

# Chapter 1

## Introduction and Installation of Mac OS X

**F**rom the moment you see Mac OS X, you know that it's different from any other computer operating system on the planet, including earlier iterations of Mac OS. Nothing else looks quite like it. Yet, use it a bit and you'll see that there is familiarity about its operation. Apple has made great efforts to ensure that Macintosh users as well as Windows users can leverage their previous OS skill sets. But what sets Mac OS X apart from its predecessors and its competition is the sum total of its parts.

This chapter provides an overview of the core technologies that comprise Mac OS X. Knowing the core technologies can help you master the overall operation of this world-class operating system. The chapter concludes by examining the system requirements of Mac OS X and its installation.

### What Is Mac OS X?

Mac OS X is Apple's answer to the quest for a modern operating system. It combines the power and stability of Unix with the simplicity of Macintosh. In 1996, after continual failed attempts to develop its own next-generation operating system, Apple management looked outside the company and acquired NeXT Software, Inc. NeXT's OS at the time was called OpenStep. It had all the features that Apple desired in a modern OS: protected memory, preemptive multitasking, multithreading, and symmetric multiprocessing. With OpenStep as the foundation, Apple initially designated the code name Rhapsody for its new OS, but as the project matured, it was renamed to Mac OS X, keeping in line with the progression of Apple's existing system software monikers. Apple has enjoyed phenomenal success with Mac OS X, which has been adopted by over 5 million users, and Apple is now generally considered the largest vendor of Unix-based systems on the planet.

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**What is Mac OS X?**

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Mac OS 10.5 is another evolutionary step in the OS X product line. Apple claims it has more than 300 enhancements. One of the more significant enhancements, though most likely unperceivable to most users, is that the product is now a 64-bit Universal OS that is capable of running 32-bit software without recompilation. What does this mean in layman's terms? Mac OS X 10.5 can be installed on both Intel and PowerPC CPU-based Macs and will continue to run your existing Mac OS X application.

**NOTE**

Mac OS X is capable of addressing up to a whopping 16 exabytes of virtual memory. An exabyte is equivalent to 1,024 petabytes, and a petabyte is equivalent to 1,024 terabytes — that's a lot of memory.

## Core Technologies of Mac OS X

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The most important thing to know about Mac OS X is that it is based on open standards. This is because at the heart of OS X is Unix, which has played a major role in the development of the Internet. Because Unix is so Internet-centric, OS X can be integrated in virtually any computing environment. In fact, the X in Mac OS X represents the X in Unix. But fear not; although Mac OS X is a Unix operating system, its operation does not require the mastery of complex Unix command syntax. As Apple publicizes, the command line is there for those who would like to use it, but it isn't required for day-to-day operations. You can make as much or as little use of it as you want.

If OS X were compared to an automobile, you would see a similarity in that both are composed of many parts. All these parts have very distinct functions, and yet all make up a greater whole. Metaphorically speaking, the intention of Apple was to design a vehicle akin to a Formula 1 racing car. When the engineers at Apple set out to build OS X, they pulled together world-class technologies in an effort to build the most advanced consumer operating system the world has ever seen. The following sections take a closer look at these parts.

### Darwin

The foundation of OS X is Darwin, which is an open source community/Apple joint effort. Though Darwin is a complete OS in and of itself, the primary objective of the Darwin project was to build an industrial-strength Unix-based operating system core that would provide greater stability and performance compared to all existing iterations of the Mac OS. Reviewing Darwin in detail is beyond the scope of this book. Instead, we review some of Darwin's more marketed features.

### Mach microkernel

At the center of Darwin is the Mach microkernel based on FreeBSD 5.x, the foundation that provides basic services for all other parts of the operating system. Mach was developed at Carnegie-Mellon University, and its history is closely tied with BSD Unix (Berkeley Software Distribution). It is Mach that gives OS X the features of protected memory architecture, preemptive multitasking, and symmetric multiprocessing.

## Protected memory

Protected memory isolates applications in their own individual memory workspaces. When an application crashes, the program can be terminated without having a negative effect on other running applications or requiring a restart of the computer.

## Advance memory management

Advance memory management automatically manages physical RAM and virtual memory dynamically as needed. Virtual memory uses hard disk space in lieu of physical RAM. Information that would normally sit in RAM, but is not currently needed, is transferred to the hard disk to free up physical RAM for the demands of data/applications that need it. This alleviates out-of-memory conditions and eliminates the need, experienced by users of previous Macintosh desktop operating systems, of having to manually adjust memory allocations.

## Preemptive multitasking

Mac OS X, like all Mac OS versions since System 7, allows more than one application to be open and operating at the same time. This capability is known as *multitasking*. Prior to OS X, the Mac OS employed a version of multitasking referred to as *cooperative multitasking*. In cooperative multitasking, applications sometimes seemed unresponsive because the system software could not efficiently manage the concurrent demands of multiple running programs. Mac OS X remedies this by implementing *preemptive multitasking*. Preemptive multitasking prioritizes processor tasks by order of importance. This more efficient method of managing processor tasks allows the computer to remain responsive, even during the most processor-intensive tasks.

## Symmetric multiprocessing

Symmetric multiprocessing (SMP) provides support for multiprocessor Macintosh computer systems. This allows applications to take advantage of two or more processors by assigning applications to specific processors or by splitting parts of applications, known as *threads*, between multiple processors simultaneously. Mac OS X is further optimized to take advantage of SMP by employing a technique known as *optimized kernel resource locking*. Optimized kernel resource locking provides superior SMP performance by allowing multiple CPUs access to different portions of the kernel simultaneously. Mac OS 10.5 takes multiprocessing another step forward with its multicore processor competency, allowing it to harness the power of up to eight cores simultaneously, which is the maximum number of cores shipping inside of Macintosh computers at the time of this writing.

## Graphics technologies in Mac OS X

When it comes to graphics, Mac OS X is one of the most powerful operating systems on the planet. To achieve this power, Mac OS X employs several standards-based technologies that are best-of-class. These technologies include Quartz, OpenGL, and QuickTime. Over the past couple of years, some of the greatest strides in hardware performance have come in the form of video hardware. Mac OS X 10.5 has been optimized to take advantage of this high performance video hardware. Designated as Core Image and Core Animation, this software optimization improves performance

by reducing floating-point unit (FPU) CPU utilization by offloading it to the Graphic Processing Unit (GPU) of the video hardware. Not all video cards are Core Image/Animation capable, but it's safe to assume that if your Mac has shipped within the last two years, it will be either fully or partially compliant, because the technology is scaling and is dependent upon hardware capabilities. For a complete list of Core Image/Animation-compliant video cards, visit [www.apple.com](http://www.apple.com).

## **Quartz**

Quartz is a powerful two-dimensional (2-D) graphics-rendering system. It has built-in support for the Portable Document Format (PDF), on-the-fly rendering, compositing, and anti-aliasing. It supports multiple font formats, including TrueType, PostScript Type 1, and OpenType. Quartz supports Apple's ColorSync color-management technology, allowing for consistent and accurate color in the print/graphics environment.

## **OpenGL**

Open Graphics Library (OpenGL) started out as a technology initiative by Silicon Graphics, Inc., a manufacturer of high-end graphics workstations. It has since become an industry standard for three-dimensional (3-D) graphics rendering. It provides a standard graphics application programming interface (API) by which software and hardware manufacturers can build 3-D applications and hardware across multiple platforms on a common standard. OpenGL is very prevalent in gaming, computer-aided design (CAD), professional 3-D animation/modeling, and graphic design.

## **QuickTime**

QuickTime is Apple's cross-platform multimedia authoring and distribution engine. It's both a file format and a suite of applications. QuickTime has been around since 1991 and has matured into a very powerful technology. It supports more than 50 media file formats encompassing audio, video, and still images. Some examples of these file formats include AIFF, AVI, JPEG, MIDI, MP3, MPEG-1, PICT, and TIFF. QuickTime has support for real-time video streaming, allowing viewers to tune in to live or prerecorded content on demand.

## **Aqua**

Though Aqua is not a graphics technology in Mac OS X, it is its graphical user interface (GUI). Appearance-wise, it is a dramatic departure from OS 9's Platinum interface, although it retains certain common elements. This allows for greater familiarity for legacy Macintosh operators, thus making the transition to OS X a more intuitive experience.

## **Mac OS X's application environments**

Application environments allow Mac OS X to run its modern OS-enabled applications while simultaneously supporting legacy Mac OS software. An application environment consists of various system resources, components, and services that allow an application to function. Mac OS X has five application environments: Cocoa, Carbon, Java, BSD, and Classic.

## Cocoa

Cocoa applications are specifically developed for Mac OS X. Cocoa applications are incompatible with older Macintosh operating systems and, therefore, do not run on Mac OS 9. Cocoa applications take advantage of all of Mac OS X's modern OS features, such as advance memory management, preemptive multitasking, symmetric multiprocessing, and the Aqua interface. Apple evangelizes Cocoa for its modern object-oriented programming techniques and rapid application development tools, which make application development significantly faster and easier than for Carbon. Some examples of Cocoa applications are OS X's Mail and Preview applications as well as Netopia's Timbuktu for Mac OS X.

## Carbon

The greatest advantage of the Carbon application environment is that developers can build applications that run in either Mac OS 9 or OS X. When running within OS X, Carbon applications take advantage of most of OS X's modern OS features, including the Aqua interface. In order for Carbon applications to run within Mac OS 9, the CarbonLib library must be present within the Extensions folder within the Mac OS 9 System folder. Ironically, some Carbon applications do not run under Mac OS 9. The most prominent is Microsoft's Office Version X for Mac.

## Java

The Mac OS X Java environment is Java 2 Standard Edition-compliant. It can run both Java applications and applets. The key advantage of Java development is that Java applications can run on any platform that contains a cross-compatible Java Virtual Machine.

## BSD

The BSD application environment usually deals with command-line executable shell scripts. A shell script is similar to an MS-DOS batch file in that they're both text files that contain a sequence of commands. Interestingly enough, shell scripts do not necessarily have to be executed from the command line. Shell scripts can be implemented within Cocoa applications, allowing them to be executed from the GUI.

## Packages and bundles

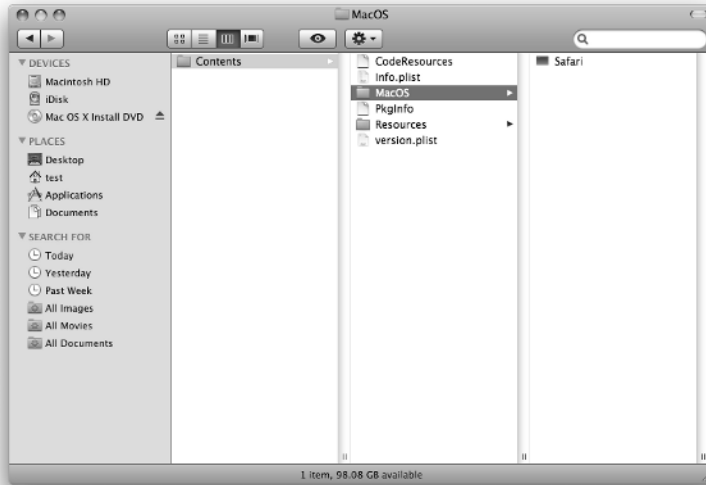
A *package*, sometimes referred to as a *bundle*, is a single-icon, point-and-click representation of an application. Mac OS X's Carbon and Cocoa applications can be comprised of multiple subordinate files and resources. In the GUI, all of these subordinate pieces are neatly wrapped up into a representation of a single executable file for the end user. To view the contents of an application package, simply press and hold the Control key while highlighting the Carbon or Cocoa application icon. You're then provided the option to show the package's contents. For illustration purposes, Figure 1.1 depicts the contents of Safari for Mac OS X.

## Frameworks

Mac OS X frameworks contain dynamically loading code shared by multiple applications. Frameworks alleviate the need for applications that contain common code to individually load that code for each instance of those applications running simultaneously.

**FIGURE 1.1**

When pondering packages remember the whole is greater than the sum of its parts.



## Installation Considerations for Mac OS X

Now that we have reviewed the core technologies of Mac OS X, let's focus on its installation process. Although Mac OS X has a very structured installation process, several variations of installation are available. The user's needs dictate the appropriate installation strategy. However, before any Mac OS X implementation can take place, it is necessary to evaluate the target computer to see whether it meets Apple's official hardware requirements.

### Hardware requirements of OS 10.5

Apple's minimum hardware requirements for Mac OS X 10.5 is a factory-shipped Intel or PowerPC G4 867MHz processor with 512MB of RAM (1GB with Developers Tools), 9GB of available hard drive space (12GB with Developers Tools), a DVD drive, a built-in FireWire port, and an Apple-supplied video option. In addition, Boot Camp requires an Intel processor and will run either Windows XP Service Pack 2 or Windows Vista (BYOOS — bring your own OS). Photo Booth requires an iSight camera (built-in or external), USB video class (UVC) camera, or FireWire DV camcorder, and an Intel or PowerPC G5 processor. Backdrop effects require an Intel Core Duo or faster processor. Backdrop effects when using a DV camcorder require fixed focus, exposure, and white balance. iChat Video requires an iSight camera (built-in or external), a USB video class (UVC) camera or FireWire DV camcorder; and a 128-Kbps upstream and downstream Internet connection. Audio chats require a microphone and a 56-Kbps Internet connection. Front Row, Apple's entertainment media console, requires a Mac with built-in IR and an Apple Remote.

Leopard's revised DVD Player requires a 1.6GHz processor or faster for improved de-interlacing. As for third-party hardware, Apple states that OS X natively supports many third-party hardware devices, although some devices may require additional driver updates from their respective manufacturers to utilize a product's full feature set.

## Preparing for the installation of OS X

After you've deemed that the target hardware meets OS X's minimum hardware requirements, you need to verify that the target computer's firmware is up to date. *Firmware* is programming that tells a computer's hardware how to behave. Starting with the original iMac, Macintosh computers have used a firmware-upgradeable hardware design. This design element on PowerPC Macs is a component of what is referred to as NewWorld Architecture. Intel Macs have an equivalent known as Extensible Firmware Interface (EFI). The Mac's firmware is contained in a programmable (flashable) read-only memory (PROM). This programmable firmware approach enables Apple to fix technical issues via patches and upgrades like any other software. As a result, this innovation allows Apple to achieve greater hardware stability and overall improved system performance via firmware updates. Using a utility referred to as a Flash-ROM updater, firmware can be upgraded (sometimes referred to as *revved*). The Mac OS 10.5 installer alerts you if your system's firmware is out of date. You can also determine your system's firmware by running Apple System Profiler. Apple's latest firmware may be included on the Mac OS X Install DVD. It can also be obtained either through Mac OS X's built-in Software Update mechanism or from [www.info.apple.com/support/downloads.html](http://www.info.apple.com/support/downloads.html).

### NOTE

All PowerPC system firmware updaters released to date by Apple prior to the G5 are available via Mac OS 9 applications only. Updating a system's firmware using the Classic application environment in lieu of booting directly from Mac OS 9 is not recommended and Classic is no longer officially supported within Leopard.

## Volume preparation for OS X

A Mac OS X startup volume can be formatted as an Extended (HFS+) or a Unix File System (UFS) volume. An HFS+-formatted volume's single biggest advantage is that it can be prepared as either *case preserving* or *case sensitive*. All Macintosh desktop operating systems to date have used file systems that have been dependent on case-preserving formatted volumes (this includes the old HFS format as well).

The opposite of the case-preserving format is the case-sensitive format. With the case-sensitive format, it is possible to have multiple files named identically in the same location/folder/directory. The only thing that would differentiate the files to the naked eye is the varied use of uppercase and lowercase characters. For example, you may have individual files named DOG, DoG, Dog, dOg, doG, dOG, and dog located in the same folder.

As mentioned previously, OS X also supports another format referred to as the Unix File System (UFS), although it isn't the preferred volume format because it doesn't support AirPort networking and is case sensitive. In addition, UFS volumes are not recognized by Mac OS 9 and their volume

names cannot be customized after creation. Apple states that “a UFS format may be desired for developing Unix-based applications *within* OS X,” and you should not choose this format unless you specifically need it.

## Gathering setup information

Regardless of whether you’re upgrading from Mac OS 9 or older versions of Mac OS X, if you want your computer to use the same Internet and network settings, before you install Mac OS X on it you need to make a note of your system’s current preferences. Depending upon how you connect to the Internet, one or more of the following settings may need to be recorded. In Mac OS 9, the settings are located in the AppleTalk, File Sharing, TCP/IP, Remote Access, Modem, and Internet control panels. In Mac OS X, the settings are located in the Network and Sharing preference panes as well as in the Internet Connect application. In addition, you may need to get the settings for your e-mail account from your e-mail reader application.

## Hard drive backup

To back up today’s large hard drives, you need some type of storage device that can accommodate the capacity of your backup. These devices can include, but are not limited to, another internal IDE or SATA hard drive, a FireWire or USB hard drive, or a recordable optical or magnetic media drive. You *can* back up to a Finder-accessible volume by simply dragging and dropping the desired contents to another hard drive; however, before doing so, you need to be the owner of those contents and be sure to select ignore permissions from within the Get Info window of the intended destination volume. Another option to consider is Leopard’s Time Machine backup utility, which is covered in greater detail in Chapter 21. Lastly, using a more advanced third-party backup utility, such as Retrospect from Dantz Development or BRU from Toli Group, has the added benefit of superior logging and verification capabilities to ensure the successful outcome of a backup, in addition to the fact that both products support streaming tape media.

## Preparing the destination volume

After you’ve backed up, you’re ready to prepare your intended destination volume for Mac OS X installation. To do so, you need to use the Disk Utility application located on the Mac OS X Install DVD. Disk Utility is covered in Chapter 21.

If you’re not installing on an Apple-branded hard disk, and third-party formatting software was used to prepare it, you need to investigate if the formatting software is Mac OS X-compatible. If not, you need to use formatting software that is compatible. Typically, an initialization is required, but some third-party formatting software can update and overwrite an existing driver without the need of an initialization.

A *driver* is a piece of software that enables an operating system to interface or control a hardware device. In general, the operation of driver software requires no action from the end user. All hard drives use driver software. It is imperative that the hard disk driver is compatible with the Mac OS version in use or problems will result.

## Running the Mac OS X installer

After the destination volume is prepared, you're ready to run the Mac OS X Installer application, but before doing so, make sure to have your computer plugged in if you're installing on a portable system. You don't want your iBook or PowerBook going to sleep in the middle of an installation. At the time of this writing, the Mac OS 10.5 installer is contained on one DVD, though it's expected that CD media will be an available option by special request when Leopard is released. To install OS X, you're required to boot from the Mac OS X Install DVD. You can achieve this in the following four manners:

- Boot the Macintosh while holding down the C key.
- Use the Startup Manager. To activate the Startup Manager, hold down the Option key at startup. You're then presented with a graphical interface that enables you to select it as a startup disk.
- Select the Mac OS X Install DVD by using Mac OS X's Startup Disk Preference pane.
- You can boot from a Mac OS X Install DVD by inserting the DVD while booted from Mac OS X and locating and double-clicking the Install Mac OS X application, which requires the authorization of an administrator's account.

Figure 1.2 shows the Restart button in the Install Mac OS X window. When the computer starts from the Mac OS X Install DVD, the Installer program starts automatically and presents a series of screens that ask you to make certain choices as described in the following text.

**FIGURE 1.2**

The Restart button in the Install Mac OS X program restarts the computer with the Mac OS X Install DVD to begin installation.



## Select Language

The Mac OS X installer supports installations for many languages. Select the appropriate language for the remainder of the installation process and click Continue.

## Welcome

The Welcome screen acts as a prelude to the rest of the installation process. No action is required except for clicking Continue.

## More Information

The Read Me screen presents the same contents that can be found in the Read Before You Install document on the Mac OS X Install DVD. Skipping this document is tempting, but the information provided may be important, so you should at least skim it. After reading the information, click Continue.

## License

The License screen presents you with OS X's Software Licensing Agreement. The license agreement is filled with legalese, but you may want to look through it so that you know what you're agreeing to. For example, one provision states that you may only install the software on one computer at a time. You must click Continue, and a second confirmation screen appears in the form of a dialog sheet, requesting you to click Agree before you can continue with the installation process.

Make no mistake, Apple's legal department perceives that the License Agreement is important; they provide the convenience of a pop-up menu where you can choose to view it in a language other than English.

## Select Destination

The Select Destination screen enables you to choose the destination volume for your Mac OS X installation. Click the Options button and a sheet appears, providing the choices to Upgrade Mac OS X, Archive and Install, and Erase and Install. Here's what those options mean:

- **Install Mac OS X/Upgrade Mac OS X:** Dependent upon whether a previous installation of Mac OS X exists, the first option appears as Install Mac OS X or Upgrade Mac OS X. Install Mac OS X installs Mac OS X for the first time on a specified volume, and Upgrade Mac OS X upgrades an existing installation of Mac OS X while preserving current applications, fonts, and preferences.
- **Archive and Install:** Moves existing System files to a folder named Previous System and then installs a fresh copy of Mac OS X. After a system folder has been designated as previous, it can no longer be used as a valid startup OS. Preserve Users and Network Settings is a suboption under Archive and Install, which facilitates the preservation of user accounts, home folders, and network settings.
- **Erase and Install:** Provides a clean slate. As with the Disk Utility, it erases your hard disk. The Erase and Install option also allows you to choose your disk format: MAC OS Extended (Journaled) or Mac OS Extended (Case-sensitive, Journaled). Journaling may

help protect the data on your hard disk from unforeseen failures such as system freezing or power outages. As previously mentioned, *case sensitive* means that it matters whether or not letters are capitalized. For example, passwords in Mac OS X are case sensitive. In some instances, such as in the screen saver password window, the dialog box tells you if the Caps Lock key is pressed, alleviating the frustration of being sure you typed the correct password but having entered it unknowingly in all caps.

**TIP**

If there is a sole ATA/IDE hard drive in your Mac, and the Select a Destination screen does not display an available hard disk to install to, you need to verify that the intended target ATA/IDE drive is configured as a master drive on the bus.

After making your selections, click Continue.

## Installation Types

The Installation Types screen provides two choices for installation types. The choices are Install and Customize. By default, the Mac OS X installer starts with the default install which is comprised of the packages Essential System Software, Print Drivers, Additional Fonts, Language Translations, and X11. Upon closer inspection of the Customize Install options, you'll see the mechanism for granularly controlling the selections of the packages that can be installed. Wise use of these selections can eliminate superfluous software from your Mac OS 10.5 install. After choosing your install type and making your selections, click the Install button.

## Installing

The OS X installer now begins to verify the condition of your installation media and displays a drop-down dialog sheet providing a progress bar. You can skip this process by clicking the Skip button. When the disk has been verified or skipped, the installer commences the actual OS installation, which lasts about an hour, give or take, depending upon your installation type and selections. For the most part, this is an automated process that leaves you the time-honored task of progress-bar watching.

## Finish Up

At this point, the installer performs several optimization and clean-up tasks to complete the installation process.

## Stopping the Mac OS X Installer

Until you click the Install button to get the installation process under way, you can stop installation by choosing Installer ⇨ Quit Installer. If you do this, the installer displays a dialog box that asks you to confirm that you really want to stop installation. Click the Restart button in this dialog box to have installation stop and your computer restart. When you hear your computer's startup chime, press and hold the Option key to select a valid startup disk other than the Mac OS X Install DVD. You can also eject the Mac OS X Install DVD by pressing the mouse button during restart.

## Using the Setup Assistant

After the Mac OS X install process has been completed, the computer automatically reboots. Next, Mac OS X's Setup Assistant automatically launches and you hear some snazzy music as well as see some flashy graphics. You are also audibly prompted to choose if you would like to use Voice Over interface technology throughout the rest of the Setup Assistant process. When this is over, you are presented with the Setup Assistant's Welcome screen, which, depending upon your selections, guides you through the process of transferring user accounts from another system or volume, procuring an Apple ID for purchasing Apple products and services online, registering your OS software, setting up your first user account, and connecting to the Internet.

### Welcome

The Welcome screen is where you select the country or region in which the Macintosh will be used. To see selections beyond the default countries, click the box adjacent to the Show All label, located under the selection widow. If you wait about 30 seconds, a modal dialogue sheet appears querying in easy-to-see large text if you require the use of Mac OS X's VoiceOver, Apple's Spoken Interface, to audibly guide you through the setup assistant process. After making your selection, click Continue.

### Do You Already Have a Mac?

The Do You Already Have a Mac? screen allows for the migration of user and system data from another Mac, or from another volume on this Mac, or from a Time Machine backup. There is also a selection not to transfer anything. Transferring accounts from one system or volume to another does not affect the contents of the source. As a matter of fact, the transfer of accounts can be performed at any time, by running the Migration Assistant located in the Utilities folder inside of the Applications folder. When transferring an account from one volume or system to the next, the following things can be optionally migrated: Network settings, User accounts (including preferences and e-mail), Documents, and Applications. Apple notes that some applications may not transfer properly, thus requiring a reinstallation; and in order to play transferred songs purchased from the iTunes Music Store, you'll need to de-authorize your old system and authorize your new one. To transfer information from one Mac OS X system to another via FireWire, you'll obviously need a standard FireWire cable and your Mac must be capable of FireWire Target Disk mode.

### Keyboard

Simply stated, this screen allows you to select the localized keyboard layout that is appropriate for the operation of your Macintosh specific to your geographic locality.

### Select a Wireless Service

This screen assists with the facilitation of network connectivity. As the title implies, it has an obvious slant toward wireless connectivity and displays all visible wireless networks that can be perceived. To access a hidden wireless network click the Other Network option. Don't forget to specify your password (WPA/WEP) if your wireless network requires one. If you do not have a wireless network click Other Network for other options. Here is where you can configure your Mac to be directly

attached to a cable or DSL modem as well as a local area network (LAN) via Ethernet. If none of these options suffice, click My computer does not connect to the Internet, and you are taken to the Personalize Your Settings screen. Later, revisit the Network preference pane within the System Preferences application to configure your Network settings.

## Enter Your Apple ID

Eerily reminiscent of Microsoft's Passport, an Apple ID lets you make one-click purchases from the iTunes Music, iPhoto, and Apple Stores. If you already possess a .Mac membership, use that as your Apple ID; otherwise, have the Setup Assistant create one for you, or skip the process entirely. If you do elect to create an Apple ID, you are also provided with a 60-day trial membership to .Mac. .Mac is a combination of software and online tools that can enhance your "Internet experience" while using your Mac. After making your selections, click Continue. (For more details on .Mac, see Chapter 14.)

## Registration Information

This is the product registration that is automatically sent to Apple when you connect the Mac to the Internet. You cannot leave anything blank except the e-mail address and the company or school. You can skip this screen by pressing **⌘+Q** and then pressing the Skip button, which takes you directly to the Create Your Account screen and automatically configures your network settings for DHCP. Otherwise, after completing the Registration Information screen, click Continue. There is also a button for Shut Down, which can be used to shut down the Mac and allow it to be registered.

## Personalize Your Settings

The Personalize Your Settings screen is where you select the keyboard layout that is appropriate for the country or region in which the Macintosh will be used. You can change the preference later, after you're into the computer. Make your language selection and click Continue. If you don't see your language, click the box adjacent to the Show All label, located under the selection widow.

## Create Your Account

After you've submitted the necessary registration information, you need to set up your user account. Chapter 18 reviews user accounts in detail, but for now suffice it to say that the information you provide is necessary to perform administrative functions within Mac OS X. When creating your account, you'll need to specify both a Name and a Short Name. A Short Name is exactly what it sounds like—a short name. It alleviates the need for typing your whole name. You'll appreciate your short name when user authentication is requested by certain applications or during certain administrative functions within OS X.

A Short Name is automatically generated when you tab from the Name field to the Short Name field. But don't worry—it can be changed. A short name is all lowercase, has a maximum of eight characters, and cannot contain any spaces or the following characters: < > ' " \* { } [ ] ( ) ^ ! \ # | & \$ ? ~.

Make sure to pick a Short Name you like, because it can't be changed after the fact. After you've chosen your short name, you'll need to provide a password. Although OS X accepts more than eight characters for this field, it checks only the first eight. The last entry field allows you to provide yourself an optional password hint if desired. Finally, you need to select a picture that serves as an iconic representation of your user account. After making your selections, click Continue.

### Select a Picture for This Account

This portion of the Setup Assistant allows you to take a snapshot for iconic representation of your user account if you're using an iSight camera or your Mac has one built-in. Otherwise, you can select one from a stock library within Mac OS X by selecting the Choose from the picture library option.

### Select Time Zone

The Select Time Zone screen allows you to specify the time zone the computer will be operating in. Clicking your geographic location or typing the name of the closest city where the computer is located accomplishes this. After making your selection, click Continue.

### Set the Date and Time

The Set the Date and Time screen lets you to set your computer's clock and calendar. When you're done, click Continue.

### Don't Forget to Register

If by chance your registration information was not successfully sent to Apple or you opted to skip entering as discussed earlier, you'll be prompted with an additional screen stating Don't Forget to Register; just click the Done button at the bottom to move on.

## Running Software Update

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Finding that the installers provided by manufacturers of media in hand do not contain the most recent version of a product is not uncommon. Usually, software updates can be obtained via a manufacturer's Web site. Apple simplifies this process by automating the update process upon initial OS X startup. If by some chance this does not occur, the process can be manually activated via the Software Update preference panel. (This is reviewed in detail in Chapter 21.) Figure 1.3 shows OS X's Software Update preference panel, an excellent tool for obtaining the latest updates for Mac OS X.

As you can see, building an OS X box is not a difficult task. Taking the time to evaluate your installation considerations and applying the appropriate OS X installation strategy goes a long way toward ensuring a smooth migration from a previous Mac OS version.

**FIGURE 1.3**

No installation is complete without checking for product updates.



## Summary

Mac OS X is a Unix operating system. It is built upon open standards, providing preemptive multitasking, symmetric multiprocessing, protected memory, and advanced memory management, as well as world-class graphics capabilities. Though it may be complex in design on the inside, on the surface, it retains its world-class usability and appearance that customers expect of the Mac OS.

