

Setting Up Your Power Mac G4

Includes setup and expansion information
for Power Mac G4 computers

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Sherlock’s Yellow Pages channel may be known by a different term outside the United States.



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Setting Up

Congratulations on purchasing your new Power Mac G4 computer. Your Power Mac G4 is a full-featured computer that includes the latest in computer technology such as FireWire, USB, support for AirPort wireless networking, and the latest Macintosh operating system, Mac OS X. This chapter contains instructions for setting up your computer and display.

Positioning the Computer and Display

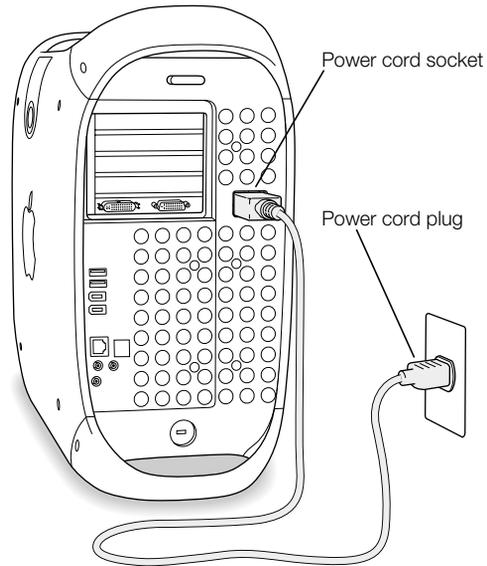
You can pick up the computer by any of its handles. If your monitor (or display) is heavy, be sure to use correct lifting techniques when positioning it. Position the computer and display so that

- they are on sturdy, flat surfaces
- the power cable connectors don't press against a wall or other object
- nothing obstructs air flow behind or below the display or computer
- the computer's optical drive trays have space to open in front

Important The only way to shut off power completely to your computer and display is to disconnect their power plugs from the power source. Make sure the power cords for your computer and display are within easy reach.

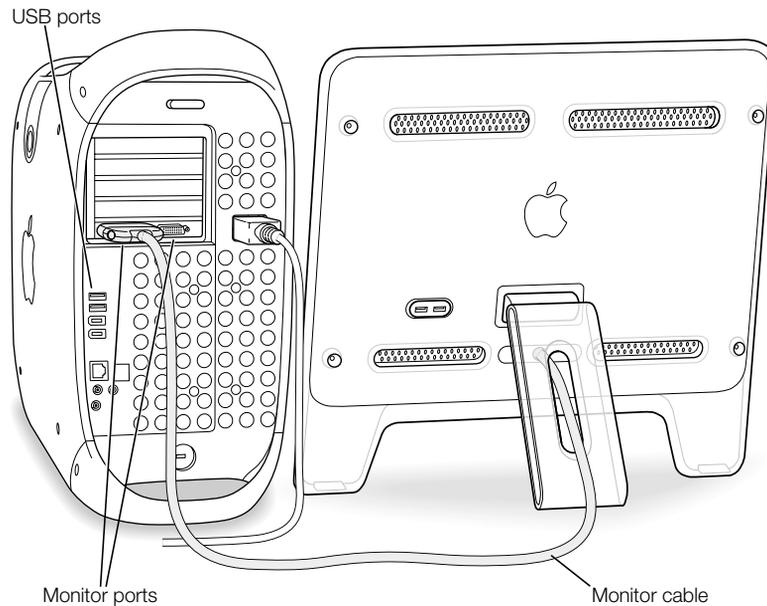
Plugging In the Computer

- 1 Plug the power cord firmly and completely into the recessed power socket marked with the symbol \sim on the back of the computer and plug the other end into a grounded outlet or power strip.



- 2 Connect your display cables according to the following illustration:

Important Depending on your monitor, you may have one or more cables to connect. Check the instructions that came with the monitor for further setup information.



Your video card has these monitor ports:

- An Apple Display Connector (ADC) port to connect Apple flat-panel displays
- A Digital Visual Interface (DVI) port to connect digital displays that have DVI connectors



ADC monitor port

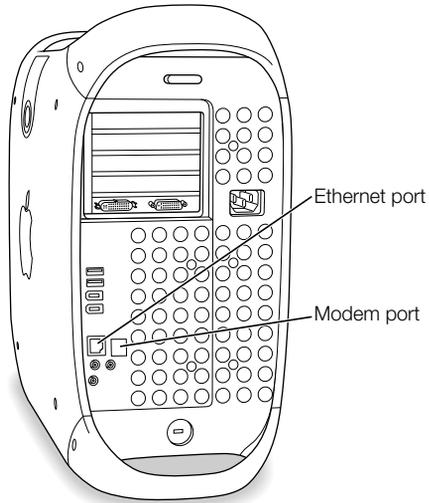


DVI monitor port

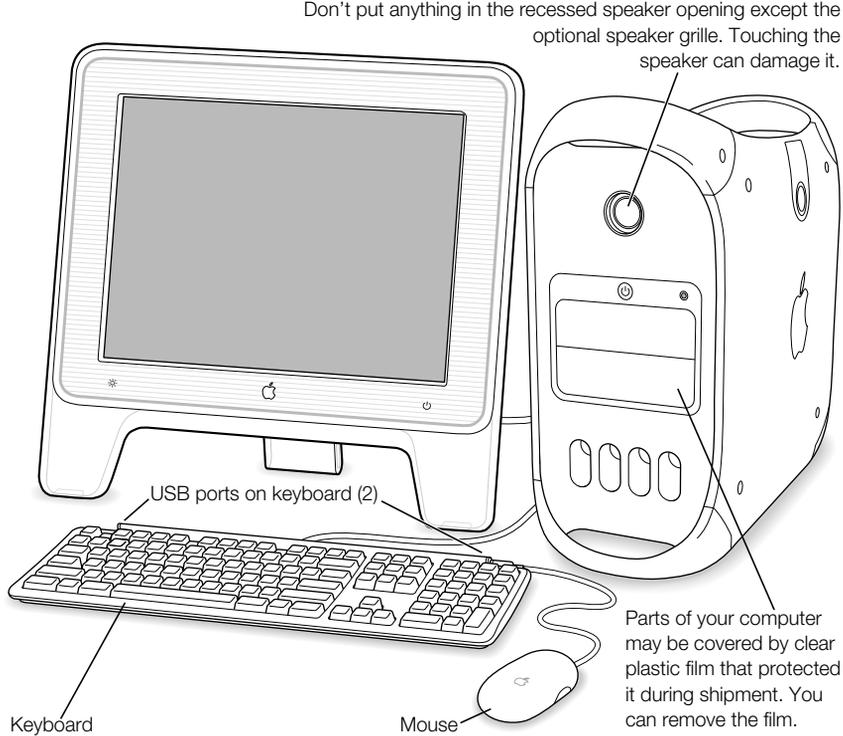
- To connect a VGA monitor, use a DVI to VGA adapter (supplied with your computer) to connect the monitor to the DVI port
- To connect a second ADC display, use a DVI to ADC adapter (not included) to connect the display to the DVI port.

For more information about connecting a second display, see the guidelines in Chapter 4, “Using Your Computer.”

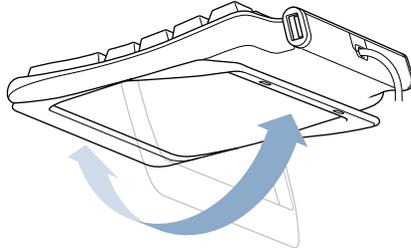
- 3 If required, connect your computer to your Ethernet network or to your DSL or cable modem; or connect your modem port to a phone line.



- 4 Connect the keyboard cable to one of the USB ports (⌘) on the computer or on your display. Plug the mouse cable into a USB port on the keyboard.



If you wish, raise the keyboard by lifting it and flipping the foot toward the back.



- 5 Turn on your computer by pressing the power button (⏻) on the front of the computer. With some Apple displays, you can also turn on the computer using the display's power button.
 - If your display must be turned on separately, turn it on by pressing its power button.

Need Help?

If you don't see anything on your screen or you think your computer did not start up properly, check these items:

- Is the computer plugged into a power source? If it is plugged into a power strip, is the power strip turned on?
- Is the power cord securely plugged into the back of the computer?
- Are the keyboard and display cables connected correctly?
- Is the power button lit on the front panel of the computer and on the display? If not, the computer or display isn't receiving power or is off.
- Is the display turned on? Are the brightness and contrast controls on the display adjusted correctly? If your display has brightness and contrast controls, adjust them.
- Restart your computer. Press and hold the computer's power button for approximately 5 seconds until the computer turns off. Press it again to turn the computer on.
- If you see a blinking question mark on the screen or hear a series of beeps when you turn on the computer, see Chapter 6, "Troubleshooting," on page 95.

When You're Not Using the Computer

Your computer is set to go to sleep after a period of inactivity. Sleep is a state in which your computer is on but uses very little power. To wake your computer from sleep, press any key. You can also put the computer to sleep whenever you want, or set your computer so it never goes to sleep. For more information on sleep, see “Putting the Computer to Sleep to Save Energy” on page 64.

If you're not going to use the computer for a few days, you should turn it off.

To turn off your computer, choose Shut Down from the Apple (🍏) menu.

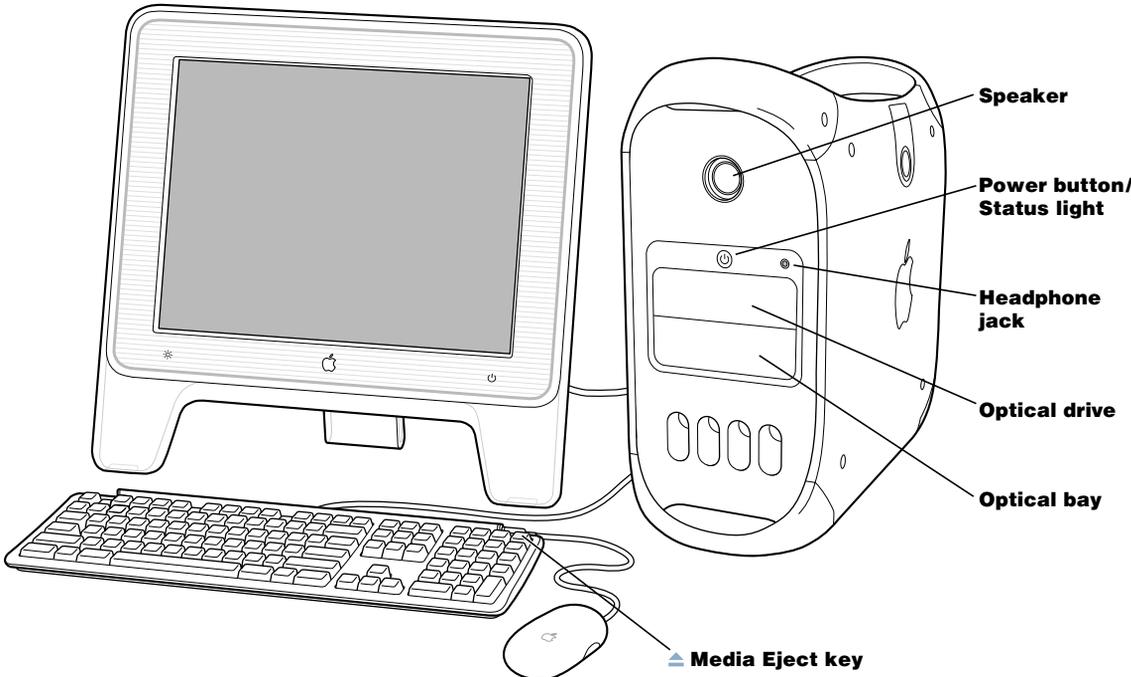
Important Do not turn off the computer by turning off the switch on a power strip or by pulling the computer's power plug (unless you can't turn off the computer any other way). Your files or system software could be damaged if your computer is not shut down properly.

Adjusting Your Display

To adjust the settings for your display, choose System Preferences from the Apple (🍏) menu and click Displays.

For information about troubleshooting your display, see “Problems With Your Display” on page 98. For information about maintaining your display, see “Maintaining Your Display” on page 110. Additional information about using your display is available in Mac Help.

Getting to Know Your Computer



Speaker

Use the recessed internal speaker to hear sound from the computer. Take care not to let anything touch the fragile speaker mechanism. To protect the speaker from damage, a speaker grille is included with your computer. However, you'll receive better sound quality without the grille.

**Power button/Status light**

Press this button to turn on the computer or wake it from sleep. When the computer is on, press the power button to put the computer to sleep. A white light indicates that the computer is on. A pulsing light indicates the computer is in sleep. To restart your computer, press and hold this button for approximately 5 seconds until the computer turns off, then press it again to turn the computer on.

With some Apple displays, you can also touch or press the monitor's power button to turn the computer on or put it to sleep.

**Headphone jack**

Connect headphones to your Macintosh through the headphone jack.

Optical drive

Your computer may have a CD-RW drive, a Combo drive (DVD-ROM/CD-RW), or a SuperDrive (DVD-R/CD-RW). All three kinds of drives can read CD-ROM discs, Photo CDs, standard audio discs, and other kinds of media. The DVD-ROM/CD-RW drive and SuperDrive can also read DVD discs and DVD movies and write music, documents, and other digital files on CD-R and CD-RW discs. The SuperDrive can also write on blank DVD-R discs. To open the optical drive, press the Media Eject (⏏) key on your Apple Pro Keyboard.

Optical bay

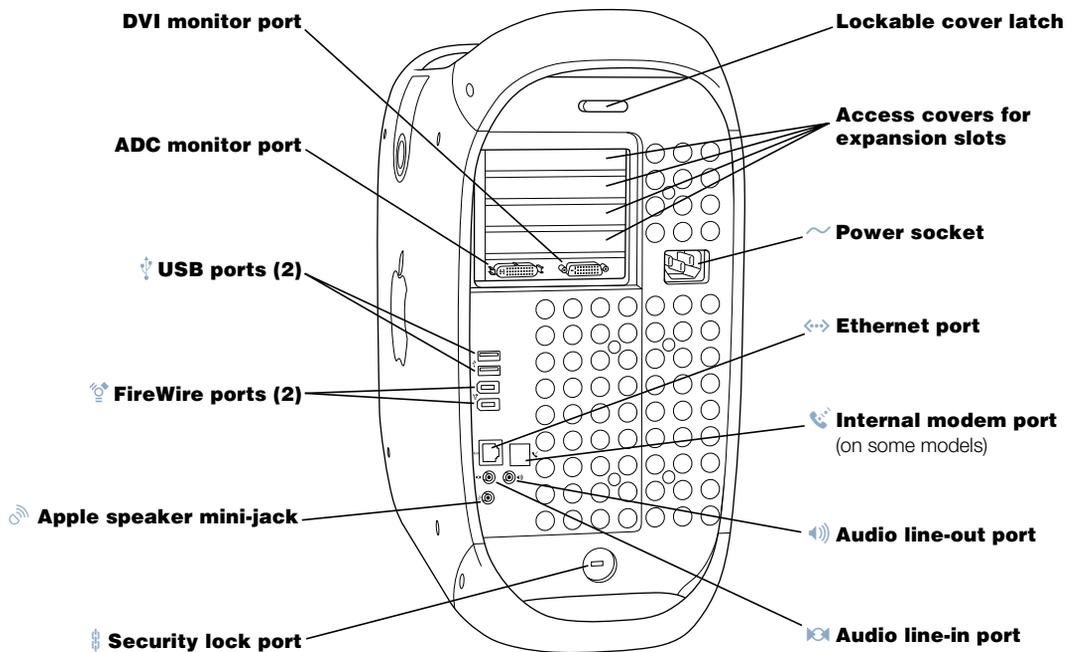
Add a second optical drive to store and back up information. To open the second optical drive, press the Option key, then the Media Eject (⏏) key on your Apple Pro Keyboard.

**Media Eject key**

Use the Media Eject key on the Apple Pro Keyboard to open the optical drive and eject CD and DVD discs.

With Mac OS X, you can also use the F12 key on some third-party keyboards to eject discs and open the top optical drive. When a second optical drive is installed, use the F12 key and the Option key to eject discs and open the drive.

Ports and Connectors—Expanding Your Computer's Capabilities



 **Monitor ports**

Connect your Macintosh to monitors that use an Apple Display Connector (ADC) or a Digital Visual Interface (DVI) connector. You can also connect your Macintosh to monitors that use a video graphics connector (VGA) with the DVI to VGA adapter that came with your computer.

 **USB ports**

Connect your Macintosh to USB devices, such as keyboards, mouse devices, printers, scanners, speakers, USB microphones, and USB hubs. Your display may also have USB ports for connecting USB devices.

 **FireWire ports**

Connect your Macintosh to FireWire devices, including digital video cameras, scanners, and hard disk drives. FireWire provides a high-speed method of data transfer between them all.

 **Apple speaker mini-jack**

Connect your Macintosh to high-fidelity Apple Pro speakers to play stereo music and sound for multimedia, games, audio CDs, and more. See “Adjusting the Sound Volume” on page 57 for information about using your speakers.

 **Security lock port and lockable cover latch**

Attach a security lock to your Macintosh and to its back panel to secure the internal components. When the lockable cover latch is pulled out, you can insert a security cable or lock to prevent the computer cover from opening. See your computer products retailer for security lock devices that will work with your computer.

Access covers for PCI expansion slots (4)

Expand your Macintosh by installing up to four Peripheral Component Interconnect (PCI) cards in the covered slots, labeled 2, 3, 4, and 5. In some configurations, an Ultra160 low-voltage differential (LVD) SCSI card is installed in one of these slots.

 **Power socket**

Connects to the computer’s power cord.

 **10/100/1000 twisted-pair Ethernet port**

Connect your Macintosh to a high-speed Ethernet network to access the Internet or network resources, such as printers and servers, and share information over the network.

 **Internal modem port**

Connect a phone cord to the internal modem.

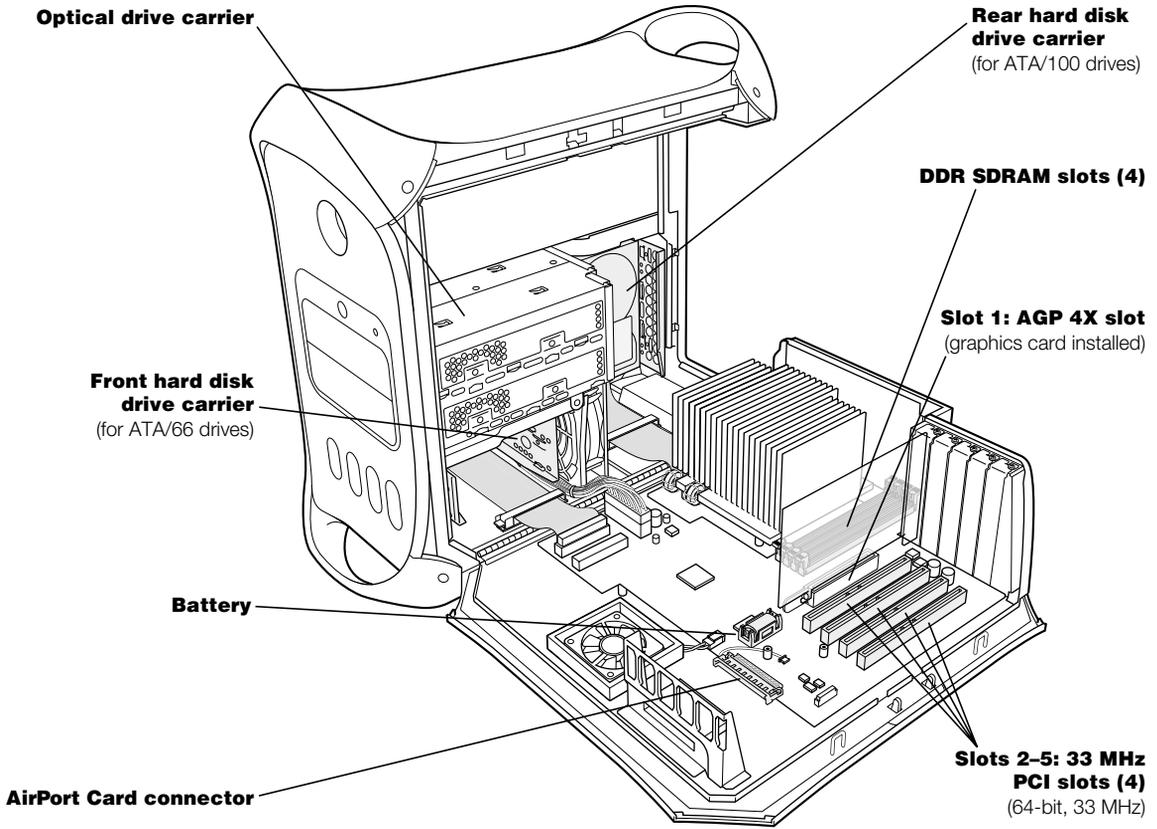
 **Audio line-out port**

Connect externally powered speakers or audio devices to your Macintosh through the audio line-out port.

 **Audio line-in port**

Connect self-powered microphones and other audio equipment to your Macintosh through the audio line-in port.

Inside Your Power Mac—Your Computer's Internal Expansion Options



Optical drive carrier

Install a second optical drive in the lower section of the optical drive carrier inside your computer.

Front hard disk drive carrier

Install additional hard disk drives in the front drive carrier inside your computer. You can install up to two ATA/66 drives or up to two SCSI drives in the front carrier.

Battery

Your computer uses a battery that you rarely replace. If you find that your computer is having trouble starting up, or that the system date and time are frequently incorrect, you may need to replace the battery. For more information, see “Replacing the Battery” on page 92.

AirPort Card connector

Connect an AirPort Card, which allows your computer to communicate with a wireless network.

Rear hard disk drive carrier

Install additional hard disk drives in the rear drive carrier inside your computer. You can install up to two ATA/100 drives or up to two SCSI drives in the rear carrier.

DDR SDRAM slots

Expand your computer’s memory up to 2 GB. Add additional memory in your computer by inserting up to 4 DDR SDRAM DIMMs in the memory slots.

AGP 4X graphics slot

Connect your monitor through the advanced graphics port (AGP 4X) card, which provides fast graphics processing power. You can connect a monitor that has an Apple Display Connector (ADC) or a Digital Visual Interface (DVI) connector.

PCI expansion slots

Install up to four 64-bit, 33 MHz PCI cards in slots 2 through 5 to expand your computer’s capabilities.

What's Next?

- To make connecting your new computer to the Internet easier, have the necessary information from your Internet service provider handy and run the Setup Assistant when you first start up your computer. For more information, see Appendix C, “Connecting to the Internet.”
- For an overview of your computer’s software features, see Chapter 2, “Getting Started With Your Computer,” on page 21.
- For information about your Macintosh operating systems, including instructions on how to switch between Mac OS X and Mac OS 9, see Chapter 3, “Working With Your Operating System,” on page 45.
- For more information about using your modem, connecting to a network, or using the computer’s other hardware features, see Chapter 4, “Using Your Computer,” on page 49.
- For information about installing additional drives, memory, or PCI cards or changing the computer’s battery, see Chapter 5, “Working Inside Your Computer,” on page 67.
- To register your new computer with Apple, use the Setup Assistant. You can also register your computer, Apple display, or Apple software on the Apple website at www.apple.com/register

Getting Started With Your Computer

If you're eager to get started and want to try out a few things, this chapter is for you. It provides an overview of your computer's software features along with the unique Internet services available to Mac owners.

Your computer comes with two Macintosh operating systems installed: Mac OS X and Mac OS 9. Your computer is set to start up in Mac OS X, but you can set it to start up in the Mac OS you prefer, and then easily switch between the two. For instructions on how to switch your startup Mac OS, or for more information about the operating systems on your computer, see Chapter 3, "Working With Your Operating System," on page 45.

Mac OS X includes powerful features that you can use to connect to the Internet to watch video, research information, shop, and even update your software automatically. With your Power Mac G4, you also get some of the latest Apple software for creating multimedia masterpieces. Use Mac OS X and iPhoto to import, organize, edit, and share your digital photos. Connect your digital video camera and create your own desktop movies with iMovie, create a DVD of several iMovies and digital photos using iDVD (if you have a SuperDrive), or play music files with iTunes.

Apple also provides Internet services that give you storage space on the Internet, a personal Mac.com email address, tools to easily create your own website or iMovie theater, and more.

Note: Because Apple frequently releases new versions and updates to its system software, applications, and Internet site, images shown in this manual may be slightly different from what you see on your screen.

For the Latest Information

The Apple website links you to technical support, the latest Apple news, free downloads, and online catalogs of software and hardware for your Mac at www.apple.com

You can also find the manuals for many Apple products on the AppleCare Service and Support website at www.apple.com/support

About Mac OS X

Apple menu

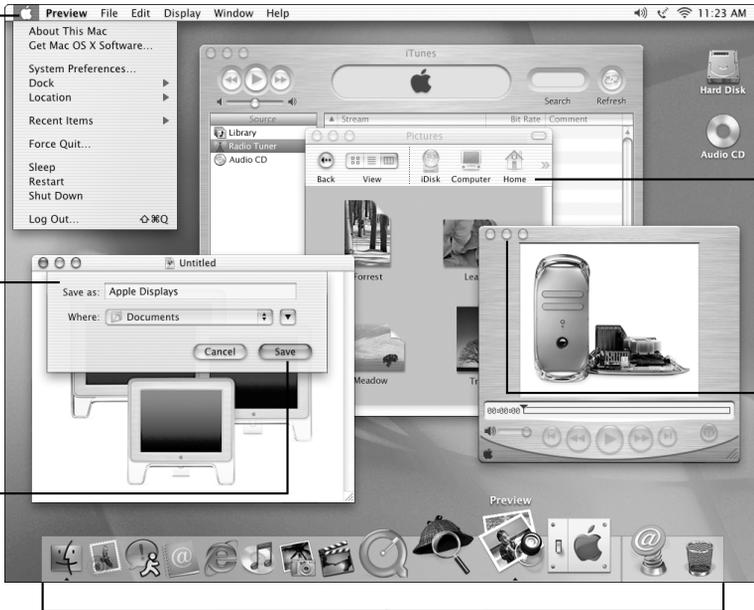
Use this to change settings, open recently used items, and shut down your computer.

Sheet

Sheets for saving and printing are attached to document windows.

Button

If a button pulses, you can press the Enter or Return key instead of clicking it.



Status icons

Check the status of system preferences from the menu bar.

Finder toolbar

Click to open folders, files, and shortcuts to places on your computer.

Window with buttons

Click a button to close the window, minimize it in the Dock, or enlarge it.

Dock

Click an icon in the Dock to open that item or make it active. Some icons in the Dock indicate the status of an application.

What You Can Do

Mac OS X provides a powerful and elegant new user interface for your computer. With Mac OS X, you don't need to worry about the amount of memory to allot for an application to run efficiently, or restarting your computer if something goes wrong with an application. In addition to using Mac OS X software, you can still run Mac OS 9 versions of software in Mac OS X using the Classic environment. Chapter 3, "Working With Your Operating System," on page 45 explains Classic in more detail. Mac OS X also supports Java and UNIX-based software.

To Get Started

System Preferences is your command center for all of your computer settings, from changing the appearance of your desktop to setting up network access information. The Finder and Dock provide easy access to folders, applications, documents, and other items on your computer and network.

For details on the features of Mac OS X, see the *Welcome to Mac OS X* book that came with your computer or choose Mac Help from the Help menu in Mac OS X.

Tips and Tricks

Personalize the Finder

Select a picture or color for your desktop by choosing System Preferences from the Apple () menu and clicking Desktop. You can drag an image to the well or choose one from the Apple Background Images collection.

You can also select and rearrange the items that appear in the toolbar in Finder windows. Choose Customize Toolbar from the View menu and drag items to the toolbar.

Personalize the Dock

You can change the size of the Dock icons and turn on magnification so that the icons under your pointer become larger than the rest of the Dock. Choose Dock from the Apple () menu, then choose Dock Preferences. You can also open System Preferences from the Apple () menu and click Dock.

Keep your desktop organized

Reduce the clutter on your desktop by minimizing open windows, which puts them in the Dock. Double-click a window's title bar or click the middle button in the top-left corner of the window to put it in the Dock. Click the window's icon in the Dock to open it again.

To Learn More

For instructions on how to customize your Mac OS X environment and for more information about using Mac OS X, see the *Welcome to Mac OS X* book that came with your computer.

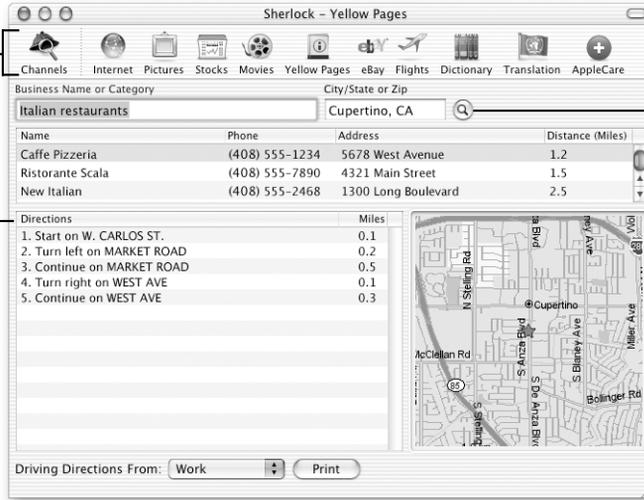
Sherlock—Your Internet Search Detective

Sherlock channels

Use the yellow pages channel to search for businesses in your location.

Directions

Sherlock displays driving directions and maps to the business you choose.



Search button

After you type what you are looking for, click this button to start the search.

What You Can Do

Sherlock is your search detective and personal shopper on the Internet. It provides an easy way to find people, news, and just about anything. Shop for books and music, search auction sites, find the best prices—even check product availability. Use the Movie channel to search for movies in your local theaters, watch movie trailers, and buy tickets.

To Get Started

- 1 Connect to the Internet.
- 2 Open Sherlock by clicking the Sherlock icon in the Dock.
- 3 Select a Sherlock channel.
- 4 Type what you are looking for and click the Search button.

Tips and Tricks

Add locations in Sherlock Preferences

Some information in the channels may change based on the location you are searching from. To add a location to Sherlock:

- 1 Choose Preferences from the Sherlock menu.
- 2 Click Add and give the new location a name and address.

To Learn More

To learn more about what you can do with Sherlock, open Mac Help and search for “Sherlock.” To download additional search plug-ins and find out how you can create your own Sherlock plug-in, go to the Sherlock website at www.apple.com/sherlock

Note: Sherlock’s Yellow Pages channel may be known by a different term outside the United States.

.Mac—Internet Services for Mac Users



Email

Get your own Mac.com email address. It's easy, and it works with your favorite email programs.



iCards

Send an elegant iCard just right for any occasion. Choose a ready-made photo or create a personalized iCard using photos on your iDisk.



iDisk

Your own storage on Apple's Internet server. Share photos, movies, and other files over the Internet. Purchase additional storage space.



HomePage

Build a personal website in three easy steps. Create a photo album, publish an iMovie, post your résumé, and more. Now anyone can view your page on the Internet.

What You Can Do

.Mac is a suite of Internet services from Apple created exclusively for Mac users. With .Mac, you can send email or greeting cards to your friends, make the Internet safer for your children, and share photos and movies. You can even create your own website.

To Get Started

- 1 Connect to the Internet.
- 2 Go to www.apple.com
- 3 Click the .Mac tab and then click the Sign Up button.

Tips and Tricks

Upload pictures to your iDisk to create custom iCards

You can send iCards with your own custom pictures. Save your images as GIF or JPEG files and then copy them to the Pictures folder on your iDisk. Your images will appear as picture choices when you create an iCard in the Create Your Own section.

Start with a HomePage template to create your own web page in minutes

HomePage has web page templates that you can modify with your own text and images. For example, teachers can use the HomePage education templates to post recent class news, homework assignments, and other information for parents. You can also use the HomePage photo album and iMovie templates to share your pictures and movies easily with your friends and family.

Create an alias of your iDisk for easy access

Instead of using a web browser to open your iDisk, choose iDisk from the Go menu. You can also add an iDisk icon to the Finder toolbar. Choose Customize Toolbar from the View menu, then drag the iDisk icon to the Finder toolbar and click Done.

Use .Mac to control access by other users

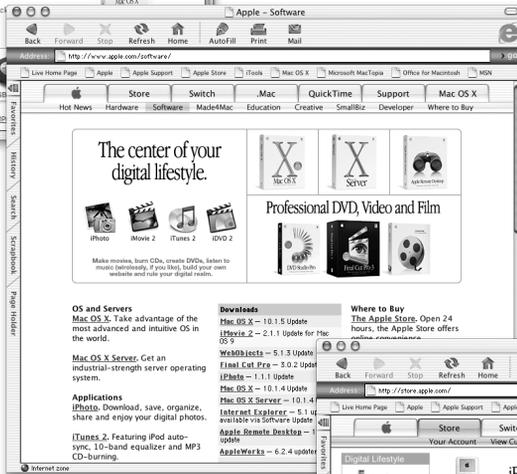
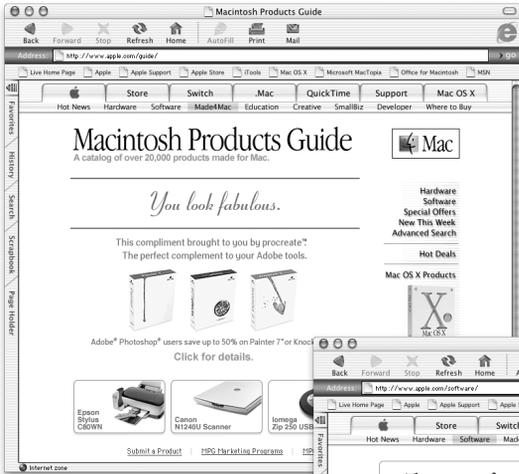
Set up your computer so that each member of the family can log in. See “Multiple Users—One Mac for Many Users” on page 42 for information about setting up your computer for several users.

Apple.com—Your Starting Place on the World Wide Web



www.apple.com/guide

For great hardware and software products for your Mac, check this website or look for the Mac symbol.



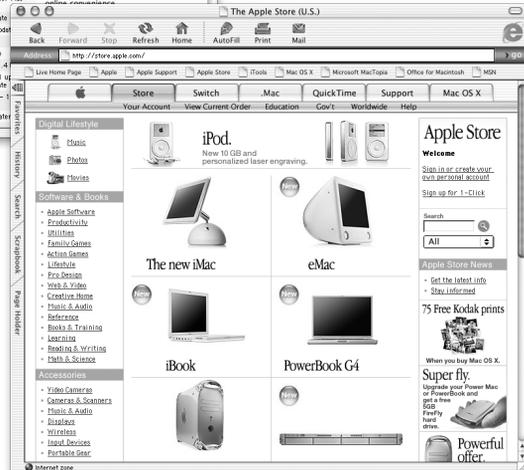
Apple Software

www.apple.com/software

Search by category for Apple software for your Mac.

The Apple Store
store.apple.com

Purchase the latest Apple hardware, software, and accessories.

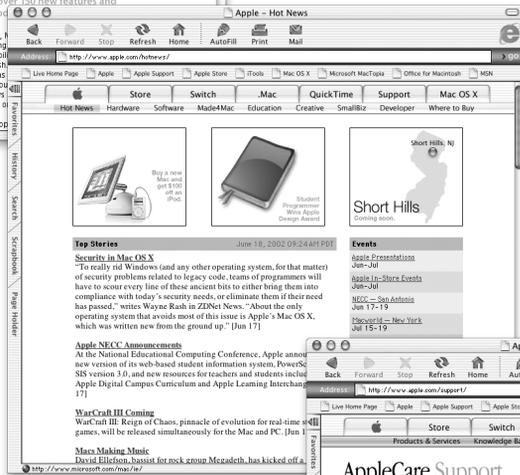




Mac OS X

www.apple.com/macosx

Get the latest on the world's most advanced operating system.



Apple Hot News

www.apple.com/hotnews

Find information on the latest software updates for your Mac, third-party software, QuickTime Hot Picks, and information on the next big Apple event.

Apple Support

www.apple.com/support

Find information about the AppleCare Protection Plan, other training programs, and other product support. Also access software updates, the Apple Knowledge Base, and technical information.



QuickTime—Audio and Video on the Internet



What You Can Do

In addition to playing video and music files on your Mac, with QuickTime you can watch live and recorded Internet broadcasts.

To Get Started

- 1 Connect to the Internet.
- 2 Open QuickTime Player by clicking the QuickTime Player icon in the Dock. You can also double-click QuickTime Player in the Applications folder.
- 3 Click the QuickTime button and select a channel to get the latest video, music, and information over the Internet without having to store files on your hard disk.

You can add QuickTime movies to your QuickTime Favorites by choosing Add Movie As Favorite from the Favorites menu.

Tips and Tricks

Upgrade to QuickTime Pro to do the following:

- Play back full-screen video and resize movies.
- Create streaming movies.
- Work with more than 30 audio, video, and image formats, including Flash.
- Create, open, edit, and save movies and audio as easily as copying and pasting.

To Learn More

Internet video is just one of the things you can do with QuickTime. To learn more, start with QuickTime Help. To download additional channels or find information on setting up your own Internet streaming server, go to the QuickTime website at www.apple.com/quicktime

iPhoto—Import, Organize, Share, and Edit Your Digital Pictures



The screenshot shows the iPhoto application window with a grid of 1834 photos. The interface includes a sidebar with album lists, a main photo grid, and a bottom toolbar with tabs for Import, Organize, Edit, Book, and Share. The Organize tab is active, showing a search and assign interface with various categories and options.

Slide show
Watch your photographs in a full screen slideshow with your favorite music.

New album
Organize your photos into digital albums for easy retrieval.

Import
Import digital photos into iPhoto directly from your digital camera.

Organize
Arrange your photos by date, title, or keyword.

Share
Print photos on your ink jet printer. Order prints online. Create and present an onscreen slideshow.

Edit
Crop or rotate photos. Remove red-eye or convert them to black and white.

What You Can Do

iPhoto lets you import pictures from your digital camera, organize them into albums, edit and enhance them, and share them in a number of different ways. Once you see what iPhoto can do with digital pictures, you may never go back to using a film camera again.

To Get Started

Plug your camera into the USB port on your Macintosh. iPhoto opens, imports your photos, and displays them on your screen.

Tips and Tricks

Resize thumbnails

Drag the size control in the iPhoto window, and your photo thumbnails grow or shrink for easier viewing. You can view individual shots in greater detail, see hundreds of thumbnails at once, or quickly scroll through your photos to find the one you're looking for.

Create albums for your favorite photos

iPhoto lets you easily organize your photographs into digital albums—birthday, vacation, wedding, whatever—for easy retrieval. (If you're familiar with iTunes, think playlists for pictures.) Sharing and enjoying them is easy, too: click a button to see them in a full-screen slideshow, accompanied by your favorite music. Email them to friends. Print them on your ink jet printer. Or order prints over the Internet.

Create your own books

Create custom books with your own pictures and words. It's easy to create an album and select a book theme and a layout you like. Add titles and text to tell your story or describe your pictures. Print your book pages on your printer. iPhoto makes it simple to turn your book into a beautiful keepsake.

Built exclusively for Mac OS X

Harnessing the power of the world's most advanced operating system, Mac OS X, iPhoto lets you manipulate high-resolution images quickly. Built-in color management ensures consistent color from photo to web to print. And convenient Internet tools and services make it easy to share your photos with others.

To Learn More

For more information on using iPhoto, see iPhoto Help or go to the iPhoto website at www.apple.com/iphoto

iMovie—Create and Edit Your Own Digital Movies

iMovie monitor

Preview your movie or view video directly from a connected DV camcorder.

Mode switch

Use this to switch between importing from a camcorder and editing.

Clip viewer

Timeline viewer

The clip viewer and the timeline viewer are visual aids for assembling and editing your movie.



Shelf

To make clips part of your movie after you import them, drag them from the shelf to the clip viewer.

Editing buttons

Click these to open panels for adjusting and selecting sounds, video effects, titles (text), and transitions. Click the Clips button to see the shelf.

Playback controls

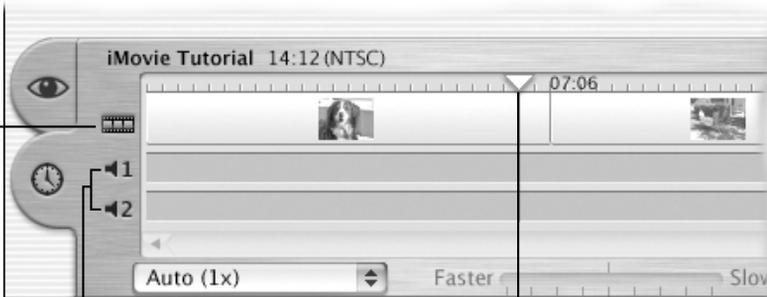
Use these to play the movie in the iMovie monitor.

Scrubber bar

Use this to select sections of video.

Video track

Lets you work with audio contained in video clips.



Audio tracks

Lets you work with recordings, music, and sound effects.

Playhead

Represents the location of the frame showing in the iMovie monitor. Move the playhead to see where things appear in a movie.

What You Can Do

iMovie is an easy-to-use digital video editing software application. With iMovie and a digital video camcorder, you can create and edit your own movies. Import video from the camera; edit clips; and add transitions, titles, sound effects, and music. Then copy the movie to a camcorder tape or create a QuickTime movie. You can even share your QuickTime movies by placing them on the web on your Apple iDisk or HomePage.

Your computer comes with iMovie for Mac OS X and Mac OS 9.

To Get Started

- 1 Shoot your video, then connect the camera to your computer's FireWire port.
- 2 Open iMovie in the iMovie folder (located in the Applications folder).
- 3 Click the Import button to import movie clips to the shelf, then add them to your movie by dragging them to the clip viewer.
- 4 Assemble and edit your movie in the clip viewer and timeline viewer.
- 5 Add transitions, titles, sound, and music.
- 6 When you are finished, choose Export from the File menu.

Tips and Tricks

Share your desktop iMovie with your friends and family

Export your movie as a QuickTime web movie and copy the movie to your iDisk. Then use HomePage to create your own iMovie theater so that others can view your movie on the Internet.

To Learn More

For more information on using iMovie, see the iMovie Tutorial or iMovie Help. For the latest on iMovie, including iMovie updates, additional plug-ins, and a list of compatible DV camcorders, go to the iMovie website at www.apple.com/imovie

iDVD—Create and Burn Your Own DVDs

Themes

Choose a background for your DVD from the included themes, or customize your own theme.

Multiple menus

Click the Folder button to add multiple DVD menus.



Movies

To add a movie, simply drag it to iDVD. You can use movies you created in iMovie.

Burn

Insert a DVD-R disc and click Burn. You can work on your computer while the DVD is being created in the background.

Slideshow

Click Slideshow and drag still pictures to iDVD. Your DVD can hold thousands of pictures.



Preview

Click Preview to see what your DVD will look like.

What You Can Do

If your Power Mac G4 came with a SuperDrive, you can use iDVD to burn DVDs on blank DVD-R discs. You can turn your iMovies, digital photos, and other QuickTime media files into DVDs that can be played on most standard DVD players.

To Get Started

- 1 If you are using iMovie or Final Cut Pro, export your movies as QuickTime movies. See iDVD Help for instructions on preparing your movies to work with iDVD.
- 2 Open the iDVD application in the iDVD folder (located in the Applications folder).
- 3 Assemble your DVD. Drag your movie files from the Finder to the iDVD window.
- 4 Click Theme and choose a design for your DVD.
- 5 Preview your iDVD using the preview remote.
- 6 When you are ready to burn your DVD, click the Burn button.

Tips and Tricks

Customize the design of your DVD

You can design the look and feel of your DVD by choosing from the iDVD themes or by importing your own pictures. You can create a custom button image or background simply by dragging images onto a button or into the background. Click Theme to further customize other design elements of your DVD, such as button shapes, title styles, and button label text.

To Learn More

For more information on using iDVD, including where you can buy DVD-R discs, see iDVD Help or go to the iDVD website at www.apple.com/idvd

iTunes—Digital Music for Your Mac and iPod

Library

Your collection of songs, imported from your own audio CDs or downloaded from the Internet. Easily browse or search for music.

iPod

Sync with your iPod and automatically update songs and playlists.

Radio Tuner

Choose from hundreds of Internet radio stations—jazz, rock, talk, and more.



Audio CDs

Play an audio CD on your computer. Import songs to your library to play them without the CD.

Equalizer

Adjust the sound to your tastes using the 10-band EQ.

Visuals button

Have iTunes display a stunning light show that changes, throbs, and pulses to the beat of your music. Enjoy different colors and patterns every time you listen to a song.

Search

Type some text and iTunes lists songs that match.

Playlists

Make personalized playlists using songs from your Library. Arrange your music by mood, artist, genre, or however you like.

Eject CD button

What You Can Do

iTunes lets you import songs from music CDs as MP3 files, create playlists, move music to your iPod portable MP3 player, and listen to hundreds of radio stations on the Internet.

To Get Started

- 1 Open iTunes (located in the Applications folder on your hard disk).
- 2 Insert a music CD into your optical drive.
- 3 Click the checkbox next to the songs you want to import.
- 4 Click the Import button. Your songs are converted into MP3 files and stored in your iTunes library.

Tips and Tricks

Create playlists for your favorite sets of songs

iTunes lets you create playlists from songs in your library. A playlist is a list of songs in a specific order. Use your playlists to program your music for specific moods, artists, or themes. Click the New Playlist button and drag songs from your library to the playlist.

Resize the iTunes window or access iTunes from the Control Strip

You can collapse the iTunes window to show just the playback controls and status. Click the zoom button, the right-most button in the upper-left corner. You can also access iTunes controls from the Dock in Mac OS X or the iTunes Control Strip module in Mac OS 9.

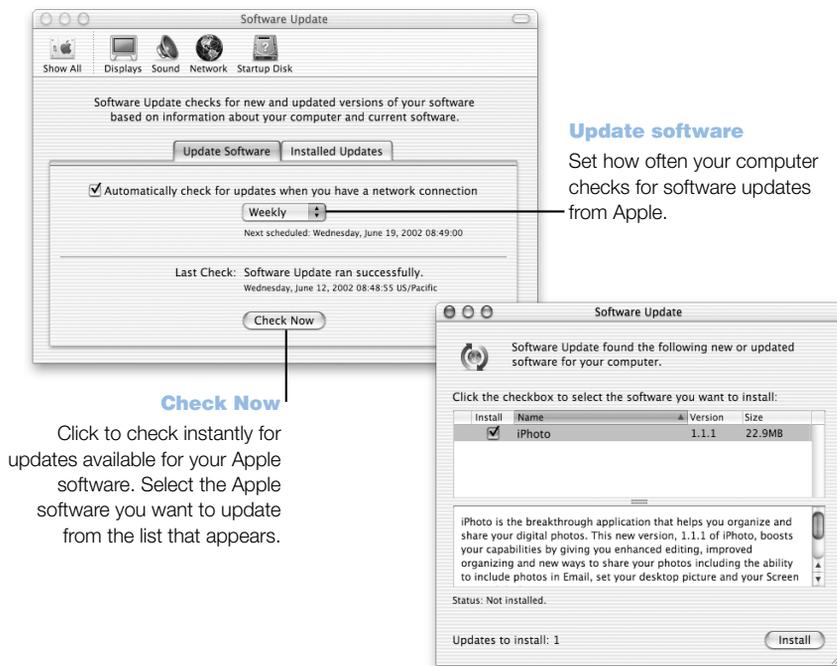
Look up CD information from the CDDB

iTunes automatically connects to the CD database (CDDb) on the Internet to look up the name of the album, song titles, and other information about your music CD. If you are not connected to the Internet, you can look up information on songs you imported the next time you connect. Select the song and choose Get CD Track Names from the Advanced menu.

To Learn More

For more information on using iTunes, see iTunes Help or go to the iTunes website at www.apple.com/itunes

Software Update—Keep Your Mac on the Cutting Edge



What You Can Do

Use Software Update to automatically download and install the latest system software updates, drivers, and other enhancements from Apple. Use Software Update to instantly check Apple's Internet servers to see if any updates are available for your Apple software. You can even set your Mac to check the Apple server periodically and download and install updated software for you.

To Get Started

- 1 Connect to the Internet.
- 2 Open System Preferences and click Software Update.
- 3 Click Update Now, then select the software updates you want and click Install.

Tips and Tricks

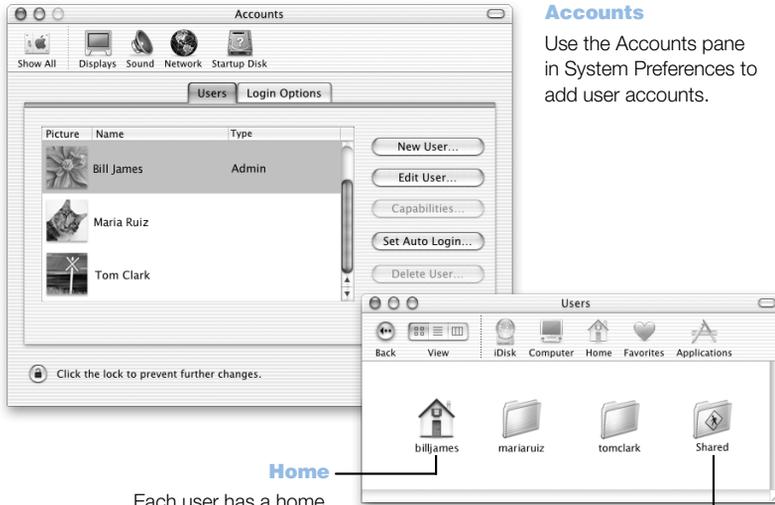
Adjust your Software Update schedule

If you have an Internet connection that is always on, you can set a schedule for your computer so that it checks for software updates at a certain time on specific days of the week. If you have a dialup connection and you are not connected, Software Update will check the next time you connect.

To Learn More

For more information on using Software Update, search for "Software Update" in Mac Help. For the latest information on the Mac OS, go to the Mac OS website at www.apple.com/macos

Multiple Users—One Mac for Many Users



Accounts

Use the Accounts pane in System Preferences to add user accounts.

Home

Each user has a home. Finder, Dock, Mail, and other preferences are kept for each user in the user's home, so users can customize Mac OS X the way they want.

Shared folder

To give access to the Shared folder, a user can turn on file sharing in Sharing preferences.

What You Can Do

Several people can share a single computer by logging in to their individual user accounts. Users can select their own customized settings, such as bookmarks and desktop views, and access a private storage space, called “Home.” Users sharing the computer also have access to a common Shared folder.

The first user account created on your computer is designated an administrator. Administrators are users with special privileges: they can give new users access to the computer, install software, and change general computer settings.

Note: If you forget the administrator password, you can reset it using the Mac OS X CD. Start up from the Mac OS X CD and choose Reset Password from the Installer menu. Because a user with the Mac OS X CD can gain unrestricted access to the computer, you should keep the CD in a safe place.

To Get Started

- 1 Create a new user by choosing System Preferences from the Apple (🍏) menu, clicking Accounts, then clicking New User.
- 2 Edit the user’s information. You can give a user administrative privileges.
- 3 Close the window.

Tips and Tricks

Keeping your computer secure

You can require a password to access the computer after the screen saver appears in case users log in and leave the computer unattended. Open System Preferences, click Screen Effects, and click Activation to select the period of inactivity before the screen saver starts. Then select “Use my user account password.”

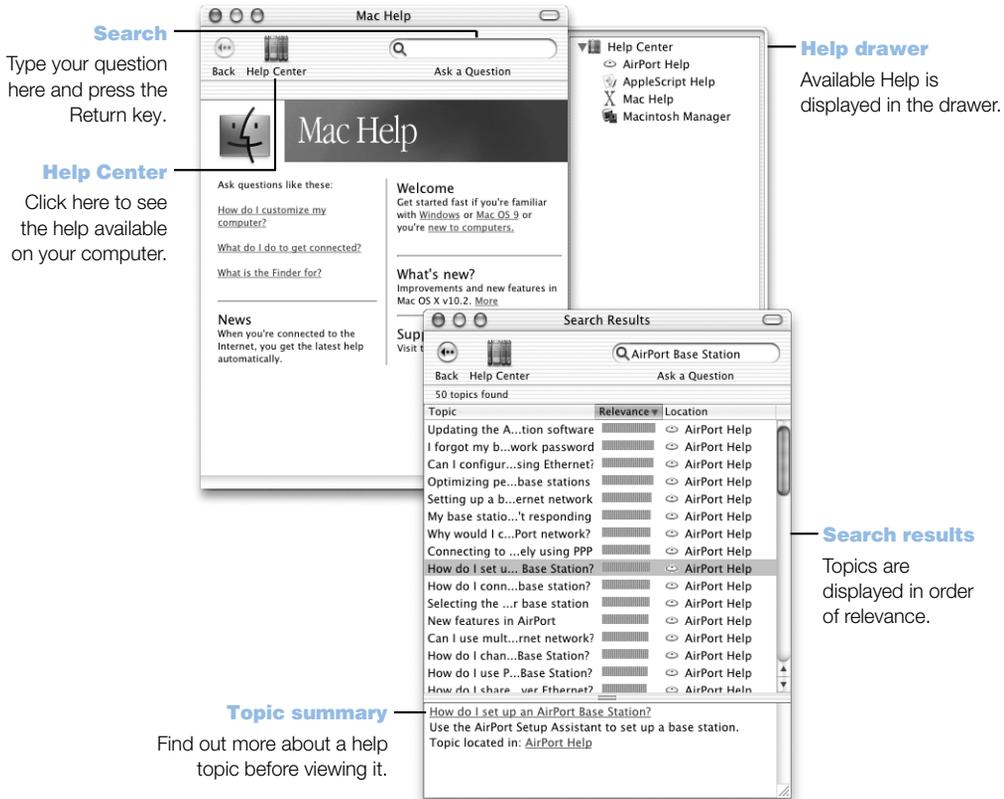
Set up user privileges

In Mac OS X, administrators can specify the documents and applications that users can access and configure overall settings. Open System Preferences, click Accounts, and click Capabilities.

To Learn More

For more information on setting up user accounts in Mac OS X, search for “users” in Mac Help.

Mac Help—Answers to Your Macintosh Questions



Working With Your Operating System

An operating system, or OS, is your computer's desktop environment that defines how the items on your desktop are represented and how you interact with them. Each OS has a different look and feel.

About Mac OS X

Your computer is set to start up in Mac OS X so you can use its advanced technologies, such as the elegant user interface, incredible graphics capabilities, and added system stability and performance. Mac OS X takes care of managing your computer processes so you can concentrate on what you want to do. You don't need to worry about restarting your computer if something goes wrong with one software application. Mac OS X shuts down just that application so you can keep working without interruption. The Mac OS X virtual memory manager takes care of allotting the amount of memory your software applications need to run efficiently.

When you're ready to learn more about Mac OS X, read the *Welcome to Mac OS X* book that came with your computer. *Welcome to Mac OS X* introduces the features of Mac OS X and provides tips for Mac OS 9 users on how to use Mac OS X to perform common Mac OS 9 tasks. If you experience any problems while learning about Mac OS X, see the troubleshooting tips in the back of the *Welcome to Mac OS X* book or choose Mac Help from the Help menu in Mac OS X.

Important Because Mac OS X is already installed on your computer, you don't need to follow the installation instructions in *Welcome to Mac OS X*. Instead, follow the instructions in *Welcome to Mac OS X* to log in and begin using Mac OS X.

Information About Software and Mac OS X

For information about the compatibility of software applications with Mac OS X, or to read more about Mac OS X, check the Apple website: guide.apple.com/macosx/

Using Classic in Mac OS X

In addition to using Mac OS X applications, you can continue to use Mac OS 9 applications in the special Classic environment. Classic works in the background to access Mac OS 9 features and software applications. When you start up Classic, Mac OS 9 software works in Mac OS X just as it does in Mac OS 9, but doesn't benefit from Mac OS X features such as the look of the new interface. Simply open a Mac OS 9 application or double-click a document created in a Mac OS 9 application. If Classic isn't running, it starts up.

After the Classic environment starts up, Classic continues to run in the background, even if you quit all Mac OS 9 applications, so Classic applications and documents open faster the next time. You can set your computer to start up Classic automatically when you log in to Mac OS X. Choose System Preferences from the Apple (🍏) menu, click Classic, and select "Start Classic when you log in."

To quit the Classic environment, click Stop in the Classic pane of System Preferences. You can save any unsaved changes to your Classic documents and quit Classic.

Important Do not remove the Mac OS 9 operating system from your computer. For Classic to work, Mac OS 9 must be installed.

Switching Between Operating Systems

Some tasks and software applications have not yet been optimized to work with Mac OS X or Classic and perform best in Mac OS 9. You can set your computer to start up in Mac OS 9 and change the Mac OS your computer uses when it starts up as often as you like.

To set your computer to start up in Mac OS 9 instead of Mac OS X:

- 1 In Mac OS X, choose System Preferences from the Apple (🍏) menu and click Startup Disk.



- 2 Select the Mac OS 9 folder as your startup System Folder. (If the icons are dimmed, click the lock icon at the bottom of the pane and type the administrator user name and password that you created in the Setup Assistant. See *Welcome to Mac OS X* for more information about logging in as an administrator.)

- 3 Restart your computer.

Note: Because Apple frequently releases new versions and updates to its system software, the version number of the Mac OS X and Mac OS 9 operating systems in this manual may be different from those installed on your computer.

To set your computer to start up in Mac OS X instead of Mac OS 9:

- 1 In Mac OS 9, choose Control Panels from the Apple () menu, then choose Startup Disk.
- 2 In the Startup Disk control panel, double-click the hard disk that contains your operating systems and select the Mac OS X System folder as your startup disk. You can click the triangle to the left of the hard disk icon to see the System folders installed on it.
- 3 Restart your computer.



Note: Because Apple frequently releases new versions and updates to its system software, the version number of the Mac OS X and Mac OS 9 operating systems in this manual may be different from those installed on your computer.

Need Help?

For more information about the features of your Macintosh, choose Mac Help from the Help menu and click any of the blue underlined text. You can also type a question in the Search field and press Return on the keyboard.

Using Your Computer

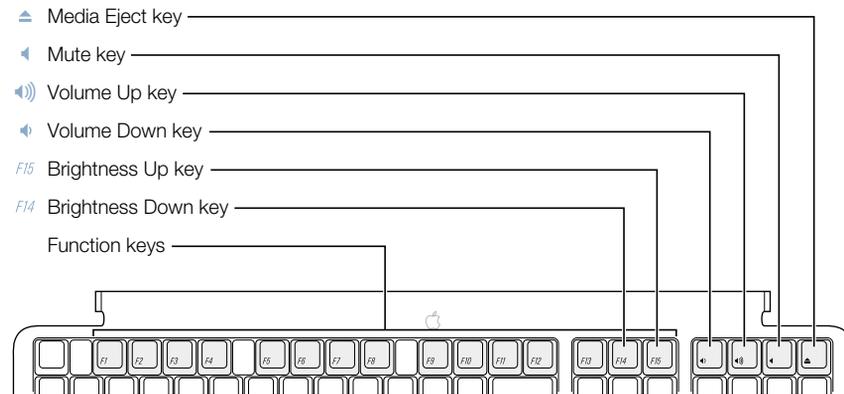
This chapter provides explanations and instructions for using the important features of your Power Mac G4 computer, including your keyboard and mouse, modem, FireWire ports, USB ports, and networking.

Explanations are provided for

- “Using Your Apple Pro Keyboard and Apple Pro Mouse” on page 50
- “Connecting a Second Display to Your Computer” on page 52
- “Using USB Devices” on page 53
- “Using FireWire Devices” on page 55
- “Using Your Optical Drive” on page 57
- “Using Your Modem” on page 60
- “Connecting to an Ethernet Network” on page 60
- “Using AirPort Wireless Networking” on page 63
- “Putting the Computer to Sleep to Save Energy” on page 64
- “Attaching SCSI Devices to Your Computer” on page 65
- “Transferring Information Between Two Macintosh Computers” on page 65
- “Using the Computer as a Server Without a Monitor” on page 66

Using Your Apple Pro Keyboard and Apple Pro Mouse

Your Apple Pro Keyboard comes with function keys preset for common tasks. Use the Media Eject key to eject optical discs from the top optical drive. When a second optical drive is installed, use the Media Eject key and the Option key to eject media from that drive. Press the Volume Up or Volume Down keys to adjust the sound level, or press the Mute key to turn sound off. You can also adjust an Apple display's level of brightness with the Brightness Up and Brightness Down keys.



Note: When you're using a non-Apple keyboard with your computer in Mac OS X, use the F12 key to eject optical discs from the top optical drive. Use the F12 key and the Option key to eject media from a second optical drive.

Customizing Function Keys (Mac OS 9)

In Mac OS 9, you can set unassigned function keys (F7–F12) on your Apple Pro Keyboard to open applications such as your Web browser, email program, or frequently used documents. Once applications are open, you can use the customized function keys to switch quickly between them.

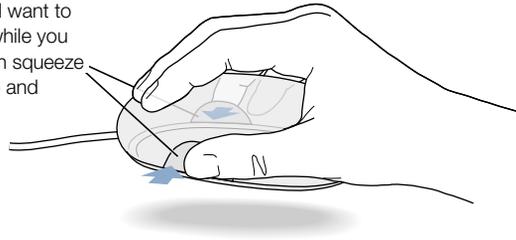
The first time you press an unassigned function key, a dialog box appears that lets you assign any of the function keys to an application or document. You can change the application assigned to a function key using the Keyboard control panel.

Note: You can't customize function keys in Mac OS X.

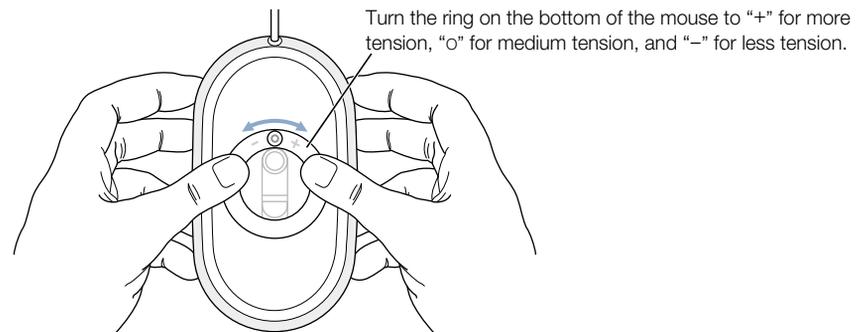
Using Your Apple Pro Mouse

To position the pointer using your mouse, move the mouse over any suitable surface such as your desktop, mouse pad, or other textured surface. (Some smooth, glassy surfaces provide less pointer control than others.) To click an object, press down once on the mouse body until you feel a click. To double-click an item, press down twice in quick succession.

If you run out of room and want to keep the mouse clicked while you lift it, click the mouse, then squeeze the sides with your thumb and fingers as you lift.



You can adjust the feel of your mouse by turning the dial underneath. Turning the dial one direction makes the feel of clicking the mouse stiffer; turning it the other way makes clicking the mouse easier.



For More Information About Your Keyboard and Mouse

Additional information on configuring the keyboard controls and customizable function keys is available in Mac Help. Choose Mac Help from the Help menu and search for "keyboard" or "mouse."

Connecting a Second Display to Your Computer

You can connect two displays to your graphics card and use both displays at the same time.

When a second display is connected, you can either have the same image appear on both displays (known as *mirroring*) or use the second display to extend the size of the Mac OS desktop (known as *extended desktop mode*). You need a video cable for each display you want to connect.

To use multiple displays:

- 1 Turn off the displays and shut down your computer.
- 2 Connect the video cable from each display to the appropriate port on the graphics card.
- 3 Turn on the displays and start up your computer.

To adjust the displays, choose System Preferences from the Apple menu and click Displays.

Important For optimal mirroring performance, set both displays to the same resolution and color depth.

By default, your computer starts up in extended desktop mode. To work in video mirroring mode, choose Video Mirroring from the Displays status menu in the menu bar in Mac OS X.

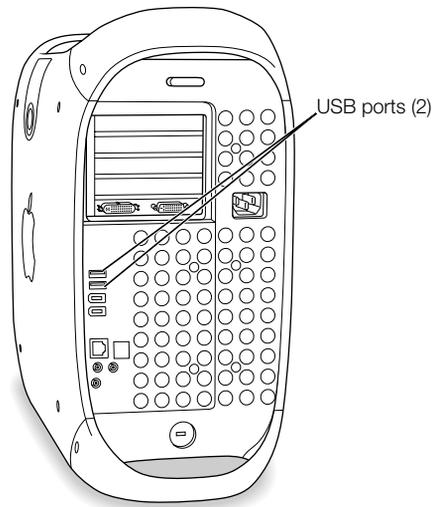
For More Information on Displays

For information about connecting your display, see the setup instructions in Chapter 1, “Setting Up.”

Additional information on using and configuring an external display is available in Mac Help. Choose Mac Help from the Help menu and search for “display.”

Using USB Devices

Your Power Mac G4 comes with two USB ports on the rear panel, and your Apple Pro Keyboard also has two USB ports. You can use your USB ports to connect many types of external devices, including printers, digital cameras, microphones, game pads, joysticks, keyboards, mouse devices, and storage devices. USB makes it easy to connect external equipment. Once you connect the device, it is ready to use. You don't need to restart your computer.

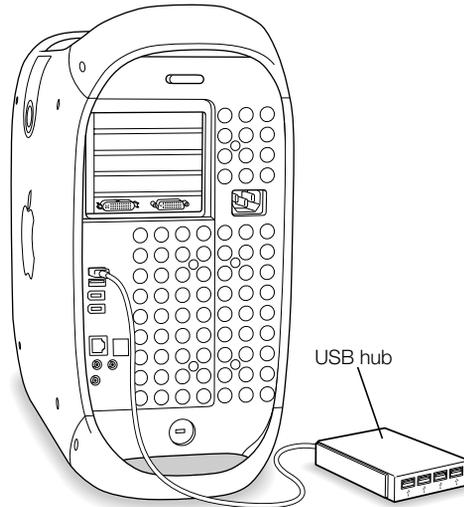


To use a USB device with your computer, connect the device to the computer and install its software or configure your computer to work with the device. From then on, your computer automatically loads the correct software whenever you attach the device.

Note: Apple has already included software to work with many USB devices. In most cases, you do not need to install the software that came with the device. If, when you connect a USB device, your Power Mac G4 cannot find the correct software, install the software that came with the device or download it from the manufacturer's website.

Connecting Multiple USB Devices

Your Power Mac G4 has two USB ports on the rear panel. Your keyboard or monitor may also have ports that you can use to connect devices. If you want to connect more devices, you can purchase a USB hub. The USB hub connects to an open port on your computer and provides additional USB ports (usually four or seven).



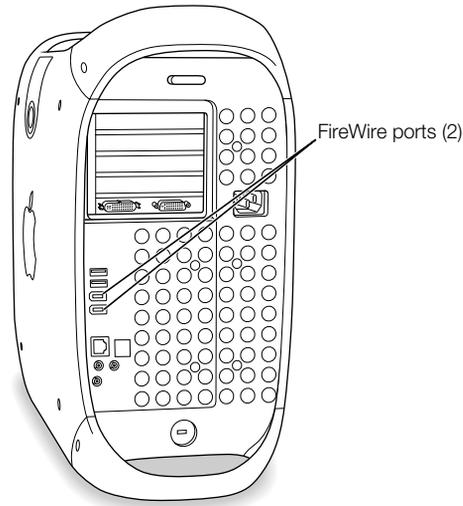
For More Information on USB

Additional information on USB is available in Mac Help. Choose Mac Help from the Help menu and search for “USB.” You can also find information on Apple’s USB website at www.apple.com/usb

For information on USB devices available for your computer, go to the Macintosh Products Guide at www.apple.com/guide

Using FireWire Devices

FireWire is a high-speed data transfer system that lets you easily connect and disconnect external devices—such as digital video (DV) cameras, printers, scanners, and hard disk drives. You can connect and disconnect FireWire devices without restarting your computer. Your computer includes two external FireWire ports on the rear panel, which support a maximum data rate of up to 400 megabits per second (Mbps).



With FireWire you can do the following:

- Connect a digital video camera and capture or transfer high-quality video directly to or from your computer. Then use video-editing software such as Apple's iMovie to edit the video.
- Connect an external FireWire hard disk drive to back up data or transfer files. If you have installed software for your FireWire hard disk drive, the FireWire disk icon appears on your desktop after you connect the hard disk drive to your Power Mac G4. Some FireWire hard disk drives get their power through the FireWire cable, so you don't need to connect an external power supply.
- If you have a problem with your computer that prevents you from starting up or you want to transfer files, you can use FireWire to connect your Power Mac G4 to another computer so that your Power Mac G4 appears as an external hard disk on the other computer (a feature known as *FireWire target disk mode*). See "FireWire Target Disk Mode" on page 56 for more information.

To use a FireWire device, connect the device to the computer and install any software that came with the device. Your computer automatically detects when you attach a new device.

To start up from a FireWire hard disk that has the Mac OS on it, choose System Preferences from the Apple () menu, click Startup Disk, then select the FireWire hard disk as the startup disk.

If your FireWire hard disk doesn't appear or can't be selected, consult the FireWire hard disk vendor for updated software drivers.

To disconnect your FireWire hard disk safely, drag its icon to the Trash before disconnecting the FireWire cable.

FireWire Target Disk Mode

You can use FireWire to connect your Power Mac G4 to another computer and then have it appear as an external hard disk on that computer. You can then share or transfer files.

Note: If the computer to which you connect your Power Mac G4 is running Mac OS 9, it must have FireWire version 2.3.3 or later installed. Use Apple System Profiler (located in the Utilities folder, in your computer's Applications folder) to check the version of FireWire installed. If you have an older version, check for an update at the Apple FireWire website at www.apple.com/firewire

To connect your Power Mac G4 in FireWire target disk mode, follow these steps:

- 1 Shut down your Power Mac G4.
- 2 Use a FireWire cable with the appropriate 6-pin connector on each end to connect your computer to another FireWire-equipped computer.
- 3 Start up your Power Mac G4 and immediately hold down the T key.

Your Power Mac G4 display shows the FireWire disk mode indicator, and the Power Mac G4 internal hard disk icon appears on the desktop of the other computer.

- 4 When you are finished transferring files, drag the Power Mac G4 hard disk icon to the Trash to unmount the drive.
- 5 Press the power button on the Power Mac G4 to shut it down and then disconnect the FireWire cable.

For More Information on FireWire

Additional information on FireWire, including setting up FireWire devices, is available in Mac Help. Choose Mac Help from the Help menu, and search for "FireWire." You can also find information on Apple's FireWire website at www.apple.com/firewire

For information on the FireWire devices available for your computer, go to the Macintosh Products Guide at www.apple.com/guide

Using Your Optical Drive

You can install or run software from CDs using your optical drive. You can play multimedia on CD discs and music from audio CDs. Your optical drive can also write music, documents, and other digital files on CD-R and CD-RW discs. If you have a Combo drive (DVD-ROM/CD-RW) or a SuperDrive (DVD-R/CD-RW), you can also play DVD movies and use most DVD discs. SuperDrives can also record information on blank DVD-R (recordable DVD) discs.

Note: If you have older software that comes on floppy disks, contact the software manufacturer to see if the software is available on a CD or purchase an external USB floppy disk drive for your Power Mac G4 from your Apple dealer or the Apple Store (www.apple.com/store).

Inserting a Disc

To install or use programs from a CD or DVD, follow these steps:

- 1 With the computer turned on, press the Media Eject (⏏) key on your Apple Pro Keyboard to open the drive.
- 2 Place a disc in the tray, with the label facing up, and make sure the disc is lying flat.
- 3 Press the Media Eject (⏏) key again or gently push the tray in to close it.

When the icon for the disc appears on the screen, the disc is ready to use.

Ejecting a Disc

You can eject a disc by dragging the disc icon to the Trash, or by pressing the Media Eject (⏏) key on your Apple Pro Keyboard. When a second optical drive is installed, you can eject a disc from it by pressing the Option key and the Media Eject (⏏) key. You can also eject a disc by holding down the mouse button while restarting your computer.

Adjusting the Sound Volume

To adjust the sound volume, repeatedly press the volume keys (⏮), (⏭) on your keyboard. You can also adjust speaker volume and balance from your computer by choosing System Preferences from the Apple () menu and clicking Sound.

Recording Information on a CD

Your optical drive can record your favorite music, programs, and files on CD-R and CD-RW discs. Create your own music CDs and play them on any standard audio player. You can also record computer files, such as applications, documents, or other digital files, on a recordable CD.

With a CD-R (CD-Recordable) disc, you can record information on the disc once. Although you can't change the recorded information, you may be able to add more information until the disc is full, depending on the application you use. See the documentation that came with your application for specific information about recording on your CD-R disc. It is best to use CD-R discs for recording audio CDs, because your audio CD player may not read CD-RW discs.

With a CD-RW (CD-Rewritable) disc, you can save and change information on your CD multiple times. However, some software for recording media files on CDs can record data on the disc only once.

You can record music on CD-R discs right from your iTunes library.

- 1 Open iTunes, located in the Dock in Mac OS X.
- 2 Select the music you want to record.
- 3 Insert a blank CD-R disc.
- 4 Click Burn CD at the top of the iTunes window.

You can also record data on CD-R discs with Disc Burner.

- 1 Insert a blank CD-R disc in the optical drive.
- 2 In the dialog box that appears, enter a name for the disc and select the format you want to create. An icon for the CD appears on the desktop.
- 3 Double-click the CD icon, then drag files and folders to it.
- 4 Choose Burn Disc from the File menu or select the disc and drag it to the Burn Disc icon in the Dock in Mac OS X.

For information about how to use iTunes to record music files on a CD, see the online help for iTunes in the Help Center.

Recording Information on a DVD

If you have a SuperDrive, you can author your own digital movies on a blank DVD-R (DVD-Recordable) disc. In Mac OS X, you can also record other kinds of digital data, such as backing up files onto DVD-R discs. However, once you record information on a DVD-R disc, it cannot be overwritten.

With applications like iDVD or DVD Studio Pro, you can create your own customized DVD, burn it on a blank DVD-R disc, and play it on most standard DVD players.

When you are finished with an iDVD project, you can write it to a blank DVD-R disc.

- 1 Open iDVD and open your completed DVD project.
- 2 Click the Burn button.
- 3 Insert a new blank DVD-R disc into the drive when prompted.
- 4 Click the Burn button again.

You can also record data on DVD-R discs in Mac OS X with Disc Burner.

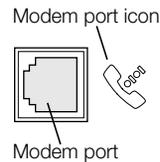
- 1 Insert a blank DVD-R disc in the drive.
- 2 In the dialog box that appears, enter a name for the disc and select the format you want to create. An icon for the DVD appears on the desktop.
- 3 Double-click the DVD icon, then drag files and folders to it.
- 4 Choose Burn Disc from the File menu or select the disc and drag it to the Burn Disc icon in the Dock in Mac OS X.

For more information about how to use iDVD, see the online help for iDVD in the Help Center.

Using Your Modem

Your Macintosh may come with an Apple 56K internal modem installed.

To connect the Apple 56K internal modem, plug one end of the modem cord or RJ-11 cable into the modem port on the back of the computer and the other end into a standard RJ-11 telephone wall jack.



Important Make sure you connect the internal modem to an analog phone line—the kind used typically in homes. The modem will not work with a digital phone line.

For information on how to establish an Internet connection, see “Connecting to the Internet” on page 115. More information about the internal modem is also available in Mac Help.

Warning Disconnect your modem from the phone jack during lightning or thunder storms. This will prevent a voltage overload from damaging the modem.

Using an External USB Modem

To connect an external USB modem, use a USB cable to connect the modem to an available USB port on the keyboard, computer, USB monitor, or USB hub.

Check the documentation that came with the modem to see if it needs to be plugged into a power outlet. Also look for instructions about installing modem software and connecting the modem to a telephone line.

Connecting to an Ethernet Network

Your computer comes with built-in 10/100/1000 megabit per second (Mbps) twisted-pair Ethernet networking capability, which you can use to connect to a network or to a cable or digital subscriber line (DSL) modem. Connecting to a network gives you access to other computers. You may be able to store and retrieve information; use network printers, modems, and electronic mail; or connect to the Internet. You can also use Ethernet to share files between two computers or set up a small network.

If you’re connecting to an existing network, you may be able to get information about the network and the network software you need from a network administrator who oversees its operation. Identify your organization’s network administrator before you begin.

Follow these guidelines when selecting a cable for your network:

Type of twisted-pair Ethernet	Use twisted-pair cable types
10 Mbps	Category 3, 5, or 6
100/1000 Mbps	Category 5 or 6

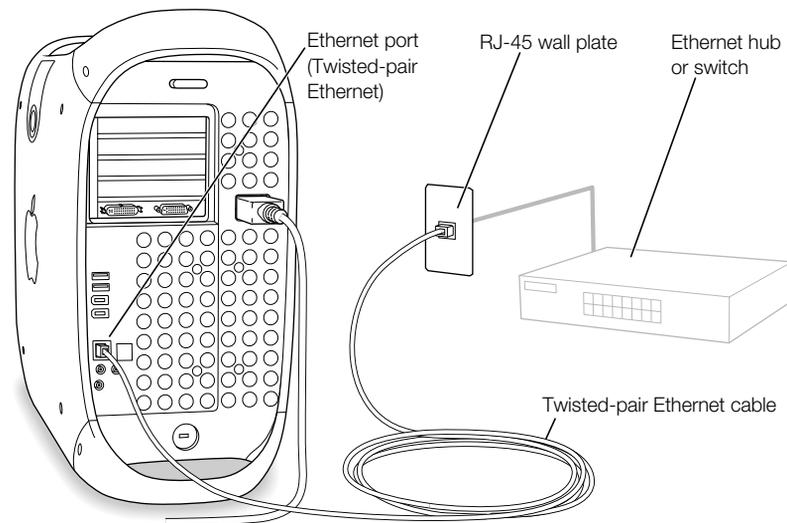
Connecting to a Twisted-Pair Ethernet Network

You can connect directly to a 10/100/1000 twisted-pair Ethernet network.

Note: You can also connect your computer to an Ethernet network that uses thin coaxial cables. To do this, you need an RJ-45-to-Thin Coax adapter (available from other manufacturers). See your Apple-authorized dealer for more information on Ethernet media adapters.

To connect your Macintosh to a centralized 10/100/1000 twisted-pair Ethernet network, follow these steps:

- 1 Plug one end of an RJ-45 twisted-pair cable into the Ethernet port on your Macintosh.
- 2 Plug the other end of the cord into an RJ-45 wall outlet or external hub that is connected to a twisted-pair Ethernet network.



After you start up the computer, you need to configure the software for your network connection. Your network administrator can provide the necessary information. You can also get help configuring your network software using Mac Help (in the Help menu).

To configure your network settings:

- 1 Choose System Preferences from the Apple () menu and click Network.
- 2 Choose Built-in Ethernet from the Show pop-up menu.
- 3 Click the TCP/IP tab and enter information about your network. The default setting is Configure Using DHCP.
- 4 Click Apply Now.
- 5 Close System Preferences.

Maximizing Ethernet Performance

Your computer performs best when the Ethernet port to which it is connected is set to auto-negotiate. Ask your network administrator to verify this setting.

Important If you experience connection problems on your network, make sure your network switch is set to auto-negotiate, if possible. If a switch's port is not auto-negotiating, your computer detects the appropriate speed but defaults to half-duplex mode. If the switch's port at the other end of the link is configured for full-duplex, a large number of late events can occur on the link. If it isn't possible to set the switch to auto-negotiate, then set the switch's port to half-duplex. For more information, see the documentation that came with the Ethernet switch.

Note: If you connect your computer directly to a configurable Ethernet switch, have your network administrator disable spanning tree on that port. Otherwise your computer may duplicate the AppleTalk address of another computer on the same network and both network connections may become unreliable.

For more information on networking your Power Mac G4, go to AppleCare Service and Support at www.apple.com/support

For More Information on Using Ethernet

Additional information, including setting up an Ethernet network or transferring files using Ethernet, is available in Mac Help. Choose Mac Help from the Help menu and search for "Ethernet" or "network."

For information on networking products you can use with your Power Mac G4, go to the Macintosh Products Guide at www.apple.com/guide

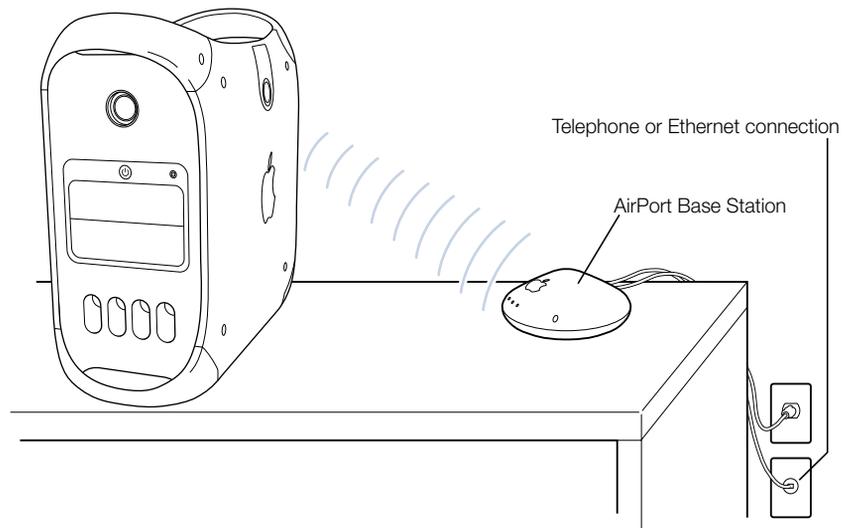
Using AirPort Wireless Networking

AirPort offers an easy and affordable way to provide wireless Internet access anywhere at home, at work, or in the classroom. Instead of using traditional cables, AirPort uses wireless local area network (LAN) technology to provide wireless communication between multiple computers. Through a wireless network, you can set up access to the Internet, transfer files, play multiplayer games, and more.

Your Power Mac G4 is AirPort-ready. The only thing you need to add is an AirPort Card. See “Installing an AirPort Card” on page 91. You install the AirPort Card in a slot inside the computer and connect it directly to the end of a built-in antenna cable. For instructions on using your AirPort Card, see the *About Your AirPort Card* booklet that came with your card.

How AirPort Provides Wireless Internet Access

With AirPort, you set up a wireless connection to a device known as a *base station*, which has a physical connection to the Internet. AirPort technology works like a cordless telephone. The handset of the cordless phone makes a wireless connection to the base, which is connected to the telephone line. Similarly, your computer makes a wireless connection to the base station, which is connected to the telephone line or your Ethernet network.



Wireless Network Connections

If you install an AirPort Card, you can

- connect your computer to a computer network that has wireless access
- use your computer to provide network access for other computers using wireless cards
- establish a wireless connection and share information with another computer that has an AirPort Card

Check with your network administrator for more information about reaching the network's wireless access point.

Warning Several kinds of objects placed near the computer can cause interference. See the instructions that come with an AirPort Card or AirPort Base Station to learn about avoiding interference. For more information, go to AppleCare Service and Support at www.apple.com/support

For More Information on AirPort

To purchase an AirPort Card or AirPort Base Station, visit an Apple retail store, contact your Apple-authorized dealer, or go to the Apple Store at www.apple.com/store

Additional information on AirPort is available in the online help. Choose Help Center from the Help menu and click AirPort Help. You can also find information on Apple's AirPort website at www.apple.com/airport

Putting the Computer to Sleep to Save Energy

Power Mac G4 computers are set to go to sleep after a period of inactivity. Sleep is a state in which your computer uses very little power. You can also put the computer to sleep whenever you want.

Note: Power Mac G4 computers are set to sleep automatically after 20 minutes of inactivity; however, you can change the automatic sleep settings in System Preferences.

When the computer wakes from sleep, your programs, documents, and computer settings are exactly as you left them. To save more energy, shut down the computer when it's not in use.

To put your computer to sleep, you can do any of the following:

- Press the power button on the front of the computer.
- Choose Sleep from the Apple () menu.
- Set a sleep timer in your computer's sleep settings by choosing System Preferences from the Apple () menu and clicking Energy Saver.

When the computer is in sleep, the front panel power button light pulses.

To wake the computer, press the power button on the front panel of the computer, or press a key on the keyboard. With some Apple monitors, you can also use the monitor's power button to put the computer to sleep and wake it.

Not all PCI cards or replacement AGP cards comply with the computer's power management standards. If you install a non-compliant card, the computer can still enter sleep mode, but it will not achieve maximum energy saving. You can use the Apple System Profiler to find out whether an installed card is compliant.

For more information about energy-saving options, see Mac Help.

Attaching SCSI Devices to Your Computer

Some Power Mac G4 computer configurations come with an Ultra160 Dual Channel SCSI card installed in a PCI slot with one or more internal SCSI hard disks connected to it. You can install additional internal SCSI hard disk drives, up to a maximum of four drives. It's recommended that you only connect SCSI Ultra160 LVD hard disk drives to the internal port of the Dual Channel SCSI card. You can connect external SCSI devices, including older drives with slower data transfer rates, to the external port of the Ultra160 Dual Channel SCSI card. Because the card has two channels, one connected to the internal port and another connected to the external port, connecting older devices to the external port doesn't slow down the transfer rate of the internal hard disk drives.

Apple recommends that you use only SCSI Ultra160 LVD devices as internal hard disk drives.

To connect older SCSI devices that use a 25-pin or a 50-pin connector—such as scanners, or DAT drives—you need to purchase SCSI adapters, or purchase and install a “legacy” SCSI PCI card (one that supports older devices).

For more information about using different types of SCSI devices with your computer, go to AppleCare Service and Support at www.apple.com/support

Transferring Information Between Two Macintosh Computers

If two Macintosh computers are not connected by a network, you can transfer information between them by connecting them with a standard category 5, 4 wire-pair (8 wires) Ethernet cable (in effect creating a small network of just two computers), which you can buy from an Apple-authorized dealer. You connect the cable to each computer's Ethernet port and then turn on file sharing on both computers. You can also configure the Ethernet settings on two computers to create a small network.

First, turn on file sharing on both computers:

- 1 Choose System Preferences from the Apple () menu.
- 2 Open the Sharing pane and click Start to turn File Sharing on.
- 3 Open the Network pane, select AppleTalk, then select “Make AppleTalk Active.”

Next, follow these steps on one computer:

- 1 Choose Connect to Server from the Go menu.
- 2 Click Local Network.
- 3 Select the computer you want to access.

For more information about configuring Ethernet connections, search for “Ethernet” in Mac Help.

You can also connect two Macintosh computers using a FireWire cable. You can then use FireWire target disk mode to transfer files from one computer to another. For more information about using FireWire target disk mode, see “FireWire Target Disk Mode” on page 56.

If you have an Internet connection, you can also transfer files via the Internet to your iDisk storage area on .Mac, where you or another .Mac user can download them. For more information about .Mac, see “.Mac—Internet Services for Mac Users” on page 26.

Using the Computer as a Server Without a Monitor

You can set up your computer to run as a server without an attached monitor. Follow these steps:

- 1 Follow all the steps described in Chapter 1 to set up your computer, including connecting a monitor, mouse, and keyboard.
- 2 Configure your server software as follows:
 - Configure network access.
 - Configure the security application so that the server can be controlled remotely.
 - Set passwords for access to the server.
 - Set network services to start up when the system starts up.
- 3 Be sure network services are operating properly.
- 4 Disconnect the monitor.

If you’re using remote access software, follow the instructions that came with your software for logging in to and controlling the server.

Important Remember to turn off your computer before you reconnect the monitor.

Working Inside Your Computer

This chapter provides information and instructions for working inside your computer.

Instructions are provided for the following procedures:

- “Opening the Computer” on page 68
- “Installing Memory” on page 71
- “Installing Internal Storage Devices” on page 73
- “Installing a PCI Expansion Card or Replacing the AGP Card” on page 87
- “Installing an AirPort Card” on page 91
- “Replacing the Battery” on page 92

Warning Apple recommends that you have an Apple-certified technician install memory, PCI expansion cards, and internal storage devices. Consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for service. If you install these items yourself, you risk damaging your equipment, and such damage is not covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

Opening the Computer

- 1 Before you open your computer, shut it down:
 - *In Mac OS X*, choose Shut Down from the Apple (🍏) menu.
 - *In Mac OS 9*, choose Shut Down from the Special menu.

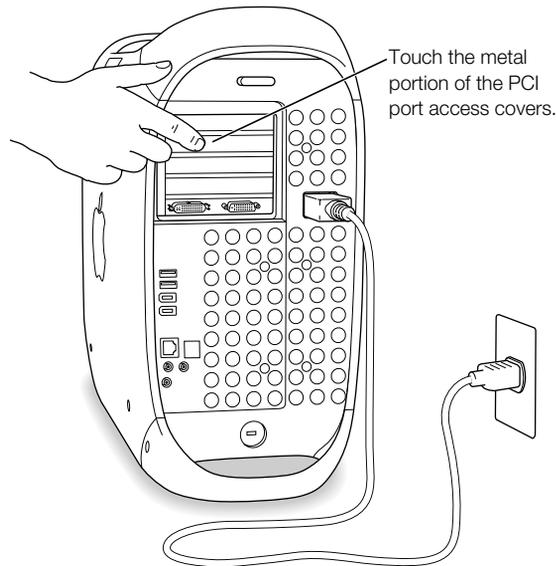
Warning Always shut down your Power Mac G4 before opening it to avoid damaging its internal components or the components you want to install. Do not open the computer or attempt to install items inside it while it is turned on.

- 2 Wait five to ten minutes to allow the computer's internal components to cool.



Warning After shutting down your computer, the internal components can be very hot. Let the computer cool down before continuing.

- 3 Unplug all the cables from the computer except the power cord.
- 4 Touch the metal PCI access covers on the back of the computer to discharge any static charge.

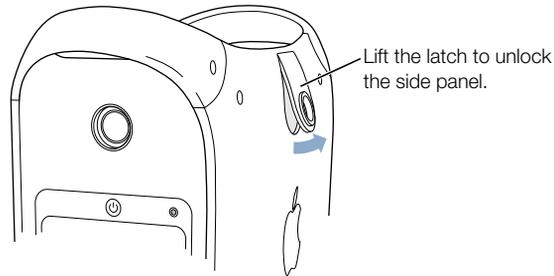


Important Always do this before you touch any parts, or install any components, inside the computer. To avoid generating static electricity, do not walk around the room until you have finished installing the expansion card, memory, or internal storage device and closed the computer.

5 Unplug the power cord.

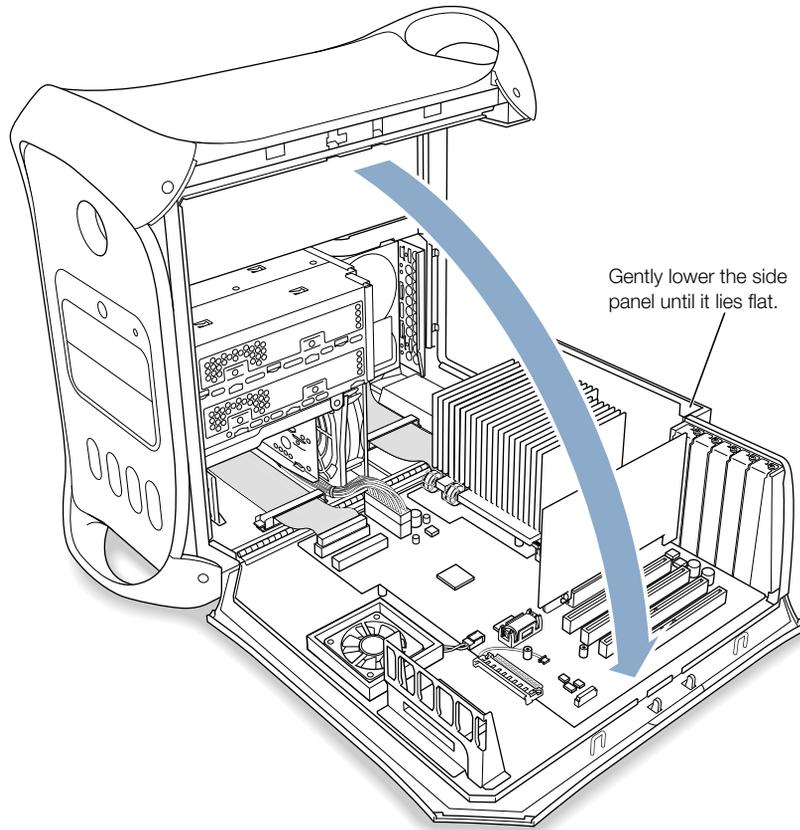
Warning The power supply in your computer is a high-voltage component and should not be opened for any reason, even when the computer is off. If the power supply needs service, contact your Apple-authorized dealer or service provider.

6 Lift the latch on the side of the computer.



Note: If the latch won't lift, check that the security lock port and lockable cover latch in the back of the computer are not locked.

- 7 Gently lower the side panel onto a clean, flat surface, preferably onto a soft, clean cloth.



Installing Memory

Your computer uses Double-Data-Rate (DDR) Synchronous Dynamic Random-Access Memory (SDRAM) in packages called Dual Inline Memory Modules (DIMM). You can install additional DIMMs in the four DDR SDRAM slots on your computer's main logic board, up to a maximum of 2 gigabytes.

Depending on your computer's bus speed, 133 MHz or 167 MHz, you have one of these types of memory installed:

- 133 MHz systems use PC 2100 DIMMs.
- 167 MHz systems use PC 2700 DIMMs.

Important When you install additional memory, make sure you have the correct memory speed for your computer's bus speed. To find the bus speed of your computer, use Apple System Profiler, which is in the Utilities folder in your computer's Applications folder. Refer to Hardware Overview section of the System Profile for your computer's bus speed.

DIMMs must fit these specifications:

- 2.5 volt (V)
- 64-bit wide, 184-pin module
- Maximum number of memory devices on DDR SDRAM is 16.
- Non parity
- No error correcting codes (ECC)
- Unbuffered; do not use registered or buffered DDR SDRAM.

If you install 512 MB DDR SDRAM, it must have 256 megabit (Mbit) devices. You can also install 256 MB DDR SDRAM that has 256 Mbit or 128 Mbit devices. You can install different DDR SDRAM DIMMs in any order in any memory slot. To check the compatibility of your DDR SDRAM DIMMs, see the Macintosh Products Guide on Apple's website at www.apple.com/guide

Important SDRAM from older Macintosh computers is not compatible with your Power Mac G4. Do not use older SDRAM, even if it fits into the DDR SDRAM slots.

Note: When purchasing DDR SDRAM for use in Macintosh computers, make sure that the memory vendor conforms to the JEDEC specification. Check with your memory vendor to ensure that the DDR SDRAM supports the correct timing modes and that the Serial Presence Detect (SPD) feature has been programmed properly, as described in the JEDEC specification. You can purchase Apple-branded memory online from the Apple Store at store.apple.com

- 1 Open the ejectors on the DDR SDRAM slots you want to use by pushing down on them.
- 2 Align the SDRAM in the slot and push both ends of the SDRAM down until the tabs are vertical and the ejectors snap into place.

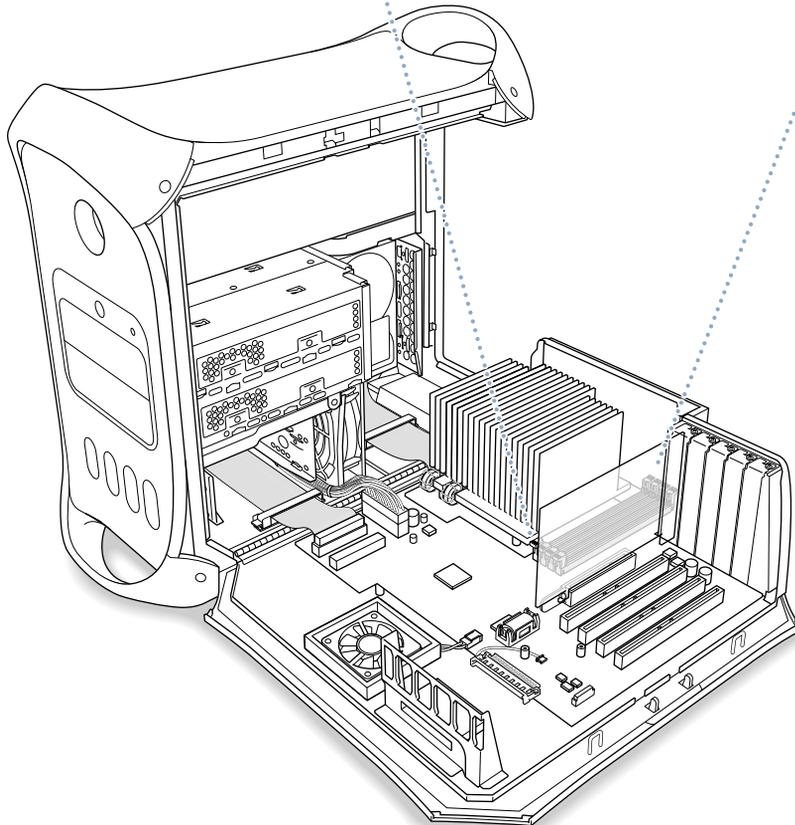
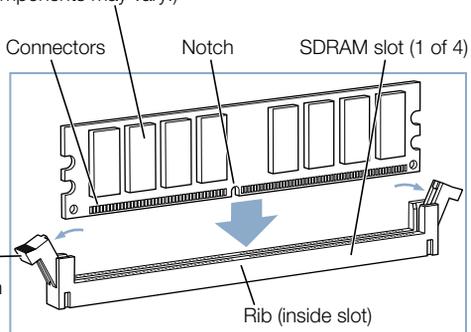
Important Do not touch the SDRAM connectors. Handle the SDRAM only by the edges.

- 3 Close the computer.

SDRAM DIMM (Your DIMM's shape and components may vary.)

The SDRAM DIMM is designed to fit into the slot only one way. Be sure to align the notch in the DIMM with the small rib inside the slot. With the ejectors in the open position (as shown), push down on the DIMM until it snaps into place. The ejectors will automatically close.

Ejectors
(They should be pushed outward and down to be in the open position, as shown.)



Installing Internal Storage Devices

Your Macintosh has six internal drive bays: Two optical drive bays and two hard drive bays in the front, and two hard drive bays in the rear. In many configurations, a single hard disk drive occupies the rear bay. One of the upper front bays contains an optical drive, and you can purchase and install a second optical drive in the lower bay.

You can add SCSI or ATA disk drives to the empty front and rear drive bays.

The drives must meet these specifications:

- *Width:* 3.9 inches (102 mm)
- *Depth:* 5.7 inches (147 mm)
- *Height:* 1.0 inch

The computer provides support for the following types of internal storage devices:

- Ultra ATA/100 devices (in rear bay only)
- Ultra ATA/66 devices
- Ultra ATA devices
- ATA devices, including ATA, ATA-2, ATA-3, up to ATA-6 devices
- ATAPI drives, including SuperDrive (combination DVD-R and CD-RW drive), Combo drive (combination DVD-ROM and CD-RW drive), CD-RW, DVD-ROM, and DVD-R drives
- Wide Ultra, Ultra2, and Ultra160 low-voltage differential (LVD) SCSI devices (these devices require a SCSI PCI card)

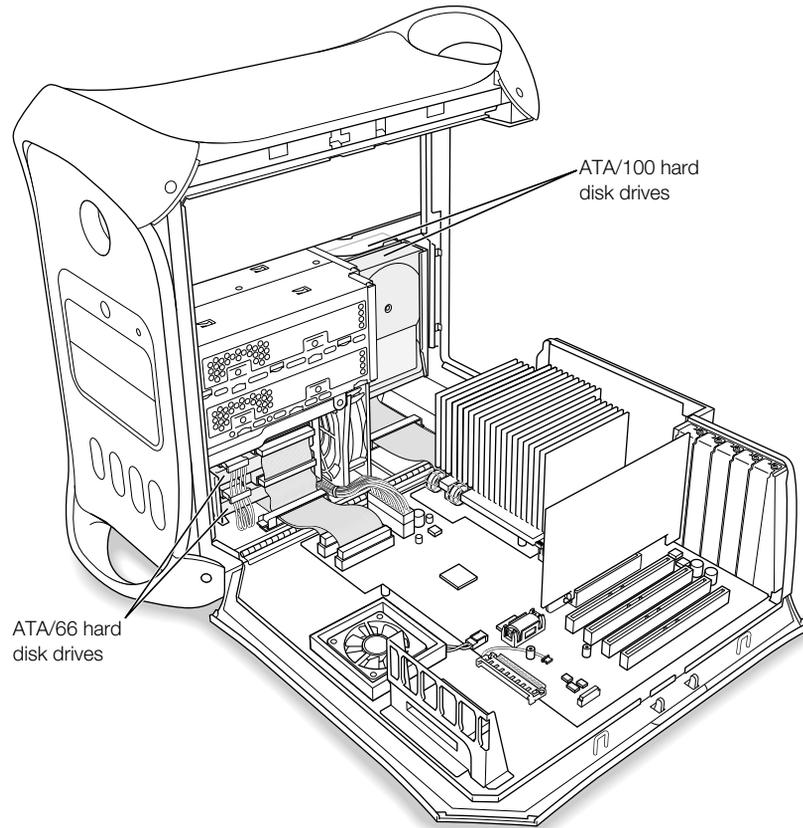
Important Your Macintosh works with ATA and ATAPI internal storage devices that are set for cable select mode. Because cable select mode forces the drive to set its ID based upon its position on the cable, hard drives and optical drives are easily configured. Before you install an additional ATA and ATAPI drive, check the documentation that came with your drive or with the manufacturer to make sure it is set for cable select mode.

Important Use the original Apple cables that came with your Macintosh when you install additional drives. Some non-Apple cables may not correctly support cable select mode.

For more information about requirements and devices supported, see your Apple-authorized dealer and the support section of Apple's website: www.apple.com/support

Installing Ultra ATA Drives

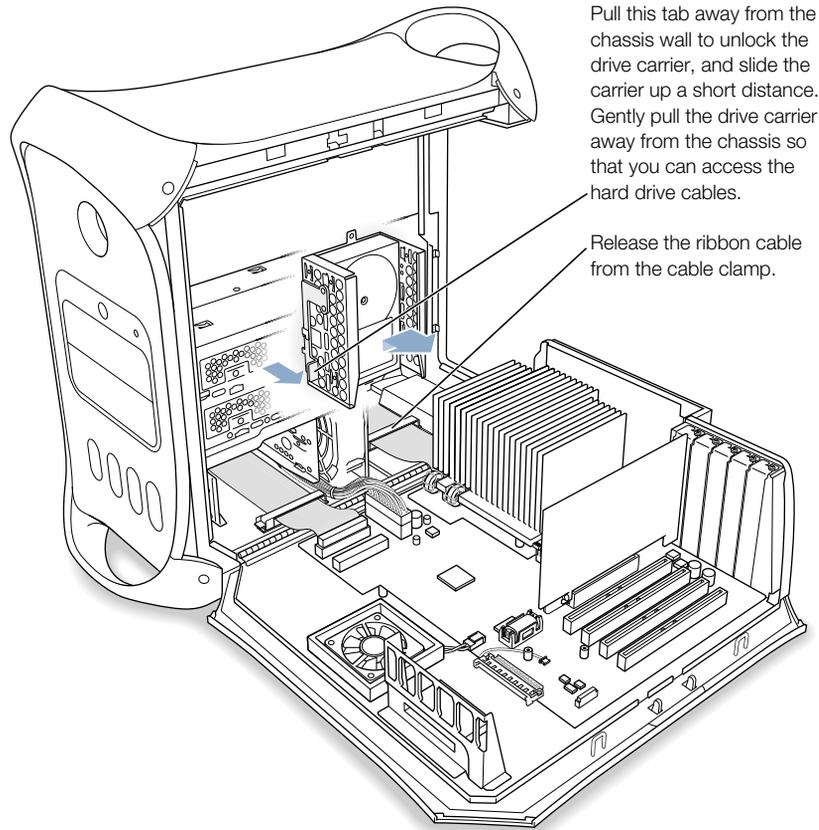
Your Macintosh can accommodate two internal 1-inch-high ATA devices in each hard drive carrier, for a total of four drives. If your computer has one Ultra ATA drive installed, it sits in the rear drive carrier. You can install a second ATA drive in the rear carrier and two additional ATA drives in the front carrier.



Note: Contact your drive manufacturer or consult the manufacturer's website to determine if your drive is set for cable select mode. Before installation, set the drive to cable select if the manufacturer hasn't already done so.

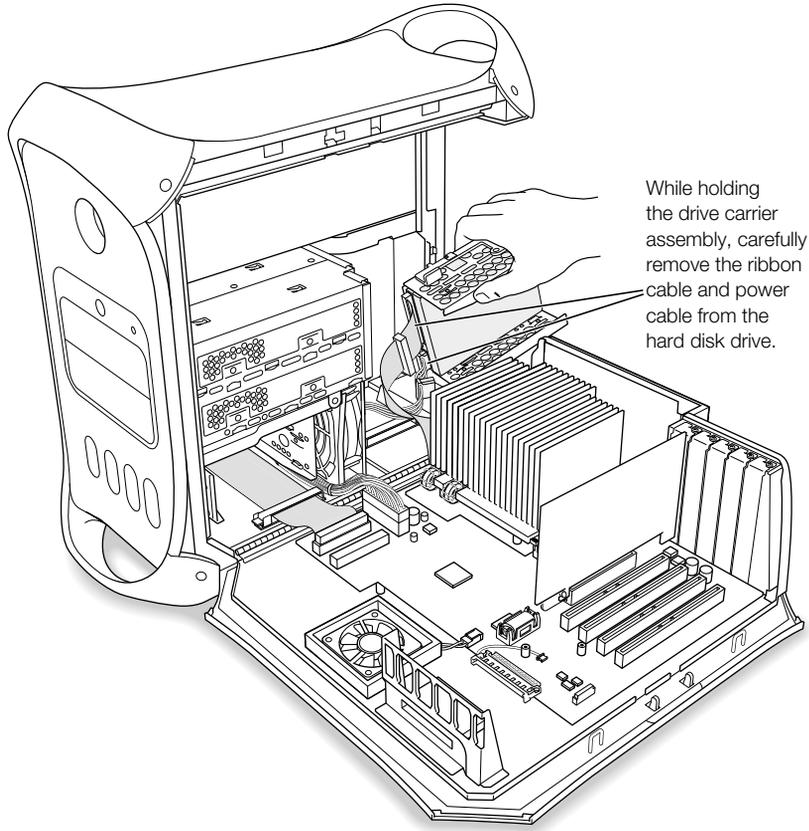
To install an additional Ultra ATA drive in the rear carrier:

- 1 Pull the plastic tab on the drive carrier away from the computer's chassis.
- 2 Lift the drive carrier up slightly to access the cables.



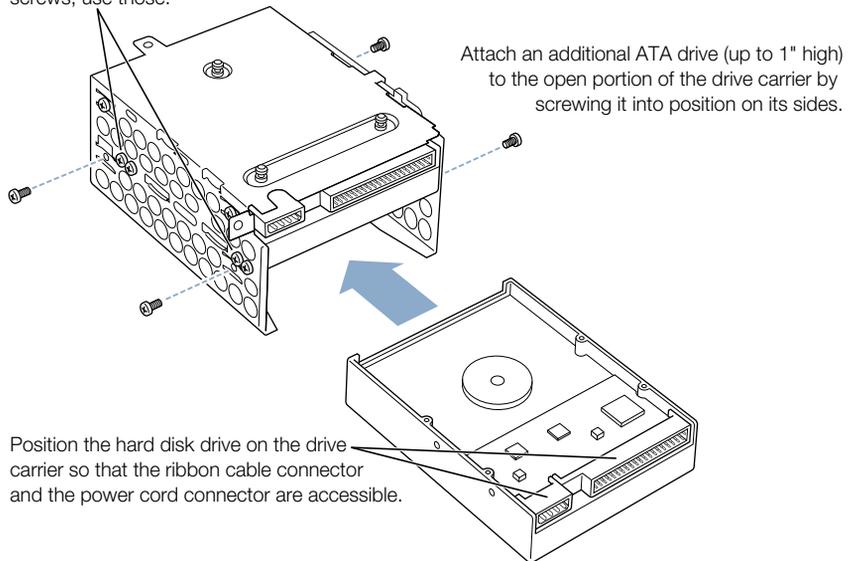
- 3 Release the cable from the clamp.

- 4 Pull the carrier free and continue to hold it while you remove the power and ribbon cables from any installed drive.

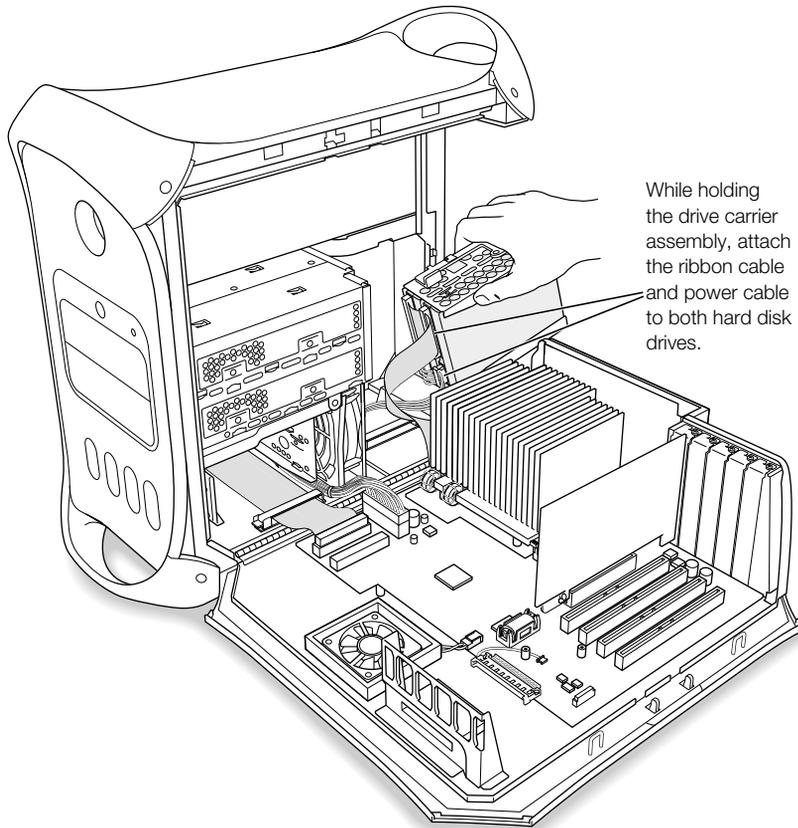


5 Install the second ATA drive in the drive carrier and screw it into position.

There are four extra screws stored on the outside of the drive carrier. You can use these screws if your second hard disk drive didn't come with any. If it did come with screws, use those.

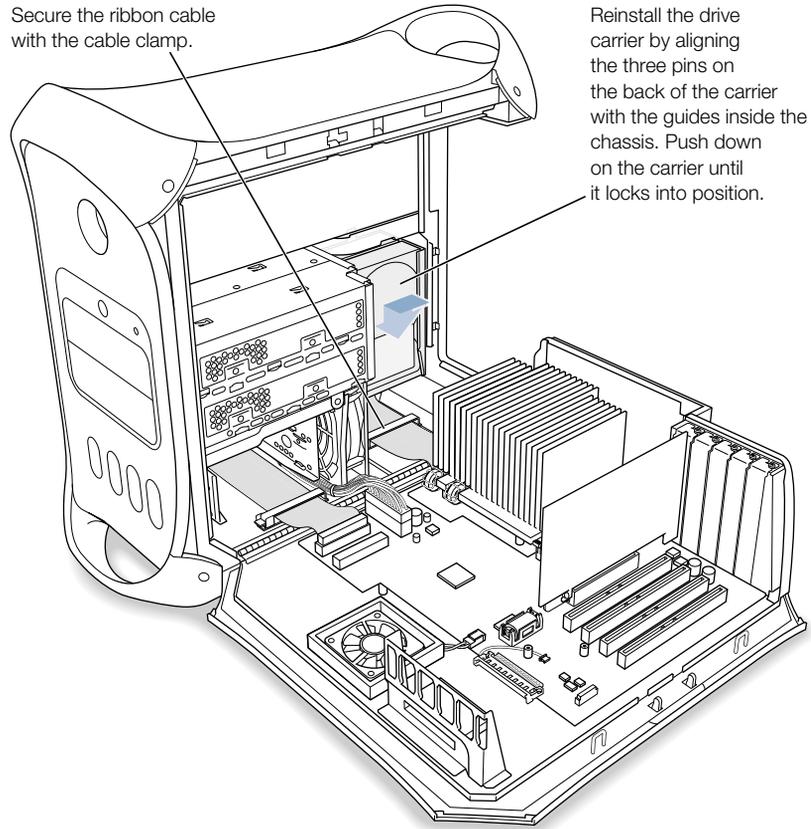


- 6 Attach the power and ribbon cables to the drives.



- 7 Replace the drive carrier on the chassis, pushing gently until it locks into position.

Secure the ribbon cable with the cable clamp.

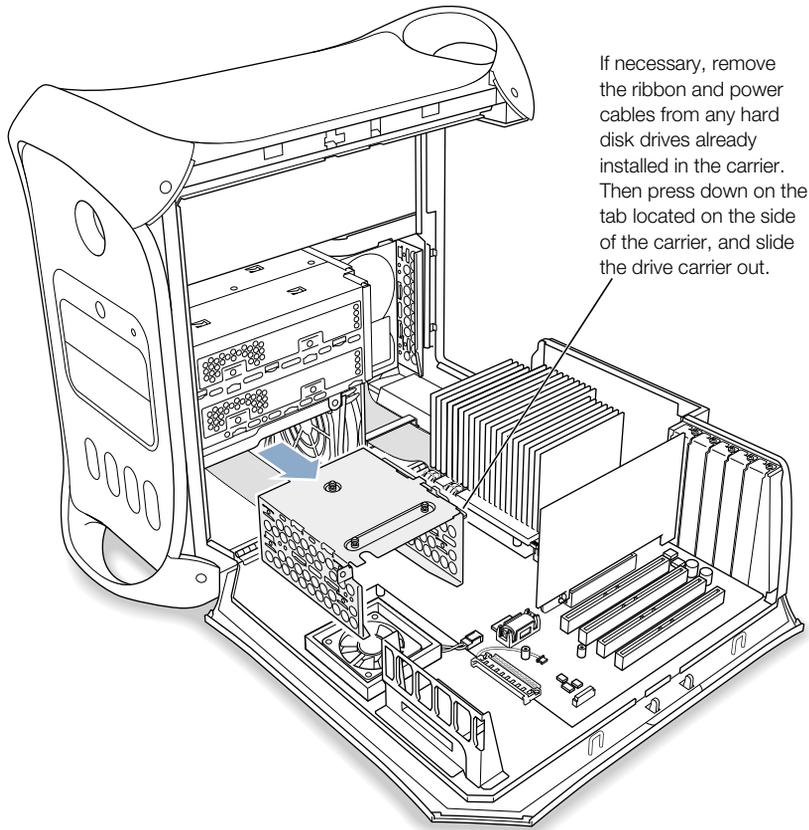


Reinstall the drive carrier by aligning the three pins on the back of the carrier with the guides inside the chassis. Push down on the carrier until it locks into position.

- 8 Secure the ribbon cable with the cable clamp.
- 9 Close the computer.

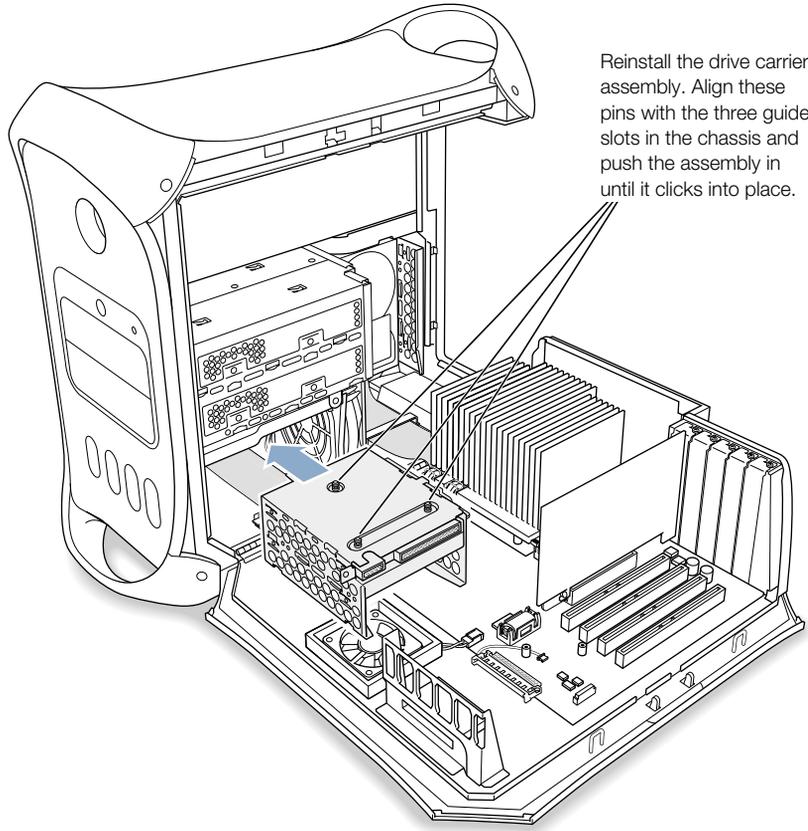
To install an additional Ultra ATA drive in the front carrier:

- 1 Release the ribbon cable from the cable clamp.
- 2 Remove the power and ribbon cables from any installed drive.
- 3 Slide the drive carrier away from the chassis.
- 4 Install the ATA drive in the drive carrier and screw it into position.

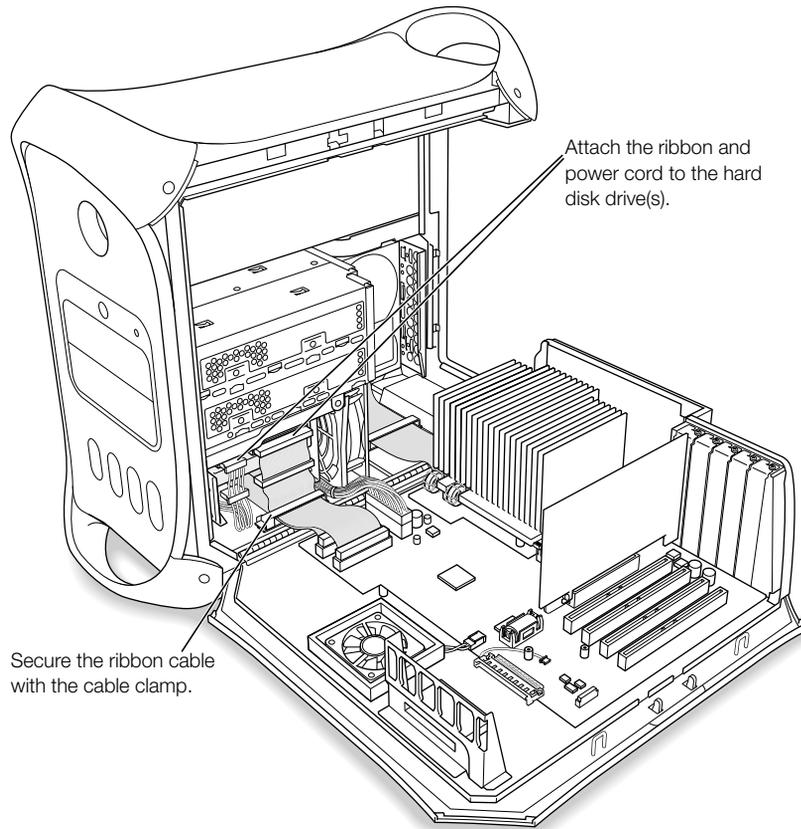


Note: Contact your drive manufacturer or consult the manufacturer's website to determine if your drive is set for cable select mode. Before installation, set the drive to cable select if the manufacturer hasn't already done so.

- 5 Replace the drive carrier by aligning the pins on the guide slots and gently pushing the assembly.



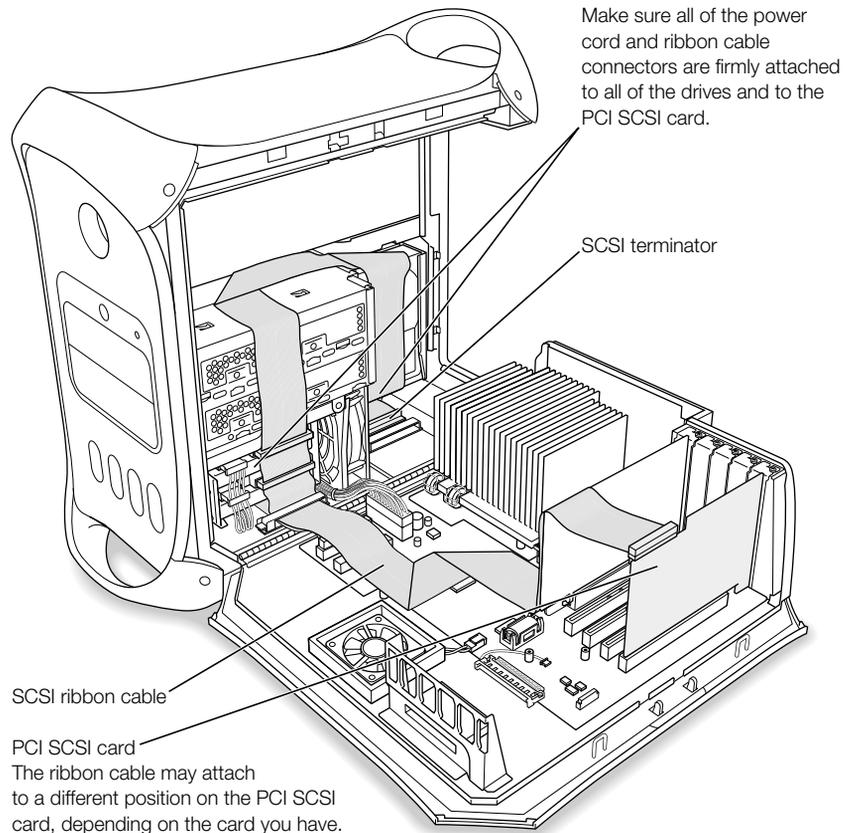
- 6 Attach the ribbon and power cables.
- 7 Secure the ribbon cable with the cable clamp.
- 8 Close the computer.



Installing Ultra160 LVD SCSI Drives

If your Macintosh has an internal Ultra160 LVD SCSI drive, you can connect up to three more internal Ultra160 LVD SCSI drives to the PCI card and cable inside the computer—for a total of four SCSI drives. This cable has the required connectors and a built-in terminator, so you don't need to add one.

Note: If your computer doesn't have a SCSI hard disk drive, you need to install a SCSI PCI card in your computer to connect SCSI hard disk drives. Replace the drive carrier on the chassis and reinsert the screws.



The procedures for disconnecting and connecting a SCSI hard disk drive and for removing and inserting drive carriers are nearly identical to those presented in the ATA drive installation instructions on page 74. Follow the ATA drive instructions when installing a SCSI drive.

However, before installing your SCSI drive, note the following difference:

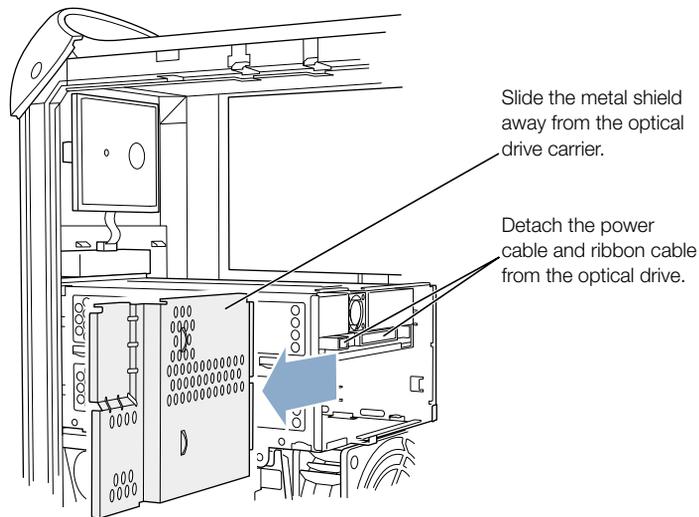
When you configure your SCSI hard disk drive

Assign a unique SCSI ID number to each new device. A single factory-installed drive uses SCSI ID 0; a second factory-installed drive uses SCSI ID 1; a third factory-installed drive uses SCSI ID 2; and a fourth factory-installed drive uses SCSI ID 3. The SCSI PCI card has been assigned ID 7. If you select one of these numbers for a new drive, the drive will not work properly.

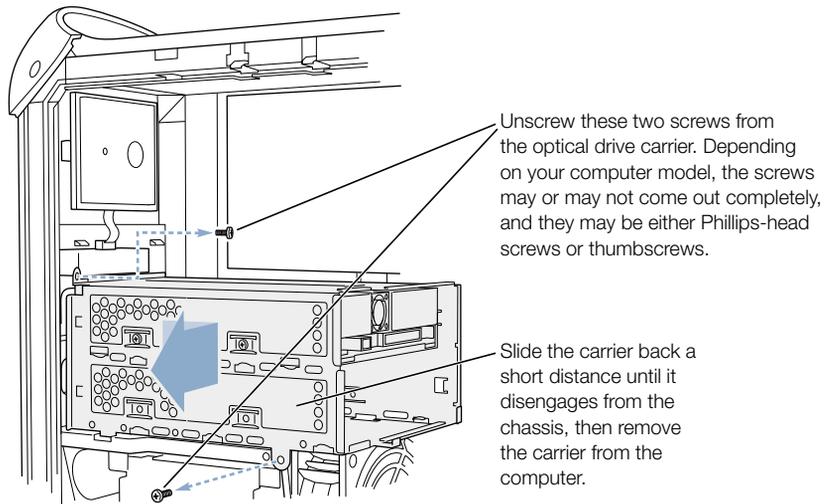
Installing Optical Drives

You can install a second optical drive in the lower optical drive bay.

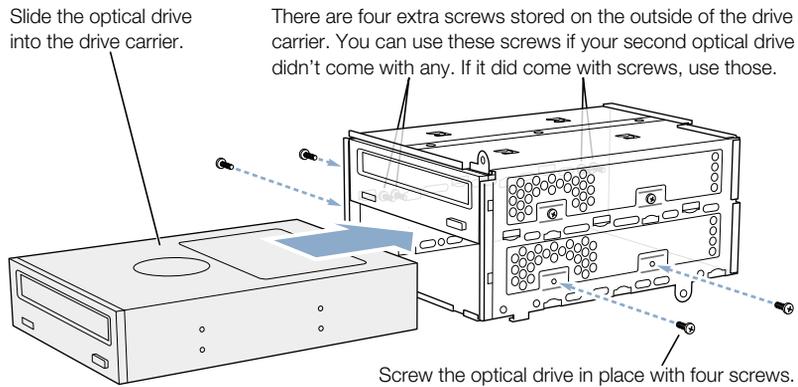
- 1** Slide the metal shield away from the optical drive carrier.
- 2** Remove the power and ribbon cables.



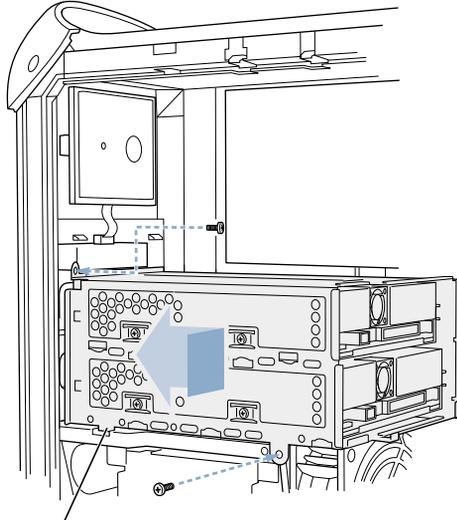
- 3 Unscrew the two attachment screws from the optical drive carrier.
Note: The drive carrier screws are located on the back side of the carrier.
- 4 Slide the carrier back and remove it from the computer.



- 5 Install the second optical drive in the drive carrier and screw it into position.

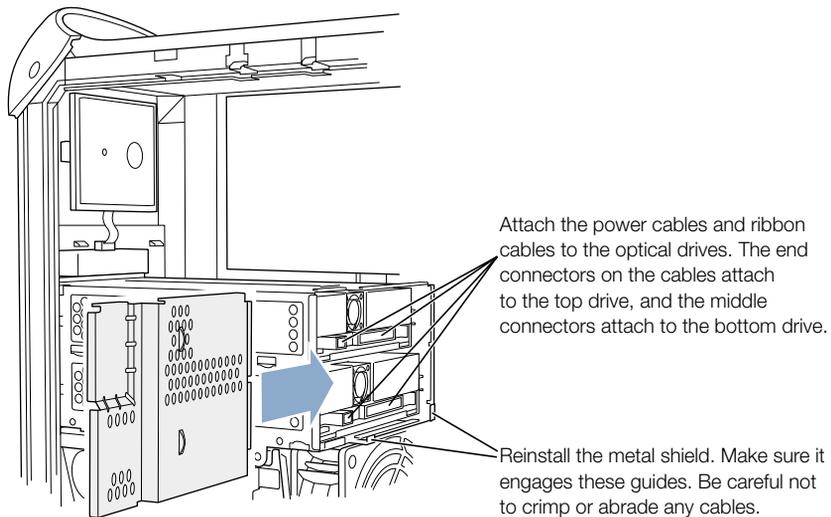


- 6 Replace the drive carrier on the chassis and tighten the screws.



Reinstall the optical drive carrier in the computer. Make sure this guide engages the slot in the chassis. Push the carrier forward until it is firmly seated, and then tighten the two screws.

- 7 Attach the power and ribbon cables to the drives.
- 8 Reinstall the metal shield, taking care not to crimp the cables.



- 9 Close the computer.

Installing a PCI Expansion Card or Replacing the AGP Card

You can expand the capabilities of your Power Mac G4 by installing cards in its expansion slots. The server has five expansion card slots, four of which accommodate Peripheral Component Interconnect (PCI) cards and one that accepts an advanced graphics port (AGP) card.

AGP cards and PCI cards have different connectors, so you cannot insert a PCI card into the AGP slot.

About AGP Cards

Your AGP card, installed in slot 1, contains the graphics processor unit (GPU) and provides the computer's monitor ports. Slot 1 is designed specifically to accept AGP cards. This 66 megahertz (MHz) slot accommodates 1.5 volt (V) AGP cards (see the illustration on page 89).

You can replace the card that came with the computer with an AGP 4X card. A replacement AGP card must have a driver compatible with the Mac OS.

About PCI Expansion Cards

Your Macintosh has four expansion slots, labeled 2, 3, 4, and 5, which accept PCI cards up to 12 inches long. Some models come with a SCSI PCI card installed in one of these slots. Install only expansion cards that come with Macintosh driver software and that comply with the PCI 2.1 standard.

The PCI slots can accommodate mixed voltage (5.0 V, 12 V, or 3.3 V) cards with 32-bit or 64-bit data widths and a 33 MHz frequency. You can add a 66 MHz card to a PCI slot if the card can operate at the lower 33 MHz rate.

Warning Do not use cards that function only at 66 MHz in the PCI slots. Damage to your equipment could result. If you have a 66 MHz card, check the card's manufacturer to see if it also works at 33 MHz.

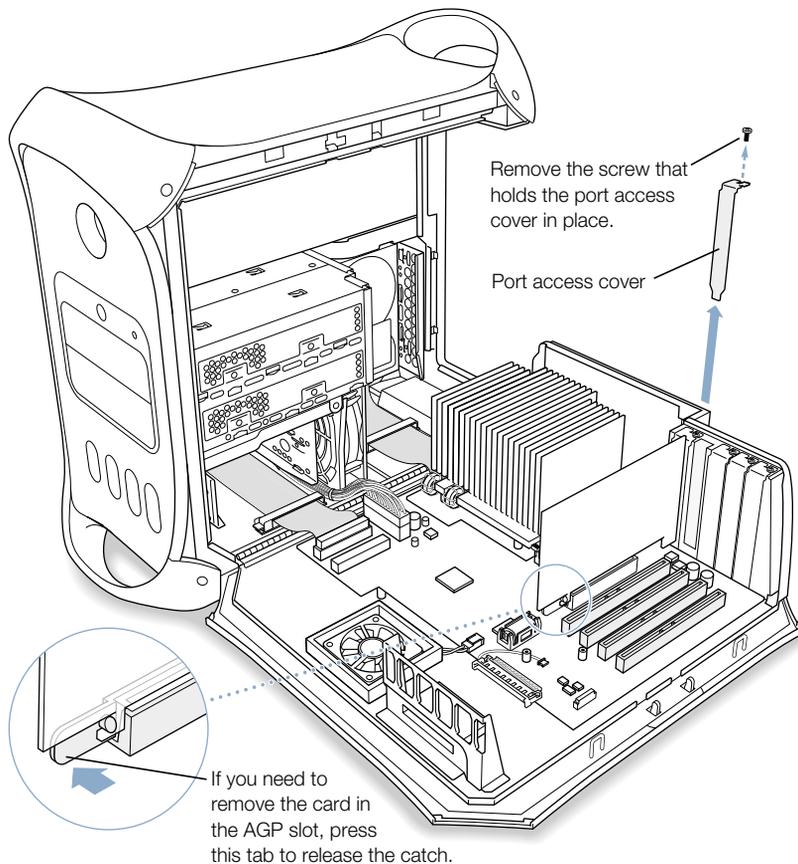
Maximum power consumption for all five expansion slots (the four PCI expansion cards and the AGP card) should not exceed 90 watts (W).

Installing Your Card

Install an AGP card in slot 1 only. Install PCI cards in the slots labeled PCI 2, 3, 4, and 5.

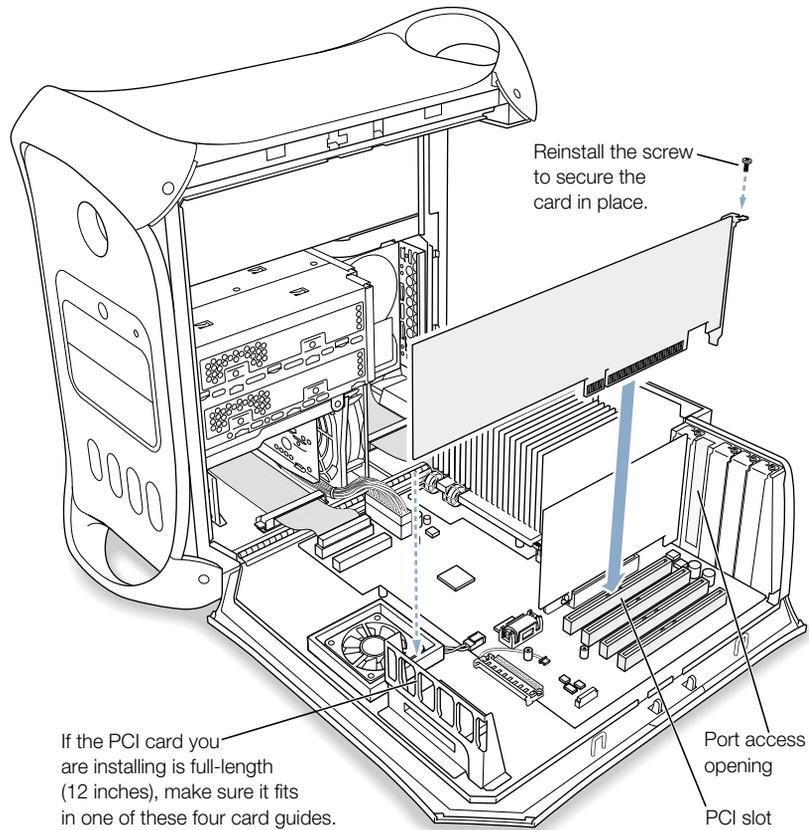
Warning Cables with large connectors may interfere with the enclosure in the PCI slot numbered 5, making it difficult to close the door and potentially causing damage to your PCI card. If this is the case, rearrange the cards in the slots. You may also connect the cable after the enclosure door is shut, but be sure to remove the cable before opening the door again. If your PCI cards are connected to each other with cables or jumpers, take care when closing the door.

- 1 Remove the screw that holds the port access cover in place, pull out the access cover, and set it aside.
 - To remove a card that's installed in the computer, remove the screw that holds the card in place and pull the card from the slot.



- 2 Remove the card that you want to install from its static-proof bag and hold it by its corners, taking care not to touch the gold connector or any of the components on the card.
- 3 Align the card's connector with the expansion slot and press down until the connector is inserted all the way into the slot.

If you're installing a 12-inch card, make sure the card engages the appropriate guide at the front of the computer.



Press the card gently but firmly until the connector is fully inserted.

- Don't rock the card from side to side; instead, press the card straight into the slot.
- Don't force the card. If you meet a lot of resistance, pull the card out. Check the connector and the slot for damage or obstructions, then try inserting the card again.
- Pull the card gently to see if it is properly connected. If it resists and stays in place, and if its gold connectors are barely visible, the card is connected.

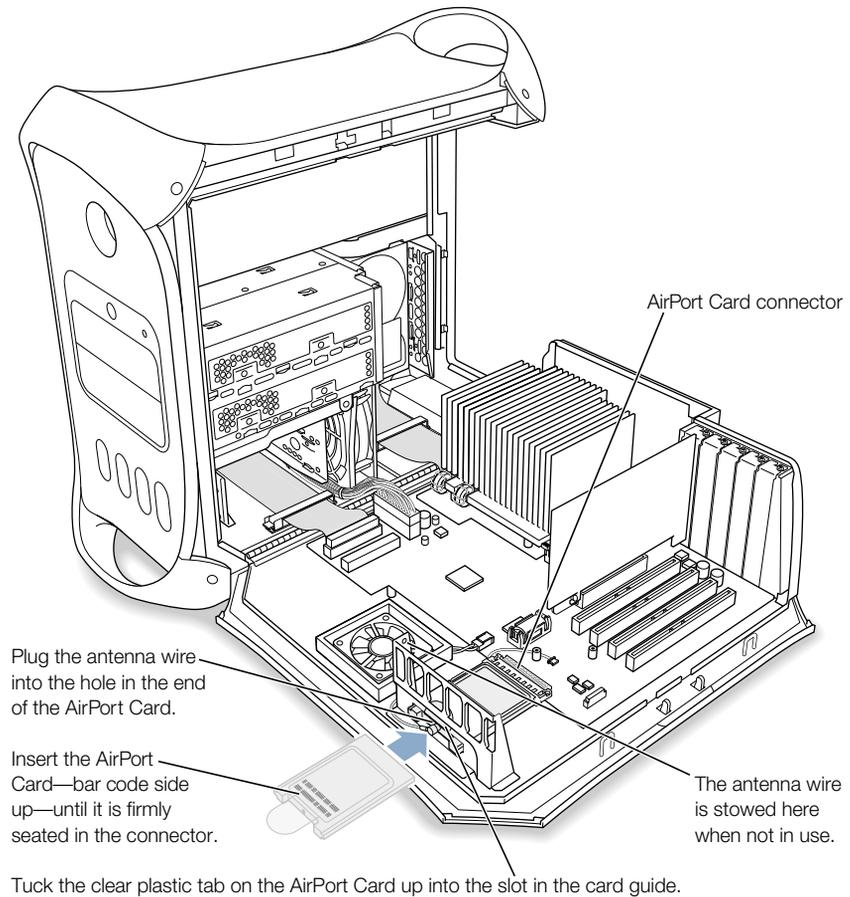
4 Reinsert the port access cover screw and tighten it to hold the card in place.

Warning If you removed a card from your computer and did not install a replacement, be sure to place a port access cover over the empty slot. Do not leave an empty slot without a cover. Covers keep foreign objects out of the enclosure. An uncovered slot can affect the air flow that cools the computer's internal components and cause damage.

5 Close the computer.

Installing an AirPort Card

- 1 Position the AirPort Card with the AirPort ID numbers and bar code facing up and insert the card into the AirPort Card connector.



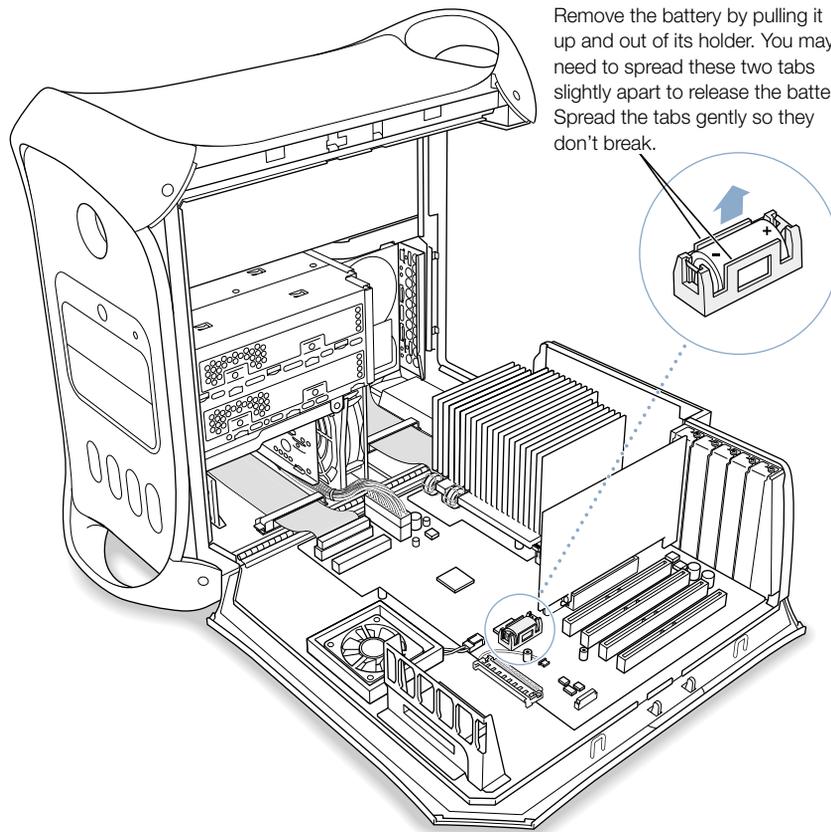
- 2 Carefully attach the coaxial antenna wire to the port on the end of the AirPort Card.
Stow the antenna wire on the side of the PCI card guide, taking care not to bend or crimp the wire tightly.
- 3 Close the computer.

Replacing the Battery

Your computer has a 3.6 V lithium battery on the main logic board. If your computer has intermittent problems starting up or random changes in its date and time settings, you may need to replace the battery. Purchase a replacement battery from an Apple-authorized dealer.

- 1 Remove the battery from its holder, noting the orientation of the battery's positive end. (A plus sign is marked on and near the battery holder.)

Important Batteries contain chemicals, some of which may be harmful to the environment. Please dispose of used batteries according to your local environmental laws and guidelines.



- 2 If necessary, carefully spread the tabs holding the battery so you can remove it.

Warning Installing the battery incorrectly may cause an explosion. Be sure the battery's positive and negative poles are correctly oriented in the holder. Use only the same type of battery or an equivalent recommended by the manufacturer of the original.

- 3 Insert the new battery in the holder, making sure the battery's positive symbol aligns with the positive symbol on or near the holder.
- 4 Close the computer.

Troubleshooting

If you have a problem while working with your computer, here are some things you can try right away.

Note: If you have problems in the Classic environment, troubleshoot them as you would in Mac OS 9, not Mac OS X.

If the computer won't respond or the pointer won't move:

First, make sure the mouse and keyboard are connected.

- Unplug and then plug in the connectors and make sure they are firmly seated.

Then try to cancel what the computer is doing.

- Press the Command (⌘) and Q keys at the same time to try to quit the current application.
- Press the Command (⌘) and period keys at the same time and, if a dialog box appears, click Cancel.
- *In Mac OS X*, choose Force Quit from the Apple () menu and select the application you would like to quit. Restart the computer by choosing Restart from the Apple () menu to be sure the problem is entirely cleared up. You can also press the Esc, Option, and Command (⌘) keys at the same time.
- *In Mac OS 9*, hold down the Esc, Option, and Command (⌘) keys to force the application to quit. Restart the computer by choosing Restart from the Special menu to be sure the problem is entirely cleared up.
 - If that doesn't work, hold down the power button on the front of the computer for five seconds. After the computer turns off, press the button again to turn it on.
 - If all else fails, unplug the power cord to turn the computer off, then replug the power cord and use the front panel power button to restart the computer.
- *If the problem occurs only when you use a particular program*, check with the program's manufacturer to see if it is compatible with your computer.

- *If the problem occurs frequently*, choose Mac Help from the Help menu.
 - *In Mac OS X*, search for “solve problems.”
 - *In Mac OS 9*, look at the section on how to prevent and solve problems. You may also need to check for extension conflicts or reinstall your computer’s system software.

If the computer freezes during startup or you see a continuous flashing question mark for more than a minute:

If you are starting up in Mac OS 9, turn off your Mac OS 9 system extensions.

- Start up your computer while holding down the Shift key.
- If your computer is set to start up from another computer on your network, check that your Ethernet cables are firmly connected, then restart your computer. Your computer may be having trouble connecting to the network. Check that the startup computer or server is not down.
- If you are in Mac OS 9, remove any items from the Servers folder in your System Folder. Your computer may be having trouble connecting to a server over the Internet.

If that does not work, or if you are starting up in Mac OS X, turn off the computer by holding down the power (⏻) button. Then start up using the Software Install CD.

- Insert your system software CD and start up while holding down the C key. (Make sure the Caps Lock key is not engaged.)
- After the computer starts up, see the troubleshooting information in the onscreen help. Choose Mac Help from the Help menu. Look at the section on how to prevent and solve problems. You may need to check for extension conflicts or reinstall your computer’s system software.

If the computer won’t turn on or start up:

First, make sure the power cord is connected to a working power source.

- The plug on the power cord must be completely inserted into the computer’s power socket and firmly seated for your computer to operate correctly.

Reset the computer’s parameter random-access memory (PRAM).

- Start up the computer and immediately hold down the Command (⌘), Option, P, and R keys until you hear the startup sound a second time. Then set your hard disk as the computer’s startup disk.
 - *In Mac OS X*, choose System Preferences from the Apple () menu and click Startup Disk, then select your hard disk.
 - *In Mac OS 9*, choose Control Panels from the Apple () menu, then choose Startup Disk from the submenu, and select your hard disk.

If you hear tones during startup:

- If you recently installed additional memory, a PCI expansion card, or another internal component, make sure that it is correctly installed and that it is compatible with your computer. See if removing it allows the computer to start up.
- Contact an Apple-authorized service provider.

If you are unable to eject a disc:

A file on the disc may be in use. Quit applications that are open, then try again.

If that doesn't work:

- *In Mac OS X*, choose Restart from the Apple () menu and hold down either the mouse button or the Media Eject (⏏) key on your Apple Pro Keyboard.
- *In Mac OS 9*, choose Restart from the Special menu and hold down either the mouse button or the Media Eject (⏏) key on your Apple Pro Keyboard.

If that doesn't work:

- Shut down the computer.
- Carefully press down the front panel covering the front of the drive tray and locate the small hole below the drive tray.
- Carefully insert the end of a large straightened paper clip into the hole.
- Push firmly until the tray opens.
- Pull out the tray, remove the disc, and push the tray to close it.

Software Problems

If you have a problem with a software program:

- Use Software Update to ensure that you have the latest drivers, bug fixes, and other updates.
- For problems with software from a manufacturer other than Apple, contact the manufacturer.

If you have a problem using your computer or working with the Mac OS:

- Look at the Help Center (in the Help menu) for instructions and troubleshooting information.
- Go to the Apple Support website on the Internet for the latest troubleshooting information and software updates: www.apple.com/support

If you have trouble using AirPort wireless communication:

- Make sure you have properly configured the software according to the instructions that came with your AirPort Card or AirPort Base Station.
- Make sure the computer or network you are trying to connect to is running and has a wireless access point.
- Make sure you are within antenna range of the other computer or the network's access point. Nearby electronic devices or metal structures can interfere with wireless communication and reduce this range. Repositioning or rotating the computer may improve reception.
- Check the AirPort signal level:
 - *In Mac OS X*, up to four bars in the AirPort status icon in the menu bar.
 - *In Mac OS 9*, up to five green dots in the AirPort portion of the Control Strip.
- See AirPort Help (in the Help Center) and the instructions that came with the wireless device for more information.

Problems With Your Display

Warning If you have a problem with your Apple display and nothing presented in this manual solves it, contact an Apple-authorized service provider or Apple for assistance. If you attempt to repair the display yourself, any damage you may cause to the display will not be covered by the limited warranty on your display. Contact an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

No image appears on the screen.

- Make sure the display and computer are turned on.
- Make sure the cables are connected properly to your computer and the display.
- Make sure your computer is not in sleep. Press the power button or any key to see if the computer wakes.
- Make sure the display brightness and contrast are set properly. Some monitors have brightness and contrast controls on or under their front edge.
- Reset the PRAM by restarting the computer while holding down the Command (⌘), Option, P, and R keys until you hear the startup sound a second time. Then start up using the Software Install CD.
- If that doesn't work but your display is functioning, then it is a software problem. Restart your computer while pressing the Shift key to restart with your extensions off.

The screen image appears dim or flickers.

- Adjust the display brightness and contrast settings. Some monitors have brightness and contrast controls on or under their front edge. Depending on how dim your monitor appears, you may be able to adjust brightness or contrast using the Displays pane of System Preferences (in Mac OS X) or the Monitors control panel (in Mac OS 9).
- Calibrate the monitor.
 - *In Mac OS X*, choose System Preferences from the Apple () menu, click Displays, select Color, and click Calibrate.
 - *In Mac OS 9*, choose Control Panels from the Apple () menu, then choose Monitors from the submenu and click Calibrate. The Calibrate option is not available on some displays.
- The flickering may be caused by interference from a nearby power line, a fluorescent light, or an electrical device—for example, a radio, a microwave oven, or another computer. Try relocating nearby electrical devices or moving your computer and display.

No colors appear on the screen or the colors don't look right.

- Make sure the display is connected firmly to the computer.
- Calibrate your monitor, as described previously. For more information on color and your display, see Mac Help.
- Use the Displays pane of System Preferences (in Mac OS X) or use the Monitors control panel (in Mac OS 9) and make sure your monitor is set to display colors. For more information on color and your display, see Mac Help.

After you change the screen resolution, desktop icons move.

- Changing the screen resolution affects the display of information on your screen. The operating system may reposition icons after you change the screen resolution.

The screen freezes.

- Force the application that has frozen to quit.
 - *In Mac OS X*, choose Force Quit from the Apple () menu and select the application.
 - *In Mac OS 9*, hold down the Esc, Option, and Command (⌘) keys and click Force Quit in the dialog box.
- If that doesn't work, force the computer to restart by pressing the reset button (⏻) on the front of your computer.

The light on the front of the monitor is flashing.

On some Apple flat-panel displays, the power light displays a series of short flashes when an error has been detected.

- *If you see a repeating sequence of three short flashes*, the monitor is detecting input in the wrong video format. Check that your monitor is compatible with your graphics card and that you've installed the correct monitor software, if your monitor came with installation software.
- *If you see a sequence of two short flashes and a long flash*, the monitor is detecting a problem with a backlighting lamp. Contact an Apple-authorized dealer or service provider.

Restoring Your Computer's Software

Software Restore restores your computer's original contents, including the Mac OS 9 system software, factory settings, and applications that came with your computer.

Software Restore does not restore Mac OS X, iPhoto, iMovie, or iTunes. If you need to reinstall Mac OS X or these applications, use the Mac OS X installation discs that came with your computer.

Important It is highly recommended that you back up the data on your hard disk before restoring software. Apple is not responsible for any lost data.

After reinstalling Mac OS X, should you need to restore the rest of your computer's applications and files, first install the Software Restore application, located on the first Software Restore CD, and then follow the onscreen instructions.

To restore your computer's original contents:

- 1 Make sure you have all the Software Restore CDs that came with your computer.
- 2 Insert the first Apple Software Restore CD. Double-click the "SoftwareRestore.pkg" icon to install the Software Restore application.
- 3 Follow the onscreen instructions.

Specifications

Processor and Memory Specifications

Processor

- PowerPC™ G4 processor with 256 kilobytes (KB) on-chip cache
- Some configurations have an L3 backside cache per processor.

Random-access memory (RAM)

- Double-Data-Rate (DDR) Synchronous Dynamic Random-Access Memory (SDRAM) up to a maximum of 2 GB.
- All DDR SDRAM is supplied in removable Dual Inline Memory Modules (DIMMs).
- Four slots are available for either PC 2100 or PC 2700 DDR SDRAM, depending on the computer's bus speed.
 - For 133 MHz systems, use PC 2100 DIMMs.
 - For 167 MHz systems, use PC 2700 DIMMs.
- 128, 256, or 512 MB DIMMs
 - 256 MB DIMMs must have 128 or 256 megabit (Mbit) technology devices; 512 MB DIMMs must have 256 Mbit technology devices.
- 2.5 volt (V) unbuffered, 64-bit wide, 184-pin
- Non error correcting (ECC)
- Non parity

Apple System Profiler, located in the Utilities folder of the computer's Applications folder, provides information about your computer, including the type and amount of memory.

Dimensions and Operating Environment

Dimensions

- *Weight:* 19.05 kg, 42 lbs.

Weight depends on configuration. Weight above includes basic configuration: an optical and one hard disk drive. Weight may be greater if optional devices are installed.

- *Height:* 432 mm, 17.0 in.
- *Width:* 227 mm, 8.9 in.
- *Depth:* 468 mm, 18.4 in.

Operating environment

- *Operating temperature:* 10° to 35° C (50° to 95° F)
- *Storage temperature:* -40° to 47° C (-40° to 116.6° F)
- *Relative humidity:* 5% to 95% (noncondensing)
- *Altitude:* 0 to 3048 meters (0 to 10,000 feet)

CD-RW Drive Specifications

- *Disc diameters supported:* 12 cm (4.7 in.)

Data formats

- CD-ROM
- CD-Audio
- CD-R
- CD-RW
- CDI
- CD Bridge
- CD Extended
- CD Mixed Mode
- Photo CD
- Video CD
- 3-inch circular CD (8 cm)
- non-circular CDs

Combo Drive (DVD-ROM/CD-RW) Specifications

- *Disc diameters supported:* 12 cm (4.7 in.)

Data formats

- CD-ROM
- CD-Audio
- CD-R
- CD-RW
- CDI
- CD Bridge
- CD Extended
- CD Mixed Mode
- Photo CD
- Video CD
- DVD-Video
- DVD-ROM
- DVD-R (read only)

SuperDrive (DVD-R/CD-RW) Specifications

- *Disc diameters supported:* 12 cm (4.7 in.), 6.75 cm (3 in.)

Data formats

- CD-ROM
- CD-Audio
- CD-R
- CD-RW
- CDI
- CD Bridge
- CD Extended
- CD Mixed Mode
- Photo CD
- Video CD
- non-circular CDs
- DVD-Video
- DVD-ROM
- DVD-R

USB Specifications

- Support for USB 1.1
- Four external Universal Serial Bus (USB) Type A ports, two on the rear panel and two on the Apple Pro Keyboard.
- Each rear port is on a separate 12 megabit per second (Mbps) USB channel.
- 500 milliamperes (mA) at 5 V are available per port for a total of 1 ampere.

FireWire Specifications

- *Data transfer speed:* 100, 200, and 400 Mbps

Power

- *Output voltage range:* Approximately 13 to 30 V
- *Output power range:* Up to 15 W

Ethernet Specifications

- IEEE 802.3 compliant
- *Maximum cable length:* 100 meters (m)
- *Protocols:* Open Transport, AppleShare, AppleTalk, NetWare for Macintosh, TCP/IP
- *Connector:* RJ-45 for 10Base-T, 100Base-TX, and 1000Base-T
- *Media, 10Base-T:* Category 3 or higher UTP on 2 pairs up to 100 m
- *Media, 100Base-TX:* Category 5 UTP on 2 pairs up to 100 m
- *Media, 1000Base-T:* Category 5 and 6 UTP on 4 pairs up to 100 m
- *Channel speeds:* IEEE Auto Negotiation of 10Base-T, 100Base-TX, and 1000Base-T

Modem Specifications

- *Data communications standard:* K56Flex and V.90
- *Speed:* 53 kilobits per second (Kbps)
- *Fax standard:* ITU V.17

Specifications for the AirPort Card (Optional)

- *Wireless data rate:* Up to 11 Mbps
- *Range:* Up to 150 feet (data rates may vary depending on environmental conditions)
- *Frequency band:* 2.4 gigahertz (GHz)
- *Radio output power:* 15 dBm (nominal)

Compatibility

- 802.11 Direct Sequence Spread Spectrum (DSSS) 1 and 2 Mbps standard
- 802.11 HR DSSS 11 Mbps standard

Audio Output Specifications

- Data format 24-bit stereo, 44.1 kilohertz (kHz) audio sample rate

Sound out using the Apple speaker mini-jack

- *Power:* 8 watts per channel
- *Frequency response:* 20 hertz (Hz) to 20 kHz
- *Signal-to-noise ratio:* Greater than 90 decibels (dB)
- *Total harmonic distortion:* Less than 0.1 percent
- *Load:* 8 ohm (Ω)

Sound out using the headphone jack

- *Power:* 40 milliwatts (mW)
- *Frequency response:* 40 Hz to 20 kHz
- *Signal-to-noise ratio:* Greater than 96 dB
- *Load:* 32 Ω

Sound output using line-out connector

- *Full-scale amplitude:* 1.5 volts (root mean square) (V_{rms}) for load greater than 1kOhms
- *Frequency response:* 8 Hz to 20 kHz (load independent)
- *Signal-to-noise ratio:* Greater than 100 decibels (dB)
- *Total harmonic distortion:* Less than 0.004 percent

Audio Input Specifications

- Data format 24 bits stereo, 44.1 kHz audio sample rate

Line-in specification

- *Maximum amplitude:* 2 volts (root mean square) (V_{rms})

- *Frequency response:* 5 Hz to 20 kHz
- *Signal-to-noise ratio:* Greater than 100 dB
- *Total harmonic distortion:* Less than 0.005 percent

Graphics Controller

AGP 4X card with an Apple Display Connector (ADC) and Digital Visual Interface (DVI) connector.

Video Display Modes

For technical specifications for your display:

- *Apple displays:* Go to the Apple website and check the specifications for your product at www.apple.com/displays
- *Third-party displays:* Go to www.apple.com/guide

Power Supply

AC line input

- *Line voltage/current:* 100–120 V alternating current (AC), 6.5 amperes (A) or 200–240 V AC, 3.5 A, single phase, set automatically by power supply
- *Frequency:* 50–60 Hz

DC monitor output

- 4.0 A maximum at nominal 25 V DC from the Apple Display Connector

Power Requirements for Devices You Can Connect

Expansion cards

- Maximum power consumption by the AGP card is 30 W.
- Maximum power consumption by four PCI cards is 60 W.

USB devices

- Each of the computer's built-in USB ports is allotted 500 mA.

FireWire devices

- The computer can provide up to 15 W total to the FireWire ports.

System Clock and Battery

- CMOS custom circuitry with long-life lithium battery. You can replace the computer's battery (see "Replacing the Battery" on page 92) with a new one purchased from an Apple-authorized dealer.

Safety, Maintenance, and Ergonomics

This appendix provides important information about safety procedures, routine maintenance, and ergonomic considerations for using your computer and display.

Important Safety Information

The only way to disconnect power completely from your computer is to unplug the power cord from the main power supply. To disconnect your display completely, you must also unplug its power cable from the computer or power outlet. Make sure at least one end of the device's power cord is within easy reach so that you can unplug the computer or display when necessary.

For your own safety and that of your equipment, always take the following precautions.

Disconnect the power plug (by pulling the plug, not the cord), from your computer or display and disconnect the phone cord if any of the following conditions exists:

- The power cord or plug becomes frayed or otherwise damaged
- You spill something into the case
- Your computer or display is exposed to rain or any other excess moisture
- Your computer or display has been dropped or the case has been otherwise damaged
- You suspect that your computer or display needs service or repair
- You want to clean the computer or display case or screen

To prevent accidents and damage to your computer or display, be sure that you always follow these instructions:

- Keep your computer and display away from sources of liquids and moisture.
- Don't set anything on top of the computer or display.
- Keep the computer and display vents free from obstruction.
- Never remove the case from the monitor or open your computer when it's running. You could come in contact with hazardous voltage.
- During lightning storms, disconnect your modem from the phone jack to prevent a destructive voltage overload from damaging the modem.

Your Macintosh is equipped with a three-wire grounding plug—a plug that has a third grounding pin. This is a safety feature. Don't modify the plug to fit into an ungrounded outlet. Contact a licensed electrician to replace the outlet with a properly grounded one. Do not defeat the purpose of the grounding plug!

Be careful when lifting or moving your computer or monitor. Be sure to use correct lifting procedures, lifting with your legs. When carrying the monitor, make sure the monitor is facing you. Don't carry the monitor by its stand.

Warning Electrical equipment may be hazardous if misused. Operation of this product by children must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.

Apple and the Environment

At Apple, we recognize our responsibility to minimize the environmental impacts of our operations and products.

For More Information

Go to www.apple.com/about/environment

General Maintenance

If you need to clean the computer or display beyond wiping it down with a clean cloth, follow these instructions:

- 1 Turn your computer and display off.
- 2 Disconnect the computer power cable from the electrical outlet or power strip. If your display is connected to an outlet, disconnect it as well.
- 3 Disconnect the display's cables from the computer.
- 4 Clean the display screen with soft, lint-free paper or cloth dampened with mild soap and water.

Warning Do not spray liquid directly onto the display screen. Liquid could drip inside the display and cause electrical shock.

- 5 Wipe the computer or display case surfaces lightly with a clean, soft cloth dampened with water.

Important Don't use alcohol, aerosol sprays, solvents, or abrasives that might damage the finish on the case.

Protecting Your Removable Media Drive

To keep your removable media drive working properly:

- Position your computer so that the drive tray doesn't bump into anything when it opens.
- Close the drive when you're not using it.
- Do not put anything on the drive tray when it is open.
- Do not touch the optical drive lens with your fingers. Do not wipe the lens with a paper towel or other abrasive surface. If you need to clean the lens, see an Apple-authorized service provider for a lens cleaner.
- Keep your computer away from any source of moisture.

Maintaining Your Display

To maintain your display and ensure its long life:

- Do not press on the surface of the display screen.
- Do not write on the screen or touch the screen with a sharp object.
- If you will not be using your display and computer for a day or more, turn off the computer and display or use Energy Saver.
- Turn off your monitor, turn down the brightness, or use a screen saver program that dims or varies the image on the screen when the computer is idle for a prolonged time.

Important Ergonomic and Health-Related Information

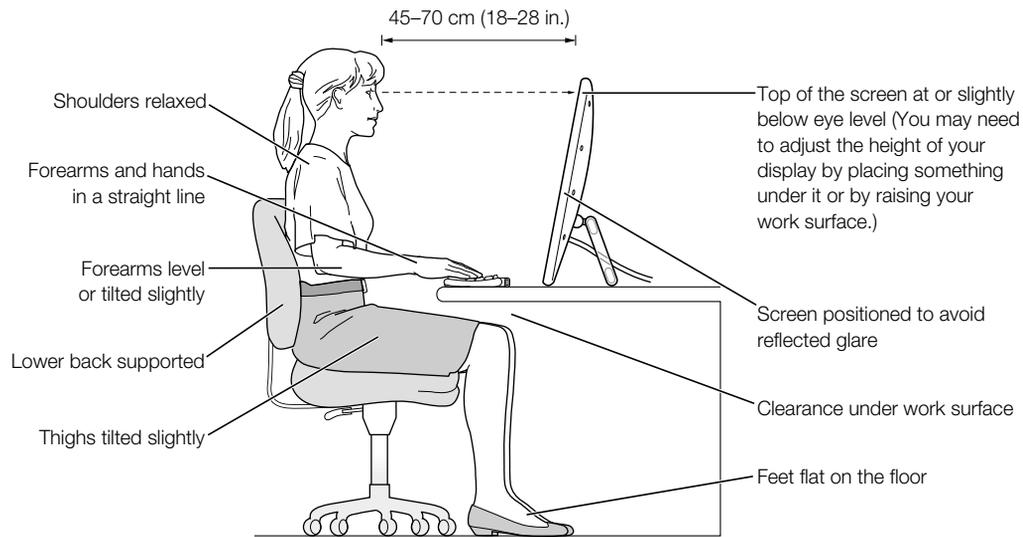
Here are some guidelines for adjusting the furniture in your office to reduce glare and to accommodate your physical size and shape.

- An adjustable chair that provides firm, comfortable support is best. Adjust the height of the chair so your thighs are tilted slightly and your feet are flat on the floor.
The back of the chair should support your lower back (lumbar region). Follow the manufacturer's instructions for adjusting the backrest to fit your body properly.
- When you use the computer keyboard, your shoulders should be relaxed. Your upper arm and forearm should form an approximate right angle, with your wrist and hand in roughly a straight line.

You may have to raise your chair so your forearms and hands are at the proper angle to the keyboard. If this makes it impossible to rest your feet flat on the floor, you can use a footrest with adjustable height and tilt to make up for any gap between the floor and your feet. Or you can lower the desktop to eliminate the need for a footrest. Another option is to use a desk with a keyboard tray that's lower than the regular work surface.

- Position the mouse at the same height as your keyboard. Allow adequate space to use the mouse comfortably.
- Arrange the monitor so the top of the screen is slightly below your eye level when you're sitting at the keyboard. The best distance from your eyes to the screen is up to you, although most people seem to prefer 18 to 28 inches (45 to 70 cm).

- Position the monitor to minimize glare and reflections on the screen from overhead lights and nearby windows. If possible, use a tilttable monitor stand. The stand lets you set the monitor at the best angle for viewing, helping to reduce or eliminate glare from lighting sources you can't move.



For more information about health, safety, and maintenance, go to Apple's World Wide website: www.apple.com/about/ergonomics

Connecting to the Internet

It's best to configure your network and Internet connection using Setup Assistant when you first set up Mac OS X. The assistant helps you enter your Internet configuration information, set up your networking software, and sign up for an Internet service provider (ISP) if you don't already have one.

If you did not already use the Setup Assistant to configure your Internet connection, you may be able to use it now. Open the Utilities folder and double-click the Setup Assistant icon. If you don't want to use the Setup Assistant or if there is no Setup Assistant icon in the Utilities folder, you can use the information in this appendix to set up your connection.

Whether you connect through a dialup modem, cable modem, digital subscriber line (DSL), or an Ethernet local area network (LAN), you need specific setup information from your ISP or network administrator before you begin.

Note: For instructions on connecting to the Internet in Mac OS 9, open Mac Help, available in the Help menu, and click "Internet and Networking."

If you are connecting for the first time, changing your settings, or adding a new configuration, follow the steps that correspond to your connection method:

- Dialup modem with Point-to-Point Protocol (PPP) connection
- Cable modem, DSL, or LAN connection using these configurations:
 - Manual
 - DHCP
 - PPPoE

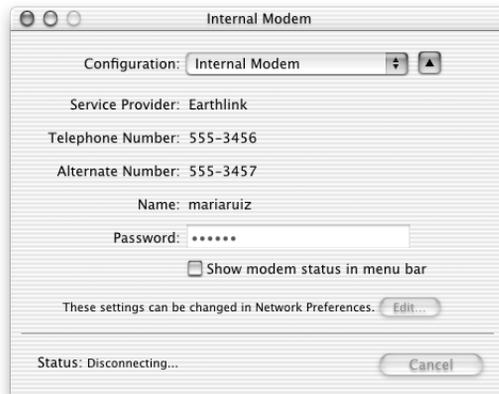
Important To set up your AirPort Base Station, use the AirPort Setup Assistant, located in the Utilities folder in your Applications folder.

Dialup (PPP) Connections

The most common way to connect to the Internet is through a dialup modem. Your modem uses Point-to-Point Protocol (PPP) to connect you to an ISP. For instructions on connecting your modem to a phone line, see “Using Your Modem” on page 60.

If you have an external modem, follow the setup instructions that came with your modem. If you have an internal modem, gather the following information from your ISP and have it available as you configure your network:

- Service provider name
- Telephone number
- Alternate number
- Account name
- Your password



To set up your network preferences for the Internal Modem port:

- 1 Choose System Preferences from the Apple menu.
- 2 Click the Network icon to open the Network pane.
- 3 Choose Network Port Configuration from the Show pop-up menu and click Internal Modem.



- 4 Drag Internal Modem to the top of the Port Configurations list to make it the preferred, or primary, network interface.
- 5 Choose Internal Modem from the Show pop-up menu and click the PPP tab.

- 6 Enter the information from your ISP and click Apply Now.



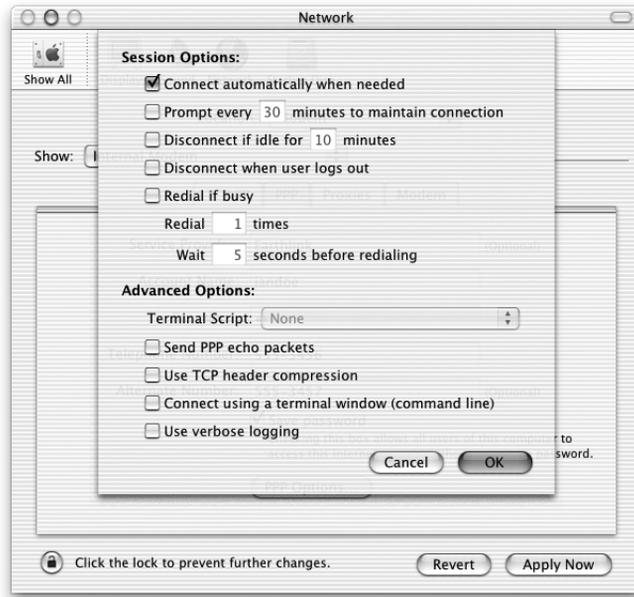
To test your Internet configuration, dialup your ISP and establish a connection:

- Open the Internet Connect application in your Applications folder.
- Click Connect.

You can connect automatically when you start a TCP/IP application, such as a Web browser or email, by setting your PPP Options as follows:

- 1 Click PPP Options in the PPP tab of Network preferences.

- 2 Click the “Connect automatically when needed” checkbox.



- 3 Click OK and Apply Now and close System Preferences.

DSL, Cable Modem, or LAN Internet Connections

If you connect to the Internet through a DSL, cable modem, or LAN, ask your ISP or network administrator whether you should

- configure your connection manually. With a manual configuration, your ISP or network administrator provides a static IP address and other information that you enter in the Network pane.
- use the Dynamic Host Configuration Protocol (DHCP). With a DHCP configuration, the DHCP server automatically enters the information for you.
- use Point-to-Point Protocol over Ethernet (PPPoE). If you use a DSL modem and need a user name and password to connect to the Internet, you may need to configure your network to use PPPoE.

Obtain the following information and have it available as you configure your network:

- Domain name server (DNS) addresses, if necessary
- DHCP or manual IP address configuration
- IP address
- Router address
- Subnet mask

Note: If your ISP or local network does not provide DNS addresses, they may have a method of providing this information automatically.

First, set up your network preferences for the built-in Ethernet port:

- 1 Choose System Preferences from the Apple menu.
- 2 Click the Network icon to open the Network pane.
- 3 Choose Network Port Configurations from the Show pop-up menu.
- 4 Click Built-in Ethernet.



- 5 Drag Built-in Ethernet to the top of the Port Configurations list to make it the preferred, or primary, network interface.

Next, follow the instructions to either configure your network manually, using DHCP, or using PPPoE, as instructed by your ISP or network administrator.

Manual Configuration

For a manual configuration, have your static IP address, router address, and subnet mask from your ISP ready:

- 1 Choose System Preferences from the Apple menu.
- 2 Click the Network icon to open the Network pane.
- 3 Choose Built-in Ethernet from the Show pop-up menu.
- 4 Click the TCP/IP tab, if necessary.
- 5 Choose Manually from the Configure pop-up menu.



- 6 Type the other information into the corresponding fields.
- 7 Click Apply Now and close System Preferences.

Once you configure your network, your connection is ready. Open your Web browser or other TCP/IP application to test your Internet connection.

DHCP Configuration

After you set up a DHCP configuration, the DHCP server automatically provides your network information:

- 1 Choose System Preferences from the Apple menu.
- 2 Click the Network icon to open the Network pane.

- 3 Choose Built-in Ethernet from the Show pop-up menu.
- 4 Click the TCP/IP tab, if necessary.
- 5 Choose Using DHCP from the Configure pop-up menu.



- 6 Click Apply Now and close System Preferences.

Open your Web browser or other TCP/IP application to test your Internet connection.

Note: Unless your ISP instructs you to do otherwise, ignore the DHCP Client ID field and the Search Domains field.

PPPoE Configuration

Some DSL-based ISPs use Point-to-Point Protocol over Ethernet (PPPoE). Check with your ISP to determine if you should connect using PPPoE. If you use a DSL modem and need a user name and password to connect to the Internet, follow these instructions.

- 1 Gather this information from your ISP:
 - User name and password
 - Domain name server (DNS) address

Note: Your ISP may not require you to enter a DNS server address.
- 2 Choose System Preferences from the Apple menu.
- 3 Click the Network icon to open the Network pane.

- 4 Choose Built-in Ethernet from the Show pop-up menu.
- 5 Click the PPPoE tab and select Connect using PPPoE.



- 6 Type your user name in the Account Name field and your password in the Password field. If you want all users of your computer to use the same connection method, select “Save password.”

Note: To connect automatically when you start a TCP/IP application, such as a Web browser or email, click PPPoE Options, then click “Connect automatically when needed.”

- 7 Click the TCP/IP tab and choose either PPP or Manually from the Configure pop-up menu, as instructed by your Internet service provider. If you have a static IP address from your ISP, choose Manually and type the address in the IP address field.

- 8 Type the Domain Name Server (DNS) addresses in the corresponding field.



- 9 Click Apply Now and close System Preferences.

Once you configure your network, your Internet connection is ready. You can open your Web browser or other TCP/IP application to test your connection.

Important If you did not click the option to automatically connect, then you will need to open the Internet Connect application, choose the correct configuration, and then click Connect. See Internet Connect Help in the Help menu for more information.

Troubleshooting Your Connection

Cable Modem, DSL, and LAN Internet Connections

If you are not able to connect to the Internet using your cable modem, DSL, or local area network (LAN), follow these steps.

Important Instructions that refer to modems do not apply to LAN users. LAN users may have hubs, switches, routers, or connection pods that cable and DSL modem users do not. LAN users should contact their network administrator rather than an ISP.

Check the cables and power supplies

Make sure all modem cables are firmly plugged in, including the modem power cord, the cable from the modem to the computer, and the cable from the modem to the wall jack. Check the cables and power supplies to Ethernet hubs and routers.

Cycle the power and reset the modem hardware

Cycle the power on your DSL or cable modem by turning it off for a few minutes then turning it back on. Some ISPs recommend that you unplug the modem's power cord. If your modem has a reset button, you can press it either before or after cycling the power.

PPPoE Connections

If you are unable to connect to your Internet service provider using PPPoE, first check the cables and power supplies, then cycle the power and reset the modem hardware.

Check System Preferences settings

Use System Preferences in the Apple menu to verify that you've selected PPPoE and to verify your

- account information
- TCP/IP settings
- primary network interface is set to "Built-in Ethernet"

Next, follow these steps:

- 1** Choose System Preferences from the Apple menu.
- 2** Click the Network icon to open the Network pane.
- 3** Choose Network Port Configurations from the Show pop-up menu.
- 4** Select Built-in Ethernet and drag Built-in Ethernet to the top of the Port Configurations list.
- 5** Choose Built-in Ethernet from the Show pop-up menu.
- 6** Select the PPPoE tab.
- 7** Select Connect using PPPoE.
- 8** Check the Account Name field to be sure you have entered the correct information from your ISP.
- 9** Retype your password if you chose to save your password, to be sure it is correct.
- 10** Select the TCP/IP tab. Follow your ISP's instructions for setting up this pane.
- 11** Click Apply Now if you make any changes and then close System Preferences.

Network Connections

If you have two or more computers attempting to share an Internet connection, be sure that your network is set up properly. You need to know if your ISP provides only one IP address or if it provides multiple IP addresses. If only one IP address is used, then you must have a router capable of sharing the connection, also known as network address translation (NAT) or “IP masquerading.” Check the documentation provided with your router for setup information. Check with the person who set up your network. The AirPort Base Station may be used for this routing function. For information on using the AirPort Base Station, check the online help. Choose Help Center from the Help menu and click AirPort Help. You can also find information on Apple’s AirPort website at www.apple.com/airport

Contact your ISP

If you cannot resolve the issue using these steps, contact your ISP.

Communications Regulation Information

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. See instructions if interference to radio or television reception is suspected.

Radio and Television Interference

This computer equipment generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple’s instructions—it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your computer system is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult an Apple-authorized service provider or Apple. See the service and support information that came with your Apple product. Or, consult an experienced radio/television technician for additional suggestions.

Important Changes or modifications to this product not authorized by Apple Computer, Inc., could void the EMC compliance and negate your authority to operate the product.

This product was tested for EMC compliance under conditions that included the use of Apple peripheral devices and Apple shielded cables and connectors between system components. It is important that you use Apple peripheral devices and shielded cables and connectors between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices. You can obtain Apple peripheral devices and the proper shielded cables and connectors through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance.

Responsible party (contact for FCC matters only): Apple Computer, Inc. Product Compliance, 1 Infinite Loop M/S 26-A, Cupertino, CA 95014-2084, 408-974-2000.

Industry Canada Statement

Complies with the Canadian ICES-003 Class B specifications. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

VCCI Class B Statement

情報処理装置等電波障害自主規制について

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをしてください。

European Community

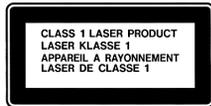
Complies with European Directives 72/23/EEC and 89/336/EEC.

Laser Information

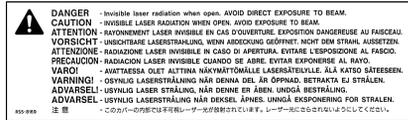
Warning Making adjustments or performing procedures other than those specified in your equipment's manual may result in hazardous radiation exposure.

Do not attempt to disassemble the cabinet containing the laser. The laser beam used in this product is harmful to the eyes. The use of optical instruments, such as magnifying lenses, with this product increases the potential hazard to your eyes. For your safety, have this equipment serviced only by an Apple-authorized service provider.

If you have an internal Apple CD-ROM, DVD-ROM, or DVD-RAM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located in a user-accessible area, indicates that the drive meets minimum safety requirements. A service warning label is located in a service-accessible area. The labels on your product may differ slightly from the ones shown here.



Class 1 label



Service warning label

Laser Specifications

Laser on pickup unit (when reading a CD):

- *Type*: Semiconductor GaAlAs laser
- *Wavelength*: 790 nm
- *Power out of objective lens*: 3.3 mW
- *Beam divergence*: horizontal 12° vertical 35°

Exposure to Radio Frequency Energy

The radiated output power of the optional AirPort Card is far below the FCC radio frequency exposure limits. Nevertheless, it is advised to use the wireless equipment in such a manner that the potential for human contact during normal operation is minimized.

Mouse and Keyboard Information

The Apple optical mouse is a Class 1 LED product. This product complies with the requirements of European Directives 72/23/EEC and 89/336/EEC.

It also complies with the Canadian ICES-003 Class B Specification.

High-Risk Activities Warning

This computer system is not intended for use in the operation of nuclear facilities, aircraft navigation or communications systems, or air traffic control machines, or for any other uses where the failure of the computer system could lead to death, personal injury or severe environmental damage.

ENERGY STAR® Compliance

As an ENERGY STAR® partner, Apple has determined that standard configurations of this product using the Mac OS X and Mac OS 9 operating systems meet the ENERGY STAR® guidelines for energy efficiency. The ENERGY STAR® program is a partnership with office product equipment manufacturers to promote energy-efficiency. Reducing energy consumption of office products saves money and reduces pollution by eliminating wasted energy.

Telephone and Apple 56K Modem Information

Notify Your Telephone Company

Some telephone companies require that you notify the local business office when you hook up a modem to their lines.

Information You Need in the United States

The internal modem complies with Part 68 of the FCC rules. On the back of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN). If requested, provide this information to your telephone company.

- *Ringer equivalence number (REN):* 0.8 The REN is useful for determining the quantity of devices you may connect to your telephone lines and still have all those devices ring when your telephone number is called. In most, but not all areas, the sum of the RENs of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your local telephone company to determine the maximum REN for your calling area.
- *Telephone jack type:* USOC, RJ-11 An FCC-compliant telephone cord and modular plug are provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack that complies with Part 68 rules. See the installation instructions for details.

Telephone Line Problems

If your telephone doesn't work, there may be a problem with your telephone line. Disconnect the modem to see if the problem goes away. If it doesn't, report the problem either to your local telephone company or to your company's telecommunications department.

If disconnecting the modem eliminates the problem, the modem itself may need service. See the service and support information that came with your Apple product for instructions on how to contact Apple or an Apple-authorized service provider for assistance.

If you do not disconnect your modem when it is adversely affecting the telephone line, the telephone company has the right to disconnect your service temporarily until you correct the problem. The telephone company will notify you as soon as possible. Also, you will be informed of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

The internal modem will not work with party lines, cannot be connected to a coin-operated telephone, and may not work with a private branch exchange (PBX).

Telephone Consumer Protection Act

The Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it was sent and an identification of the business, other entity, or individual sending the message and the telephone number of the sending machine of such business, entity, or individual.

Information You Need in Canada

The Industry Canada (IC) label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The Department does not guarantee the equipment will operate to a user's satisfaction.

Before installing this equipment, make sure that you are permitted to connect to the facilities of the local telecommunications company. Be sure you use an acceptable method of connection to install the equipment. In some cases, you may extend the company's internal wiring for single-line individual service by means of a certified telephone extension cord. Be aware, however, that compliance with these conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any equipment malfunctions or repairs or alterations that you make to this equipment may cause the telecommunications company to request that you disconnect the equipment.

In Canada, contact Apple at: 7495 Birchmount Road, Markham, Ontario, L3R 5G2, 800-263-3394

Warning Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority or electrician.

- **Load number:** 0.3 The load number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to the telephone loop that is used by the device, to prevent overloading. The termination of a loop may consist of any combination of devices, subject only to the requirement that the sum of the load numbers of all devices does not exceed 100.
- **Telephone jack type:** CA-11

Informations Destinées aux Utilisateurs Canadiens

L'étiquette d'Industrie Canada identifie un matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assurer qu'il est permis de le raccorder au réseau de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. Dans certains cas, le câblage appartenant à l'entreprise utilisé pour un service individuel à ligne unique peut être prolongé au moyen d'un dispositif homologué de raccordement (cordon prolongateur téléphonique).

L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêche pas la dégradation du service dans certaines situations. De fait, les entreprises de télécommunication ne permettent pas que l'on raccorde un matériel aux prises d'abonnés, sauf dans les cas précis prévus par les tarifs particuliers de ces entreprises.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par la fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil suite à des réparations ou à des modifications effectuées par l'utilisateur ou en raison d'un mauvais fonctionnement.

Veillez contacter Apple pour des informations supplémentaires:

Apple Canada, Inc.

7495 Birchmount Road

Markham, Ontario

Canada L3R 5G2

Service à la clientèle d'Apple Canada : 800-263-3394

Pour sa propre protection, l'utilisateur doit s'assurer que tout les fils de mise à la terre du secteur, des lignes téléphoniques et les canalisations d'eau métalliques, s'il y en a, soient raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

Avertissement L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoir recours à une service d'inspection des installations électriques ou à un électricien, selon le cas.

- **Numéro de charge :** 0.3 L'indice de charge (IC) assigné à chaque dispositif terminal indique, pour éviter toute surcharge, le pourcentage de la charge totale qui sera raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100.
- **Type de prise téléphonique :** CA-11

Information You Need in the United Kingdom

This terminal equipment is intended for direct connection to the analogue Public Switched Telecommunications Network and is approved for use within the United Kingdom with the following features:

- Modem facility
- Autocalling facility
- Autoanswer facility
- DTMF signaling

Operation in the absence of proceed indication or upon detection of proceed indication

This product is in conformity with relevant regulatory standards following the provisions of European Council Directives 73/23/EEC (Low Voltage Directive) and 89/336/EEC amended by 92/31/EEC (EMC Directive).

Informationen für Deutschland

Diese Modem-Karte ist als Endeinrichtung vorgesehen und muss an ein TAE mit F-Kodierung angeschlossen werden. Diese Endeinrichtung ist in Konformität gemäss Niederspannungsrichtlinie 73 / 23 / EWG sowie EMC-Richtlinien 89 / 336 / EWG und 92 / 31 / EWG.

Informations pour la France

Ce matériel est conforme aux normes applicables de sécurité électrique d'après la directive 73 / 23 / CEE et aux normes applicables de comptabilité électromagnétique d'après la directive 89 / 336 / CEE, modifié par la directive 92 / 31 / CEE.

Information You Need in Australia

All telecommunications devices are required to be labelled as complying to the Australian telecommunications standards, ensuring the health and safety of the operator and the integrity of the Australian telecommunications network. To provide compliance with the Australian Communications Authority's technical standards, please ensure that the following AT commands are maintained:

- ATB0 (ITU/CCITT operation)
- AT&G0 (no guard tone)
- AT&P1 (33/66 pulse dial make/break ratio)
- ATS0 = 0 or ATS0 = 1 (no answer or answer greater than one ring)
- ATS6 = 95 (DTMF period between 70–255 ms)
- ATS11 = 95 (DTMF period between 70–255 ms)

For calls that are automatically generated, a total of three call attempts are allowed to a telephone number, with a minimum period between calls of 2 seconds. If the call does not connect after three attempts, 30 minutes must expire before automatic redialing may be initiated. Failure to set the modem (and any associated communications software) to the above settings may result in the modem being non-compliant with Australian telecommunications standards. Under these circumstances a user could be subject to significant penalties under the Telecommunications Act 1997.

This modem must be properly secured in order for you to use it. Telecommunications network voltages exist inside the computer and the telecommunications line connection must be removed before opening the computer.

Information You Need in New Zealand

This modem is fully approved to operate on the New Zealand telecommunications network under Telepermit number PTC 211/99/077. All telecommunications devices are required to hold a Telepermit and be labelled accordingly with the approved Telepermit number to comply with the New Zealand telecommunications standards, ensuring the health and safety of the operator and the integrity of the New Zealand telecommunications network. To ensure compliance, all calls that are automatically generated should not make more than 10 call attempts to the same number within any 30 minute period with a minimum period between calls of 30 seconds. Failure to adhere to these standards may result in the modem being non-compliant with New Zealand Telecom standards. Under these circumstances a user could be subject to significant penalties.

Important The grant of a Telepermit for any item of terminal equipment indicates that only Telecom has accepted that the item complies with minimum conditions for connection to its network. It indicates no endorsement of the product by Telecom, nor does it provide any sort of warranty. Above all, it provides no assurance that any item will work correctly in all respects with another item of Telepermitted equipment of a different make or model, nor does it imply that any product is compatible with all of Telecom's network services.

