Windows Compatibility and Mac OS X

From sharing documents to sharing networks, Mac OS X makes it easy to use your Mac in a Windows environment.
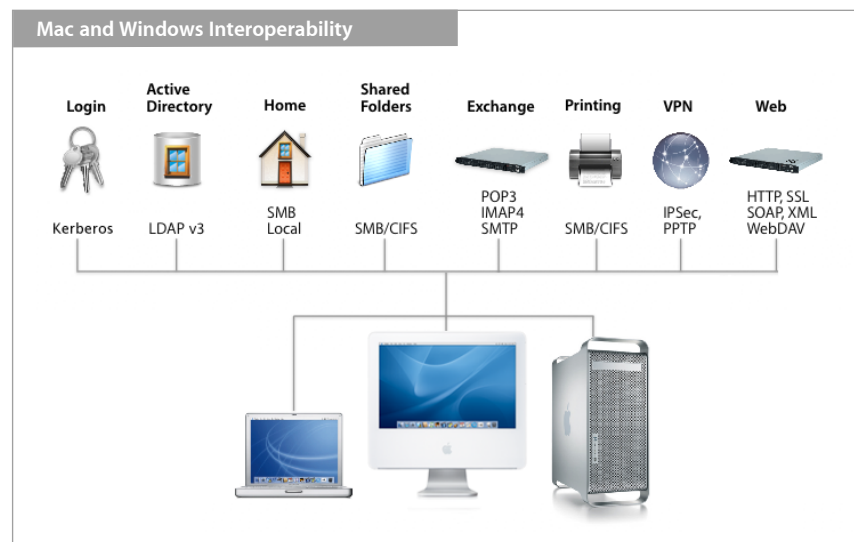
Features

- Use more than 12,000 applications, including Microsoft Office, America Online, and Quicken
- Open, edit, save, and print documents in their native file formats
- Access files on Windows file servers or make files on a Mac available to Windows users
- Share files quickly and easily via email, CD, DVD, floppy disk, Zip disk, Apple's iDisk shared network folder, and wired and wireless networks
- Exchange email (including attachments) with Windows users
- Chat with your online friends and colleagues, including those who use AOL Instant Messenger (AIM)
- Share the same network with Windows PCs using dial-up, Ethernet, or 802.11b/g (Wi-Fi, AirPort Extreme) wireless connections
- Print to a Windows network printer or share a Mac printer with Windows users
- Print to standard inkjet, laser, and network printers
- Work with popular digital devices such as printers, scanners, cameras, camcorders, PDAs, multibutton scrolling mice, and more
- Integrate Mac systems into Windows networks that use Active Directory, Microsoft Exchange, and Kerberos

Mac OS X version 10.4 "Tiger" provides a variety of technologies and features that enable Mac computers and Windows-based PCs to work seamlessly together. With Mac OS X, Mac and Windows computers can easily share files, share the same network, and share the same peripherals, including printers, scanners, and cameras. In managed networks, Mac and Windows systems can connect to the same file, print, mail, web, and directory servers.

This compatibility is based primarily on the use of open standards, but Mac OS X also supports many proprietary Windows protocols, file formats, and other technologies. This support enables Macintosh computers to be used with Active Directory, Exchange mail servers, and Microsoft's VPN server. These technologies are built into Mac OS X, so you can take advantage of them without the expense and trouble of adding software.

So whether you just send email, shop on the Internet, and play a few games, or you work in an office where you transfer files daily, share printers, and exchange information with Windows users, you'll find that your Mac has everything you need to work in a Windows-managed network. You'll also find it easy to access files from your Mac if you need to work on a Windows system elsewhere on your network.

Mac and Windows Interoperability

Login	Active Directory	Home	Shared Folders	Exchange	Printing	VPN	Web
Kerberos	LDAP v3	SMB Local	SMB/CIFS	POP3 IMAP4 SMTP	SMB/CIFS	IPSec, PPTP	HTTP, SSL SOAP, XML WebDAV

Use Familiar Applications

Many of the most popular Windows applications—including AOL, Quicken, and Microsoft Office—are also available for the Mac. Microsoft Office 2004 for Mac includes Word, PowerPoint, Excel, and Entourage (for email, calendar, and contacts) and provides familiar features and shortcut commands also found in Office for Windows. Since Office 97 for Windows, the Mac and Windows versions of Office have used the same files, so no translation is necessary when sharing Word (.doc), Excel (.xls), or PowerPoint (.ppt) documents; they are fully compatible between Mac and Windows systems.

In addition to Microsoft Office, you'll find that you can use more than 12,000 other applications designed specifically for Mac OS X, including some that are not available for Windows. In most cases, you'll be able to create the same document types that you would create on Windows, using the same application.

Share Files

Mac OS X includes a general-purpose word processing application called TextEdit that can open and edit Microsoft Word files. So even if you don't have Microsoft Office on your Mac, you can still edit Microsoft Word files and exchange them with other people.

In addition to Microsoft Office, many other Mac applications use the same file formats as Windows applications, including graphics files (.jpg, .gif, .tiff), audio and video files (.mp3, .mp4, .ra, .wma, .wmv), archived files (.zip), and many more. Mac OS X also allows you to save any document as a PDF (Portable Document Format) file. PDF is the de facto standard for exchanging documents between computers over the Internet. With millions of PDF viewers distributed around the world, you can be sure that your documents can be read using just about any personal computer, including those running Windows.

Mac OS X Tiger makes finding any file on your computer fast and easy with the new Spotlight search technology, which can search for documents created using any computer, including Windows PCs.

CDs and DVDs

One very easy way to transfer files between a Mac and a Windows PC is via compact disc (CD). CDs are small, light, and inexpensive, and they hold more than 600MB of information. Best of all, by default Mac OS X burns discs using the ISO 9660 standard, so they can be read by both Mac and Windows systems. If you have numerous or extremely large documents, you can burn the files on several CDs. Or, if your Mac has a SuperDrive, you can put them on a single recordable DVD disc. DVD discs can store up to 4.7GB—over seven times as much data as a typical CD—and can be read using a PC with Windows 2000 or later.

Removable media and devices

A variety of other removable media and devices can be used to exchange files between Mac and Windows systems, including Iomega Zip disks, USB disk-on-key devices, and removable (external) FireWire and USB hard drives. For best compatibility, these devices should be formatted using the FAT32 file system, which is supported by both Mac OS X and Windows. Mac OS X also supports the ability to read files from devices that use the NTFS file system format.

Share Digital Devices

Windows PCs and Mac computers share two plug-and-play technologies that have become de facto standards for connecting devices to a computer: Universal Serial Bus (USB 1.0 and 2.0) and FireWire (IEEE 1394). Because these technologies are open standards, USB and FireWire devices can be used on either a Mac or Windows computer.

Mac OS X includes software drivers that support more than a thousand USB and FireWire devices, so you can enjoy the very latest and best digital camcorders, digital still cameras, printers, scanners, mice, ergonomic keyboards, handheld PDAs, game controllers, Zip drives, external storage devices, floppy disk drives, and flash memory readers (CompactFlash, Smart Media, Multi-Media, and Sony Memory Sticks). To learn about the compatibility of a particular device, visit the device manufacturer's website or Apple's site at www.apple.com/downloads/macosx/drivers.

Mac OS X also has built-in support for Bluetooth, a wireless technology that gives you cable-free connectivity to digital devices. It enables short-range wireless communication (about 30 feet) between Bluetooth-enabled computers, keyboards, mice, personal digital assistants (PDAs), and mobile phones. Bluetooth works without cables using a globally available radio frequency (2.4GHz). Bluetooth support in Mac OS X makes it easy to use the same Bluetooth devices on your Mac as on a Windows PC.

Share a Network

Whether you want to use a traditional wired network or today's wireless technologies, Mac OS X is ready to put your Mac online.

Wireless networking

Mac OS X includes wireless networking technology based on the IEEE 802.11g specification. This technology, referred to as AirPort Extreme, is compatible with Wi-Fi Certified 802.11g- and 802.11b-enabled Windows PCs and wireless products, so you can share wireless networks with users of other types of computers.[1] It delivers speeds of up to 54 Mbps on Mac systems that have an AirPort Extreme Card (up to 11 Mbps for systems with an AirPort Card) and an AirPort Express Base Station, AirPort Extreme Base Station, or other Wi-Fi Certified 802.11g access point. AirPort-enabled Mac systems also work with wireless networks in schools, offices, and hotels.

High-speed broadband

Mac OS X includes support for high-speed broadband connections over traditional wired Ethernet. Macintosh computers include standard 10/100-Mbps or 10/100/1000-Mbps RJ-45 Ethernet ports and use the identical network cabling as Windows PCs, so you can connect to any standard cable modem or DSL modem. As with wireless networks, the Mac can share the same wired networks and services that PCs use.

Local area networks

You can also use Ethernet to connect a Mac to a local area network (LAN) of Windows PCs, or you can create one yourself by plugging a Mac and a PC into an Ethernet hub. Both systems use the same standard cables (twisted pair with RJ-45 connectors) and hubs (10BASE-T, 100BASE-T, and 1000BASE-T). The LAN can be used to exchange files between computers, to share network devices (such as file servers and printers), and to take advantage of many other network services.

Base station compatibility
Apple's AirPort Extreme Base Station supports not only the AirPort Card and AirPort Extreme Card, but all Wi-Fi Certified 802.11b and 802.11g products—Mac or Windows. Mac OS X enables a Macintosh to become a wireless base station so that Mac and Windows systems can connect to each other or to the Internet in a wireless peer-to-peer configuration without the need for additional equipment.

Virtual Private Networking (VPN)

VPN enables you to connect to your school or business network securely using almost any available Internet service provider (ISP). Using VPN, you can access mail servers, file servers, web servers, and other private network services as if your computer were physically connected to your school or business network. Mac OS X includes VPN client software that supports the popular Layer 2 Tunneling Protocol over Internet Protocol Security (L2TP/IPSec) and Point-to-Point Tunneling Protocol (PPTP), making Mac OS X compatible with popular VPN servers, including those from Apple, Cisco, and Microsoft.
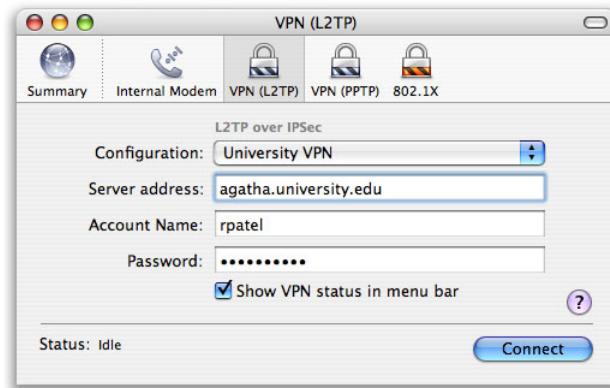
Share Network Services

The networking technologies in Mac OS X are based on the advanced Berkeley Standard Distribution (BSD) UNIX networking stack—the backbone of most TCP/IP implementations on the Internet—for fast, flexible Internet connectivity.

Mac OS X uses standard Internet connectivity protocols, including Dynamic Host Configuration Protocol (DHCP), Point to Point Protocol (PPP), PPP over Ethernet (PPPoE), and PPPoE over AirPort. These protocols enable Macintosh computers to work with services that are already in place in many locations; they are the same protocols used by Windows PCs to connect to the Internet. Because they're built into Mac OS X, setting up your Internet connection with a Mac usually takes only a few minutes. If you're a previous Windows user switching to the Mac, you'll be happy to know that you can do all the things you're used to doing with a PC on the Internet—and more.

Microsoft Exchange Mail compatibility

The Mail application in Mac OS X is compatible with Microsoft Exchange, so you can enjoy the benefits of Mac OS X Mail even if your organization relies only on a Microsoft Exchange Mail Server for its mail services. See page 11 for more information about configuring Mail for use with an Exchange server.

Email

Your Mac can exchange email with Windows computers using popular mail applications like Mac OS X Mail and Microsoft Entourage, and your favorite ISP and services like AOL and MSN (which also have Mac applications). You can send text-only messages, or you can attach files created in other programs, such as spreadsheets, graphics, and word processing documents. By default, Mac OS X Mail uses HTML when composing messages. That's the same default text format used by many Windows email applications, so email you send to or receive from Windows users will appear just as it was intended.

Offline access to messages

Junk mail filter

Receive mail from Windows users

Support for attached files
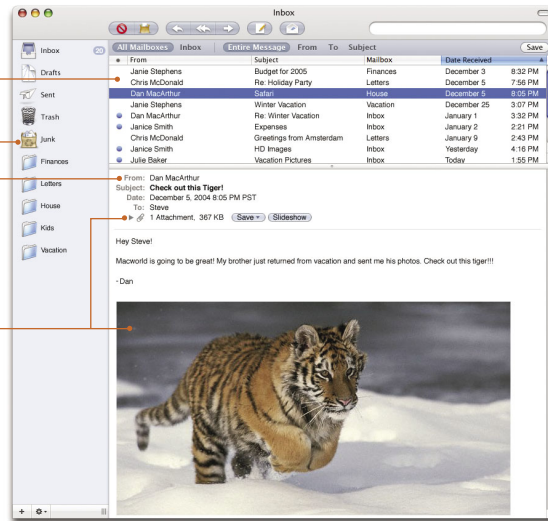
Web browsing

In Safari, Apple has combined the latest web protocols and technologies with an easy-to-use interface to create a web browser offering the performance that seasoned web surfers expect. Mac OS X Tiger and Safari support all the popular web standards—HTML, XHTML, HTTP, HTTPS, FTP, SSL, TLS, SSH, XML, XML-RPC, SOAP, CSS, RSS, Atom, QuickTime, Macromedia Flash, JavaScript, and Java applets—so web pages render quickly and correctly. If you subscribe to AOL or MSN, you'll find that they offer full-featured versions of their client applications for Mac systems.

Supports secure web servers

Imports bookmarks from Internet Explorer
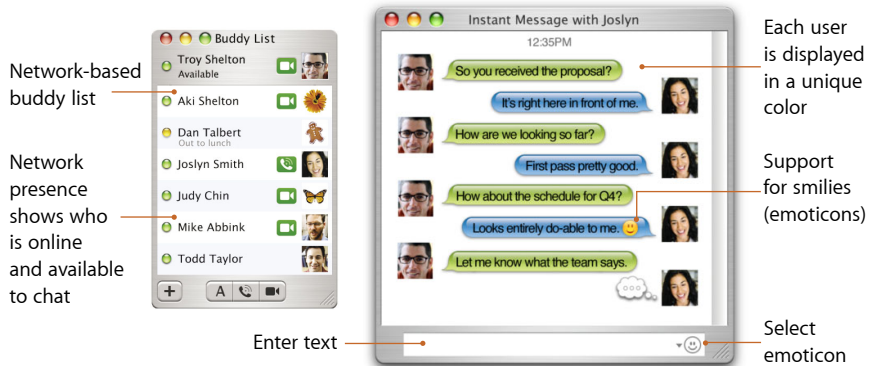
Works with all popular websites
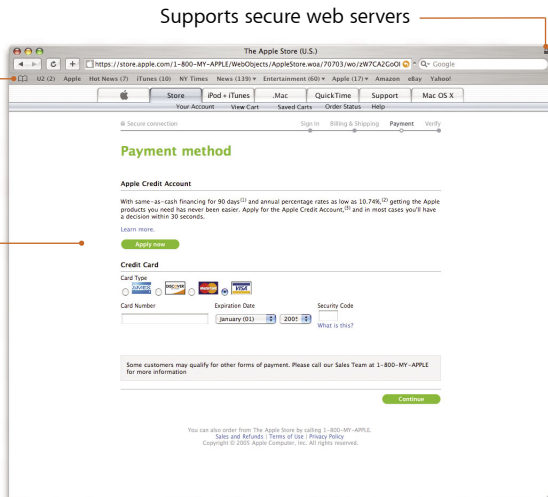
.Mac

Although Apple's .Mac Internet services are best enjoyed on a Mac, many of its features are also available when using a Windows PC. .Mac email accounts use the Internet standard IMAP protocol, which is also supported by nearly every email application on Windows, including Microsoft Outlook and Outlook Express, so you can access your .Mac email account from a Windows PC.[2]

iDisk, the online storage feature of .Mac, uses the Internet standard WebDAV file server technology, which is supported on both Mac OS X and Windows systems. So you can get to your iDisk documents, pictures, and movies from any Internet-connected computer, even a Windows PC.

To make accessing your .Mac account easy no matter where you are, .Mac includes web-based interfaces for many of its features, including Mail, Address Book, HomePage, Bookmarks, iCards, and iCal. You can access those features from any standard web browser on the platform of your choice.

Instant messaging

If you're into instant messaging, or IM, you'll find a variety of Mac solutions that are compatible with popular instant messaging software for Windows, such as AIM, MSN Messenger, Yahoo Messenger, ICQ, and IRC. Mac OS X includes iChat AV, an AIM-compatible application, so you can start chatting right away. With iChat AV you can participate in a number of chat sessions simultaneously, copy and paste text between chat sessions and between documents in other applications, and transfer documents to other chat users. Because iChat uses the same infrastructure as AIM, it supports buddy lists and "network presence," so you'll know when your buddies are available even before you request a chat with them. iChat AV supports text chats and one-to-one video conferencing with AOL Instant Messenger for Windows 5.5 or later, so you can see and hear your coworkers, friends, and family members even if they're using Windows systems.

Network-based buddy list

Network presence shows who is online and available to chat

Enter text

Each user is displayed in a unique color

Support for smilies (emoticons)

Select emoticon

Multimedia

If you enjoy movies, music, and streaming media, you'll find that all the major multi-media players for Windows are also available on the Mac, including QuickTime Player, Real Player, and Windows Media Player. Each of them can run independently, or your favorite browser can open them automatically when you visit a multimedia web page, just as with Internet Explorer in Windows.

Share Servers

Network-based services enable workgroups to collaborate more productively and individuals to access the files and applications they need even when they're away from their usual computer. Mac OS X supports a wide range of popular network services.

File servers

Windows PCs and servers use a networking protocol known as SMB/CIFS. Mac OS X supports SMB/CIFS with an open source technology called Samba. Samba enables a Mac to easily connect to a Windows server or Windows PC that has file sharing enabled. Through file sharing, Mac and Windows computers can open, edit, save, and copy the same files using a folder or directory that's common to both of them.
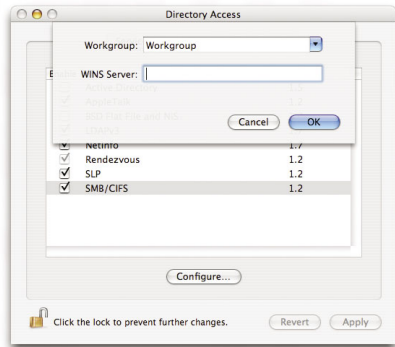
Configuring WINS on a Mac

To make it easier to find a Mac on a Windows network, you can use the SMB option in the Directory Access application to configure the Macintosh computer's Workgroup and WINS (Windows Internet Naming Service) name, so that the Mac appears in a particular domain (location) on the network.

Click here to browse for a Windows file server

Double-click to access the server

Available servers appear here
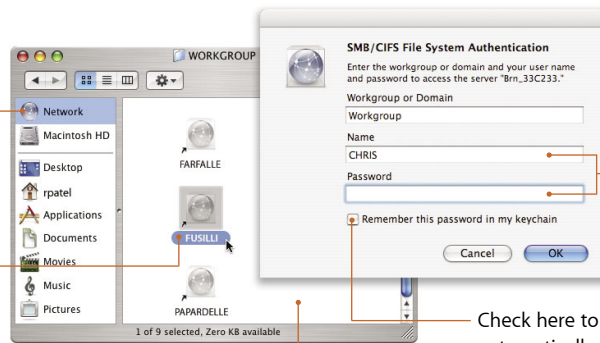
Enter the Windows server user name and password to authenticate

Check here to authenticate automatically next time

Through Samba, Mac OS X users can also provide Windows users with access to the files on their Mac systems. Shared Mac folders or volumes appear in a Windows user's Network Places—just like a Windows server—enabling Windows users to browse folders and share files without having to install any additional software. Mac OS X also offers support for native Windows access control lists, so on Windows-managed networks with sophisticated access permissions, Mac OS X fully respects the controls put in place—just like a Windows computer.
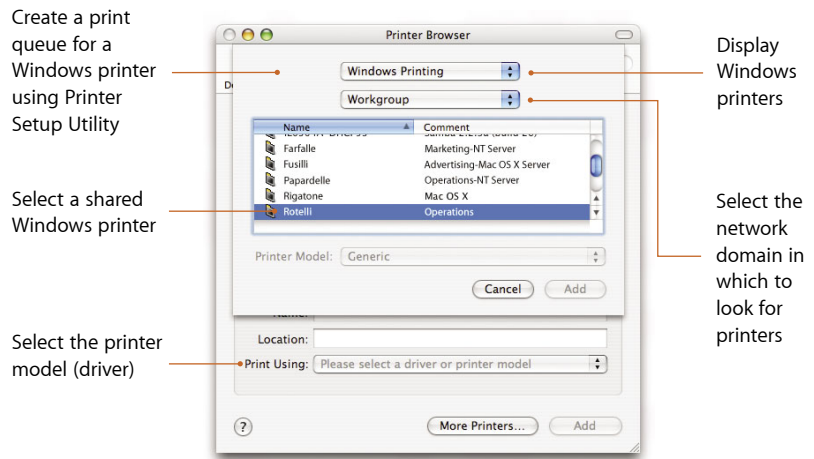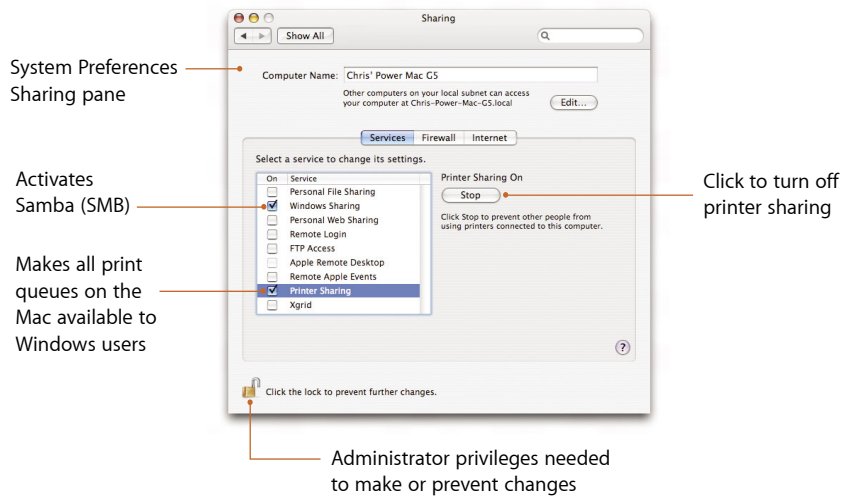
Add a Mac the same way you add a Windows server
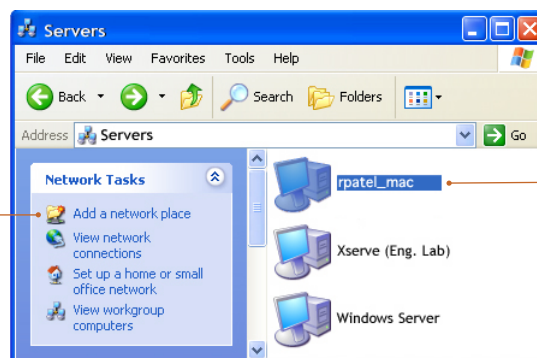
The file-sharing Mac appears in Network Places on a PC

Print servers

SMB/CIFS support also provides the basis for Mac compatibility with shared Windows printers. Through Samba, shared Windows printers appear in the Mac OS X Printer Setup Utility, so they can be added to the Mac in the form of a local printer queue. You can create a queue for as many shared Windows (and Mac) printers as you like, and any application that can print on the Mac can print to the shared printer via the queue. Printer vendors provide Mac drivers with new printers or make them available on their websites, and for several hundred of the most of the popular printers, the appropriate printer drivers are already included in Mac OS X, so you don't need to install any additional software.

Create a print queue for a Windows printer using Printer Setup Utility

Display Windows printers

Select a shared Windows printer

Select the network domain in which to look for printers

Select the printer model (driver)

It's even easier to share a printer connected to your Mac with networked PCs. Just turn on the Printer Sharing and Windows Sharing options in Mac OS X Sharing preferences. The printer queues you've already configured for your Mac will be made available to other Mac and Windows systems on the network. Windows users can create a queue for a Mac printer the same way they do for a shared Windows NT printer server, using the print wizard built into Windows. Because the Mac uses the same SMB/CIFS protocol as Windows, no additional software is necessary on the Mac or PC.

System Preferences Sharing pane

Activates Samba (SMB)

Makes all print queues on the Mac available to Windows users

Click to turn off printer sharing

Administrator privileges needed to make or prevent changes

Standards-based networks

Open standards are designed to deliver seamless interoperability between solutions from different vendors, giving computer buyers the freedom to choose the best solutions for their needs. Modern computer networks thrive on a heterogeneous mix of computers that not only deliver optimally matched solutions, but also ensure resilience in the face of unexpected system failures and security breaches. Apple believes in open standards and uses them throughout Mac OS X, making Mac OS X the most interoperable operating system available today and an important component of any modern network.

Information technology managers should always choose open, standards-based solutions when deploying new technologies on their networks. Many companies have invested heavily in other network services and now find themselves locked into expensive, inflexible, and proprietary solutions. Mac OS X delivers both an open, standards-based desktop operating system and broad support for connectivity to Microsoft network services, making it the ideal client for any managed network. Mac OS X also provides a bridge from proprietary Microsoft network solutions to less expensive, more flexible standards-based solutions, by allowing network managers to add new standards-based solutions while continuing to support their legacy Microsoft solutions. In fact, replacing a Windows desktop with a Mac can be as easy as plugging in the Ethernet cable.

Windows-managed networks

Many organizations operate "managed networks," which enable them to automate and simplify the process of adding personal computers to their network, assign user access privileges, and authenticate users. With support for Open Directory in Mac OS X, Mac systems integrate with any LDAP server as well as with Kerberos for strong authentication. Mac OS X also has built-in support for Microsoft's proprietary Active Directory services. Those services include Microsoft Kerberos (MSK) authentication (single sign-on), Active Directory authentication policies (such as password changes, expiration, and forced password changes), and Active Directory replication and failover. (Mac OS X can also discover multiple domain controllers and automatically determine the closest one. If a domain controller becomes unavailable, Mac OS X uses another nearby domain controller.) Most important, Mac computers can be added to an existing Active Directory network without the need for additional software or any changes to the Active Directory server (schema).
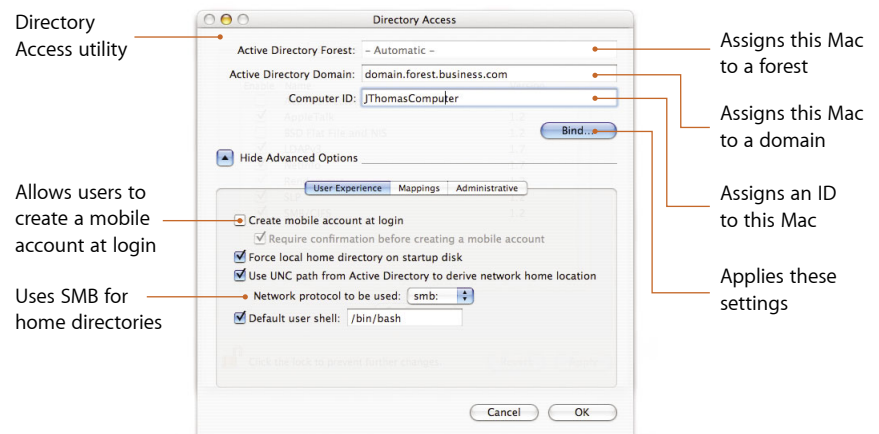
Some organizations may also choose to use directory services to automate and manage the full configuration of Mac OS X user, group, and computer accounts; user home directories; and managed preference options. Directory services used in this manner have several advantages: They present a uniform computing experience to each user, help reduce troubleshooting and technical support costs, and provide enhanced security.

For centralized management of Mac systems, Apple recommends Mac OS X Server v10.4, which includes an array of tools that are unmatched for managing Mac clients in a networked environment. However, Mac clients can also be managed on networks that rely exclusively on Active Directory. Although some additional configuration is required to the Active Directory schema to include the records and attributes necessary to manage Mac clients, it is easily accomplished, and Mac OS X even includes command-line tools to assist administrators who prefer to use scripts to automate the process.

Authentication

Many network services and applications require you to authenticate your identity by entering a user name and password before you can access or use them. For instance, you need to authenticate to log in to a computer. To reduce the administrative overhead of managing large numbers of users and applications, each with different authentication credentials, many organizations centralize authentication using a Kerberos server. One of the most significant benefits of a centralized Kerberos authentication server is single sign-on. Simply entering your user name and password to log in allows you to securely access "Kerberized" services on your network.

Mac OS X fully supports network-based authentication using MIT Kerberos and Microsoft's proprietary MSK server (included with Active Directory), and it includes Kerberized applications such as Login, Mail, AFP, FTP, SMB, and SSH that can be accessed via single sign-on.

If you use a portable computer, you can still enjoy the benefits of centrally managed authentication and single sign-on. In this case, Mac OS X can be configured so that your authentication credentials are securely cached on your Mac. This caching enables you to continue to use your computer even when it is disconnected from the network—the perfect solution for using an iBook or PowerBook on a managed network.

Mac OS X also includes support for the legacy Microsoft authentication protocols NTLMv1 and NTLMv2. These protocols allow authentication to Windows file servers on networks that do not have a Kerberos-based authentication server.

Network home directories

In conjunction with network authentication and network user accounts, many organizations implement network-based home directories. Instead of saving the files, applications, preferences, and other contents of your home directory on your personal computer, the contents are stored on a file server. This provides two benefits. You can access your home directory from any computer that's handy, and your files are typically backed up when the server is backed up. For administrators, network home directories simplify adding new computers to the network and reduce administrative overhead. Mac OS X includes built-in support for network home directories stored on Apple (HFS), UNIX (NFS), and Windows (SMB) servers. No changes are required to the server to support the Mac.

For optimum performance, Apple recommends storing Mac network home directories on an AFP or NFS server. In cases where these services are not available, network home directories can be stored on an SMB server. One added benefit of using an SMB server is that you can access your files using either a Mac or a Windows PC. This is ideal if you work in a mixed-computer environment with both Mac and Windows systems, because you can access all of your personal files and system preferences using either type of computer.
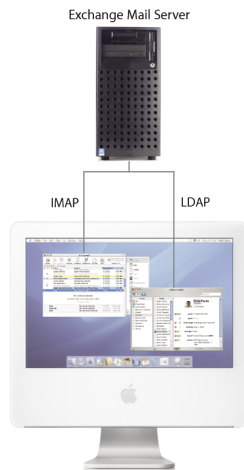
Microsoft Exchange mail and contacts

If your network's mail services rely on Microsoft Exchange Server (2000 or later), you can use Mac OS X Mail or Microsoft Entourage to send and receive email. Mac OS X Mail is a robust email client that features extraordinary Spotlight search capabilities, integration with applications like iChat and Address Book, and a smart spam filter, making it a great choice for those who rely on Internet mail.

Mail uses IMAP, an open standard Internet protocol, to communicate with Microsoft Exchange. Because Microsoft Exchange Server ships with IMAP enabled, configuration of your Mac Mail client is easy. When creating a new account in Mail, simply choose Exchange from the account types list and enter the appropriate Exchange server account name, password, and mail server address. Not only can you send and receive mail messages, you can also choose to leave them on the server for access from a variety of computers, or download them so you can review and respond to them when you're on the road.
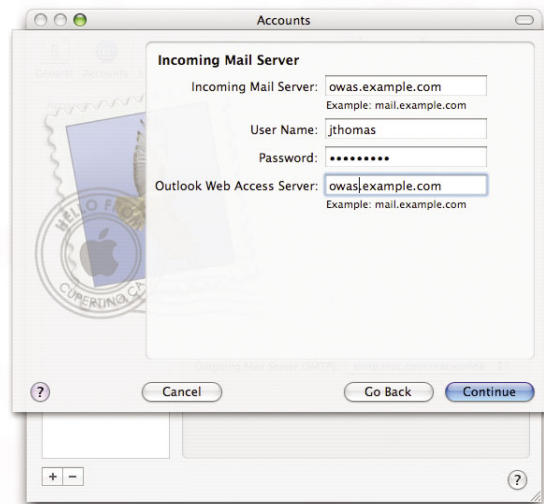
You can also configure Mac OS X Address Book to automatically synchronize with an Exchange server, so you'll have access to the same contact information on your Mac as you have stored on the Exchange server. Because Address Book is used by many other Mac applications, you'll have access to the same list of contacts in those applications. In addition, Microsoft offers Entourage for Mac, available separately and included in Microsoft Office 2004 for Mac. It's very similar to Outlook for Windows, works with the Microsoft Exchange mail server, and enables you to schedule meetings, synchronize your calendar and address book with the server, and look up email addresses in the server's global address list.

Move to the Mac—Easily

It's easy to switch from a Windows computer to a Mac. A great place to start is with Move2Mac by Detto. Move2Mac transfers files from your PC to your new Mac and puts everything just where you need it. Tracks from "My Music" on your PC go into the Music folder on your Mac; clips in "My Videos" move to the Movies folder; images in "My Pictures" show up in your Pictures folder; items in "My Documents" relocate to the Documents folder on your Mac. Move2Mac transfers your Internet Explorer home page and bookmark files, as well as desktop backgrounds and even your dial-up Internet connection settings, from your PC to your new Mac. It includes software for both the PC and Mac and a special USB cable for speeding the data transfer—up to 500MB of data from your PC to your Mac in 15 minutes. To learn more about switching to the Mac, visit Apple's web page at www.apple.com/switch.

Mac OS X Version 10.4 "Tiger": Power of UNIX, Simplicity of Macintosh

Mac OS X Tiger features enhanced Windows compatibility, so you can share files, print, and access Windows networks seamlessly, with no added cost and no headaches. In addition, Tiger offers more than 200 innovative new features, including Spotlight, a new desktop search technology that instantly finds anything on your computer; Automator, for easily automating complex or repetitive tasks; and Dashboard, which provides desktop accessories that instantly appear on your screen with the touch of a key.

For More Information

For more information about Windows compatibility and other features of Mac OS X, visit www.apple.com/macosx.