



Mac OS X v10.2 Technologies

Windows Compatibility



Features

Use the same software

- Most popular applications are available for the Mac: Microsoft Office, America Online, Microsoft Internet Explorer, Quicken, and more than 5000 others.

Share the same files

- Files can be shared in multiple ways—via email (POP, IMAP, SMTP, MIME for attachments), CD (CD-R, CD-RW), removable media (Zip), iDisk (WebDAV), and network transfer (SMB/CIFS).
- Most standard file formats are supported, including .doc, .xls, .ppt, .jpg, .pdf, .gif, .mp3, .mp4, .ra (RealAudio), .wmf (Windows Media File), and .zip.
- Generation of PDF files is built in.
- Windows users can browse Mac file servers and vice versa.
- CD-ROMs burned on a Mac or Windows PC can be read by both Mac and Windows PCs.

Explore the same Internet

- Support for popular ISPs: EarthLink, AOL, AT&T Broadband, and others
- Built-in support for standard Internet connectivity (TCP/IP, PPP, PPPoE), email (POP, IMAP, SMTP, MIME), web browsing (HTTP, HTTPS, FTP, SSL, SSH, XML-RPC, SOAP, JavaScript, Flash, Java applets), and multimedia (RTP/RTSP, the open standard for streaming video over the Internet)
- Macintosh versions of leading Internet applications

Share the same network

- Networking services based on the TCP/IP protocols used by the Internet and compatible with Windows (SMB/CIFS), UNIX, and Linux (NFS) networks
- PPTP-compatible VPN client for connection to Windows-managed Virtual Private Networks
- Support for Active Directory authentication (Kerberos) and directory services (LDAP)
- Connection to Ethernet networks and Wi-Fi certified 802.11b wireless networks*

Use the same digital devices

- Built-in USB and FireWire (IEEE 1394, i.LINK) connections in all Apple systems
- Wide range of included device drivers for printers (USB, network), scanners, digital cameras, digital camcorders, PDAs (Palm OS), multibutton/scrolling mice, ergonomic keyboards, and storage devices (Zip, CD, external hard drives)

There's never been a better time to switch to the Macintosh. Whether you used a Mac years ago or are considering one for the first time, you'll see that in addition to all its inherent benefits, the Mac fits seamlessly into Windows environments. Macintosh offers a variety of ways to interact with Windows-based systems. New Mac OS X v10.2 "Jaguar" capabilities make software, file sharing, Internet communications, network services, and device connectivity more compatible with Windows than ever before.

Compatible software

Most popular applications—including Microsoft Office, Internet Explorer, and Intuit's Quicken—are available in both Macintosh and Windows versions. Because most cross-platform applications use the same file format, you can enjoy the advantages of the Macintosh platform while seamlessly exchanging files with Windows users. In addition to Office, you'll find that you can run more than 5000 applications designed specifically for Mac OS X. You can do anything you'd dream of doing—from web browsing and games to database management and financial management—on a Macintosh system.

Easy file sharing

You can share files between Macintosh and Windows systems in a variety of ways. Users can attach files to email messages, save them on removable media such as CDs or Zip disks, or transfer them over a network. Windows users in mixed-platform environments can browse and connect to shared Mac volumes and servers, and Mac users can browse and connect to shared Windows volumes and servers. You don't need to install additional software on the Windows computer, making file exchange as easy as dragging and dropping. And because the Mac and Windows versions of most applications use the same formats, no translation is necessary.

Internet access

The Internet works the same on a Mac as it does on a PC. That's because the Internet is based on open standards supported on a wide range of computers, from Mac systems to PCs to Linux servers. Macintosh computers connect to the Internet using the same popular Internet service providers (ISPs), including EarthLink and AOL, so you can keep your email accounts and your AIM/AOL screen name. And when you use a Macintosh, you can use the same programs you're already familiar with on Windows systems. You can access the same email servers, surf the same websites, visit with friends in the same chat rooms, and watch the same streaming videos.

Industry-standard networking services

Networking services on Mac and Windows systems are based on the same standard technologies (the TCP/IP protocols used by the Internet). As a result, the Mac is at home on Windows networks and just about every other kind of network, enabling it to use the same file servers, printers, and other network services. You can also access and share wireless networks with PCs. Apple's AirPort wireless networking products are compatible with Wi-Fi certified 802.11b products, making it easy to share a wireless network with Windows PCs. And with Mac OS X v10.2, you don't have to be a network administrator to make it all work.



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Flexible device connectivity

Because Macintosh and Windows systems both use industry-standard USB and FireWire technologies, they can connect to most of the same peripherals. For example, many of the same USB ergonomic keyboards, multibutton scrolling mice, digital cameras, printers, PDAs, and scanners used with PCs can also be connected to a Mac. The same is true for high-speed digital devices that use FireWire (also known as i.LINK, IEEE 1394, or simply 1394) connectors, such as digital video camcorders and professional digital cameras. And because many of the device drivers are already installed with Mac OS X, all you need to do is plug in and go.

Technical Details

Use the same software

Here are some of the ways Macintosh systems can work together with Windows systems.

- Microsoft Office v. X for Mac OS X gives you Word, PowerPoint, and Excel with features and shortcut commands familiar from Office for Windows. In addition, the Mac versions give you exclusive features, such as transparency in charts, that are not available in their Windows counterparts.
- The Macintosh and Windows versions of Microsoft Office applications have had the same file formats since Office 97, making it extremely easy to exchange Microsoft Word (.doc), Excel (.xls), and PowerPoint (.ppt) documents. Office documents are all fully compatible between Mac and Windows systems, so you can share everything from spreadsheets to presentations with colleagues using PCs.
- With Mac OS X v10.2, you can generate Portable Document Format (PDF) files from any Mac OS X application simply by using the “Save as PDF” button in the print dialog. This is a great way to create documents that anyone can read using the Acrobat Reader application that’s available as a free download for Mac, Windows, and UNIX systems from the Adobe website.
- Most standard file formats are supported and can be shared between Mac OS X and Windows, including Microsoft Office files (.doc, .xls, .ppt), graphics files (.jpg, .gif, .tiff), Adobe Portable Document Format files (.pdf), audio and video files (.mp3, .mp4, .ra [RealAudio]), Windows Media File (.wmf), and archived files (.zip). These are just some of the most widely used cross-platform-compatible file formats; many others are also supported.
- In cases where a specific or comparable version of an application is not available for the Macintosh platform, you can use Virtual PC software from Connectix. It lets you run Windows applications right on your Mac—while using Mac OS applications at the same time. Remote Desktop Connection Client for Mac from Microsoft allows you to connect to a Windows-based computer and work with programs and files on that computer from your Macintosh.



Mac OS X v10.2 “Jaguar” delivers industry-leading Java support that is fully compatible yet optimized for Mac OS X to look great and perform well, making Mac OS X the ultimate platform for developing and deploying cross-platform Java applications.



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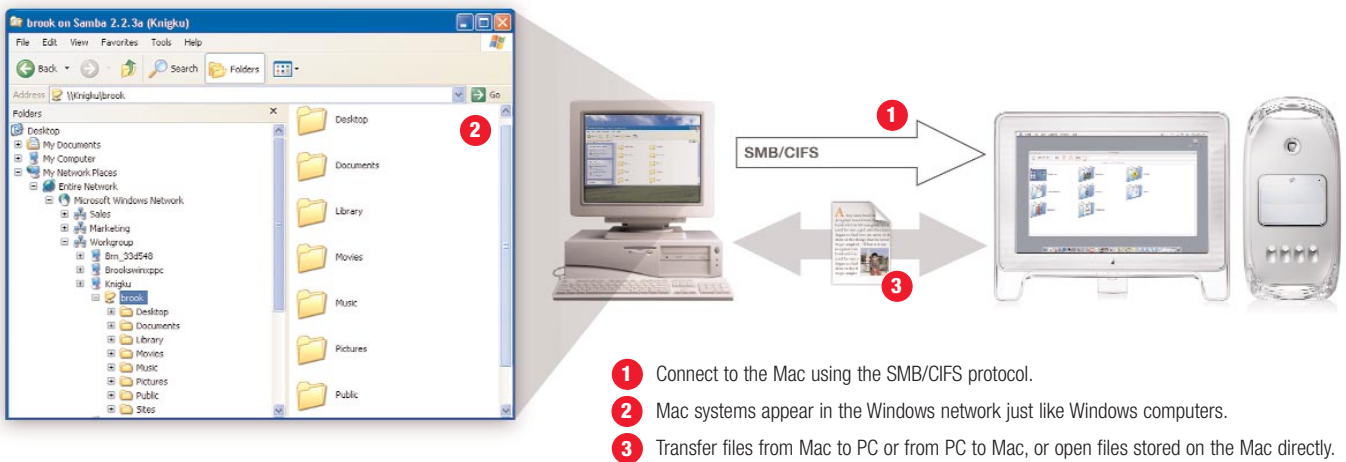
Windows Compatibility

Share the same files

File compatibility means you can share files with users on Windows PCs in a variety of ways. Windows users can browse and connect to Mac volumes and servers as if they were connecting and sharing with other Windows PCs.

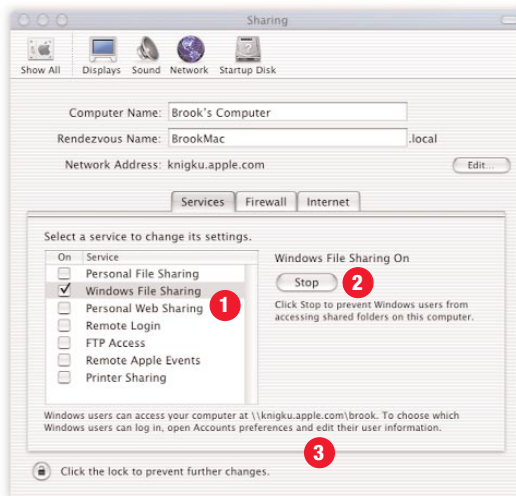
Connecting to a Mac from Windows

Mac OS X v10.2 makes file sharing simple by enabling Windows computers to connect to a Mac the same way they connect to another PC. Built-in Windows file sharing in Mac OS X is based on a popular open source technology called Samba. Windows file sharing can be enabled with a single click in Mac OS X System Preferences.



Support for the SMB/CIFS protocol enables Windows users to access files from Mac systems running Mac OS X v10.2.

No additional software is needed on the Windows computer, and the Macintosh systems appear in the Windows Network Neighborhood or My Network Places just like Windows computers.



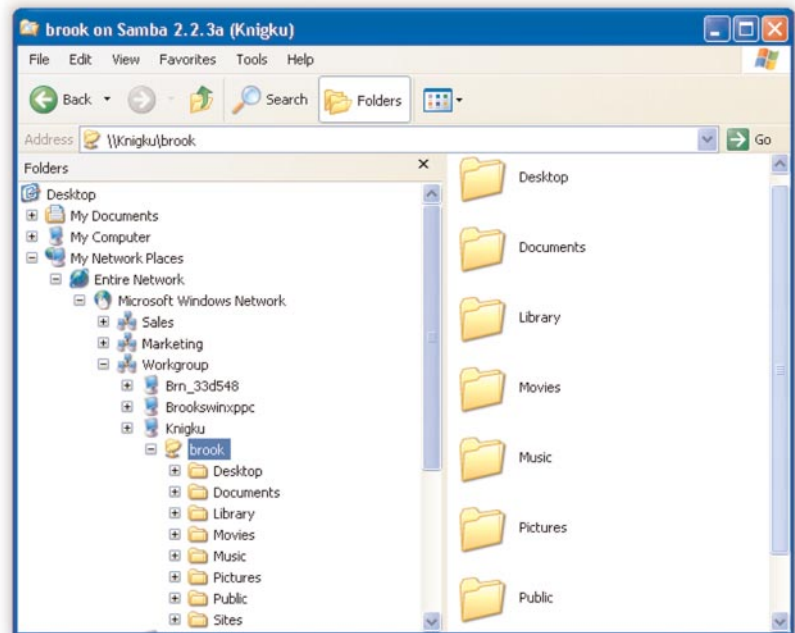
- 1 Enabling the Mac to be accessible to Windows computers on the same network is as simple as checking Windows File Sharing in the Sharing preference.
- 2 You can start and stop Windows file sharing services with a single click.
- 3 Mac OS X v10.2 provides information to make it easy for Windows users to find shared Mac systems on the network.

Mac OS X v10.2 users can make files available to Windows users simply by turning on Windows file sharing.



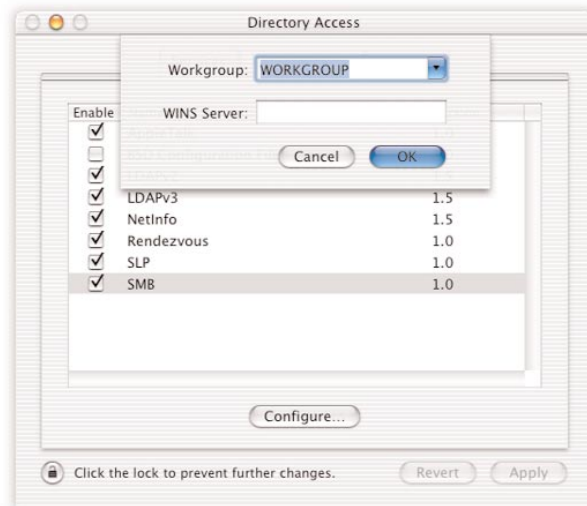
Mac OS X v10.2 Technologies

Windows Compatibility



To Windows users, shared Mac volumes appear just like shared Windows volumes.

Mac OS X v10.2 also supports the Windows Internet Naming Service (WINS), allowing Windows clients across multiple subnets to perform name/address resolution.



Mac systems running Mac OS X v10.2 can easily browse and mount Windows servers and shared volumes and participate in Windows workgroups.

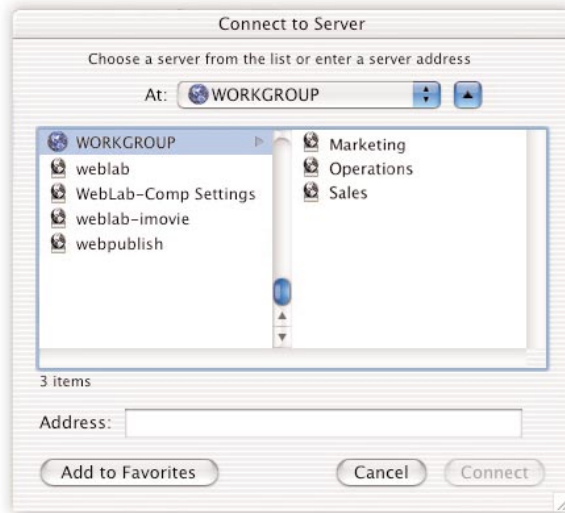


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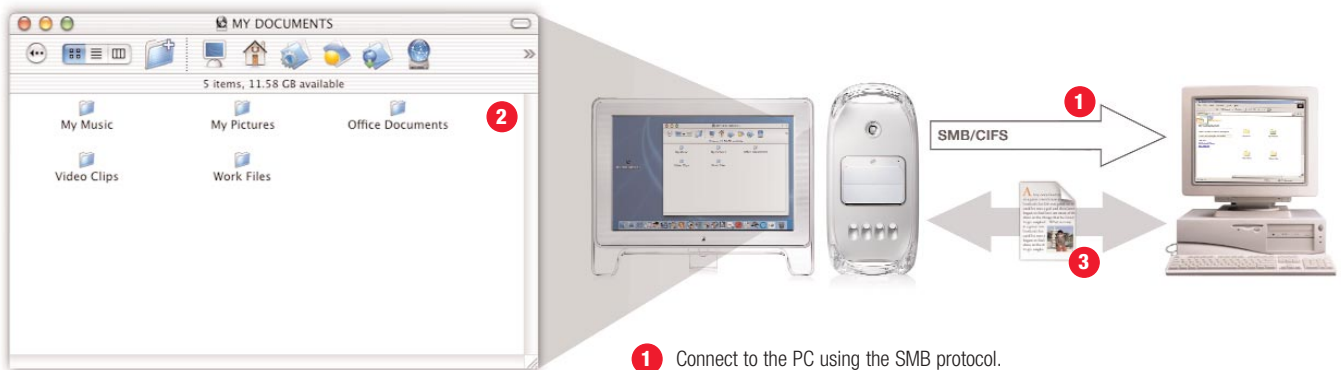
Windows Compatibility

Connecting to a Windows PC or server from a Mac

Mac OS X v10.2 supports Windows file services via Microsoft's proprietary Server Message Block/Common Internet File System (SMB/CIFS) file service.



Mac users can easily access shared Windows files.



- 1 Connect to the PC using the SMB protocol.
- 2 Windows files appear in the Finder just like Mac files.
- 3 Transfer files from PC to Mac or from Mac to PC, or open files stored on the PC directly.

Mac users can download files from Windows systems.

Mac OS X v10.2 makes it easy to browse shared Windows volumes. All you need to do is use the “Connect to” menu in the Finder to mount shared volumes. Then simply browse the file structure as you would any Mac server.

File sharing using removable media

Another method of file sharing that's been streamlined in Mac OS X v10.2 is the creation and use of CDs. Mac OS X v10.2 creates hybrid CDs formatted for both Macintosh (Mac OS Extended) and Windows (CDFS) so that data can be burned on a Mac and be read by a Windows PC.



Internet connectivity protocols

Transmission Control Protocol/Internet Protocol (TCP/IP) is a set of protocols developed to allow computers to share resources over a network.

Point-to-Point Protocol (PPP) is a method for connecting a personal computer to an Internet service provider (ISP) and the Internet using a standard phone line and a modem.

Point-to-Point Protocol over Ethernet (PPPoE) allows multiple hosts on a shared Ethernet network to establish PPP sessions to multiple destinations via a single shared subscriber line such as high-speed DSL or cable Internet connections.

Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a DHCP server to automatically assign an IP address to an individual computer's TCP/IP stack software. DHCP assigns a number dynamically from a defined range of numbers configured for a given network.

Network Address Translation (NAT) is a method of connecting multiple computers to the Internet (or any other IP network) using one IP address. This allows home users and small businesses to connect their network to the Internet efficiently and affordably.

Explore the same Internet

Mac OS X v10.2 networking technologies are based on the advanced BSD networking stack—the backbone of most TCP/IP implementations on the Internet—for fast, flexible Internet connectivity. Mac OS X offers built-in support for a wide variety of Internet connectivity protocols, including DHCP, PPP, and PPPoE. For users with more than one computer but only one connection to the Internet, Mac OS X includes Internet sharing with support for NAT and DHCP, allowing multiple computers to connect to the Internet through a single Macintosh system.

Once you're connected to the Internet, you can do whatever you like with a Mac, using the same applications you're familiar with on Windows systems.

- **Email.** Mac and Windows computers send and receive email using the same protocols (POP, IMAP, and SMTP). Mail, the built-in Mac OS X email client, supports these popular protocols. There is no need to have separate email accounts on your Mac and your Windows PC. You can keep the account you already have on Windows and access it from a Mac. Entourage, the email program included in Microsoft Office v. X for Mac, is similar to Microsoft Outlook and Outlook Express. Netscape Messenger, QUALCOMM Eudora, and AOL are other versatile email programs available for the Mac.
- **Browsing.** The Internet should be accessible to everyone. This was one of the main goals of the World Wide Web Consortium (W3C), the governing body of the Internet, when they set out to create the technical specifications and standards to promote its evolution and ensure interoperability. Safari, Apple's new turbo-charged web browser, was designed with these standards in mind. Apple has combined the latest web protocols and technologies with a fast, easy-to-use interface to create a web browser offering the performance seasoned web surfers have come to expect. In addition, a variety of other web browsers are available for the Mac, many from the same companies that create their Windows counterparts. Mac OS X v10.2 comes with the popular Microsoft Internet Explorer, and there are Mac versions of Netscape Navigator, AOL, and Mozilla. Mac OS X v10.2 supports all the popular web standards: HTTP, HTTPS, FTP, SSL, SSH, XML, XML-RPC, SOAP, JavaScript, Flash, and Java applets.
- **Instant messaging.** Apple's new iChat software is the first AOL Instant Messenger (AIM)–compatible program authorized by AOL. iChat is fun and easy to use, it's built into Mac OS X v10.2, and you can use your AIM handle if you already have one. Using iChat, you can exchange instant messages with friends, family, and coworkers on the AIM network regardless of the type of computer they're using. Mac versions of popular instant messaging software are also available for AOL Instant Messenger (AIM), MSN Messenger, Yahoo Messenger, ICQ, and IRC.
- **Multimedia.** Use your choice of QuickTime, RealOne Player, or Windows Media Player to experience the best of the web's media offerings on the Mac. If you enjoy streaming media, you'll find Mac versions of all the major multimedia clients.

Share the same network

Mac OS X v10.2 adds modern networking features that enable you to make the Mac a first-class citizen in any Windows environment, from creating simple ad hoc networks to participating in large managed networks. You'll also find that getting on a network whenever and wherever you want is easier with a Macintosh. Ethernet is built into every Macintosh system, ready to connect to a cable or DSL modem or a corporate LAN. Gigabit Ethernet (10/100/1000BASE-T) networking is standard on many Macintosh models.



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Wireless networking

Apple's AirPort Extreme wireless networking technology is based on the 802.11g draft specification and is compatible with Wi-Fi certified 802.11b wireless products. It delivers speeds up to 54 Mbps for users who have both the AirPort Extreme Card and the AirPort Extreme Base Station. But if you want to use the AirPort Extreme Base Station with your 802.11b AirPort Card, you'll still enjoy significant benefits. That's because the AirPort Extreme Base Station features a compatibility mode that automatically supports not just the AirPort Extreme Card, but all Wi-Fi certified 802.11b products (at up to 11 Mbps)—Mac or Windows. The AirPort Extreme Card works with 802.11b-based public hot spots and with 802.11b wireless networks in schools, offices, and hotels.*

Mac OS X also features Automatic Networking. Built-in multihoming enables it to detect which Internet connection methods are available—and to switch to the fastest one automatically. This is helpful, for example, when you've been using a wireless connection at the airport, but then switch to a wired connection at your home or office. Mac OS X makes sure you are connected to the Internet at the fastest speeds possible. Jaguar supports both the 40-bit and 128-bit 802.11 Wired Equivalent Privacy (WEP) standard to keep information private during wireless transfers.

VPN

Many employers now let employees connect remotely to the corporate network to send and receive email or share files. To give authorized users secure remote access to corporate servers, companies often create a Virtual Private Network (VPN). To access such a network, you must use a VPN client on your computer. Jaguar supports the Point-to-Point Tunneling Protocol (PPTP) for accessing corporate networks from a remote location over the Internet. PPTP is the same protocol used by many Windows VPN servers, so users on corporate networks secured by Windows-based VPN solutions can now access their corporate networks remotely using Mac OS X. PPTP is also used in a number of UNIX/Linux and Cisco VPN products.

To access the remote network, simply enter the IP address of the VPN server with which you want to connect, then type in your user name and password. For even easier reconnection later, you can store your user name and password in the secure Mac OS X keychain.



Apple provides a built-in VPN client for securely logging on to corporate networks over the Internet.



Active Directory

Mac OS X v10.2 can also be a good client in an Active Directory–based environment. System administrators can use Active Directory to authenticate and manage Macintosh users and systems on their networks.

Native directory services in Mac OS X Server v10.2, called Open Directory, are based on LDAPv3. Open Directory provides a systemwide mechanism for accessing data stored in the most popular LDAP-based directories, including Sun’s One Directory Server, OpenLDAP, Novell’s eDirectory, and IBM’s Directory Server.

Through Open Directory, Mac OS X v10.2 supports a variety of secure authentication protocols to ensure that only valid, sanctioned users can access the computers and data on the network. These authentication mechanisms include Kerberos and X.509 digital certificates. In addition to kerberized login, Mac OS X includes kerberized applications such as Mail, FTP, Telnet, and the AFP client. Open Directory is open source and extensible through plug-ins. Jaguar comes with plug-in support for LDAP, AppleTalk, SLP, Windows, and DNS.

Contextual menu support

Mac OS X supports right-button mouse click and Control-click access to contextual menus.



Use the same digital devices

The Mac comes equipped with USB and FireWire ports, allowing you to connect a wide range of powerful devices. FireWire, the high-speed connectivity technology developed by Apple, has been adopted as an industry standard often referred to as IEEE 1394, 1394, or i.LINK. Regardless of the name, Mac OS X v10.2 has built-in support for a variety of digital camcorders, professional digital cameras, and external storage devices that have adopted this data transfer standard.

You can also connect to digital devices using Bluetooth. Bluetooth is an open specification for a cutting-edge technology that enables short-range wireless connections between desktop and laptop computers, personal digital assistants, and cellular phones—on a globally available band (2.4GHz) for worldwide compatibility. And with Apple’s iSync, you are one click away from syncing your connected devices.

Many devices from leading manufacturers are compatible with the most recent version of Mac OS X. The drivers for over a thousand devices are built into Mac OS X, so your Mac recognizes them as soon as you plug them in. The range of supported devices includes digital camcorders, digital cameras and printers, scanners, mice, ergonomic keyboards, handheld PDAs, game controllers, Zip drives, external storage drives, flash memory readers (CompactFlash, Smart Media, Multi-Media, and Sony Memory Sticks), and floppy disk drives. Because new devices and drivers are continually released, be sure to check the manufacturer’s website or Apple’s website at www.apple.com/downloads/macosx/drivers for the most up-to-date information.

The following table lists some of the many devices designed to work with Mac OS X. You can learn more about these devices at www.apple.com/macosx/upgrade/devices.html.



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Digital devices	Manufacturers
Camcorders	Canon, JVC, Panasonic, Sony
Digital cameras	Canon, Epson, Fuji, HP, Kodak, Minolta, Nikon, Olympus, Pentax, Sigma, Sony
Input devices—Game controllers	CH Products, Gravis, Logitech, Macally, Microsoft, Saitek, Thrustmaster
Input devices—Graphic tablets	Wacom
Input devices—Keyboards	Adesso, Datadesk, Kensington, Kenesis, Logitech, Macally, Microsoft
Input devices—Mice	Kensington, Microsoft, Logitech
Media readers	Belkin, Dazzle, Zio!, Imation, LaCie, Lexar, Memorex, SmartDisk, Sony
Monitors—VGA	AOC International, Compaq, CTX, Eizo, Envision Peripherals, Formac, HP, Hitachi, Iiyama, KDS America, Mag Innovision, Microtronica, Mitsubishi, NEC, Phillips, Planar Systems, Princeton Graphics, Proview, Samsung, Sharp, Sony, Sylvania, Viewsonic
Printers—Inkjet	Canon, Epson, HP, Lexmark
Printers—PostScript	Apple, HP, Xerox/Tektronix, Lexmark
Projectors	3M, Acer, ADI Systems, ASK, Barco, CTX, Epson, InFocus, Numonics, Kodak, Lightware
Scanners	Epson, Agfa, Canon, HP, Microtek, Umax
Storage—FireWire, USB, and expansion bay CD-R drives	Buffalo, BUSlink, CD Cyclone, EZQuest, Fantom, Freecom, I-O Data, Iomega, LaCie, Logitech, MCE, QPS, Ratoc, SmartDisk, Sony, VST, Yamaha
Storage—Floppy drives	Imation, LaCie, Macally, VST

Note: The Image Capture Architecture (ICA) in Mac OS X v10.2 includes support for a broad range of USB and FireWire flatbed and film scanners. Applications that directly support acquiring images from TWAIN devices (requires a Jaguar-compatible TWAIN Data Source, or DS), such as Microsoft Word and Adobe Photoshop, have access to any installed TWAIN DS. The Image Capture application, and programs such as iPhoto that access its capabilities, have access to any installed DS as well as native ICA drivers. Other solutions for scanning in Mac OS X include using a dedicated scanning application or an Adobe Photoshop-compatible plug-in.

Mac OS X v10.2 Jaguar: Wildly innovative

Mac OS X delivers the power and stability of UNIX with the legendary simplicity of the Macintosh. The latest release, Mac OS X v10.2, builds on this innovation and delivers more than 150 new features, including the Quartz Extreme hardware-accelerated graphics engine, QuickTime 6, industry-leading networking technologies, and applications like iChat, iCal, and Sherlock. Expanded compatibility with computers running Windows provides the ability to share files and printers and communicate over Mac, wireless, and PC networks.

* Wireless Internet access requires an AirPort Card or AirPort Extreme Card, AirPort Base Station or AirPort Extreme Base Station, and Internet access (fees may apply). Some ISPs are not currently compatible with AirPort and AirPort Extreme. Actual rates will vary based on range, connection rate, site conditions, size of network, and other factors. Range may vary with site conditions.

For More Information

For more information about the benefits of switching to the Macintosh platform, please visit www.apple.com/switch.

To purchase Apple products, visit the Apple Store online (www.apple.com or 800-MY-APPLE), an Apple Store near you, or an authorized Apple reseller.