

VMware

vCenter Server (\$) (license manager)	Server hardware	ESX (\$) (vMotion, DRS, HA, Storage vMotion)		
		ESXi (freeware) (ESXi freeware is managed by the Virtual Infrastructure (or vSphere) Client)		Guest OS
		ESXi (\$) (vMotion, DRS, HA, Storage vMotion)		Guest OS...
Workstation hardware	Windows or Linux OS	User session	VMware Server (freeware)	Guest OS
			VMware Workstation (\$)	Guest OS
			VMware Player (freeware)	Guest OS...
			vSphere Client for managing ESX(i) hosts (freeware)	

VMware

■ Neki od VMware proizvoda su:

- ❖ *VMware Workstation*
- ❖ ***VMware Fusion***
- ❖ *VMware Player*
- ❖ *VMware ESX*
- ❖ *VMware Server*
- ❖ *Vmotion* u radnom stanju i bez prekida u radu sa jednog na drugi fizički host

■ Drugi VMware alati omogućuju:

- ❖ virtuelizaciju programa/aplikacija (*VMware ThinApp*)
- ❖ upravljanje ESX/ESXi okolinom (*VMware Infrastructure*)
- ❖ druge primene

VMware-Desktop software & End-User Computing

- **VMware ThinApp** (formerly known as Thinstall), an application virtualization solution designed to accelerate application deployment and simplify application migration.
- **VMware ACE** (Assured Computing Environment)
- **VMware Express** (for accessing Windows applications from a Linux desktop)
- **VMware Fusion** (for Mac Desktops), a solution for Apple users to seamlessly run Windows and Windows applications on an Intel processor-powered Apple OS X Macintosh computer.
- **VMware Player**, is a free software used to run multiple operating systems at the same time on your PC.
- **VMware View** (formerly VMware VDM), an enterprise desktop virtualization platform designed to optimize application and desktop management and enable flexibility for end-users.
- **VMware Workstation**, a solution that enables multiple operating systems to run at the same time on a single endpoint device.
- **VMware Zimbra**, an enterprise-class, calendar and collaboration platform based on the popular Zimbra open source project.
- **SlideRocket**, is an online presentation platform that lets users create, manage, share and measure presentations.

7.1. VMware

■ **VMware Workstation**

- Softverski paket za virtuelizaciju
- Vršiti emulaciju više različitih x64 i x86 sistema na jednom računaru
- Dakle, ovaj softver omogućava korisnicima kreiranje više virtuelnih računara i njihovu simultanu upotrebu sa matičnim operativnim sistemom
- Svaka instanca virtuelne mašine može pokrenuti sopstveni operativni sistem (gostujući), poput Windows-a, Linux-a, BSD-a i sl.
- Ukratko, VMware Workstation omogućava jednoj fizičkoj mašini da simultano pokrene više operativnih sistema.

■ **VMware Fusion**

- Ima istu funkcionalnost kao prethodni alat,
- ali namenjen je Intel i Mac sistemima.

VMware-Desktop software

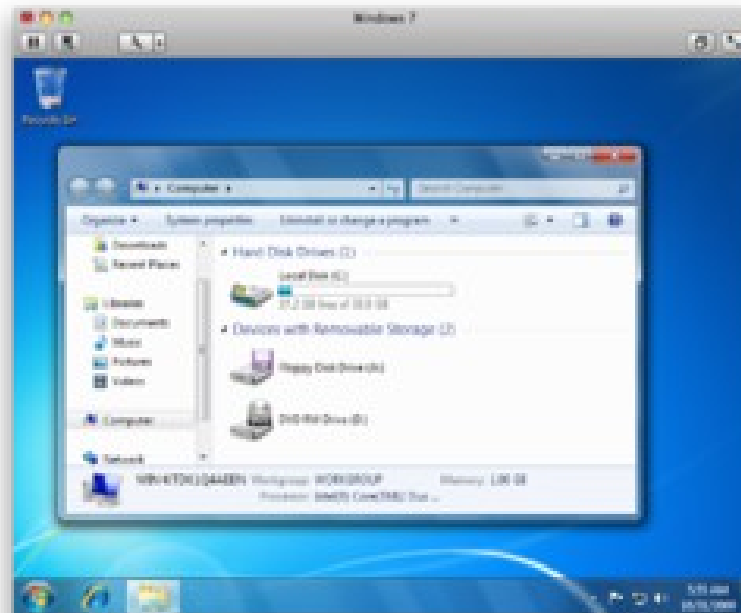
- **VMware Workstation** (first product launched by VMware in 1999). This software suite allows users to run multiple instances of x86 or x86-64-compatible operating systems on a single physical PC
- **VMware Fusion** provides similar functionality for users of the Intel Mac platform, along with full compatibility with virtual machines created by other VMware products
- **VMware Player** is for users without a license to use VMware Workstation or VMware Fusion. VMware offers this software as a freeware product for personal use. While initially not able to create virtual machines, this limitation was removed in version 3.0.1

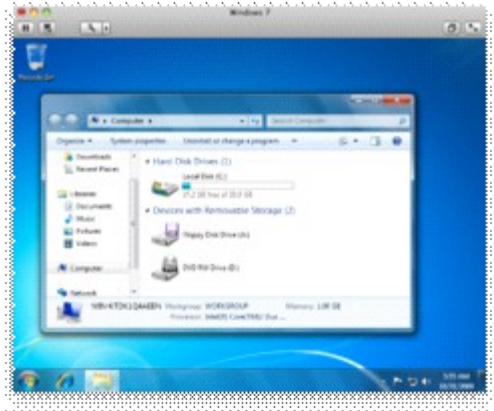
VMware-fusion



VMware Fusion

- VMware Fusion is a virtual machine software product developed by VMware for Macintosh computers with Intel processors. Fusion allows Intel-based Macs to run x86 and x86-64 "guest" operating systems, such as Microsoft Windows, Linux, NetWare and Solaris as virtual machines simultaneously with Mac OS X as the "host" operating system using a combination of paravirtualization, emulation and dynamic recompilation





VMware Fusion running Windows 7 on Mac OS X
10.6

<u>Developer(s)</u>	VMware, Inc.
<u>Stable release</u>	4.1.3 (build 730298) ^[1] / June 13, 2012; 12 days ago
<u>Preview release</u>	VMware Fusion Technology Preview 2012 / March 12, 2012; 3 months ago
<u>Operating system</u>	Mac OS X
<u>Platform</u>	Apple-Intel architecture
<u>Available in</u>	Multi-lingual
<u>Type</u>	Virtual machine
<u>License</u>	Proprietary
Website	VMware Fusion

VMware Fusion

■ Overview

- Fusion, made possible by the **Apple–Intel transition**, marked VMware's first entry into Macintosh-based x86-virtualization. **Fusion utilizes Intel VT present in the Intel Core microarchitecture platform.**
- Much of the underlying technology in Fusion is **inherited** from other VMware products, such as **VMware Workstation**, allowing Fusion to offer features such as 64-bit and SMP support from the first beta version onward.
- Fusion 1.0 was released on August 6, 2007, exactly one year after being announced

VMware Fusion

■ System requirements

- ❖ A 64-bit capable Intel-based Mac
- ❖ 2 GB of RAM (4 GB or more recommended)
- ❖ ATI Radeon x1600, Nvidia GeForce 8600M or better graphics hardware required for Windows Aero support
- ❖ 750 MB free disk space for VMware Fusion
- ❖ 5 GB free disk space for each virtual machine (10 GB or more recommended)
- ❖ Mac OS X 10.6.7 or later

VMware Fusion - Features

- **Unity view** creates a seamless desktop environment between Microsoft Windows and Mac OS X applications.
- **It optionally hides Windows' start menu** and taskbar and runs the Windows applications directly from the dock in OS X. Further, users can drag and drop files between Windows and the Mac, and use familiar Mac keyboard shortcuts to copy and paste between Windows and Mac applications. It is (almost) fully compatible with Exposé.
- Fusion windows that are covered by other Fusion windows don't redraw when switching to Exposé, causing visual anomalies. This feature is later made available in VMware Workstation 6.5 Beta, which is designed to be run on Windows/Linux platforms.

VMware Fusion - Features



■ VMware Fusion running in Unity view on Mac OS X 10.6

VMware Fusion - Features

- **DirectX 9.0** is supported through dynamic recompilation to OpenGL instructions in Windows XP Service Pack 2, Windows Vista, and Windows 7 virtual machines. Hence, users can play supported games through Fusion or run applications which require 3D graphics. VMware Fusion 3 has DirectX 9 Shader Model 3 and OpenGL support.
- **32-bit and 64-bit guest operating systems** are supported by VMWare Fusion. Over 60 operating systems are supported, including Windows Vista, Windows XP, Linux, and Solaris. Additionally, VMWare Fusion 2.0 adds support for Mac OS X Server version 10.5 (Leopard) as a guest on a Mac OS X host. Additionally, Fusion 2.0.1 added experimental support for un-released developer builds of Mac OS X Server 10.6 (Snow Leopard) – presumably for software developers with Apple-granted access to pre-release builds of Snow Leopard. There is also support for Windows XP Service Pack 2 Boot Camp partitions: a user can use his Windows Boot Camp partition, eliminating the need for two separate Windows installations. In addition, VMWare Fusion offers support of up to 8 GB of memory on guest 64-bit operating systems, and up to 16GB of RAM on Mac Pros and Xserves.
- **Snapshots** enable users to save a stable state of the guest operating system to disk, allowing users to quickly return to their virtual machine without the need of rebooting.

VMware Fusion - Features

- **Shared Folders** allow the mounting of folders from the host operating system to the guest operating system.
- **Extensive hardware support** is built into VMWare Fusion. For networking, there is support for wired and wireless networks, in NAT or bridged mode (albeit, erratic availability with wireless interfaces). There is access to physical devices from the virtual machine (i.e. read and write CDs and DVDs) as well as access to USB 2.0 devices such as video cameras, iPods, printers, and disks at full speed. Firewire support is still missing in the latest version, although a workaround exists by mounting the device as a shared folder .
- **Support for multiple CPUs (SMP) or multicore CPUs** is built into VMWare Fusion. Fusion also allows the user to assign up to eight CPUs to one virtual machine to gain additional performance for CPU-intensive workloads.
- **Portability.** Virtual machines created with VMware Fusion can be used with other VMware products and vice versa, and are compatible with other VMware virtual appliances

VMware fusion 2.0

■ **VMware Fusion 2.0** was released as a free upgrade on September 12, 2008. **New features** in this release include:

- ❖ Multi-display support – enables the use of up to 10 additional displays by guest operating systems
- ❖ Virtual Machine conversion – allows the conversion of Parallels Desktop and Microsoft Virtual PC virtual machines to VMware
- ❖ Support for DirectX 9.0 Shader Model 2
- ❖ Application sharing between Windows and Mac – users can set certain files to launch with specific Mac or Windows applications
- ❖ Folder Mirroring – allows select folders to be accessible on both the host and guest operating system
- ❖ Keyboard and Mouse shortcut mapping
- ❖ Snapshot improvements – multiple snapshot support, in addition to creating automatic snapshots at set intervals
- ❖ Improved CPU resource utilization
- ❖ Support for 4 processor virtual machines
- ❖ Mac OS X Leopard Server virtualization support
- ❖ Improved Linux support

VMware Fusion 3.0

- **VMware Fusion 3.0** was released as a paid upgrade on October 27, 2009. Some new features in this release include:
 - ❖ Optimization for Mac OS X 10.6 clients, including full 64 bit process support
 - ❖ Full support for Mac OS X 10.6 Server clients
 - ❖ Improved PC Migration Assistant
 - ❖ Improved support for Windows 7 virtual machines, including full Windows Aero support with Flip 3D and Aero Peek
 - ❖ Support for DirectX 9.0c with Shader Model 3 and OpenGL graphics libraries (v2.1 in XPDM drivers, v1.4 in WDDM drivers)
 - ❖ Improved VM disk and graphics performance under Mac OS X 10.6 clients
 - ❖ New "Always-on" Applications Menu provides enhanced start menu functionality in the Mac OS X Finder
 - ❖ Improvements to Virtual Machine Library window
 - ❖ Automatic software update functionality
 - ❖ Improvements to Copy and Paste, Drag and Drop functions on Windows and Linux virtual machines

VMware Fusion 4.0

- **VMware Fusion 4.0** was released as a paid upgrade on September 14, 2011. Some new features in this release include:
 - ❖ Optimization for Mac OS X 10.7 clients, including support for full screen Windows programs, gestures and integration with LaunchPad and Mission Control
 - ❖ Updated user interface
 - ❖ Support for Time Machine compatible snapshots
 - ❖ App Unity feature allows you to integrate Windows programs into Mac OS X 10.7 by adding them to Launchpad, searching them using Spotlight or accessing them directly from the Mac applications folder
 - ❖ Improved resume function
 - ❖ Support for virtual machine encryption
 - ❖ Up to 2.5x faster OpenGL and DirectX 3D graphics performance on Mac OS X 10.7 clients
 - ❖ New VMware Fusion Learning Center feature

VMware Fusion – version history

Version	Released	Notes
1.0	August 6, 2007	First release (following 4 betas).
1.1.0	November 12, 2007	Support for Leopard, Boot Camp, and improvements to DirectX support and Unity.
1.1.1	January 24, 2008	Various bug fixes.
1.1.2	April 23, 2008	Support for Time Machine and various bug fixes.
1.1.3	May 30, 2008	Various bug fixes.
2.0	September 12, 2008	Multiple Snapshots with AutoProtect, Improved Unity, DirectX 9.0 Shader Model 2 3D, and support for Mac OS X Server guests.
2.0.1	November 14, 2008	Various bug fixes.
2.0.2	February 11, 2009	Import from Parallels, supports Mac OS X Server 10.5.6 host, mounts DMG images, supports Ubuntu 8.10 in Unity mode. [13]
2.0.3	April 2, 2009	Various bug fixes. Adds experimental support for Snow Leopard Developer Builds. [14]
2.0.4	April 9, 2009	Fixed Host code execution vulnerability. [15]
2.0.5	June 23, 2009	Support for Nehalem Mac Pro. Experimental support for Mac OS X 10.6 as guest. Support for Ubuntu 9.04 as guest. Various bug fixes. [16]
2.0.6	October 1, 2009	Fixed issues when running on Snow Leopard. Fixed issues with NVidia graphics cards on Mac OS X 10.6. Various bug fixes. [17]
2.0.7	April 8, 2010	Fixed security issues, accepts VMware Fusion 3 license keys. [18]
3.0	October 27, 2009	Added support for Windows 7 with Aero. Full 64-bit compatibility with Mac OS X 10.6 host and guest. DirectX 9.0 Shader Model 3 3D. WDDM-compatible display driver.
3.0.1	December 10, 2009	Improved 3D & video performance, full support for Ubuntu 9.10 (Karmic Koala), 64-bit networking subsystem, improved VMware Importer, improved VM resume times. [19]
3.0.2	February 18, 2010	Fixes a problem so that the latest release of Mac OS X 10.6 Server (Snow Leopard) can run in a virtual machine. [20]
3.1.0	May 25, 2010	Improved 3D & video performance, improved Unity performance and integration, USB EasyConnect, improved migration assistant, 8-core

VMware Fusion – version history

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- 4.1.1 November 23, 2011 Reintroduces the Mac OS X Server check after it was inadvertently omitted from 4.1.0. [\[30\]](#)
- 4.1.2 April 12, 2012 Adds early host and guest support in preparation for the future release of [OS X Mountain Lion](#).
- 4.1.3 June 13, 2012
- Resolved an intermittent issue with an unreleased version of Mac OS X.
 - Fixed a race-condition when starting VMware Tools in some OpenSUSE virtual machines.
 - Fixed VMware host Checkpoint file memory corruption security bug.
 - Fixed VMware floppy device out-of-bounds memory write security bug. [\[31\]](#)