

# The Best of Both Worlds

Need to run Windows apps on your Mac? No problem. Making your Apple machine span the platform chasm is easier than you might think.

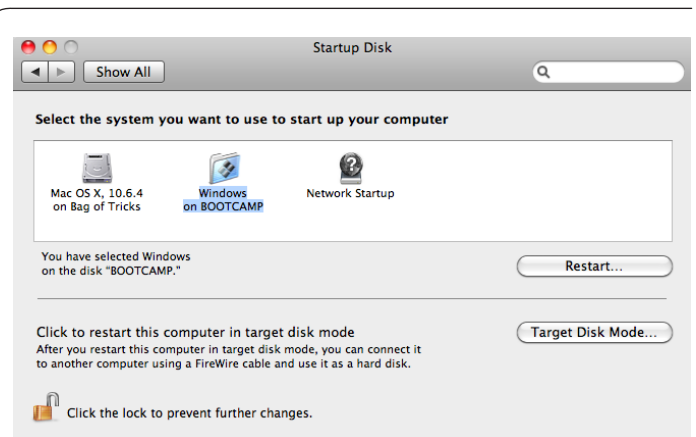
There was a time when you had to choose between a Mac and a PC. But changes in the underlying Mac hardware have made it unnecessary to settle for one or another. If you have a Mac, you can run OS X or Windows at will. The Mac's flexibility is especially helpful if you need to run legacy Windows software in your business. A law firm or doctor's office may use Windows-only programs, or a web designer may need to view work in Internet Explorer to see

how pages will look to people using that browser. Whatever the reason, it's easy to run Windows on your Mac.

Instead of maintaining two computers, you'll either boot your Mac into a Windows environment or run Windows within Mac OS X. This article explains how to get started, what the practical limitations are, and how to overcome the challenges.

## Setting up to dual-boot

Like many PCs, modern Macs run on Intel processors. Be-



**FIGURE 2.** IN BOOT CAMP, click to toggle between OS X and Windows operating systems, then press Restart to swap environments.

cause of this core similarity, you can install a Windows operating system on Mac hardware. Then you can dual-boot, starting up in either OS X or Windows.

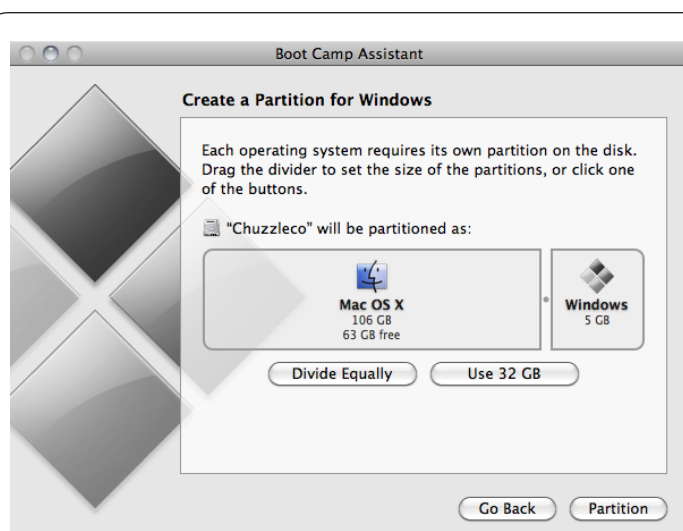
In fact, Macs come with software that makes it easy. Boot Camp is an OS X component that allows you to partition a hard drive and format one portion for Windows, so you can install Microsoft's OS; it also includes drivers for Mac hardware. Apple provides detailed instructions for specific models and OS X versions at [www.apple.com/support/bootcamp](http://www.apple.com/support/bootcamp), but the procedure boils down to a few simple steps. Just run the Boot Camp Assistant (located in the Applications: Utilities folder) and follow the prompts. They'll lead you through partitioning and

formatting either your own system or on an external hard drive (see Fig. 1). Then you'll insert a Windows installation disk — XP, Vista, or Windows 7 — and run the installer.

To run Windows, hold down the Option key when you turn on or restart your Mac. The computer will prompt you to choose an operating system (see Fig. 2). Alternatively, you can switch using the Startup Disk System Preference.

Aside from having to reboot to change operating systems, there's one other limitation: You can't share work between Windows and Mac OS X. The files you create in one operating system are not available to the other — you'll have to duplicate them manually by, say, saving them to a flash drive.

Otherwise, Windows will



**FIGURE 1.** BOOT CAMP ASSISTANT walks you through the Windows installation process. Set up a hard disk partition of at least 32GB to give Windows ample room.

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**FIGURE 3. PARALLELS DESKTOP, a virtual machine utility that runs Windows on a Mac, lets you migrate an existing Windows installation complete with all settings and applications.**

perform just as well on your Mac as on a stand-alone PC. In fact, the latest Macintosh hardware runs Windows faster than many “real” PCs!

## Running a virtual machine

There’s one major alternative to Boot Camp: Running Windows within Mac OS X as a virtual machine. The process creates a software emulation layer that acts like a second computer inside your Mac. Install Windows as a virtual machine, and it will run in its own window within Mac OS X, like a picture-in-picture TV display. This way, you can access Windows-only applications without having to reboot.

Virtual machines divide your Mac’s hardware between OS X and Windows, so they tend to be resource-hungry. Generally, your processor, RAM, video card, and other hardware specs allocate only half their power to each operating system. If your Mac is a few years old — or if you run taxing CAD, graphics, or gaming applications in Windows — both environments can slow down.

You can combat this issue by using optimal hardware. Install ample RAM; 4GB is recommended. And a fast pro-

cessor is crucial; at least 2GHz. You’ll get the best results with a multi-core processor. This way, Windows can take over a core or two, but OS X still the processing power it needs.

Several software utilities can create a virtual Windows machine, including Parallels Desktop ([www.parallels.com/products/desktop](http://www.parallels.com/products/desktop)) and VMWare Fusion ([www.vmware.com/products/fusion](http://www.vmware.com/products/fusion)). Once you’ve

installed the utility, you can boot Windows from an existing Boot Camp installation, a copy of Windows from an actual PC, or a new Windows installation. The utility walks you through the process (see Fig. 3).

Historically, a virtual machine running Windows was confined to its own window (as in the picture-in-picture example). But the latest tools let you run Windows applications without the Windows desktop and share data between the two environments (see Fig. 4). You can copy and paste between Windows and Mac programs, print from Windows applications, and access files managed by either operating system. You can even put your favorite Windows applications in the OS X Dock.

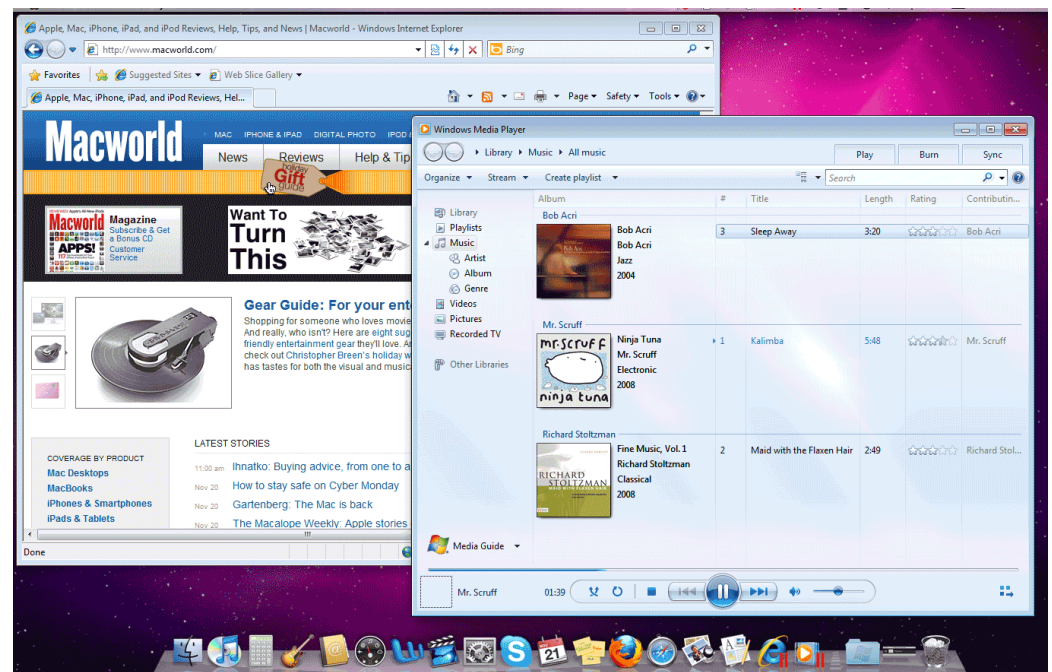
## Run Windows applications without Windows

It’s also possible to run Windows applications without actually running Windows.

Special software can act as a bridge on your Mac, so you can focus on your work and forget about the operating system. One example is Wine ([www.winehq.org](http://www.winehq.org)), a free open-source utility for OS X that acts as a Windows surrogate. It falters with some applications, but if it works in your situation — and it often does — you can skip Windows entirely.

Another option is to run Windows applications on a central server instead of your desktop. Many Mac-equipped offices go this route using software primarily from Citrix ([www.citrix.com](http://www.citrix.com)). The software behaves as if you were running Windows, but again, you don’t need to install a second operating system. Check with your IT department to see if this is an option for you.

As you can see, there are many ways to get the best of both worlds. There’s no need to compromise on the Mac’s great user experience just to run Windows applications. ■



**FIGURE 4. PARALLELS DESKTOP RUNS both Mac and Windows applications seamlessly. Windows applications look as though they’re running on OS X.**