

APPENDIX



INSTALLING AND MAINTAINING MAC OS X

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MOVING TO AND MAINTAINING MAC OS X

There are two basic paths to follow when you install Mac OS X version 10.3. One path is for those users who are currently using an earlier version of Mac OS X, such as version 10.1 or 10.2. The other path is for those users who are making the jump from Mac OS 9.x.x or earlier. Not coincidentally, two major sections in this appendix describe how to make the transition to version 10.3 via either path. The section called “Moving to Version 10.3 from Previous Versions of Mac OS X” will help you if you are already using a version of Mac OS X. The section called “Moving to Version 10.3 from Mac OS 9.x.x or Earlier” will guide you through the process of moving from older Mac OS versions to OS X. Obviously, you need to read whichever section is applicable to your situation.

After version 10.3 installation is complete, you should review the section titled “Updating Your Mac OS X Installation” regardless of which installation path you followed.

MOVING TO VERSION 10.3 FROM PREVIOUS VERSIONS OF MAC OS X



The upgrade from previous versions of Mac OS X to version 10.3 involves a lot more than the change in number from 10.1 or 10.2 to 10.3 would indicate. Version 10.3 is a major update (in my opinion, it should have been called version 11), and moving to it requires some thought. It might take some time and effort to get into version 10.3's world, but the benefits are well worth the work.

This is especially true if you are running version 10.1.x. The move from 10.1 to 10.2 made extensive changes to some fundamental aspects of the OS and consequently, many applications that worked fine under 10.1 do not work under 10.2 without being updated. Most of these applications have been updated by now, but be aware that if you are currently running 10.1, you should check for updates to the applications you use if you haven't updated them recently.

WHAT YOU NEED TO KNOW BEFORE YOU INSTALL VERSION 10.3

Before you jump into the installation process, take a few moments to read through the following sections to ensure that you can make the transition smoothly.

ASSESSING YOUR SITUATION

The hardware requirements from previous versions of Mac OS X haven't changed all that much, so if you are currently running a previous version of Mac OS X, your hardware is more than likely Mac OS X version 10.3 compatible. (You might need to update your Mac's firmware; see the next section for information about doing this.)

Most major Mac applications that required an update for version 10.2 have already been updated. If you find that you use an application that has not been updated for 10.2 or 10.3,

you might experience problems when you run it—if it runs at all. Check the software developers' Web sites and download and install any updates of your applications that were released for Mac OS X version 10.2 or later. Because significant changes were made for 10.2 (and carry over to 10.3), you might have to pay upgrade fees for some of these.

If applications you need are unavailable in version 10.3-compatible versions, check the software's Web site for the known issues when running the application under version 10.3. If you can live with those issues, proceed with the upgrade. If not, you might have to wait until those applications have been updated to install 10.3 or switch to an alternative application that has been made version 10.3 aware.

Fortunately, fewer applications require major updates to run under 10.3 versus 10.2 than were necessary for the change from 10.1 to 10.2.

CAUTION

If you are moving from version 10.1 to 10.3, this is an important issue for you because many OS X applications that ran under 10.1.x were unable to run under 10.2 until they were updated. Make sure you have checked all your important applications for 10.3 compatibility before installing version 10.3.

UPDATING YOUR MAC'S FIRMWARE

Your Mac must have access to some basic software for it to start up. For example, it needs to know where to look for system software that it can use to start up. This software used to be permanently stored in hardware called read-only memory (ROM). This permanent ROM could not be updated, so what came with the Mac was as good as it could get. With modern Macs, the base software is stored in *firmware*, which is sort of a combination between software encoded in hardware and normal software. The advantage of this is that Apple can update the firmware on modern Macs to correct problems or improve performance.

CAUTION

If your Mac's firmware needs to be updated for 10.3, the installation process will warn you and you will have to quit the installation and upgrade your firmware before you can continue.

Before installing Mac OS X version 10.3, you should ensure that your Mac's firmware is up-to-date. This is a simple task that might prevent problems later.

TIP

To keep your Mac in top condition, you should check for firmware updates occasionally, whether you are upgrading the OS or not.

To update the firmware on your Mac, do the following steps:

1. Use a Web browser to go to Apple's software support page, which is located at www.apple.com/support/downloads.
2. To search for any firmware updates for your Mac, enter your Mac's model or processor and the word "firmware." For example, if you have a Power Mac G4, type **Power Mac G4 and firmware**. If you have an iMac, type **iMac and firmware**. The search will find all updates that meet your search criteria.
3. Find the most recent firmware update for your Mac and download it.
4. Double-click the updater to mount the disk image on your desktop.
5. Open the disk image.
6. If a text file is provided with the update, open the text file and read it. If the Update is provided as an installer, launch the installer. In either case, read the instructions to run the updater.
7. Follow the instructions to install the firmware update on your Mac.

Some firmware updates include a program that checks whether your Mac's firmware needs to be updated. If so, run the firmware installer. Typically, you launch the updater and then restart your machine while holding down the power button (until you hear a long tone). After the updater has finished, it restarts your Mac and will be using the updated firmware.

CHOOSING AN INSTALLATION METHOD

When you install version 10.3, there are three primary options, each with its own pros and cons:

- **Upgrade Mac OS X**—Using this option, you let the Mac OS X installer overwrite or revise your current Mac OS X installation as it sees fit. The benefit of this approach is that it is the easiest and most straightforward method. The downside is that the installation might not be as clean because the entire OS is not replaced. Consequently, there is a greater chance of the OS having problems or not working as well as it might with a clean install.

The reported problems you might experience are related to specific situations, and there is no way to list all the possible conditions that might cause you problems. So, using this option is a bit of a crapshoot. However, if you don't usually perform a lot of system modifications and haven't installed third-party utilities, this option can save you some time because you shouldn't have to reconfigure your system as much as you might with the other options.

NOTE

If you install Mac OS X on a volume on which no version of Mac OS X has been installed, this option becomes Install Mac OS X.

- **Archive and Install**—Using this option, the installer creates a brand-new installation of Mac OS X and saves a copy of the current system (in a folder called “Previous System” folder). This enables you to perform a clean installation of OS X version 10.3, while keeping files from the previous version in case you need to add them back into the system later. The benefit to this method is that the OS itself is likely to be installed better and cause you fewer problems. The downside is that you have to do some manual labor to finish the configuration.

When you choose this method, you have the option to preserve users and network settings. When you choose this option, the current users, their Home folders, and your Mac’s network settings are carried into the new system. This prevents you from having to work through the setup assistant application later, and it maintains all the files that currently reside in all Home folders on your machine.

- **Erase and Install**—When you select this option, the volume on which you install the OS is erased and reformatted and a clean install is performed. Because the volume is reformatted, you lose any data currently stored there. The benefit to this method is that you get a fresh start and rebuild your system from the ground up. The downside is that it requires the most work in that you have to reinstall all your applications, reconfigure your entire system, restore your documents, and so on.

In most cases, I recommend that you choose the Archive and Install method along with the option to preserve users and network settings. This both gets you a clean OS and maintains most of your current configuration, documents, and so on. In my book (and this is my book after all), this option results in the cleanest version of the OS and requires only a minimal amount of reconfiguration.

If you need to rebuild a volume, the Erase and Install option nets you the cleanest system. But, this option requires the most work because you basically have to start over from scratch and rebuild the volume, including all user accounts, documents, applications, system settings, and so on.

Frankly, I don’t recommend the Upgrade Mac OS X option. Theoretically, this option should be the easiest because it attempts to maintain all of your current system configuration, including third-party software, users, documents, preferences, and so on. However, for the same reason, the resulting OS is not as cleanly installed as it is under the other options and the likelihood of problems or reduced performance is increased significantly. In some cases, it might be more work to solve problems introduced by upgrading the OS than would have been experienced with the Archive and Install option. However, if you haven’t installed any third-party software that impacts the OS, this option might be the quickest path to Mac OS X version 10.3.

CREATING A BACKUP OF YOUR DATA AND APPLICATIONS

Although the risk of losing all your data during an upgrade is small (unless the data is on the volume on which you choose to use the Erase and Install option, in which case losing all the data is a certainty), the results of that happening could be unrecoverable if you don’t have

everything backed up properly. For example, imagine losing your iPhoto library. Without a backup, your photos would be gone forever. Performing the upgrade without a backup system is about like playing Russian roulette—the odds are with you, but if you lose, you lose big.

→ To learn more about backup options, see “Backing Up Your System,” p. 887.

Before installing a new version of the OS, I urge you to make sure all your data is backed up. And, make sure you have CDs or installers for your applications in case they are damaged during the OS X 10.3 installation. You should also be sure you have paper copies of any setting information, such as the settings for your Internet connection, .Mac, and email accounts. Should you lose these configuration data, having them on hard copy will enable you recover with the least amount of fuss. Finally, be sure you also have copies of any updaters for your third-party applications so you can bring them to the latest version after you reinstall them (don’t worry about Apple applications because you can update them via the Software Update application).

TIP

If you have obtained software via downloads, put the installers on CD or on volumes other than the one on which you are installing Mac OS X. Some installers are removed when new versions are released, and you might not be able to download it again without paying for it again.

INSTALLING MAC OS X VERSION 10.3 WITH THE ARCHIVE AND INSTALL OPTION

As you read earlier, this method provides a good balance between having a clean installation and minimizing the reconfiguration work you have to do. Under this method, the installer archives your current system while it installs a clean version of Mac OS X version 10.3 on your machine. Then, you reinstall any system files you need from your current system in the 10.3 version. This method is a bit more work than the upgrade option, but you are also more likely to end up with better results. If you choose the Preserve Users and Network Settings option, all your user information (such as the contents of the Home folders) and most of your system configuration is carried over to the new OS.

There are two major parts to this upgrade process:

1. Perform the installation of Mac OS X version 10.3 on your current Mac OS X volume.
2. Move needed files from the previous version of Mac OS X to version 10.3.

INSTALLING MAC OS X USING THE ARCHIVE AND INSTALL OPTION

The first part is rather simple, as you can see in the following steps:

1. Start up from the first Mac OS X version 10.3 installation CD by inserting it into your Mac, launching the Install Mac OS X application, and clicking the Restart button at the

prompt. The Mac will restart from the installation CD and immediately enter the installation process. You can also insert the CD, restart your Mac, and hold the C key down while it is restarting.

NOTE

When your Mac is starting up under version 10.3, you won't see the Happy Mac icon as in version 10.1 and earlier. That icon has been replaced by the Apple logo. Apparently, Apple felt that the Happy Mac had outlived his usefulness and didn't look version 10.2/3-compatible. Oh well, rest in peace, Happy Mac!

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As things begin to progress, you will see the Install Mac OS X Select Language window.

2. Select the language you want to use as the primary Mac OS X language and then click Continue. You will move into the Mac OS X Installer and see the welcome message.
3. Read the information in the next several windows; click Continue to move ahead in the process.
4. When you reach the Software License Agreement window, click Continue; then click Agree when prompted.

The installer will check the volumes installed in your system. When it finishes, you will see the Select a Destination window. In this window, you will see all the volumes on your machine.

5. Choose the volume on which the current version of Mac OS X is installed. The volume you select will have a circle and green arrow on it to indicate that it is the currently selected volume. In the lower pane, you will see a message indicating how much free space is required for the installation and stating that you have elected to update Mac OS X on this disk.
6. Click Options. You will see the Install Options sheet.
7. Click the Archive and Install radio button.
8. Check the Preserve Users and Network Settings check box. This causes the installer to move all the existing user accounts, network configurations, and so on to the new version 10.3 installation. You should choose this option unless you have a very good reason not to do so, such as you want to start with a new set of user accounts. When you use this option, you will skip the Setup Assistant application because the installer will carry all that information over for you. (The rest of these steps assume that you have used this option. If not, you can review the “Erasing a Volume and Installing Mac OS X Version 10.3” section later in this appendix to help you work through the Setup Assistant.)
9. Click OK to close the sheet. In the Select a Destination window, you will see a message stating that you are installing a new version of 10.3 while saving the previous version and moving all user accounts to the new version.
10. Click Continue. You will see the Easy Install screen.

TIP

If you aren't concerned about installing things you won't ever use, skip to step 16 to use the Easy Install option. This installs every possible file on your machine. It is an easy install, but you will probably end up storing several files you will never use (thus, wasting valuable disk space).

11. Click Customize to move to the Custom Install window. Use the tools in this window to deselect any files you don't want to install. I recommend you leave the BSD Subsystem and Additional Applications check boxes checked.
12. Click the Expansion Triangle next to the Printer Drivers check box to see a list of the printer brands Mac OS X supports. If you aren't ever going to want to use any of the brands of printers shown, uncheck their boxes to prevent the installation of those drivers.
13. Click the Expansion Triangle next to the Language Translations check box to see a list of the languages Mac OS X supports. If you aren't ever going to want to use any of the languages shown, uncheck their boxes. Or you can uncheck the Language Translations box to unselect all of them at once.

NOTE

The language you choose in step 2 is always installed. The other languages Mac OS X supports are listed in the Language Translations section.

14. If you elected to install any of the other languages in step 13, expand the Fonts check box to ensure that the appropriate fonts are installed to support those languages.
15. Uncheck any of the other options you won't use.
16. Click Install. You will see a progress window that displays information about the various steps the installer goes through to install Mac OS X. This information includes an estimate of how long the process will take, but, of course, this is only an estimate. When the process is complete, your Mac will restart in Mac OS X version 10.3 and move into the Additional Software installation part of the process.

NOTE

Mac OS X is packaged in a variety of ways depending on how you purchased it. For example, if you bought the complete upgrade package, you will have three Mac OS X CDs. If Mac OS X came with your Mac, you will have a variety of Software Install and Restore CDs (in which case, you won't have to do an initial install, but you might reinstall it some day). Just insert the appropriate CDs when prompted to do so.

17. At the prompt, remove the Mac OS X Installation CD and insert CD #2. The additional software will be installed and progress information will be displayed in the window.

18. If you are prompted to install any other CDs, do so and the installation process will continue.

When this process is complete, you will move to the Mac OS X 10.3 login window and be running under a clean version of Mac OS X version 10.3. In the login window, you will see the user accounts that existed in the previous version. (If you have only a single user account or if automatic login is enabled, you will move directly to the OS X desktop instead.)

NOTE

If your accounts have pictures associated with them, you might see placeholders instead. Version 10.3 does not include the same set of images that previous versions did, so you might have to choose new images for some user accounts.

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When you log in to version 10.3, you will find that most of your configuration from the previous version has been maintained, such as your login items, desktop photos, and Dock configuration. Some might not be (on some installs with early versions of the installer, I had to reconfigure some options). Usually, if you do have to reconfigure some aspects of the system, it takes only a few minutes to do so.

MOVING FILES FROM THE PREVIOUS SYSTEM TO THE NEW SYSTEM

The only downside of installing a clean version of the OS is that you have to move files you still need from the previous version to the new version. Mostly, these are the files related to specific third-party applications you have installed.

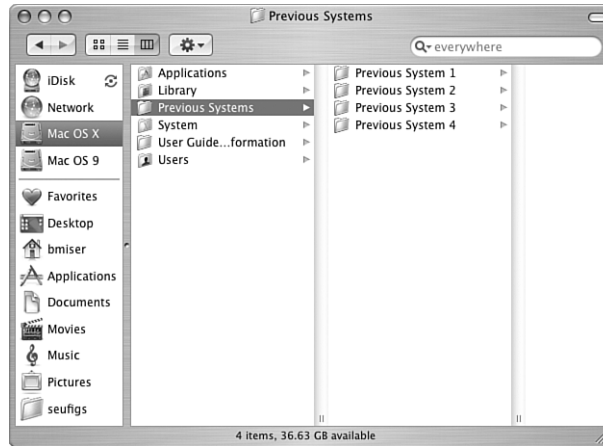
Before you bother looking for files to move, try to work with the system as it is. You might find that everything works just fine and you don't need to do the second part. After you are confident that you don't need the previous versions of the OS, you can trash the folder called Previous System located on your Mac OS X startup volume. If you do find some things that aren't working as you expect, proceed with the second part of the process.

If you do find that some third-party applications aren't working properly, reinstalling them from the original CDs or installers (that you, of course, saved on a CD or a different volume) is easiest. If you can't do this for some reason, or there are preference or configuration files that you need to retrieve from the old system, you have to find and move those files into the new system manually.

Finding and moving all the files you need from the old system to the new one can be a bit tricky, but with some patience and a bit of luck, you can work through it. (If you think installing a new OS is a bit tedious, try installing it dozens of times while writing a book!) Follow these steps:

1. Open the volume on which you installed version 10.3. In addition to the folder called System, you will see a folder called Previous Systems (see Figure A.1). This contains the previous versions of OS X that existed when you did the install.

Figure A.1
The Previous System folder contains, amazingly enough, previous versions of Mac OS X.



2. Open the Previous Systems folder and then open the most recent previous system folder contained within that folder. For example, if this is your first clean install, open the folder called Previous System 1. You will see the set of folders that were contained in that version of the OS (see Figure A.2).

Figure A.2
These folders contain files you might need to move to your clean installation of Mac OS X.



3. Drag the files you think you might need from the folder in the Previous System folder to the corresponding folder in the 10.3 System folder.

Whether you need any of these files and folders depends on your specific setup. In my testing, I found that my system worked fine without any of the old files, but in the event you need to move some files over, consider the following folders:

- **Applications**—This folder contains the previous versions of Apple applications that were part of the default installation. If you used the Additional Software install option, you will probably never need these older versions.
- **Library**—This folder contains the library files that provide functionality for various areas of the OS, such as Audio, Fonts, Java, and QuickTime.
- **System**—This folder contains only one folder, which is the system Library folder. In this folder are core application services and frameworks, such as Classic, Displays, and OpenSSL.
- **Users**—If you chose to move all user accounts to the clean installation, this folder is empty because you maintained the users in the new system. If you didn't preserve users, you can use the contents of this folder to re-create user folders.

Various third-party applications can store individual files within these folders as well, so if something doesn't seem to be working properly and you can't reinstall the application from an original installer, explore these folders to see whether you can find files for those applications. Then, move those files to the corresponding folders in 10.3 system folders.

After you have used 10.3 for some time and are confident it is working properly, you can dispose of the Previous System folders to recover disk space.



If an application does not work properly after you have installed Mac OS X, see “An Application Doesn't Work Under OS 10.3” in the “Troubleshooting” section at the end of this appendix.

If an application has lost your preferences after you install 10.3, see “An Application Lost My Preferences Under OS 10.3” in the “Troubleshooting” section at the end of this appendix.

UPDATING YOUR MAC OS X INSTALLATION

After you have completed the installation, use Software Update to update it.

→ To learn how to update the installation, see “Updating Your Mac OS X Installation,” p. 977.

INSTALLING MAC OS X VERSION 10.3 WITH THE ERASE AND INSTALL OPTION

The Erase and Install option provides the cleanest installation of OS 10.3 and gives you the chance to rebuild the volume on which you install 10.3; this is a good thing because you have the chance to get rid of data and applications that you don't use anymore and that are just wasting space. The downsides to this method are that it requires you to back up all the data you do want to carry to the new 10.3 installation and is definitely the most work.

Following are the phases in this installation process:

1. Back up any data, including user Home folders and application installers and updaters, that you want to include in the 10.3 installation onto CD, DVD, or a different volume on a hard drive than the one on which you are installing Mac OS X version 10.3. Ensure that you have installers, updaters, and registration numbers for all your applications stored someplace besides the volume on which you are going to install Mac OS X.

2. If you want to partition a disk on which you are going to install Mac OS X, start up from the Mac OS X Installation CD and partition the drive.
3. Run the Mac OS X installer to install the OS and work through the Setup Assistant.
4. Create additional user accounts.
5. Copy data from the backups you made in step 1 into the new installation.

BACKING UP DATA TO TAKE INTO THE NEW SYSTEM

When you use the erase installation option, all the data on the volume on which you install Mac OS X is deleted, erased, removed, kaput, terminated, and so on. So, before you install, you need to save any data from your current Mac OS X installation some place other than the volume on which you are installing Mac OS X version 10.3. There are a number of ways to back up this data, including the following:

CAUTION

If you are going to partition the drive on which you install Mac OS X, you need to save your data on a different drive (or CD or DVD) than the one on which you are going to install Mac OS X. When you partition a drive, you will destroy all the data on that drive.

- Burn the data on a CD or DVD.
- Copy the data to a different volume on the same or on a different hard drive (required if you are going to partition the drive).
- Copy the data onto tape.

→ To learn more about backup systems, see “Backing Up Your System,” p. 887.

When backing up the data you want to “take with you,” you should consider the following:

- **User Home folders**—The Home folders for each user account contain that user’s documents, preferences, and other data. For example, the Music folder contains the iTunes Music Library, the Pictures folder contains the iPhoto Photo Library, and so on. The Library folder within the Home folder contains user preferences, email account information, Safari bookmarks, and so on. If you want to save any of this data, you need to back up the Home folders you want to save. You can be selective about these data; for example, you can choose to back up only parts of the Home folders, such as the Music and Pictures folders. In most cases, I recommend that you save the entire Home folder for each user account, unless you are not going to create that user account in the new system.
- **Application installers and updaters**—If you have installed or updated any of your applications from an installer that you downloaded, make sure you back up the application and its updaters. If you installed the application from CD, be sure you can locate the CDs and that you save a copy of any updates you downloaded and installed for that application.

You can also back up the applications themselves rather than the installers and reinstall the applications by dragging them from the backup into the Applications folder under the new system. However, this can sometimes result in the application not working properly because a system component wasn't installed properly. For most applications, I recommend that you reinstall them from the original installer and then apply any updates that are available.

You don't need to worry about Apple applications that are part of the Mac OS X installation, such as iMovie, iPhoto, etc. These are installed by the Mac OS X installer. One application that you do have to back up is iDVD because it is not included on the Mac OS X installation CDs.

CAUTION

In addition to the software installers and updaters, be sure you have any registration or serial numbers for any applications you are going to install in the new system. Losing this information can cost time and possible money if you have to reregister an application.

- **System Data**—If an application you use makes changes to the OS at a system level, you need to retrieve the files that application has saved in the current System folder so you can restore them. Typically, you need to do this only if you don't choose to reinstall the application from scratch.

After, and only after, you are sure you have backed up all the data you want to install in the new system, you can proceed with the rest of the steps of the installation process.

PARTITIONING A DRIVE BEFORE INSTALLING MAC OS X

You can partition a hard drive to make logical volumes on it; each volume acts like an independent hard drive. The time to do this is before you install Mac OS X because you must erase the entire disk, not just the volume on which you are going to install Mac OS X, to partition it.

CAUTION

If you are going to use an existing volume to install Mac OS X, skip to the next section.

1. Insert the Mac OS X Installation CD 1 disc in your Mac, restart it, and press and hold down the C key while it starts up. When the Mac starts up, the installer application opens.
 2. Select Installer, Open Disk Utility. The Disk Utility application opens.
 3. Use the Disk Utility to partition the drive.
- To learn how to use the Disk Utility to prepare and partition a disk to prepare a volume for Mac OS X, see "Choosing, Installing, and Using a Hard Drive," p. 782.

4. When you have partitioned the drive, quit the Disk Utility. You will return to the Mac OS X Installer.

STARTING THE MAC OS X VERSION 10.3 INSTALLATION

To install Mac OS X using the Erase and Install option, do the following steps:

1. Start up from the first Mac OS X version 10.3 installation CD by inserting it into your Mac, launching the Install Mac OS X application, and clicking the Restart button at the prompt. The Mac restarts from the installation CD and immediately enters the installation process.

If you have partitioned the drive, you can skip this step because you will already be in the Installer.

NOTE

When your Mac is starting up under version 10.3, you won't see the Happy Mac icon as in version 10.1 and earlier. That icon has been replaced by the Apple logo. Apparently, Apple felt that the Happy Mac had outlived his usefulness and didn't look version 10.2/3-compatible. Oh well, rest in peace, Happy Mac!

As things begin to progress, you will see the Install Mac OS X Select Language window.

2. Select the language you want to use as the primary Mac OS X language and then click Continue. You will move into the Mac OS X Installer and see the welcome message.
3. Read the information in the next several windows; click Continue to move ahead in the process.
4. When you reach the Software License Agreement window, click Continue; then click Agree when prompted. (Of course, you should read the agreement to make sure you actually agree with it.)

The installer checks the volumes installed in your system. When it finishes, you will see the Select a Destination window. In this window, you will see all the volumes on your machine.

5. Choose the volume you want to erase and install Mac OS X on. The volume you select will have a circle and green arrow on it to indicate that it is the currently selected volume. In the lower pane, you will see a message indicating how much free space is required for the installation and stating that you have elected to update Mac OS X on this disk.

NOTE

If you have partitioned the drive, you will see that the drive is empty and that you have elected to install Mac OS X on the volume (rather than upgrade because there is nothing on the volume to upgrade).

6. Click Options. You will see the Install Options sheet.
7. Click the Erase and Install radio button.

NOTE

If you partitioned the drive, you can also select the Install Mac OS X option because there is no version of the OS on the disk. You can also select the Erase and Install option, but there is nothing to erase on the disk. When the disk is empty, these options do the same thing.

8. Select the format you want to use on the selected volume on the “Format disk as” pop-up menu. Generally, you should select the Mac OS Extended (Journaled) option, which is the default.
9. Click OK to close the sheet. In the Select a Destination window, you will see a message stating that you have selected to erase the volume and format according to the selection you made in the previous step.
10. Click Continue. You will see the Easy Install screen.

TIP

If you aren't concerned about installing things you won't ever use, skip to step 16 to use the Easy Install option. This installs every possible file on your machine. It is an easy install, but you will probably end up storing many files you will never use (thus, wasting valuable disk space).

11. Click Customize to move to the Custom Install window. Use the tools in this window to deselect any files you don't want to install. I recommend you leave the BSD Subsystem and Additional Applications check boxes checked.
12. Click the Expansion Triangle next to the Printer Drivers check box to see a list of the printer brands Mac OS X supports. If you aren't ever going to want to use any of the brands of printers shown, uncheck their boxes to prevent the installation of those drivers.
13. Click the Expansion Triangle next to the Language Translations check box to see a list of the languages Mac OS X supports. If you aren't ever going to want to use any of the languages shown, uncheck their boxes. Or you can uncheck the Language Translations box to unselect all of them at once.

NOTE

The language you choose in step 2 is always installed. The other languages Mac OS X supports are listed in the Language Translations section.

14. If you elected to install any of the other languages in step 13, expand the Fonts check box to ensure that the appropriate fonts are installed to support those languages.

15. Uncheck any of the other options you won't use.

CAUTION

Before proceeding, make sure that you have backed up any data you want to save. All the data on the selected volume will be removed when you perform step 16. (If you partitioned the drive, it is already too late....)

16. Click Install. You will see a progress window that displays information about the various steps the installer goes through to install Mac OS X. This information includes an estimate of how long the process will take, but, of course, this is only an estimate. When the process is complete, your Mac restarts in Mac OS X version 10.3 and moves into the Additional Software installation part of the process (assuming that you chose to install some of the additional software of course).

NOTE

Mac OS X is packaged in a variety of ways depending on how you purchased it. For example, if you bought the complete upgrade package, you have three Mac OS X CDs. If Mac OS X came with your Mac, you have a variety of Software Install and Restore CDs (in which case, you won't have to do an initial install, but you might reinstall it some day). Just insert the appropriate CDs when prompted to do so.

17. At the prompt, remove the Mac OS X Installation CD and insert CD #2. The additional software is installed and progress information is displayed in the window.
18. If you are prompted to install any other CDs, do so and the installation process continues.

When this process is complete, you move into the Mac OS X 10.3 Setup Assistant (you'll know this has happened when you hear music and see the Welcome screen).

19. Follow the onscreen directions to work through the Setup Assistant. These steps include setting your personalized settings, entering or creating an Apple ID, registering your copy of Mac OS X, creating an administrator user account, choosing or configuring an Internet connection, setting up email accounts, selecting a time zone, and setting the time and date.

The Setup Assistant is well-designed and does a good job of guiding you through the steps of configuring the basic aspects of Mac OS X, such as creating the first user account, configuring Internet access, and so on. You can use the information presented in other parts of this book to understand what the Assistant is asking you about and to reconfigure any settings you make via the Setup Assistant at a later time.

→ To learn about configuring Internet access under Mac OS X; see Chapter 10, "Connecting Your Mac to the Internet," p. 263.

TIP

In most cases, just do the very basic amount of configuration in the Setup Assistant to get through it. Then do manual configurations, guided by the information in this book, of the system so you better understand what you have configured.

After the Setup Assistant has finished its work, you move to the Login window. Welcome to Mac OS X version 10.3!

CAUTION

You should create additional user accounts and restore all the data you want before you do anything else, such as launching applications. This ensures that you don't create any new files in the Home folders and other locations that you will end up replacing when you restore data to the new system.

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CREATING ADDITIONAL USER ACCOUNTS

After you have completed the Setup Assistant, log in and create user accounts for each user of your Mac; you will at least need one user account for each user whose data you are going to restore.

- To learn how to create and configure user accounts, see “Creating User Accounts,” p. 24, and “Testing and Configuring User Accounts,” p. 39.

RESTORING DATA TO THE NEW SYSTEM

Restoring data from your backups can be somewhat time-consuming, but most of the process is not terribly complicated.

RESTORING USER HOME FOLDERS There are two basic categories of data in users' Home folders that you might want to restore to the new system: data folders and files within the Library folder.

- To learn about the contents of Home folders, see “Understanding the Home Folder,” p. 21.

The default data folders in each user's Home folders include Desktop, Documents, Movies, Music, Pictures, and Public. (There might be additional folders if the user has created them.) These folders are very important because all the user's data is stored in them, such as their iTunes music and iPhoto Photo Library. To restore these folders, do the following steps:

1. Log in as the user whose folders you are going to restore.
2. Drag the folder you are restoring from the backup into the user's Home folder on the Mac OS X version 10.3 volume. If the folder already exists (such as the Pictures folder), you are warned that you are replacing an existing folder.
3. Click Replace to replace the current folder with the version you want to restore.

Depending on how large the folder is (for example, the Music folder can be quite large if the user has added a lot of music to the iTunes Library), the copy process can take

some time. Fortunately, you can copy multiple folders at the same time and continue to do other tasks while the copy proceeds.

4. Repeat step 2 for each folder you want to restore to the user's Home folder.

CAUTION

You can treat the Library folder just like the other default folders and replace it in its entirety. However, I don't recommend this because new versions of Mac OS X can store different files in the Library folder. It is better to be selective about what you replace in this folder so you replace only those files that are related to specific applications.

Restoring files from the user's Library folder is trickier and requires a bit more thought. Your goal should be to recover any of the user's personalized data, such as an address book, email accounts, bookmarks, application preferences, and so on.

NOTE

If you want the user to start over and create all new preferences, you can skip this part of the process.

The general steps to use are the following:

1. Open a Finder window showing the contents of the user's Library folder on the Mac OS X version 10.3 volume.
2. Open a second Finder window showing the contents of the user's Library folder on the backup volume, such as a DVD, CD, or hard drive.
3. Drag the files you want to restore from the backup volume into the same folder in the Library folder on the Mac OS X version 10.3 volume. If the file currently exists, you are prompted to replace it; elect to replace the file.
Use Table A.1 to get an idea of the files you should replace.
4. Repeat step 3 for each Library file you want to move to the new installation.

TABLE A.1 EXAMPLES OF FILES WITHIN A USER'S LIBRARY FOLDER THAT MIGHT NEED TO BE RESTORED

Folder with a User's Library Folder	Filename or Folder Name	What It Restores
Application Support	AddressBook	The user's Address Book information.
Application Support	iCal	The user's calendar.

Folder with a User's Library Folder	Filename or Folder Name	What It Restores
Application Support	Other application folders	If there are other application folders, this restores them for each application the user will use.
Calendars		Any calendar files the user wants to maintain.
FontCollections		Any font collections the user wants to maintain.
Fonts		Any fonts the user wants to maintain.
iMovie		Any plug-ins or sound effects the user has added and wants to be available.
Internet Plug-ins		Any Internet plug-ins the user has installed that aren't included in the related application's installer.
Keychains		Any keychains the user has created.
Mail	All	The information related to the user's use of the Mail application, including account information and mail boxes.
Preferences		Any preferences for applications you will reinstall.
Safari	Bookmarks.plist	The user's Safari bookmarks.
Sounds		Any custom sounds the user has added to the system.

CAUTION

Table A.1 is not all-inclusive. There might be other files related to applications you have that are not included in the table. However, you should be able to locate those files by following similar patterns. For example, in the Preferences folder, look for files with the application's name. These are likely candidates for restoration.

RESTORING APPLICATIONS After you have restored the appropriate Home folders, you should reinstall any applications you want to make available. While you can drag these from a backup, I recommend that you reinstall them from the CD or installer to ensure that any system files are installed properly. After you have installed an application, make sure you also apply any updates that are available for it.

RESTORING SYSTEM FILES If there are specific system files, such as those associated with an application that you chose not to install with its installer, restore those from the backup to the new system.

UPDATING YOUR MAC OS X INSTALLATION

After you have completed the installation, use Software Update to update it.

→ To learn how to update the installation, see “Updating Your Mac OS X Installation,” p. 977.

INSTALLING MAC OS X VERSION 10.3 WITH THE UPGRADE OPTION

As you read earlier, you can install version 10.3 directly over a previous version of Mac OS X. The installer manages all aspects of the upgrade for you and attempts to maintain as much of your current configuration as it can—however, don’t expect perfection; some personalization might be lost. When this method works properly, this is an easy and fast way to upgrade. When it doesn’t work, you can experience problems such as applications quitting unexpectedly. If you want to have the installer perform the upgrade, perform the following steps:

1. Start up in the Mac OS X environment you want to upgrade.
2. Insert the first Mac OS X version 10.3 installation CD.
3. Open the Install Mac OS X application.
4. Click Restart at the prompt.
5. Confirm that you are an Administrator for the machine. Your Mac restarts and boots from the installation CD, and you move into the Mac OS X installation process. The system goes through several checks that are different from the startup process under previous versions of the OS. Eventually, you see it begin to prepare the installation process.

NOTE

When your Mac is starting up under version 10.3, you won’t see the Happy Mac icon as with previous versions of the OS earlier than Mac OS X 10.1. That icon has been replaced by the Apple logo. Apparently, Apple felt that the Happy Mac had outlived his usefulness and didn’t look version 10.2/3-compatible. Oh well, rest in peace, Happy Mac!

As things begin to progress, you see the Install Mac OS X Select Language window.

6. Select the language you want to use as the primary Mac OS X language and then click Continue. You move into the Mac OS X Installer and see the welcome message.
7. Read the information in the next several windows; click Continue to move ahead in the process.
8. When you reach the Software License Agreement window, click Continue; then click Agree when prompted.

The installer checks the disks installed in your system. When it finishes, you see the Select a Destination window. In this window, you see all the volumes on your machine.

9. Choose the volume on which the current version of Mac OS X is installed. The volume you selected will have a circle and green arrow on it to indicate that it is the currently selected volume. In the lower pane, you will see a message indicating how much additional space is required to install the software and stating that you have elected to upgrade Mac OS X on this volume.
10. Click Continue. You will see the Easy Install screen.

TIP

If you aren't concerned about installing things you won't ever use, skip to step 16 to use the Easy Install option. This installs every possible file on your machine. It is an easy install, but you will probably end up storing several files you will never use (thus, wasting valuable disk space).

11. Click Customize to move to the Custom Install window. Use the tools in this window to deselect any files you don't want to install. I recommend you leave the BSD Subsystem and Additional Applications check boxes checked.
12. Click the Expansion Triangle next to the Printer Drivers check box to see a list of the printer brands Mac OS X supports. If you aren't ever going to want to use any of the brands of printers shown, uncheck their boxes to prevent the installation of those drivers.
13. Click the Expansion Triangle next to the Language Translations check box to see a list of the languages Mac OS X supports. If you aren't ever going to want to use any of the languages shown, uncheck their boxes. Or you can uncheck the Language Translations box to unselect all of them at once.

NOTE

The language you choose in step 6 is always installed. The other languages Mac OS X supports are listed in the Language Translations section.

14. If you elected to install any of the other languages in step 13, expand the Fonts check box to ensure that the appropriate fonts are installed to support those languages.
15. Uncheck any of the other options you won't use.
16. Click Upgrade. You will see a progress window that displays information about the various steps the installer goes through to install Mac OS X version 10.3. This information includes an estimate of how long the process will take, but, of course, this is only an estimate. When the process is complete, your Mac restarts in Mac OS X version 10.3 and moves into the Additional Software installation part of the process (assuming you chose to install some of the additional software of course).

NOTE

Mac OS X is packaged in a variety of ways depending on how you purchased it. For example, if you bought the complete upgrade package, you have three Mac OS X CDs. If Mac OS X came with your Mac, you have a variety of Software Install and Restore CDs (in which case, you won't have to do an initial install, but you might reinstall it some day). Just insert the appropriate CDs when prompted to do so.

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17. At the prompt, remove the Mac OS X Installation CD and insert CD #2. The additional software is installed and progress information is displayed in the window.
18. If you are prompted to install any other CDs, do so and the installation process continues.

After the installation process is complete, you move to the Login window. Welcome to Mac OS X version 10.3!



If your system is not working properly after installing 10.3 over a previous version of Mac OS X, see "The 10.3 System I Installed Is Not Working" in the "Troubleshooting" section at the end of this appendix.

UPDATING YOUR MAC OS X INSTALLATION

After you have completed the installation, use Software Update to update it.

→ To learn how to update the installation, see "Updating Your Mac OS X Installation," p. 977.

MOVING TO VERSION 10.3 FROM MAC OS 9.X.X OR EARLIER

Moving up to Mac OS X from earlier versions offers many benefits (you will learn about many of them throughout this book), but all this gain requires some pain, that being the pain of installing and learning to use a brand-new operating system. This appendix helps you with the first part, whereas the rest of the book helps you with the second. Following a logical sequence of steps results in the best chance for you to install Mac OS X without any problems. The major steps you should take are the following:

1. Assess your Mac to ensure that it can handle Mac OS X.
2. Make sure that your Mac's firmware is up-to-date (if not, update it).
3. Prepare a Mac OS X volume on which to install the OS.
4. Run the Mac OS X Installer.
5. Configure the OS.

After you install Mac OS X, you should maintain the OS with any updates Apple provides to keep it running as well as possible.

ASSESSING YOUR MAC'S CAPABILITY TO HANDLE MAC OS X

To minimize problems you might experience installing or using Mac OS X, ensure that your Mac meets the following minimum requirements as stated by Apple:

- **One of the following**—Power Mac G4, Power Mac G4 Cube, Power Mac G3 Blue & White, PowerBook G3 with built-in USB, PowerBook G4, iMac, eMac, or iBook.

CAUTION

Although most iMacs and iBooks can run Mac OS X, if you have one of the original versions of either model, you might have trouble installing the OS, or if you are able to install it, it might not run very well. The original iMacs and iBooks are not really powerful enough (especially in terms of RAM) for Mac OS X. For example, a 233MHz or 266MHz G3 processor might not be fast enough to provide satisfactory performance for you. These machines typically came with only 32MB or 64MB of RAM, which is not adequate for Mac OS X. If you have one of these older machines, I recommend that you get a new Mac to take full advantage of Mac OS X.

- **At least 128MB of RAM**—At press time RAM was very inexpensive and providing 512MB of RAM could be done for only a few hundred dollars (less than \$100 if you already have a couple hundred meg installed). Of course, your machine might not be able to take that much, but for all Macs, maximizing your Mac's RAM is one of the best investments you can make. Frankly, I don't think you will be pleased with the performance of a machine with Apple's minimum RAM installed; in my opinion, you should have at least 512MB of RAM, and preferably more, to get excellent performance.
- **A video card that has a Mac OS X-compatible driver**—If you have an Apple-supplied video card, such as an ATI or NVIDIA graphics card (the standard cards in modern Macs, including the options on the Power Mac G4), you meet this requirement. If you have installed a different card, be sure you have a drive that is compatible with Mac OS X, version 10.3.
- **At least 2GB of free disk space**—This is the minimum amount for just the OS. Because Mac OS X is designed to store all your documents and applications on the same volume on which the system is installed, you will need a lot more space on your Mac OS X startup volume than this. In fact, I recommend that you install it on partitions of 20GB or preferably even larger. This gives you plenty of room for your iTunes, iPhoto, and iMovie libraries, along with your applications and other documents.

If your Mac meets all these requirements, skip to the next section, "Updating Your Mac's Firmware."

If you don't have one of the Mac models listed, you are probably out of the Mac OS X game. For example, you can't even install Mac OS X on older Macs, such as those that use the 604 processor. If you have upgraded an older Mac's hardware so that it has a G3 or G4 processor, you might or might not be able to install Mac OS X. Installing a major system

update on a system whose hardware has been upgraded is always a bit of a gamble. Some upgrades will handle the new OS okay, but others will balk at it. Before you try to install Mac OS X on an upgraded system, check with the manufacturer of that upgrade to see whether it is Mac OS X-compatible.

CAUTION

Apple does not provide support for Mac OS X on machines on which you have installed an upgrade card.

You will have a much better Mac OS X experience if you install it on hardware that is on Apple's compatibility list.

If you have less than 256MB of RAM, you might be able to install and run Mac OS X, but you aren't too likely to be happy with its performance. You might be able to run Mac OS X with as little as 64MB of RAM, but you won't be able to use the Classic environment with this amount of memory. You should upgrade your Mac with as much RAM as it can handle or as much as you can afford—more RAM is better! Mac OS X manages its RAM much better than previous versions of the OS did, but you still need to provide plenty for it to work with.

Your Mac is very likely to meet the video card requirement. All Macs come with at least one Apple-installed video card. Unless you have done something unusual, such as replacing the card that came with your Mac with another one, you won't have trouble with the video card requirement.

CAUTION

If you have multiple monitors attached to your Mac, you might need to remove any third-party video cards before you can install Mac OS X. If you leave the card installed and the Mac OS X installation is successful, the monitors connected to any third-party cards might not work. Until you install a Mac OS X-compatible driver for the video card, you aren't likely to be able to use any of its special features. I recommend that you remove third-party graphics cards that weren't installed by Apple before you install Mac OS X. After you have finished the installation, you can reinstall the additional cards.

Whether less than 2GB of free disk space will enable you to install Mac OS X is also a bit of a gamble. You might be able to get away with slightly less, but it isn't recommended. It depends on how much less you are trying to get away with. If you can free up at least 2GB on the volume on which you are going to install Mac OS X, you will be happier in the long run.

Because of the way Mac OS X is designed to store files (within user folders on the Mac OS X startup volume), you should have plenty of free hard drive space on the volume on which you will install Mac OS X. Mac OS X is designed so that you store all your documents and other files on the same volume as the system is installed on so you should have as much

space on that drive as possible. (Don't worry—you aren't limited to storing documents on the same drive as the OS—you can store documents on any mounted volume, but not all Mac OS X's features will be available for other volumes.)

UPDATING YOUR MAC'S FIRMWARE

Your Mac must have access to some basic software for it to start up. For example, it needs to know where to look for system software it can use to start up. This software used to be permanently stored in hardware called read-only memory (ROM). This permanent ROM could not be updated, so what came with the Mac was as good as it could get. With modern Macs, the base software is stored in *firmware*, which is sort of a combination between software encoded in hardware and normal software. The advantage of this is that Apple can update the firmware on modern Macs to correct problems or improve performance.

NOTE

If your Mac's firmware needs to be updated for 10.3, the installation process warns you and you must quit the installation and upgrade your firmware before you can continue. Things will go more smoothly if you check and update your firmware (if needed) before installing the OS.

Before installing Mac OS X version 10.3, you should make sure your Mac's firmware is up-to-date. This is a simple task that might prevent problems later.

TIP

To keep your Mac in top condition, you should check for firmware updates every so often, whether you are upgrading the OS or not.

To update the firmware on your Mac, do the following steps:

1. Use a Web browser to go to Apple's software support page, which is located at www.apple.com/support/downloads.
2. To search for any firmware updates for your Mac, enter your Mac's model or processor and the word "firmware." For example, if you have a Power Mac G4, type **Power Mac G4 and firmware**. If you have an iMac, type **iMac and firmware**. The search will find all updates that meet your search criteria.
3. Find the most recent firmware update for your Mac and download it.
4. Double-click the updater to mount the disk image on your desktop.
5. Open the disk image.
6. If a text file is provided with the update, open the text file and read it. If the Update is provided as an installer, launch the installer. In either case, read the instructions to run the updater.
7. Follow the instructions to install the firmware update on your Mac.

Some firmware updates include a program that checks whether your Mac's firmware needs to be updated. If so, run the firmware installer. Typically, you launch the updater and then restart your machine while holding down the power button (until you hear a long tone). After the updater has finished, it restarts your Mac and will be using the updated firmware.

TIP

You can also check for firmware updates by using the Software Update control panel under Mac OS 9.

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PREPARING A VOLUME FOR MAC OS X

Because Mac OS X is such a radical change from previous versions of the Mac OS, it can also be a bit more complicated to install. Before you begin installing it, there is a fundamental decision you need to make about how you are going to install the new OS.

→ To learn more about disk partitions, see “Initializing and Partitioning a Hard Drive,” p. 786.

CHOOSING A DISK CONFIGURATION OPTION

Ideally, you should install Mac OS X on a separate clean volume from where your current Mac OS 9 or earlier system lives. This enables you to more cleanly start your Mac in either Mac OS X or in a previous version of the operating system. This is advantageous because you can return to the older operating system in the event that something you need has not been ported to Mac OS X yet (such as a hardware device for which there is not yet a Mac OS X driver). This is somewhat complicated if you don't already have a system that has multiple volumes on which to install different versions of the OS.

The other option, which is not as desirable, is to install Mac OS X on the same volume as the current version of the OS. The advantage to this is that you don't need to worry about having multiple volumes on your Mac. You can simply install Mac OS X over the current OS. When you do this, the Mac OS X Installer installs Mac OS X on the same volume on which you have the current version of the Mac OS installed. This will likely work fine, but things are cleaner and more organized if you install each version of the operating system on its own volume.

If you already have more than one volume or one disk available, you should definitely install Mac OS X on a separate partition than the one that contains the current OS. If you have only one partition and aren't able to create multiple partitions, you must install Mac OS X on that partition. If either of these situations is the case for you, skip ahead to the section titled “Install Mac OS X.”

If you can partition one or more drives in your system, it is worth the effort to do so before installing Mac OS X.

Before you get into the details of preparing a disk, you need to understand the following terms:

- **Initialize**—Before a disk can be used, it must be initialized. When a disk is *initialized*, the sectors on the disk are organized and the disk is prepared for use. All data on the disk is destroyed when the disk is initialized.
- **Partition**—When a disk is *partitioned*, it is separated into different logical volumes that act as if they were different disks. Each partition is independent of the others, at least to a point. You can install a unique OS on each partition and boot from that partition. Although partitions appear to be independent, they are part of the same physical disk. Therefore, you can't initialize or format a partition. Those tasks can be done only on an entire disk. However, you can erase and reformat a partition without affecting other volumes, even if they are on the same physical disk.
- **Volume**—A *volume* is an electronic construct that acts like a disk. A volume can be a disk, a partition on a disk, a network disk, a disk image, and so on. Anything that mounts on the desktop is a volume.

USING MAC OS 9 TO CREATE MULTIPLE PARTITIONS ON A DISK

Because this option enables you to start up your Mac in your current version of the Mac OS, you can always return to that version of the OS in the event that something you need does not work or does not work properly under Mac OS X. (This will most likely be necessary for any hardware devices for which you don't have Mac OS X-compatible drivers.)

CAUTION

This section assumes you are installing Mac OS X on a system running some variation of Mac OS 9. If you are using an older version of the OS, the steps will be similar, although the details might be slightly different.

NOTE

To use your Mac OS 9 installation for the Classic environment, you must install Mac OS 9.2.2.

When you partition a hard drive, you must *initialize* it, which means you destroy all the data on that disk. Before you partition a disk, make sure one of the following situations is true for you:

- You have all the original CDs for your software and can store your data files on some type of removable disk (such as a Zip disk or CD-R).
- You have a current backup of the disk you are going to partition.

Because you will erase the drive you are going to partition, you must rebuild it from scratch. The best way to do this is to have an effective backup system you can use to restore the contents and configuration of the drive. If you have to install the original software from CDs when you rebuild the drive's data, the process takes much longer.

NOTE

For information on backing up Mac OS 9 machines, see my book *The Mac OS 9 Guide*.

To partition your drive, do the following steps:

1. Capture the current data on the disk (use your backup system or locate all your CDs and data disks).

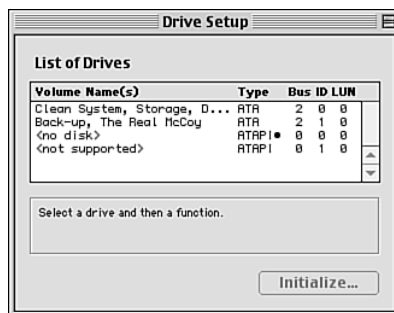
CAUTION

Don't blow through this step too quickly. Losing data is no fun.

2. Insert the CD containing the installer for the version of the Mac OS you are currently running. You should use your Mac OS 9.2 system software install or restore discs.
3. Restart your Mac, and as your Mac restarts, hold down the C key to boot from the Mac OS 9.2 CD-ROM.
4. After your Mac boots up, open the Utilities folder on the CD-ROM and then launch Drive Setup. You will see the Drive Setup window (see Figure A.3). Drive Setup looks for all the drives available on your system; they are listed in the window. Note that you might see some drives you cannot initialize, such as the DVD-ROM drive. You can also see the bus and ID numbers of all the drives connected to your system.

Figure A.3

Use Drive Setup for the previous version of the Mac OS that you use to partition a drive for Mac OS X.



If you don't see a drive that is installed in your Mac in the Drive Setup window, see "An Installed Disk Does Not Appear in the Mac OS 9 Drive Setup Window" in the "Troubleshooting" section at the end of this appendix.

CAUTION

Some non-Apple drives are not compatible with Drive Setup. If you use a third-party drive, make sure that it is compatible with Drive Setup before you try to initialize it (you can launch Drive Setup and see whether it recognizes the drive, or you can check with the drive's manufacturer).

If Drive Setup is not compatible with your drive, you will need a third-party drive utility such as FWB's Hard Disk Toolkit.

5. Select the drive you want to initialize and partition. If it is ready to be initialized and partitioned, you see a message saying so in the bottom of the window. If not, the software tells you what the problem is (for example, you can't initialize a disk that contains the active system software).

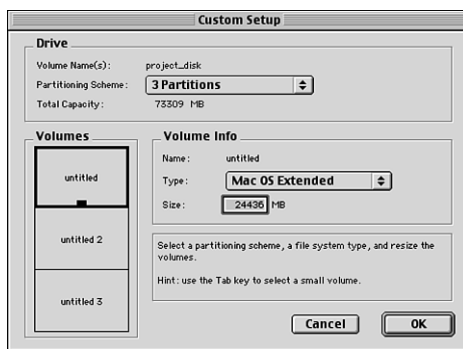
CAUTION

Don't proceed unless you are sure that you have another copy of all the data on the disk you are going to partition.

6. Click Custom Setup to open the Custom Setup dialog box. You can see the disk's current name at the top of the window. Just under the Partitioning Scheme pop-up menu, you can see the capacity of the disk (see Figure A.4).

Figure A.4

You use this window to select the number and size of the partitions on a disk.



7. Choose the number of partitions you want on this disk from the Partitioning Scheme pop-up menu. In the Volumes area, you see a graphical representation of the volumes with the partitions applied.

Partition Guidelines

Although I can't tell you specifically how many partitions you should set up, I can give you some general guidelines. Unless you have a very specific purpose in mind or are working with a small disk, I wouldn't create any partitions smaller than 10GB, especially if you plan to install an OS or applications on it. You will need at least one partition for each version of the Mac OS in which you want to be able to independently start up.

If you plan on having one Mac OS 9 startup disk and one Mac OS X startup disk, you will need at least two partitions.

If you plan on using Mac OS X's disk organization to store all your data files and applications, be sure to create a large partition for it (preferably 20GB or larger).

8. Select the type of partition you want for the first partition from the Type pop-up menu. Unless you have a specific reason not to do so, select Mac OS Extended for all the partitions.

9. Enter the size for the first partition in the Size box or use the graphical representation of the volumes to adjust the size (drag the handle on the black box around the partition).
10. Continue selecting partition types and sizes until you have set up the total number of partitions you want on that disk (you have allocated the disk's entire capacity). You can have partitions with a different type on the same disk. In some cases, you might want to have a format that is more compatible with a specific purpose for the partition. For example, you might want to run Linux on a partition, in which case you should format that partition as a Unix disk.

You should have at least two Mac Extended (also known as HFS+) partitions, with one being 20GB or more (the one on which you will install Mac OS X).

When you are done, you see the completed dialog box and are ready to initialize the disk.

11. Click OK.
12. In the Initialize dialog box, click Initialize if you are sure you want to continue. You see the Drive Setup window again and can see the progress of the initialization and partitioning process. If the drive is large and requires a low-level format, this process takes a long time. If the disk is small or does not need a low-level format, the process is done fairly quickly. When it is complete, you see the partitions listed at the bottom of the Drive Setup window.
13. Quit Drive Setup to see the new volumes on your desktop.
14. Name the partitions you created. For example, name the partition on which you are going to install Mac OS X, `Mac OS X`. You might name the partition on which you are going to maintain Mac OS 9.2, `Mac OS 9.2`.

The volumes are now ready for your data. If you open them, you will see approximately the amount of free data you specified for the partition.

NOTE

You won't ever get exactly the size of the partition that you set; usually, it is just a tad smaller than what you asked the Mac to create. That occurs because the structure of the drive itself requires some data to store, thus reducing the amount of free space on that volume. Plus, there are some invisible files on every partition, and they take space to store.

INSTALLING MAC OS 9.2

After you have created your partitions, install Mac OS 9.2 using the following steps:

1. Run the Mac OS 9.2 installer. If you haven't restarted your Mac since you partitioned your hard drive, you can run the installer from the CD that you used to run Drive Setup.

2. After the installation is complete, reinstall any third-party software (such as your Classic applications) on your Mac OS 9.2 partition.
3. Restart your Mac using the startup volume you created that contains Mac OS 9.2.
4. Configure Mac OS 9.2 so it meets your requirements (such as installing additional software).

After Mac OS 9.2 is configured properly, you are ready to install Mac OS X on another partition.

TIP

For help working with Mac OS 9, see my book *The Mac OS 9 Guide*.

A

INSTALLING MAC OS X

After you have prepared a volume for Mac OS X, install it using the following steps:

1. Insert the first Mac OS X CD in your Mac, restart your Mac, and hold down the C key to restart from the CD.

The system goes through several checks that are different from the startup process under previous versions of the OS. Eventually, you will see it begin to prepare the installation process.

2. Follow the same steps as when you install the OS using the Erase and Install option, starting with step 2.

TIP

For best results, you should reformat the volume on which you are going to install Mac OS X using the HFS + with Journaling option.

- To learn how to format a partition, **see** “Partitioning a Drive Before Installing Mac OS X,” **p. 959**.
- To learn how to install Mac OS X version 10.3 with the Erase and Install option, **see** “Installing Mac OS X Version 10.3 Using the Erase and Install Option,” **p. 957**.

UPDATING YOUR MAC OS X INSTALLATION

As with the other software it produces, Apple frequently updates Mac OS X to improve security and reliability, fix bugs, add minor features, and so on. After you have installed and configured Mac OS X version 10.3, you should immediately check for and install updates to the OS and Apple applications that have been released since the version you installed. When you first start up under Mac OS X version 10.3, Software Update launches automatically. If it doesn't for some reason, or if you want to launch it manually, open the System Preferences application and click the Software Update icon to open the Software Update pane. In either case, use the Software Update tool to perform the update.

→ To learn how to use Software Update to update your software, see “Using Software Update to Maintain Your Software,” p. 874.

TROUBLESHOOTING



AN APPLICATION DOESN'T WORK UNDER OS 10.3

After I installed Mac OS 10.3, an application that had worked under previous versions stopped working.

Two reasons that this can happen are the following:

- **The application is not version 10.3 compatible**—Version 10.3 includes many major changes from previous versions of Mac OS X. Some applications break when they run under 10.3. If an application does not work under 10.3, check the manufacturer's Web site to see whether the version you are running is compatible or whether a compatible version is available. Be sure to install any updates to the application you already had.
- **You did not move all required application files to your new Mac OS X installation**—If you performed a clean installation of 10.3, you need to ensure that any files the application installed in the system are moved from the previous version to the new version. The best way to do this is to reinstall the application from its original installer and updates.

→ To learn how to move files from the previous version of Mac OS X to 10.3, see “Installing Mac OS X Version 10.3 with the Archive and Install Option,” p. 952.

If the version of the application you are using is supposed to be compatible with version 10.3 and you can't find any of that application's files in the previous version of Mac OS X's system, try reinstalling the application from the original CD or download the installer again. Make sure that you also reinstall any patches or updates that are available for it.

AN APPLICATION LOST MY PREFERENCES UNDER OS 10.3

After I installed Mac OS 10.3, an application lost my preferences.

This happens if you don't move application system preference files (user preference files are stored within a user's Home folder that is preserved if you use the Preserve Users option when you choose the Archive and Install installation method) from the previous version of the Mac OS X system to the 10.3 system. Check the previous version of the operating system to ensure that you have moved all the application's files over. If you have, you might just have to reconfigure the application's preferences.

AN INSTALLED DISK DOES NOT APPEAR IN THE MAC OS 9 DRIVE SETUP WINDOW

A disk installed in my Mac does not appear in the Drive Setup window, so I can't initialize or partition it.

This occurs when a disk is not installed properly, is not compatible with the bus to which it is attached, or the disk itself is defective. It can also occur with some disks that are not compatible with Apple's Drive Setup application.

If you have never used the disk before, the disk might not be installed properly.

If you installed the missing disk yourself, open your Mac and check the physical installation of the disk. Ensure that it is properly connected to the correct bus. You also need to ensure that the disk is the correct format for the bus to which it is attached. For example, if you are using an ATA bus, you must have an ATA disk rather than a SCSI disk. Make sure you have attached a power supply to the disk.

If you have used the drive in the same machine before or the installation checks out okay, the drive is probably not compatible with the Drive Setup application. You will need to obtain a different application, such as FWB's Hard Disk Toolkit, and attempt to format and partition the disk with that utility.

If neither of these steps solves the problem, the disk itself might be defective. The only options in this case are to replace the disk or have it repaired.

THE INSTALLER WON'T RECOGNIZE A PARTITION

I can't choose the volume on which I want to install Mac OS X because the volume is grayed out.

On some machines, the installer won't be able to install Mac OS X on a volume that is not contained entirely within the first 8GB of its ATA hard drive. Affected machines might include PowerBook G3, Power Macintosh G3, Macintosh Server G3, and iMacs with processors running at 333MHz or less.

On the affected machines, you must install Mac OS X on a volume that is completely contained within the first 8GB of its hard drive.

If you have a hard drive that is larger than 8GB, you must partition that drive so it contains a volume that is 8GB or less in the first 8GB of the drive. You can select that partition to install Mac OS X.

If you have a partitioned drive, one of the first partitions must be 8GB or less. If not, you have to repartition the drive so one of the first partitions is less than 8GB.

To partition a drive, use the Drive Setup application under Mac OS 9.x.x or the Disk Utility under Mac OS X.

If you are installing Mac OS X from an upgrade rather than a full version, you must have an earlier version of Mac OS X installed on the disk on which you want to install the update. If not, you won't be able to select the disk. If you have erased the previous version of Mac OS X from that volume for some reason, you will need to reinstall the previous version of Mac OS X and then run the Mac OS X upgrade installer again. When the installer detects a previous version of Mac OS X, you should be able to choose the disk on which the previous version is installed.

- To learn how to partition a drive under Mac OS 9.x.x, see "Using Mac OS 9 to Create Multiple Partitions on a Disk," p. 973.
- To learn how to partition a drive under Mac OS X, see "Initializing and Partitioning a Hard Drive," p. 786.

THE INSTALLER COULDN'T FINISH

The Mac OS X installer quits before it finishes the installation.

This problem can happen for two main reasons: Your Mac is not capable of running Mac OS X or a problem exists with the volume on which you are trying to install it.

If your Mac is not capable of running Mac OS X, the installer might not even start. However, it might start if you are running it on a machine that is one of the supported Macs but does not meet the minimum requirements, such as having at least 128MB of RAM. Your only option is to upgrade your Mac so it meets all the requirements or replace the Mac with a newer one.

The installer might also balk if a problem exists with the volume on which you chose to install it. Run the installer again and choose to erase and reformat the volume (if you didn't do so the first time). If you did choose to erase and reformat the volume, try to install it on another volume instead.

If none of this works, you should contact Apple for help.

THE 10.3 SYSTEM I INSTALLED IS NOT WORKING

After I installed Mac OS 10.3 over a previous version of Mac OS X, things are screwy.

If you are having problems (such as applications that worked fine before 10.3 that are now starting to quit unexpectedly) after installing Mac OS X 10.3 over a previous version, it probably means you are enjoying one of the situations in which the installer was incapable of properly upgrading your system. In this case, one of the following two solutions should get you running version 10.3 properly:

- **Use your backup to reinstall the previous version of Mac OS X, and then perform a clean install of Mac OS X version 10.3**—Assuming that you followed good practice and backed up your system before attempting the upgrade, you can restore your previous system. Then, upgrade your system using the Erase and Format option.
- To learn how to perform a clean install of 10.3, [see “Installing Mac OS X Version 10.3 with the Erase and Install Option,” p. 957.](#)
- **Prepare an empty volume and install Mac OS X on it**—Create an empty partition and install the OS on it. Then move any data you need from your backup system into your new system. This amounts to a total rebuild of your system, but sometimes, that is the only option you have.
- To learn how to use Mac OS X tools to prepare and partition a disk, [see “Choosing, Installing, and Using a Hard Drive,” p. 782.](#)
- To learn how to perform a clean install of 10.3, [see “Installing Mac OS X Version 10.3 with the Erase and Install Option,” p. 957.](#)