacBook Pro Built-In Keyboard
Print Screen	F14	
Scroll Lock	F15	
Pause/Break	F16	
Backspace	delete	delete
delete ⌦ (Forward Delete)	delete ⌦	fn+delete
Insert	help	
Num Lock	clear	fn+num lock F6
Command (Windows logo key — between Ctrl and Alt keys)	⌘	⌘
Alt	alt option	alt option

NOTE On the MacBook and MacBook Pro built-in keyboards, the function keys are not accessible unless you press Fn plus the desired Function key.

Fixing Sound Problems in Virtual Machines Running Vista 32-Bit Edition

When you install Microsoft Vista 32-bit edition in a VMware Fusion virtual machine, there is no sound output. To correct this problem, run Windows Update to update the sound driver from within Vista.

To update the sound driver in a VMware Fusion virtual machine running Windows Vista 32-bit edition

1   In the virtual machine, from the Windows **start** menu, Control-click or right-click **Computer** and select **Properties**.

2   In the left pane, under **Tasks**, select **Device Manager**.

3   When prompted for your permission to continue, click **Continue**.

    Windows displays the Device Manager.

4   Control-click or right-click the **Multimedia Sound Adapter** with a warning symbol (indicating that there is no driver) and select **Update Driver Software**.

5   At the prompt **How do you want to search for driver software?**, select **Search automatically for updated driver software**.

    Windows finds and installs the appropriate driver for your virtual sound card.

6   When you are prompted to restart, click **Restart Now**.

    Sound should now work in your Microsoft Vista 32-bit virtual machine.

Virtual Machines and System Images Compatible with VMware Fusion

In addition to virtual machines that you create in VMware Fusion, you can also use virtual machines created in the following VMware products:

- ESX Server 2.x and higher

- Workstation 4.x and higher

- VMware Server 1.0.x and higher

- GSX Server 3.2

Quitting Your Virtual Machine

VMware Fusion's suspend feature lets you quickly save the entire current state of your virtual machine, including all running applications, so you can return to this state without restarting your virtual machine. Using the **Suspend** command instead of **Shut Down** lets you get back up and running quickly.

To completely shut down the virtual machine instead, use the **Shut Down** command.

NOTE Boot Camp virtual machines do not support the suspend and snapshot features because you can reboot into Windows using Boot Camp, which would invalidate suspend and snapshots.

Deleting a Virtual Machine

If you want to delete a virtual machine, you delete its files in the Finder.

To delete a virtual machine

1   Power off all running virtual machines, and quit VMware Fusion.

2   Browse to the Virtual Machines folder (usually in your <user>/Documents folder) and select the machine you want to delete.

3   Move the virtual machine file to the trash.

Uninstalling VMware Fusion

Take the following steps to completely uninstall VMware Fusion from your system.

If you are upgrading VMware Fusion, you do not need to uninstall the version installed on your computer. VMware Fusion upgrades the existing version automatically.

NOTE   In rare circumstances, the operating system in a virtual machine can quit unexpectedly in a way that leaves some virtual machine processes running. This situation can prevent you from upgrading or uninstalling VMware Fusion. In this case, the installation or uninstallation Assistant might display a message indicating that you cannot install or uninstall VMware Fusion. To work around this problem, you can use the Mac Activity Monitor to force virtual machine processes to quit. See the topic
Troubleshooting > **Forcing VMware Fusion to Quit** in your VMware Fusion Help.

To uninstall VMware Fusion

1   Power off all running virtual machines, and quit VMware Fusion.

2   In the Finder, open the folder Macintosh HD/Library/Application Support/VMware Fusion, and double-click **Uninstall Vmware Fusion**.

3   When you are prompted to confirm, click **Uninstall**.

4   Enter your administrative password to begin the uninstallation.

      When the uninstallation is complete, a confirmation message is displayed.

VMware Fusion Resources

In addition to this document and the VMware Fusion online help, you can find information about using VMware Fusion at the following sources:

■   For self-help resources, including self-paced video tutorials on how to get the most out of VMware Fusion, see the VMware support portal at www.vmware.com/products/fusion/support.html.

■   You might also want to check the VMware Fusion Discussion Forum on the VMware VMTN Web site, at www.vmware.com/community/forum.jspa?forumID=371. The forum is a site where VMTN members can exchange information, questions, and comments with each other regarding VMware products, services, and product support issues.