

Chapter 1: Networking Your Macs

In This Chapter

- ✓ Creating a wired network
- ✓ Creating a wireless network
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- ✓ Connecting to a mobile phone or PDA

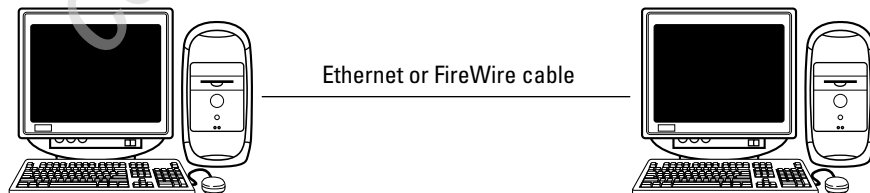
If you have multiple computers in the same place, you may find it convenient to connect your Mac to a network. A *network* allows multiple computers to share files. Although you could copy a file on a USB flash drive, plug it into another computer, and copy the files on to that second computer, such an approach (dubbed *sneaker net*) is slow and clumsy. However, when multiple computers connect to a network, they can share files almost as quickly and easily as copying a file from one folder to another.

Creating a Wired Network

The simplest wired network just connects two computers together using either a FireWire cable or a cable that conforms to a networking cable standard called *Ethernet*. Every Mac has a FireWire port and an Ethernet port, so if you plug a FireWire cable or Ethernet cable into the FireWire or Ethernet ports of two Macs, you'll have a simple network, as shown in Figure 1-1.

Figure 1-1:

A simple network connects two Macs through a FireWire cable or an Ethernet cable.





Ethernet cables are often identified by the speeds that they can send data. The earliest Ethernet cables were called Category 3 (or Cat 3) cables and could transfer data at 10 megabits per second (Mbps). The next generation of Ethernet cables was called Category 5 (Cat 5) cables, which could transfer data at 100 Mbps. (A slightly improved version of the Cat 5 cable is called Cat5e cable.) The current Ethernet cable standard is now Category 6 (Cat 6) cables, which can transfer data at 1,000 Mbps.

Connecting two computers can be convenient for sharing files, but most networks typically consist of multiple computers connected together. Such a large network of multiple computers allows different computers to share files with each other.

Because it's physically impossible to connect more than two computers together through a single cable, networks typically use something called a *hub*. Each computer connects to the hub, which indirectly connects each computer to every other computer also connected to the hub, as shown in Figure 1-2.

An improved variation of a hub is called a *switch*. Physically, a hub and a switch both connect multiple computers in a single point (as shown in Figure 1-2).

With a hub, a network acts like one massive hallway that every computer shares. If a bunch of computers are transferring data at the same time, the shared network can get crowded with data flowing everywhere, slowing the transfer of data throughout the network.

With a switch, the switch directs data between two computers, which is like having a traffic cop directing traffic as opposed to letting cars fight each other on a road. As a result, a switch can ensure that data transfers quickly regardless of how much data the other computers on the network are transferring at the time.

A variation of a switch is called a *router*, which often adds a firewall. Because routers cost nearly the same as ordinary hubs and switches, most wired networks rely on routers. So if you want to create a wired network of computers, you just need

- ◆ Two or more computers
- ◆ A network switch
- ◆ Enough cables to connect each computer to the network switch



The speed of a wired network depends entirely on the slowest speed of the components used in your network. If you plan on using Cat 6 cables in your network, make sure your network switch is designed for Cat 6 cables. If not, you'll have the fastest Ethernet cables connected to a slow network switch, which will run only as fast as the slowest part of your network.

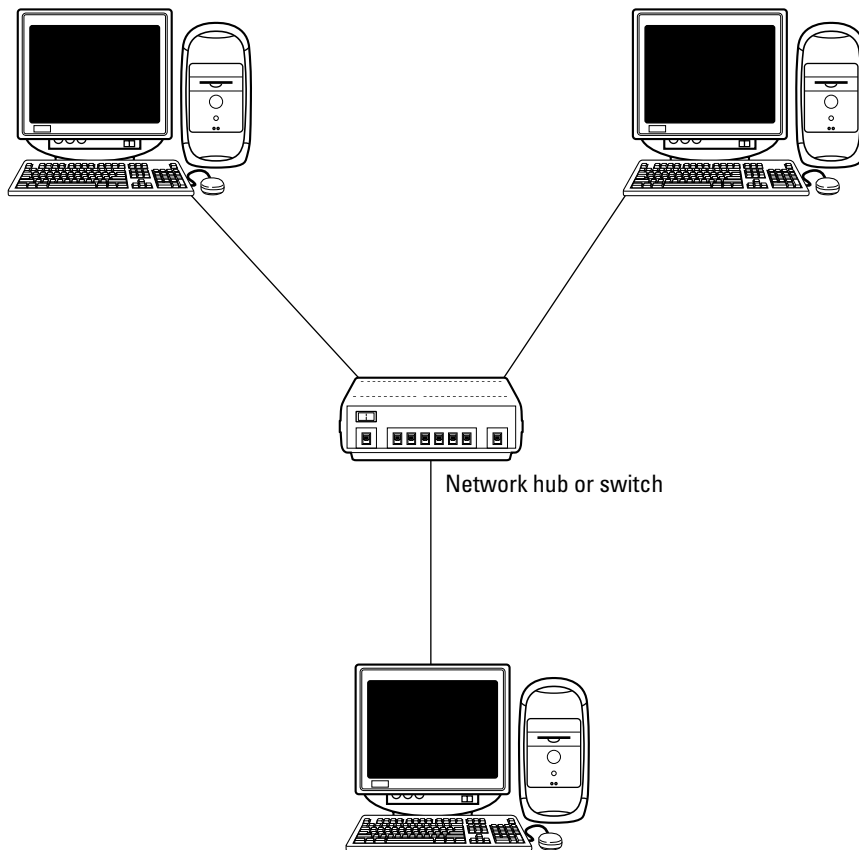


Figure 1-2:
A hub or switch allows multiple computers to connect together in a network.

Creating a Wireless Network

Because wired networks can be so inflexible, more people are setting up wireless networks instead. Essentially a wireless network is no different than a wired network, except (no surprise here) that there are no wires and wireless networks tend to be a bit slower and have problems with interference of the wireless signals from one part of a building to another.



Due to physical obstacles, wireless networks don't always reach certain parts of a room or building, creating "dead spots" where you can't connect wirelessly. Walls or furniture can disrupt the wireless signals.

All you need is a device called an *access point*, which can plug into your existing wired network. This access point broadcasts a signal that other computers can receive, creating a wireless connection to the network, as shown in Figure 1-3. You can even sit outside of a building and access a wireless network from the comfort of a lawn chair.



Not all wireless networks are alike. The earliest wireless networks followed a technical specification called 802.11b or 802.11a. Newer wireless equipment followed a faster wireless standard called 802.11g, and now the latest standard (at the time of this writing) is called 802.11n. When setting up a wireless network, make sure your wireless access point uses the same wireless standard as the wireless adapter plugged into each of your computers. In case all this technical jargon about 802.11 standards has your head swimming, just buy Apple's Airport or Airport Extreme, which is guaranteed to work with all the latest Mac computer models. (The Airport Extreme is the faster wireless access point that uses the 802.11n standard.)



At the time of this writing, the Airport Extreme base station uses a draft version of the 802.11n wireless standard, which means 802.11n wireless adapters sold by other companies might not work correctly with Apple's Airport Extreme.

The hazards of wireless networking

To access a wired network, someone must physically connect a computer to the network using a cable. However, connecting to a wireless network can be done from another room, outside a building, or even across the street. As a result, wireless networks can be much less secure because a wireless network essentially shoves dozens of cables out the window, so anyone can walk by and connect into the network.

The practice of connecting to unsecured wireless networks is known as *war driving* (also war flying, war walking, or war boating, depending on how you move around). The basic idea behind war driving is to drive around a city and keep track of which areas offer an unsecured wireless network. After getting connected to an unsecured wireless network, an intruder can wipe out files or interfere with the network.

When creating a wireless network, you have to rely on a variety of security measures. The simplest security measure is to use a password

that locks people out who don't know the password. For further protection, you can also use encryption.

Encryption scrambles the data sent to and from the wireless network. Without encryption, anyone can intercept information sent through a wireless network (including passwords). Still another security measure involves configuring your wireless network to let only specific computers connect to the wireless network. By doing this, an intruder can steal your password and still not gain access to the wireless network unless he or she can also gain access to one of the wireless network's approved computers.

Ultimately, wireless networking requires more security measures simply because it offers potential intruders the ability to access the network without physically being in the same building. Wireless networks can be as safe as wired networks, but you might need to go through a lot of extra precautions just to make sure every part of your wireless network is as secure as possible.



For more information about wireless networking, pick up a copy of *AirPort and Mac Wireless Networks For Dummies*, by Michael E. Cohen (Wiley Publishing).

Setting Up an Airport Extreme Base Station

Although you can use any wireless access point to create a wireless network of Mac computers, it's probably easier (albeit more expensive) just to buy Apple's Airport Extreme base station instead. The Airport Extreme base station includes Ethernet ports along with wireless capability. That way you can connect computers to your network using both cables and wireless technology, essentially allowing your network to connect as many computers as possible (as long as they can access the wireless signals, that is).

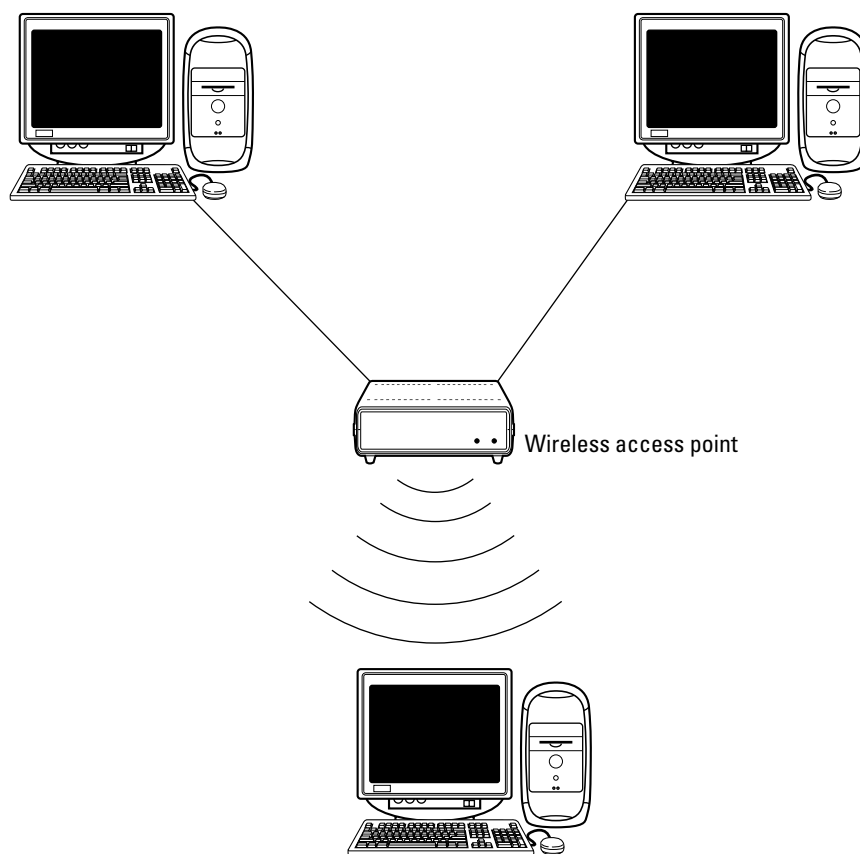


Figure 1-3:
A wireless access point extends the reach of a wired network.

Before you can use the Airport Extreme base station, you must configure it first by following these steps:

- 1. Run the Airport Utility program. (You might have to install the latest version of this program from the CD that comes with the Airport Extreme base station.)**

A dialog appears, as shown in Figure 1-4.

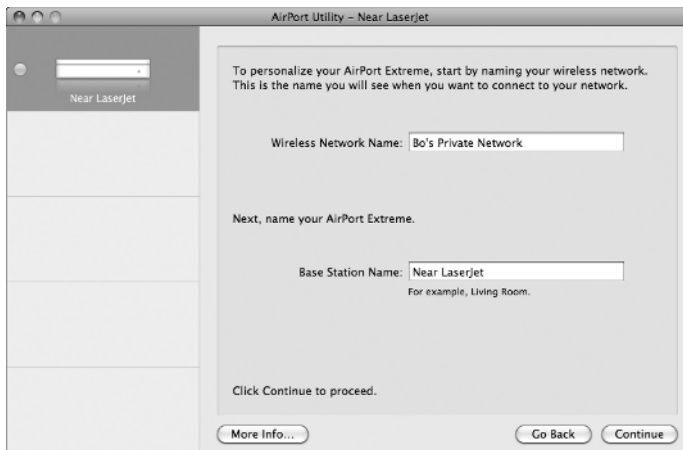
- 2. Enter a descriptive name for your wireless network into the Wireless Network Name text box.**

This name is purely for your own use. You could type **j1kVdj%Kfj+** if you wanted, and your Mac would be perfectly happy with this name.

- 3. Enter a descriptive name for your Airport base station into the Base Station Name text box.**

This name is useful for identifying the base station, especially if you have two or more base stations hooked up to the same network.

Figure 1-4:
A dialog
lets you
choose a
descriptive
name for
your Airport
Extreme
base
station.



- 4. Click Continue.**

Another dialog appears, as shown in Figure 1-5.

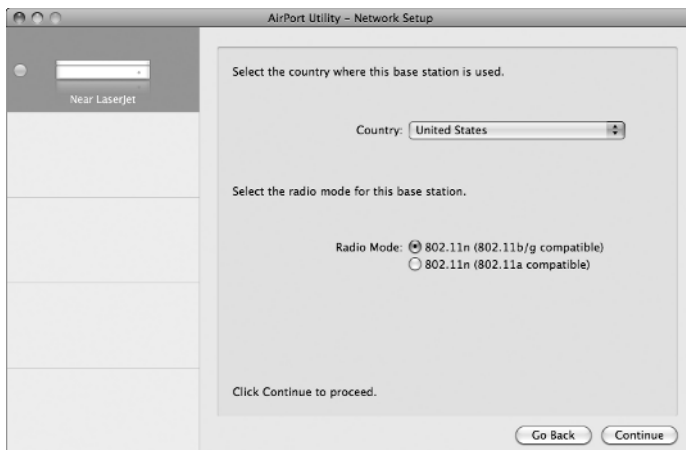
- 5. Choose a location from the Country pop-up menu.**

Californians like me would choose the U.S. of A.

- 6. Select the 802.11n (802.11b/g compatible) radio button.**

If you know for a fact that your network uses the 802.11a standard, select the 802.11n (802.11a compatible) radio button instead.

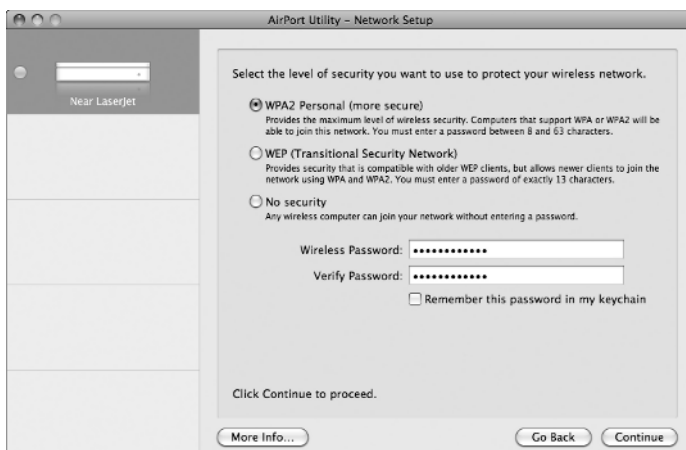
Figure 1-5: A dialog lets you choose a location and wireless standard to use.



7. Click Continue.

Another dialog appears, as shown in Figure 1-6.

Figure 1-6: You can choose an encryption standard for scrambling your wireless network's signals.



8. Select one of the following radio buttons:

- **WPA2:** Wi-Fi Protected Access, which provides the strongest and most secure encryption.
- **WEP:** Wireless Encryption Protocol, an older encryption standard that can be easily broken by marginally determined intruders.
- **No security:** Allows anyone to access the wireless network.

9. Click in the Wireless Password text box and type a password.

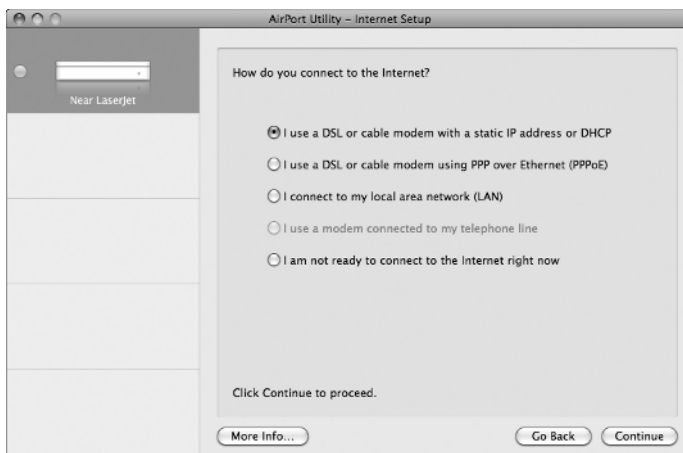
This password will be needed if you want to change any settings to your Airport Extreme base station. (If you chose WEP in Step 8, you have slightly different password format restrictions compared with WPA2.)

10. Click in the Verify Password text box and type your password a second time.

11. Click Continue.

Another dialog appears, as shown in Figure 1-7.

Figure 1-7:
The dialog lets you define how to connect to the Internet.



12. Select the radio button that defines how your network connects to the Internet.

If you aren't sure, don't select any radio button. The Airport base station will attempt to determine your Internet connection by itself.

13. Click Continue.

Another dialog appears, as shown in Figure 1-8.

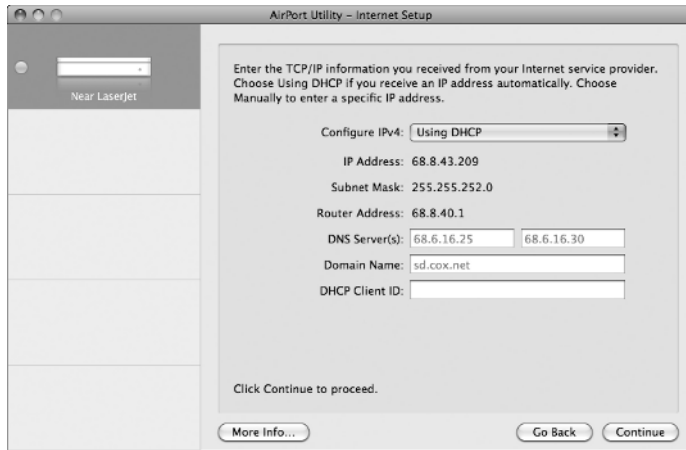
14. Make sure the Using DHCP option is chosen in the Configure IPv4 pop-up menu and click Continue. (Unless you know the specific settings to type, use DHCP.)

Another dialog appears, as shown in Figure 1-9.

DHCP stands for Dynamic Host Configuration Protocol, which essentially means your Mac can usually figure out the proper settings to use so you don't have to type them in manually. Configuring makes sure your Mac can connect to the Internet.

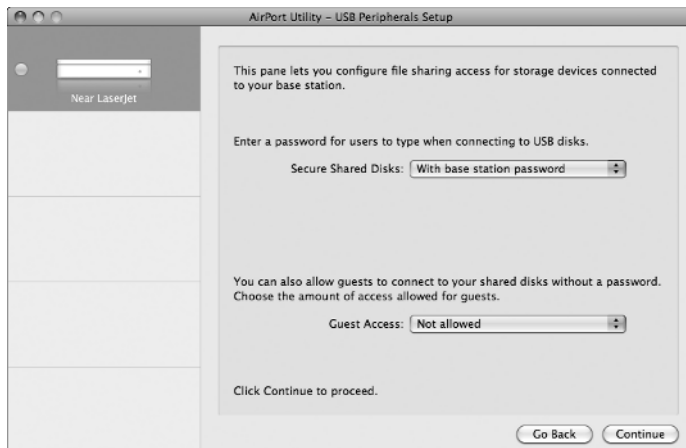


Figure 1-8: The dialog lets you define how to connect to the Internet.



If you don't plug an external hard drive into the USB port of the Airport Extreme base station, you can skip Steps 15 and 16. A Secure Shared Disk is an external hard drive plugged into the USB port of the Airport Extreme base station, which requires a password to access.

Figure 1-9: The dialog lets you set a password and access for an external hard drive.



15. (Optional) Click in the Secure Shared Disks pop-up menu and choose one of the following:

- **With a Disk Password:** Uses the password needed to access your Mac.
- **With a Base Station Password:** Uses the password defined for the Airport Extreme base station.

16. Click in the Guest Access pop-up menu and choose one of the following:

- *Not Allowed:* Guest accounts can't access the external hard drive plugged into the USB port of your Airport Extreme base station.
- *Read Only:* Guest accounts can read but not save or modify files stored on the external hard drive plugged into the USB port of your Airport Extreme base station.
- *Read and Write:* Guest accounts can modify, erase, and save files stored on the external hard drive plugged into the USB port of your Airport Extreme base station.

17. Click Continue.

Another dialog appears, as shown in Figure 1-10.

Figure 1-10: The dialog lets you define a password for protecting the settings of the Airport Extreme base station.



18. Click in the Base Station Password text box and type a password.

The password you define here is used to protect the settings of the Airport Extreme base station so unauthorized users can't mess it up. (Of course, authorized users can still mess it up if they don't know what they're doing.)

19. Click in the Verify Password text box and retype your password.

20. Click Continue.

Another dialog appears, listing all the settings you've defined.

21. Click Update if you approve of all the displayed settings. (Or click Go Back until you see a window where you can change a setting.)

22. Click Done.

23. Choose Airport Utility⇧Quit Airport Utility.



After you've physically connected your wired network or configured your wireless network, you must still configure your Mac to work on that network by sharing files and printers, which is the topic of Book VII, Chapter 2.

Connecting a Phone or PDA to a Mac

Many people store names and contact information in their mobile phones or personal digital assistant (PDA) handheld devices. However, such mobile, handheld devices create two main problems. First, if you already store names, contact information, and appointments using iCal and Address Book on your Mac, you probably don't want to retype this information into your mobile device. Second, if you lose your mobile phone or PDA, you could wind up losing all of your important contact information.

To prevent both of these problems, your Mac comes with a program called iSync. By using iSync, you can connect and transfer data back and forth between your Mac and many handheld devices such as a mobile phone or PDA. Now you can type in a name on your mobile phone, type an appointment on your Mac using Address Book, and iSync smashes all this information together and stores your updated schedule on both your mobile phone and your Mac.

Besides sharing contact information and appointments between your Mac and a handheld device, iSync also lets you transfer files from your Mac to your handheld device. If you need to read some important documents, transfer them from your Mac and store them on your PDA so you can read them in an airport terminal, while waiting in line at the supermarket, or any time you're away from your Mac.



The iSync program can work with a wide variety of mobile phones and Palm PDAs. For a complete list of devices compatible with iSync, visit Apple's Web site (www.apple.com/macosx/features/isync/devices.html). If you have a Windows Mobile, a Blackberry, or an older Palm OS device, you'll need to buy a Missing Sync program for your particular device from Mark/Space (www.markspace.com), which will allow you to synchronize your data with a Mac.

The three basic steps for using iSync are

1. Add your handheld device to your Mac's iSync Devices list.

This links the handheld device to your Mac. The idea here is to keep your handheld device from trying to synchronize with multiple Macs, which could prevent contact information and appointments from being synchronized correctly. You need to add a handheld device to your Mac only once.

2. Connect the handheld device with your Mac.

Handheld devices connect either through a USB cable or Bluetooth wireless connection.

3. Decide what to transfer or synchronize between your Mac and the handheld device.

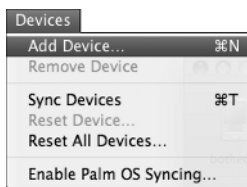
Lets you specify whether to synchronize and transfer names and contact information, appointments, or files such as word processor or spreadsheet files.

Adding a handheld device to your Mac

Before you can use iSync to synchronize data between your Mac and your handheld device, you need to add the handheld device to iSync. If you have a Palm OS device, choose **Devices**⇨**Enable Palm OS Syncing**. (You'll need to follow additional instructions specific to getting a Palm OS device to work with a Mac, which will appear on the screen after you choose this **Enable Palm OS Syncing** command.)

If you have a handheld device that connects using Bluetooth or a USB cable, choose **Devices**⇨**Add Device** (or press **⌘+N**) as shown in Figure 1-11.

Figure 1-11:
The **Devices** menu in iSync provides commands for adding a handheld device to your Mac.



In case you want to synchronize your handheld device with another computer, you must first remove the device from the iSync Devices list on your Mac by following these steps:

- 1.** Load iSync by double-clicking the iSync icon in the Applications folder.
- 2.** In the iSync window, click the icon for the handheld device that you want to remove.
- 3.** Choose **Devices**⇨**Remove Device**.

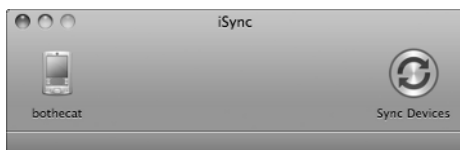
Synchronizing a handheld device with your Mac

After you've added a handheld device to the iSync Devices list so your Mac can recognize it, you can synchronize and transfer data between your Mac and a handheld device by following these steps:

- 1. Connect your handheld device (mobile phone or PDA) to your Mac. (If you have a Bluetooth handheld device, just place it near your Mac.)**
- 2. Load iSync.**

The iSync window appears, displaying an icon for your handheld device, as shown in Figure 1-12.

Figure 1-12:
The iSync window displays icons of all the handheld devices.



- 3. Click the icon of the handheld device that you want to synchronize.**

The iSync window expands to display additional options, as shown in Figure 1-13.

- 4. Choose your options for synchronizing data and click the Sync Devices icon or choose Devices ⇨ Sync Devices.**

Resetting a handheld device with your Mac

Synchronizing your handheld device with your Mac can keep your crucial contact and appointment information stored in two locations. However, sometimes the data on your handheld device might get hopelessly outdated if you don't use it for a long time, or it can get scrambled if someone accidentally uses (plays) with your handheld device.

If this happens, the only accurate information might be on your Mac, so you can reset your handheld device, essentially wiping the handheld device clean and loading it with the data on your Mac instead. To reset your handheld device, follow these steps:

- 1. Connect your handheld device (mobile phone or PDA) to your Mac. (If you have a Bluetooth handheld device, just place it near your Mac.)**

Figure 1-13: The iSync window displays synchronization options for your chosen handheld device.



2. Load iSync.

The iSync window appears, displaying an icon for your handheld device (refer to Figure 1-12).

3. Click the icon of the handheld device that you want to reset.

Resetting wipes out all data currently stored on your handheld device, so make sure you don't need any of this data.

4. Choose Devices → Reset Device (or Reset All Devices to reset all handheld devices added to your Mac).

