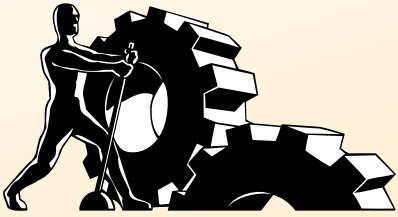


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Read Me First

Welcome to *Take Control of iPhone OS 3*, published in November 2009 by TidBITS Publishing Inc. This book was written by Ted Landau and edited by Dan Frakes, with assistance from Tonya Engst.

This book helps you get the most out of your iPhone, providing a compendium of information about many common (and some not-so-common) uses of the iPhone's OS software and hardware. It focuses on the various options in Settings, as well as on explaining related aspects of apps such as Safari, Maps, and iTunes. It goes beyond the basics when it comes to helping you avoid and solve problems. Although it has the word "iPhone" in the title, it was tested on an iPod touch and has touch-specific details.

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BASICS

In reading this book, you may get stuck if you don't know certain facts about the Macintosh, or your iPhone or iPod touch, or you don't understand Take Control syntax for things like working with paths or menus. Please note the following:

Macintosh:

- **Path syntax:** I occasionally use a *path* to show the location of a file or folder in your computer's file system. Path text is formatted in special type. For example, Mac OS X stores most utilities in the Utilities folder. The path to the inside of the Utilities folder is:
[/Applications/Utilities/](#).

The slash at the start of the path tells you to start from the root level of the boot volume (typically your Mac's internal hard drive). You will also encounter paths that begin with `~` (tilde), which is a shortcut for any user's home directory. For example, if a person with the user name `ted` wants to install fonts that only he can access, he would install the fonts in his [~/Library/Fonts](#) folder, which is just another way of writing [/Users/ted/Library/Fonts](#).

- **Menus:** When I describe choosing a command from a menu in the menu bar of your Macintosh, I use an abbreviated description. For example, the abbreviated description for the menu command that creates a new playlist in iTunes is "iTunes > New Playlist."

URLs not working? In *Snow Leopard's Preview*, longer URL links may appear to be broken. To avoid this Preview bug, try clicking the last character in the URL.

iPhone and iPod touch:

- **Navigation:** When I describe how to reach a location in the interface, I assume you are starting from the Home screen, and I give an abbreviated description. For example, the abbreviated description of how to reach the About screen is Settings > General > About. Generally, you tap the name of an item to make its screen appear.
- **Working in iTunes:** When you connect an iPhone or iPod touch to a computer and launch iTunes, the device's icon should appear under Devices in the iTunes sidebar, located at the left of the iTunes

window. If you select the icon, iTunes shows what I call a “Summary tab” for that device at the right. iTunes also shows a selection of tabs that you can click to further configure the device, such as Info and Music. So, if I tell you to check something “on your iPhone’s Summary tab in iTunes,” I mean you should connect your iPhone to your Mac and select the iPhone in the iTunes sidebar in order to view the Summary tab.

- **iPhone software version number:** On the iPhone, to determine which version of the iPhone software you are running, go to Settings > General > About > Version. Alternatively, when your iPhone is connected to iTunes, you’ll find the version number in the iPhone’s Summary tab.

Phrases such as “iPhone OS 3.1,” “iPhone 3.1” or “version 3.1 of the iPhone software,” as used in this book, all mean the same thing. More generally, iPhone OS is Apple’s current name for the overall operating system running the iPhone and the iPod touch.

Introduction

Welcome to *Take Control of iPhone OS 3*. While the title is new, this is the third edition of a book that was previously titled *Take Control of Your iPhone*.

Why the change? Because, as the iPhone continues to mature and the wealth of information related to the iPhone continues to expand, it was no longer possible to include all the topics from the previous editions in one *Take Control* book. So we decided to split the content into two books. In the future, we may need three or more books.

For now, *Take Control of iPhone OS 3* is mainly about the iPhone OS itself, how it works—and how it sometimes doesn't work—in more depth than you'll find in any other end-user iPhone book. I focus on working effectively, avoiding problems, and fixing things when they go wrong. The book also covers all the major new features in iPhone OS 3 (currently at version 3.1) and the iPhone 3GS, from Spotlight to Voice Control. It also covers information about the iPhone and its software that is not app specific, such as syncing, networking, security, using the keyboard, and general troubleshooting. In some cases, the book mentions app-specific features that directly relate to these more general topics. For example, it covers syncing iPod content and pushing Mail messages from MobileMe.

For details on how the preinstalled iPhone apps work, including tips and hints and hidden features, get the companion volume, *Take Control of Your iPhone Apps*.

Even as a guide to iPhone OS features, *Take Control of iPhone OS 3* is not intended as a novice's introduction to the iPhone. However, if you are at least comfortable using your iPhone to make phone calls and surf the Web, you already know the basics, and you're ready for this book. Otherwise, start with Apple's free *iPhone User's Guide* at http://manuals.info.apple.com/en/iPhone_User_Guide.pdf.

Unless otherwise specified, this book assumes that you are using an iPhone 3G or 3GS running iPhone OS 3. Where there are new features in an OS update (such as what's new in version 3.1 as

compared to 3.0), I note them. Where there are differences between the iPhone 3G and 3GS in terms of how the hardware relates to topics covered here (such as Voice Control and video in Camera), I note these, as well.

If you have an original iPhone, don't worry—most of the book applies to this model, as well. The exceptions are a few features that are unavailable in the original iPhone (such as GPS), because of missing hardware present in later models.

Although I emphasize the iPhone, I do point out noteworthy differences between the iPhone and the iPod touch. In fact, because I don't spend much time covering iPhone-specific apps, such as Phone or Messages, most of the book applies equally well to the iPhone or iPod touch. The main exceptions are coverage of iPhone-only data services. If you own an iPod touch, you can just skip over those sections.

Tip: For a full comparison of iPhone OS 3 differences among all three iPhone models, see <http://support.apple.com/kb/HT3630>. For the iPod touch, see <http://support.apple.com/kb/HT3648>.

This book assumes you are using iTunes 9.0 or later.

Given the Macintosh focus for the Take Control series and the self-imposed limits on the book's page count, I don't discuss Windows.

My enthusiasm for the iPhone grows with each new update. I rank the iPhone as my favorite technological device of the still young twenty-first century. I hope to share this excitement in the pages ahead.

More Tips and Hints Online

There are an assortment of tips that, while they didn't find a place in this book, were too important to leave out altogether. They primarily cover additional topics such as activating an iPhone, accessing voicemail and other Phone features, the new Messages app, sending and receiving email, and opening email attachments. To see these tips, check the online FAQ for this book at <http://www.takecontrolbooks.com/resources/0055/more-faqs.html> or especially click [here](#) if you are reading in Snow Leopard's Preview. Long URLs in this PDF clicked from Preview may not work, though they should if you click in the last few characters.

iPhone OS Quick Start

You needn't read this book from cover to cover. If you have a specific problem or question, you can go immediately to the section where the answer is likely to be found. However, reading the entire book does have its benefits—you'll learn a lot about operating your iPhone, and not only will you pick up useful tips, but you'll also learn techniques for avoiding and solving problems before you encounter them unexpectedly.

Manage syncing:

- Sync smoothly with iTunes. Read [Understand Sync Options](#) (p. 14) and [Understand the iPhone Backup](#) (p. 32).
- Get help with syncing problems in [Solve Sync Failures and Errors](#) (p. 35) and [Resolve Sync Conflicts](#) (p. 40).
- Find out how to [Create and Sync Custom Ringtones](#) (p. 42).
- You can sync some types of data if you [Use MobileMe](#) (p. 48), and you can get help with any problems in [The MobileMe FAQ](#) (p. 56).
- For help with Exchange-related syncing, read [Appendix A: The iPhone in an Enterprise Environment](#) (p. 196).

Manage apps:

- Learn how to use the App Store to [Install Apps](#) (p. 65) and [Update Apps](#) (p. 76). Also find out how to [Reinstall Deleted Apps](#) (p. 75).
- Discover the new way to arrange your iPhone's Home screen from iTunes on your Mac in [Manage Apps in iTunes](#) (p. 68).
- If you're having problems with an App Store app, check out [The App FAQ](#) (p. 77).
- Read [Jailbreaking: What, Why, and How](#) (p. 140) to find out how to obtain software not in the App Store and if you should even bother.

Learn troubleshooting basics:

- Know what to do when the iPhone freezes (stops working) or crashes. See [Prevent Freezes and Crashes](#) (p. 101).

- Discover how to [Reset, Restore, or Recover](#) (p. 106).
- Worried that you may have a hardware problem? [Decide If Your iPhone Needs Repair](#) (p. 117).
- Discover how to [Solve Safari Problems](#) (p. 128), such as Web pages that refuse to load or load unusually slowly, as well as keep your surfing free from phishing and other security risks.
- Want to solve your problem as quickly as possible, without learning the basics? Read [8 Quick Troubleshooting Steps](#) (next page).

Handle networking:

- Learn how to [Solve Wi-Fi Network Problems](#) (p. 152) and [Solve Data Network Problems](#) (p. 158).
- Learn how to [Join Wi-Fi Hotspots](#) (p. 162) with a minimum of hassle.
- To keep network communications secure, see [Use a VPN](#) (p. 193).
- Explore how to [Use Bluetooth](#) (p. 169) on your iPhone, from headsets to Internet tethering.

Work smarter:

- Get typing help to [Type More Accurately](#) (p. 85) and. Or [Use Voice Control](#) (p. 97) instead of typing.
- Learn how to [Use Cut, Copy, and Paste](#) (p. 91) and how to [Shake to Undo](#) (p. 93). (These features are new in iPhone OS 3.)
- [Use Spotlight Search](#) (p. 95) to find items on your iPhone or launch apps.
- To squeeze the most power from the battery, check out [Manage the Battery](#) (p. 123).
- Take control of the various options for adjusting volume; see [Volume Problems?](#) (p. 119).
- Worried that your iPhone may get lost or stolen? Learn how to [Lock Your iPhone](#) (p. 184) and [Handle Other Passwords](#) (p. 189).
- Was your iPhone lost or stolen? Check out [Find My iPhone](#) (p. 60).

8 Quick Troubleshooting Steps

If you want a quick fix for a general iPhone problem, and you don't want to read more than absolutely necessary, you may prefer the shotgun approach of trying a series of common fixes and hoping that one works. If that describes you, here's the list you want.

Try each solution in order until one (hopefully) works:

1. Force-quit a frozen app (described in [Handling Freezes and Crashes](#), p. 101).
2. [Restart](#) the iPhone (p. 106).
3. [Force Restart](#) the iPhone (p. 106).
4. [Update the iPhone OS Software](#) (p. 101) to be sure you have the latest version of the iPhone's software.
5. Resync the iPhone. If you get an error, run through the tests suggested in [Solve Sync Failures and Errors](#) (p. 35).
6. [Reset](#) (p. 107) the settings that you've made on the iPhone.
7. [Restore](#) (p. 109) the iPhone, using the iPhone's Restore files and Backup data.
8. When all else fails, [Recover](#) (p. 114) the iPhone.

Sync Your iPhone

Syncing (or synchronization) means transferring data from your iPhone to your computer, or from your computer to your iPhone, so that the two data sets match. Most of the time, this goes as smoothly as you would expect for a well-designed product from Apple. But, problems do occur. In this section, I first cover the basics of setting up what you want to sync and when you want to sync it, with a special focus on avoiding trouble. Then I explain how to deal with problems that can occur even if you know and follow all the basics.

More Sync-Related Topics

A few sync-related topics are covered later in the ebook; here's what they are and where to find them:

- **MobileMe:** The section you are reading covers how to sync using iTunes, with your iPhone physically connected to your Mac. If you subscribe to Apple's MobileMe service, you can instead wirelessly sync certain data (notably the items listed in the iPhone's Info tab in iTunes) via MobileMe. For details on this topic, see [Use MobileMe](#) (p. 48).
- **App Store apps:** Because of the significance and complexities of this iPhone category, I cover it separately in [Manage App Store Apps](#) (p. 65).
- **Enterprise:** If you sync with Microsoft Exchange, consult [Appendix A: The iPhone in an Enterprise Environment](#) (p. 196).

For more details on datasyncing, see [Take Control of Syncing Data in Leopard](#) or [Take Control of Syncing Data in Snow Leopard](#).

UNDERSTAND SYNC OPTIONS

You control which data syncs between your Mac and your iPhone primarily via choices you make while the iPhone is connected to your computer and selected under Devices in the iTunes sidebar (**Figure 1**).



Figure 1: With an iPhone selected in the iTunes sidebar, the device's various tabs appear to the right, with the Summary tab active by default. Use the tabs to choose how content will sync with your iPhone. (The iPod touch has slightly different tabs.)

Depending on the type of data and the options selected, you can:

- Sync data *bidirectionally*, merging changes made on the iPhone with changes made on your computer, so that both devices wind up with the most recent changes.
- Sync data *unidirectionally*, with the data moving only one way, such that your Mac-hosted data completely replaces the same type of data on your iPhone, or vice versa.

For the most part, to set up syncing, you simply proceed through the different tabs that appear when your iPhone is selected in the iTunes

sidebar, configuring each set of options as you like. For all but two of the tabs, noteworthy details follow ahead in this section; for details on the Ringtones tab, read [Create and Sync Custom Ringtones](#) (p. 42), and for details on the Applications tab, read [Manage App Store Apps](#) (p. 65).

The Music, Podcast, iTunes U, and Movies and TV categories contain items synced to the iPod app on your iPhone. Remaining categories (such as Calendars and Contacts) sync to similarly-named apps relevant to the specific content.

iPod touch vs. iPod on iPhone: *Compared to the iPhone, the iPod touch has a different layout for its iPod options. In particular, it has no dedicated iPod icon on its Home screen; instead, it has separate Music and Videos icons. That aside, the iPhone's iPod app and the iPod touch operate in fundamentally similar ways.*

Enable Accessibility Options

The iPhone 3GS can assist people with disabilities through various Accessibility options, such as VoiceOver and Zoom. You enable these features via either (a) on the iPhone itself, using the settings at Settings > General > Accessibility; or (b) in iTunes, using the Configure Universal Access button in the iPhone's Summary tab (the settings will transfer to your iPhone at the next sync).

VoiceOver works with all the apps that come preinstalled on your iPhone. Third-party apps may also work with VoiceOver if specifically written to do so. If you have enabled the Zoom option (in the Accessibility settings) to magnify the screen, you need to disable it before you can enable VoiceOver.

Use the iTunes App

With iPhone OS 3, you can download virtually any content (music, podcasts, movies, apps, etc.) directly to your iPhone via the iTunes app—assuming you have enough free space on the device to hold that content, of course. These items will transfer to your computer on your next sync. This feature works via either a Wi-Fi or a 3G connection.

The iTunes Store account used on your iPhone is the account active in iTunes on your Mac during your last sync. Starting in iPhone OS 3.0, if you don't already have an iTunes account, you can create one on the iPhone by tapping the Sign In button at the bottom of the screen in the iTunes app (or in the App Store app).

Here are some tips:

- You can also listen to podcasts via live streaming, instead of downloading. To do so, tap the podcast title in the iTunes app, instead of the button (typically labeled Free) used to download the podcast.
- Some podcasts can't be streamed or downloaded directly; these display an error such as "This movie format is not supported." In such cases, you can access the podcast from your Mac.
- When you buy a high-definition (HD) movie on the iPhone, the standard definition version downloads to the device right away. When you next access iTunes on your Mac, the high-definition version downloads (currently, HD video plays only on the Mac).
- To access audiobooks, iTunes U items, and the status of downloaded items, tap the More option in the iTunes app.
- To download apps, use the separate App Store app, covered in [Manage App Store Apps](#).

Music

To sync your music, click the Music tab. From here, you can sync either your Entire Music Library or Selected Playlists, Artists and Genres. The options to sync specific artists and genres are new in iTunes 9 and iPhone OS 3.1, and mean that for the first time, you can sync songs without having to sync your entire Library or first place

them in a playlist! Additionally, if you want to fill any unused space on your iPhone, you can choose to have iTunes “Automatically fill free space with songs.”

For music, syncing occurs unidirectionally from your computer to your iPhone; Apple does not support moving the music on your iPhone back to your computer (other than music purchased when you [Use the iTunes App](#)). However, managed information that goes with music, such as ratings and play counts, does sync bidirectionally.

With automatic syncing (which is the default), you can't directly remove music from the iPhone. Instead, you uncheck items in the sync listings for your iPhone within iTunes. Items you uncheck are removed from the iPhone when you click the Apply button. For more control, especially for music, the alternative is to manually manage syncing, as explained in [Special Sync Options for Songs and Videos](#), on the next page.

Music Videos

To sync music videos, enable the Include Music Videos checkbox in the Music section. Then enable one or more items that include music videos. On the iPhone, the videos will appear in a Music Videos playlist, as well as in any other playlists that contain the videos.

Voice Memos

The Include Voice Memos checkbox enables syncing with the new Voice Memos app included in iPhone OS 3. Any voice memos that you save with this app will sync to a Voice Memos playlist, automatically created in iTunes. From here, you can listen to them on your Mac.

According to Apple, if you delete a voice memo for your iPhone, it will *not* get deleted from iTunes when syncing, but if you delete a memo from iTunes, syncing *will* delete the memo from the list in the Voice Memos app on the phone. However, in my tests, this was not the case. After deleting a memo in iTunes, it remained in Voice Memos after syncing (and did not resync back to iTunes).

Tip: iTunes' Genius feature can generate custom playlists and mixes based on an iTunes assessment of your music preferences. Both can be synced to your iPhone, and there is also a Genius option in the iPod app for creating Genius playlists on your phone.

Special Sync Options for Songs and Videos

You access two additional syncing options in the Summary tab of your iPhone's settings in iTunes.

Sync Only Checked Songs and Videos

If you've checked this box, an item will sync to your iPhone only if the item's checkbox is enabled in your iTunes Library, regardless of the settings in the Music, Podcasts, or Video tab.

Manually Manage Music and Videos

You normally choose how music and video sync via the Music, Movies, and TV Shows tabs. If you've enabled the Manually Manage Music and Videos checkbox, however, you instead move songs and videos to your iPhone by dragging them from your iTunes Library to the iPhone icon under Devices. Conversely, you remove items by dragging them out of the iPhone's listing (accessed by clicking the triangle to the left of the iPhone name in the Devices list). You can also make a playlist directly on the iPhone by Control-clicking (right-clicking) the iPhone name in Devices and choosing New Playlist from contextual menu that appears. Once the playlist appears in the iPhone listing, you can rename it and drag songs to and from it. (Note: This is separate from the On-The-Go playlists that you can create directly on the iPhone itself.)

With the "Manually manage..." option enabled, you can even add media to your iPhone from different iTunes Libraries residing on separate computers.

If you later disable "Manually manage music and videos," your iPhone's entire media content will be erased and replaced by the current sync selections on the currently connected computer.

Note that all of this is separate from manual *syncing*, covered in [Choose Manual Syncing](#).

Podcasts

To sync podcasts, select the Podcasts tab. From here, using the *Automatically include* pop-up menus, you first choose to sync either all, the most recent, or the most recent unplayed episodes of each podcast. You next choose whether to sync all podcasts or selected podcasts; if you choose the latter, you select the particular podcasts in the lists

below. Finally, you can also manually sync particular episodes of any podcast, as well as episodes you've added to specific playlists.

Syncing for podcasts is unidirectional—unless you download podcasts directly to your iPhone (see [Use the iTunes App](#), a few pages earlier)—working essentially the same way as just described for music.

iTunes U

In iTunes 9, iTunes U—special content created for educational or classroom use—is a separate tab in the iPhone's sync settings. Similar to how the Podcasts tab works, here you can choose to sync individual items or collections of items. For more on iTunes U, visit <http://www.apple.com/education/mobile-learning>.

Movies and TV Shows

To sync movies or TV shows, select the Movies or TV Shows tab, respectively. Like music and podcasts, these items sync only from your Mac to the iPhone. Unlike music and podcasts, however, you can delete a video from the iPhone, thus freeing up space, by swiping across the item's listing and tapping the Delete button that appears. If you delete a video, you can later sync it back to your iPhone again, unless it was a rental from the iTunes Store, as I explain next.

For syncing a home video, such as one taken with your digital camera, see [Photos](#), next page.

Rented Movies

You can rent a movie from the iTunes Store with iTunes on your Mac or the iTunes app on your iPhone. To view a movie on the iPhone, it must be a standard definition (480p) movie. Rented movies *transfer* rather than sync—they can reside on only a single device at a time. Once you've rented a movie, a Rented Movies section will appear in the Movies tab. From here, you can move the movie from iTunes to your iPhone, or vice versa, independently of other movie syncing.

Warning! *Because a rental movie can be in only one location at a time, when a rented movie syncs to your iPhone, it is erased from your Mac—and vice versa. Thus, if you delete the rental from your iPhone, it is entirely gone.*

Even if a change in your sync settings in iTunes leads to a message that says syncing will erase all media content on your iPhone, it will not erase rented movies. A reset or restore of your iPhone, however, will erase rented movies.

Photos

Via the Photos tab for your iPhone in iTunes, you choose whether to sync photos from iPhoto, Aperture, or a selected folder on your hard drive. When you sync, the selected photos transfer unidirectionally from your Mac to your iPhone. You can select either All Photos, Albums and Faces, or Selected Albums, Events and Faces. For the latter option, you then select which Albums, Events, or Faces to sync; you can also choose to automatically include all events or a specified number of the most recent events.

Sync video in the Photos tab: *New in iPhone 3.1 and iTunes 9, you can choose whether or not to include videos that may be part of your selected albums or events. Synced video will appear in the appropriate album in the Photos app, where you can play it directly. (Previously, your only option was to import videos to the iTunes Library and sync them via the Video tab.)*


However, such video will be synced only if the format of the video is compatible with iTunes. For example, many digital cameras save video in an AVI format that iTunes cannot play directly. If so, you must convert the video first. You can use QuickTime X in Mac OS X 10.6 to do this. You can either use QuickTime Player's Save As command to convert the video, keeping it in iPhoto and syncing via Photos, or choose Share > iTunes to import the converted video to the Movies section of your iTunes Library.

In some cases, you may also need a utility such as Flip4Mac WMV Player (<http://www.telestream.net/flip4mac-wmv/overview.htm>) installed on your Mac to do the conversion in QuickTime Player X.

Photos and video taken with the iPhone's camera—viewable in the Camera Roll folder in the Photos app—don't transfer to iTunes during a sync. To move these items to your computer, you use Image Capture or iPhoto, just as you would with any digital camera. Exactly what happens when you connect your iPhone (such as which photo-management application opens automatically, if any) depends on the setting either in Image Capture (the "Connecting this iPhone opens"

pop-up menu, accessible only when the iPhone is connected) or in iPhoto (the “Connecting camera opens” pop-up menu in the General view of iPhoto’s preferences).

After downloading photos from the iPhone to iPhoto on your Mac, you can sync them *back* to the iPhone via iTunes, using the standard methods previously described. You can then delete the photos from the Camera Roll. I especially recommend doing this if you have a large number of photos in your Camera Roll—iPhoto acts as a backup for the photos more reliably than does iPhone’s backup in iTunes.

Tip: To delete photos from the Camera Roll in Photos: (a) tap the Trash icon visible when an individual photo is displayed; or (b) when viewing the main Camera Roll screen, tap the  icon, tap the thumbnail(s) for the photo(s) you want to delete, and tap the Delete button.

Warning! *An iPhone photo may not download to your Mac if an existing file with the exact same name (such as a previously downloaded photo) is in the download location. If this happens, rename the file on the Mac and try again.*

View Photos and Videos Taken with the iPhone Camera

Photos and video taken with the iPhone’s camera are stored in the Camera Roll. To view them, tap the Photos app and then tap Camera Roll (the top album). Alternately, tap the icon on the bottom left of the screen in the Camera app.

To play a video (available with the iPhone 3GS) in the Photos app, tap the video and then tap the Play button that appears. By tapping and dragging on the timeline at the top of the screen, you can even trim a video. New in iPhone 3.1, you can trim a video and tap Save as New Clip, thus retaining the original.

Info Items

By “info items,” I mean Address Book contacts, iCal calendars, Safari browser bookmarks, Notes, and Mail accounts. I sometimes refer to these items as *managed information*, as opposed to the *media* items (such as music and video) that also sync. You configure syncing for info items in the iPhone’s Info tab in iTunes. All these items, except Mail

accounts, sync bidirectionally—changes on your iPhone are synced to your Mac, and vice versa. Mail account syncing is unidirectional—only from your Mac to your iPhone.

If you use MobileMe: *If you sync any info items via MobileMe, you may not find the same options on the Info tab (above the Advanced section) described here. Instead, you may see a message informing you that the item is being synced via MobileMe. New in iPhone OS 3.0, however, certain items (Contacts and Calendars) can be synced via both iTunes and MobileMe. Previously, syncing was via one or the other, but not both. Consult [Use MobileMe](#) for more information.*

Contacts

You can sync either all contacts from Mac OS X's Address Book application or just selected groups. Unfortunately, if you choose to sync via MobileMe, you don't have these choices. You sync either all groups or none. There are also separate options for syncing Yahoo and Google contacts.

On the iPhone, you view contacts either via the Contacts option in the Phone app or via the separate Contacts app. You can search your contacts via the Search box at the top of the Contacts listing or via the iPhone-wide Spotlight search.

Tip: To view groups on the iPhone, tap the Groups button in the upper left of the All Contacts screen.

Calendars

iPhone OS 3.0 and 3.1 each added an assortment of new calendar syncing options. This can become too much of a good thing, making it difficult to figure out what your options are and how best to use them.

Your display may vary: *In the Calendar app, tap the Calendars button in the upper left (it appears only if you have more than one calendar). Depending upon your calendar-syncing setup (and other mysteries that I have yet to resolve), the Calendar listings here may not appear exactly as what is described ahead. For example, all your calendars may appear in a single list under an All item, with no other differentiation. In any case, by tapping any item in the list, you restrict Calendar's display to just that calendar (or set of calendars).*

Here's my executive summary of techniques you can use to add a calendar to the Calendars app:

- **iTunes:** Via the Info tab for your iPhone in iTunes, you can sync your iPhone with almost any calendar in iCal—your own calendars and subscribed calendars. You choose whether to sync all calendars or just some. Synced calendars typically appear in the On My iPhone (or From My Mac) section of the Calendars list (**Figure 2**).



Figure 2: A Calendars list in the Calendar app, after you've synced calendars via iTunes and MobileMe. To see it, tap the Calendars button in the upper left of the initial Calendar screen.

Note: One calendar that you can't directly sync to your iPhone via MobileMe or iTunes is iCal's Birthday calendar, as explained here: http://www.macworld.com/article/143365/2009/10/tip_calendars.html.

- **MobileMe:** Alternately, if you are a MobileMe member, you can sync your own calendars via MobileMe (see [Use MobileMe](#)). These calendars typically appear in the me.com section of the Calendars list on your iPhone (**Figure 2**, above). The advantage of MobileMe syncing is that changes you make on your Mac are automatically pushed to your iPhone (and vice versa). This means that syncing occurs almost instantly without any need to connect your iPhone to your Mac.
- **iTunes and MobileMe:** In iPhone OS 3, Apple added the capability for your device to sync calendars via *both* iTunes and

MobileMe (previously it was one or the other). You can use this, for example, to sync your own calendars via MobileMe while using iTunes to sync subscribed calendars. With the release of iPhone OS 3.1, Apple modified calendar syncing so that if you sync via MobileMe, *all* your subscribed calendars in iCal also appear on your iPhone. There is no option to restrict syncing to only desired ones. This is the opposite behavior of 3.0, which allowed no syncing of any subscribed calendars in iCal.

Tip: See this Apple article for more details, including working with CalDAV calendars: <http://support.apple.com/kb/TS1213>. Also see this TidBITS article: <http://db.tidbits.com/article/10572>.

- **iPhone:** New in iPhone OS 3, you can subscribe to a calendar directly on your iPhone—you needn't subscribe in iCal on your Mac first and then sync the new calendar to your device. Such calendars appear in a Subscribed section of the Calendars list. These calendars update wirelessly over the Internet, without requiring any syncing via either iTunes or MobileMe.

You have several choices for how to add these calendars:

- ◇ Go to Settings > Mail, Contacts, Calendars > Add Account... > Other > Add Subscribed Calendar. From here, type or paste the URL.
- ◇ If you have the URL link on a Safari Web page on your iPhone, simply tap it.
- ◇ If you have the URL on your Mac, email it to yourself, receive the message on your iPhone, and tap the link in the email.

In either of the above two cases, you will be prompted to add the subscribed calendar.

In all cases, the subscribed calendar's account will now appear in Settings > Mail, Contacts, Calendars. If you tap the calendar's More Info button, you'll be able to edit its settings or delete the account.

Tip: For much more detail on calendar-syncing options, see my article (updated for iPhone OS 3.0, but not for changes in 3.1): http://www.macobserver.com/tmo/article/untangle_calendar_syncing_on_your_iphone. To dig deeper, such as for Google calendar and Exchange syncing, see *Take Control of Syncing Data in Leopard* or *Take Control of Syncing Data in Snow Leopard*.

Invitations: *If someone sends you an email message containing a calendar invitation (typically a .ics attachment), the event may show up in Calendar on your iPhone. However, you can't respond to the invitation—or even delete the event—from your iPhone. You can do so only from your Mac.*

Syncing to-do items: *After syncing iCal calendars, you may notice that to-do items are missing. To work around this problem, use the fact that iCal to-do items appear in Mail's To Do list on your Mac. If you set up an IMAP account in Mail, and you set up the same account on your iPhone, you should find your to-do items in a folder named Apple Mail To Do in that account in the Mail app on your iPhone.*

Web Browser

You can sync your Safari bookmarks bidirectionally between your Mac and your iPhone by enabling the Web Browser option in the Info tab. New in iPhone 3.1, you can choose to merge your Mac's bookmarks with your iPhone's bookmarks on the initial sync.

Notes

New in iPhone OS 3, you can sync notes between your iPhone (in the Notes app) and your Mac. This means that notes can be saved to and read on a Mac, without the need for third-party software. You can find the synced notes in Mac OS X's Mail application. In the left column, go to the Reminders section, expanding it if necessary. You'll see a new item called Notes. If you prefer not to use Mail at all, you can see your notes via third-party software such as [PhoneView](#).

Too many notes in Mail? When using Mail on your Mac, you may find that synced Notes appear not only in the Notes section, but also in Inboxes for your accounts. To eliminate the duplicates, open Mail's preferences and, in the Accounts pane for each account, click Mailbox Behaviors and disable the Show Notes in Inbox option.

Notes syncing is bidirectional. Any changes you make to a Notes item in Mail will sync back to your iPhone, although you may need to quit and relaunch Notes on your iPhone before you see any of the edits made on your Mac.

Mail Accounts

Changes to Mail account settings sync unidirectionally, from the Mac to your iPhone (assuming, of course, that the modified account is one you've chosen, on the iPhone's Info tab in iTunes, to sync). If you change account settings directly on your iPhone, most of those settings will be replaced by the settings from your Mac the next time you sync.

There are a few exceptions here. For example, in the Advanced settings for a Mail account on your iPhone, you can set when Deleted Messages should be removed. This setting will be maintained regardless of what similar option may be set on your Mac. Still, the main point remains that there is no "merging" of settings. In particular, changes you make on the iPhone will not sync back to the Mac.

Disable Mail account syncing after initial sync: To work around the aforementioned limitation, after you perform your initial sync to transfer Mail account information to your iPhone, uncheck the sync checkbox for the Mail account (on the Info tab in iTunes). Now you can modify account settings on the Mac without affecting that account's settings on the iPhone. For example, with some email accounts, you may need to set a password for outgoing as well as incoming mail on your iPhone, even though a password is needed only for incoming mail on your Mac.

However, with syncing disabled, if you change the password for your Mail account using your Mac or a Web interface, remember to enter the new password in the Mail settings on your iPhone, or you will not be able to receive or send email via the iPhone.

You can add an entirely new account via your iPhone, but, again, the account settings for this new account do not sync back to Mail on your

Mac. Instead, they're included in your iPhone Backup and they remain in place after future syncs.

Only the settings sync: *In all cases, iTunes syncs only account settings, not actual email messages. Still, with an IMAP Mail account, mail messages typically remain on a server, and are thus “synced” with all devices that view the server content.*

Advanced

The Advanced options at the bottom of the Info tab are primarily used for troubleshooting. I cover them in [Info Items Fail to Sync](#), ahead.

Sync with Entourage

You can sync contacts and calendars from Entourage (the email and calendar program included with Microsoft Office) to your iPhone, but the route is circuitous. You do so by enabling options in the Sync Services pane of Entourage's General Preferences, as explained in <http://support.apple.com/kb/HT1670> (the article cites Entourage 2004, but the process is the same for Entourage 2008).

This works by Entourage exporting data to Address Book and iCal, which then sync to your iPhone. This means that a single contact, for example, now syncs in at least three places: Entourage, Address Book, and your iPhone (plus MobileMe, if you use it as well). Unfortunately, this multiplies the possibility for problems. Ideally, to prevent conflicts, make subsequent changes to contacts and calendars on your Mac using only one program—either Entourage or Address Book, but not both.

Another option is to sync via an Exchange server; see [Appendix A: The iPhone in an Enterprise Environment](#) for more information.

Solving Entourage Syncing Problems

If conflicts appear, see [Resolve Sync Conflicts](#) for advice. As a last resort, disable the Sync Services options in Entourage's Preferences, then re-enable them. Assuming your Entourage items are the most up-to-date, select the radio button “Replace Sync Services items with Entourage Items,” when asked. This should resolve any lingering errors. For more advice, see also: <http://support.apple.com/kb/TS2029>.

CHOOSE MANUAL SYNCING

The previous topic explained how to select *what* you want to sync. This topic explores how to choose *when* you want to sync. When you sync via iTunes, the default setting is for an iPhone to sync immediately and automatically, whenever iTunes is open and an iPhone is connected.

While the default setting simplifies syncing, I recommend against using it, because if you are having trouble with your iPhone, you may need to connect it to iTunes to fix the problem. If so, you want to attempt a fix *before* a sync begins (as would be the case if you suspected that you had corrupted data on your iPhone and didn't want it to sync back to your computer).

Stop Automatic Syncing

There are several ways to prevent automatic syncing. Choose the most appropriate method for your situation:

- **All iPhones, on every connection:** Open the iTunes Preferences window and click the Devices button. In the Devices pane, select the Prevent iPods and iPhones from Syncing Automatically checkbox.
- **One iPhone, on every connection:** Connect a given iPhone to your computer, and select it in the Devices category of the iTunes sidebar. In the Summary tab that appears, disable the Automatically Sync When This iPhone Is Connected checkbox.

Note that even if you do check the Automatically Sync When This iPhone is Connected box, an automatic sync still won't occur if you've enabled the just-mentioned Disable Syncing for iPhones and iPods option in the main iTunes preferences.

- **One iPhone, on just the current connection:** Launch iTunes without your iPhone connected. Next, hold down the Command and Option keys, connect your iPhone, and wait until the iPhone appears in the Devices list. You can now let go of the keys.

Launch iTunes first! Do not press Command-Option before launching iTunes on a Mac. If you do, this triggers the Choose iTunes Library feature.

If iTunes is set to sync automatically, the sync will be disabled for this particular connection. Having done this, you can now use one of the previous options to prevent automatic syncing in the future.

- **Cancel a sync immediately after it begins:** Either click the X icon in the message box at the top of the iTunes window or swipe the Cancel Sync slider on the iPhone. This is the least desirable option, as some syncing will likely occur before you can cancel.

Be careful with Apply! *If you change the sync selections on any of the tabs for your iPhone in iTunes, and an Apply button replaces the Sync button, you can click the button to save the changes. So far, so good. However, instead of just saving your settings, iTunes will often immediately begin a sync, even if you've disabled automatic syncing. In other words, the button acts as "Apply and Sync."*

In some cases, it is a partial sync, updating only the content you changed. In other cases, it may be a complete resync. If you don't want any sync to occur, immediately cancel the sync.

Sync Manually

With automatic syncing disabled, you sync manually. To do so, first connect your iPhone to your computer and launch iTunes, just as you would for an automatic sync. Then, select your iPhone in the iTunes sidebar and, in any tab, click the Sync button in the lower right. You may click the Sync button again anytime thereafter, should you want to sync again after changing a sync-related option.

MANAGE SYNCING WITH MULTIPLE COMPUTERS

Although you can sync more than one iPhone to a single computer, the reverse of that—syncing one iPhone to multiple computers—isn't generally recommended by Apple. Should you ignore Apple's advice and connect your iPhone to a *secondary* computer, don't worry: no media or managed data will be selected for syncing in iTunes, so nothing can sync. However, if you enable any checkbox in any of the tabs, such as Music, Photos, Applications, or Info, you get a warning message, as described next. This can initiate syncing with the secondary device.

Media

Assuming you've previously synced music to your iPhone via the first computer, if you enable any sort of media syncing—such as music—on the secondary computer, you get a message like the one in **Figure 3**.

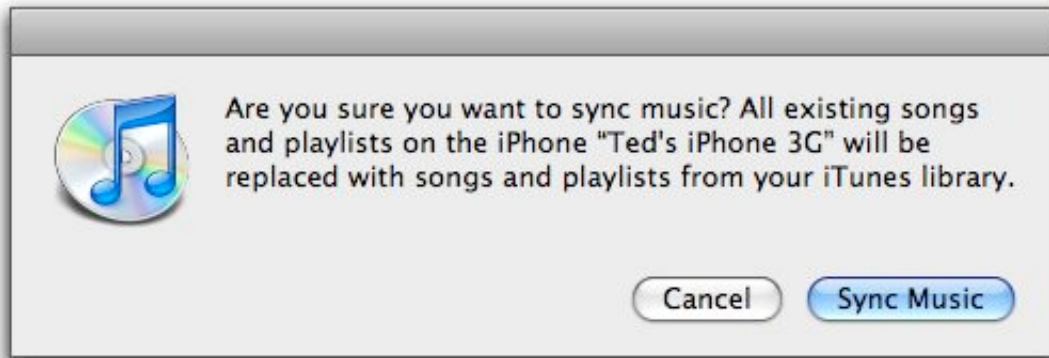


Figure 3: This message appears if you try to sync music items to your iPhone from a secondary computer.

If you click Sync Music, your change is accepted, although no actual syncing should occur at this time. If you later click the Apply button, you should get the message shown in **Figure 4**.



Figure 4: This message appears after you click the Apply or Sync button for an iPhone connected to a secondary computer.

If you click Erase and Sync, the sync will erase all the content on your iPhone in the categories for which you enabled a change (Music, in this case), replacing it with the content from the secondary computer, but leaving all other content and data intact. Any settings changes you made on the iPhone should remain intact as well.

If your iPhone contains songs purchased from the iTunes app and you connect the phone to a secondary computer that is authorized to

play music from your account (enabled in iTunes by choosing Store > Authorize Computer), a message should appear that includes a Transfer Purchases button. If the message does not appear, you can still transfer this music via by choosing, in iTunes, File > Transfer Purchases. See this Apple document for more details: <http://support.apple.com/kb/HT1848>.

If you make a sync change to any of the other categories, such as Photos or Applications, essentially the same process is invoked. The only difference is in the wording of the initial message.

In all these cases, syncing an iPhone with a second computer results in data from the second computer overwriting similar data from the first computer, which is typically undesirable. However, if, for example, you keep all your music on a second computer, but all your other data and media on your main Mac, you can sync your iPhone to the main computer for apps, video, podcasts, photos, info, and settings, and then configure iTunes on the second computer to sync just music.

Info Data

If you try to sync, on a secondary Mac, any data configured in the iPhone's Info tab in iTunes, you will see a message such as the one shown in **Figure 5**.



Figure 5: This message appears when you try to sync managed data on a secondary computer.

In this special case, you can *merge* information between the iPhone and the second computer rather than overwrite the data on the iPhone. This option is useful because it combines the managed data from your main Mac (already stored on your iPhone) with the data from the

secondary computer. You can then sync the merged data, now on your iPhone, back to your main computer.

UNDERSTAND THE IPHONE BACKUP

During a sync, iTunes not only syncs the managed information and media covered earlier in this section, but also creates or updates an iPhone backup. The main function of the backup is to permit you to restore personal data and settings to your iPhone during a [Restore](#) (during which the content on the iPhone is typically erased). It also provides a good way to transfer data from an old iPhone to a new one.

Here's a quick list of what exactly is stored in an iPhone Backup:

- Various settings from the Settings app data, including Mail and Calendar account settings (but not the actual Mail messages and Calendar events).
- Paired Bluetooth devices.
- Safari bookmarks and Safari AutoFill data.
- SMS and MMS messages, Notes items, voice memos, and photos and video from the Camera Roll. The one exception is that videos greater than 2 GB are not backed up.

Warning! *When you restore your iPhone from a backup, any photos taken since the most-recent backup will be lost. Be sure to copy any new photos to your Mac (see [Photos](#), earlier) before restoring.*

Understand Messages: SMS messages (also called text messages) and MMS messages (which contain pictures, video or other non-text data) can be created in the iPhone's Messages app. The name of the app was changed from Text to Messages in iPhone OS 3.0 because of the added MMS capability. For more details on Messages, see the online FAQ for this book: <http://www.takecontrolbooks.com/resources/0055/more-faqs.html>.

- Preferences and data for third-party apps (such as game high scores), but not the apps themselves.
- Passwords for Mail and Wi-Fi accounts (from the iPhone's Keychain file). These passwords will restore only to the same iPhone. If you

upgrade to a new device, for example, you must re-enter these passwords on the new device. You may also have to reset your Voicemail password.

A backup does *not* store photos synced via iTunes nor any iPod music or video. For a complete list of what gets backed up, see:

<http://support.apple.com/kb/HT1766>.

Create or Update a Backup

When you connect an iPhone to iTunes and initiate a sync, a backup is the first step that occurs during the sync. A new backup is created automatically if one does not already exist. Otherwise, the sync updates an existing backup.

Because a backup is the first step in a sync, events later in the sync sequence (such as new apps being installed) have no effect on the backup. Such updating occurs at the *next* backup. (A backup will typically not recur during a subsequent sync if the iPhone has remained connected to iTunes. To force a new backup, disconnect and reconnect the iPhone.)

Alternatively, you can force a backup at any time without doing a sync. To do so, Control-click (right-click) your iPhone in the Devices section of the iTunes sidebar. From the contextual menu that appears, choose Back Up.

Note: The contextual menu that contains the Back Up command also contains a Restore from Backup command. This command allows you to restore backed up data to your iPhone without having to do the complete erasure required when doing a full restore (as detailed more in [Restore](#)).

Speed up backups: *Regardless of how you initiate a backup, it can take a significant amount of time (although the speed is greatly improved in iPhone 3 compared to earlier versions of the iPhone OS). One way to reduce the time is to delete unwanted photos and videos from the Camera Roll.*

View Backup Lists, Items, and Data

To see a list of your current backups, go to the Devices pane of the iTunes Preferences dialog. If you sync more than one iPhone or iPod touch to your Mac, there will be a separate backup for each device.

Time-stamped backups: Backup items marked with a date and time stamp are created after a [Restore](#). They may also occur after a backup without syncing. These time-stamped backups are not overwritten by newer backups, leaving you with multiple backups for a given device. In general, once you have a more current backup and you are confident that you no longer need to restore again from the older backup, you can delete the older time-stamped one.

The actual backup files are stored on your Mac in `~/Library/Application Support/MobileSync/Backup`. Within this folder are more folders, each one named with a long string of hex characters (numbers from 0-9 and letters from a-f). Inside these folders are the actual backup files. You can see a more human-readable listing of backups in the Devices section of iTunes Preferences.

You can't directly view any of the data stored within a Backup using iTunes or any other Apple-provided utility. However, you can gain limited access to such data via third-party software, as I cover in [Access iPhone Software on Your Mac](#).

New in iPhone 3 (for the iPhone 3GS) is an option, in the iPhone's Summary tab in iTunes, to Encrypt iPhone Backup. This option encrypts the backup data and adds password protection. If it is enabled, you must enter the password to restore from a backup. This encryption also prevents anyone from viewing the Backup data using the aforementioned third-party software. However, it has no effect on similar software that can view contents by reading data directly from the iPhone itself.

Delete a Backup

To delete a backup, open the Devices pane in the iTunes Preferences dialog, select the backup, and click the Delete Backup button. Why would you want to do this?

- **Old backups:** There may be more than one backup listed for the same iPhone. If so, unless you have some reason to want to save

older data, you can safely delete older Backups, maintaining just the most recent one.

- **Corrupted backups:** A corrupted backup could cause a sync to fail. You can fix the problem by deleting the suspected backup and syncing again—ideally, quitting iTunes and relaunching it before syncing. A fresh backup, presumably not corrupted, is created during the next sync.

As an extra precaution, you can Option-drag the folder for the to-be-deleted backup file from the Backup folder to the Desktop before deleting it (if you have more than one backup folder, the one you want to delete is most likely the one with the most recent modification date). This makes a copy of the backup. If it turns out that deleting the backup has no beneficial effect, you can return the copy to the backup folder and thus avoid losing the data unnecessarily.

- **Selling a phone or switching computers:** You might also want to remove a backup if you sell or otherwise part with your iPhone, especially if you are not getting a replacement iPhone, or if you intend to sync your iPhone to another computer.

SOLVE SYNC FAILURES AND ERRORS

With more recent iPhone software, users are experiencing far fewer sync problems than when the iPhone was first released. Still, a few things can—and do—still go wrong. Let’s look at a few of the more common problems that may crop up, and how to fix them.

The iPhone Doesn’t Appear in iTunes

Though a rare occurrence, your iPhone may not show up in the iTunes Devices list. An error message may also appear; a common one reads, “iTunes could not connect to iPhone... because an unknown error occurred. (oxE8000035).” In such a case, you obviously cannot sync the iPhone.

If this happens, first check your USB connection. In particular, if you are not already doing so, connect your iPhone directly to a USB port on your Mac, rather than via a USB hub or other type of connection. Other fixes include simply restarting your Mac or reinstalling iTunes, as noted in this Apple article: <http://support.apple.com/kb/TS1591>.

When an iPhone fails to show up in iTunes, you may also see a message on your iPhone that reads, “Restore Needed. iPhone cannot make or receive calls. Restore from iTunes.” According to Apple (see <http://support.apple.com/kb/TS2430>), you may be able to resolve this error by making sure the iPhone is charged and turning the iPhone off and back on again.

If none of the above suggestions work, you likely have a problem that requires fixes such as restoring your iPhone (as described in [Reset, Restore, or Recover](#)).

“Unknown error” When Syncing

If a sync fails and you see a message about “an unknown error” that includes an error number, search for that error number at <http://support.apple.com/>.

For example, the article at <http://support.apple.com/kb/TS2380> offers three possible solutions for error numbers 131014, 13136, and 13213: restarting your Mac; choosing View > Hide Genius Sidebar in iTunes; and disabling any anti-virus software you may be using. Similarly, Apple’s article on error 13019 (<http://support.apple.com/kb/TS2830>) suggests updating to iTunes 9 will often fix the problem. If that doesn’t work, the article provides additional steps to take.

“Not enough free space” Error

If you attempt to sync more media to your iPhone than will fit, an error message informs you of the situation (**Figure 6**).

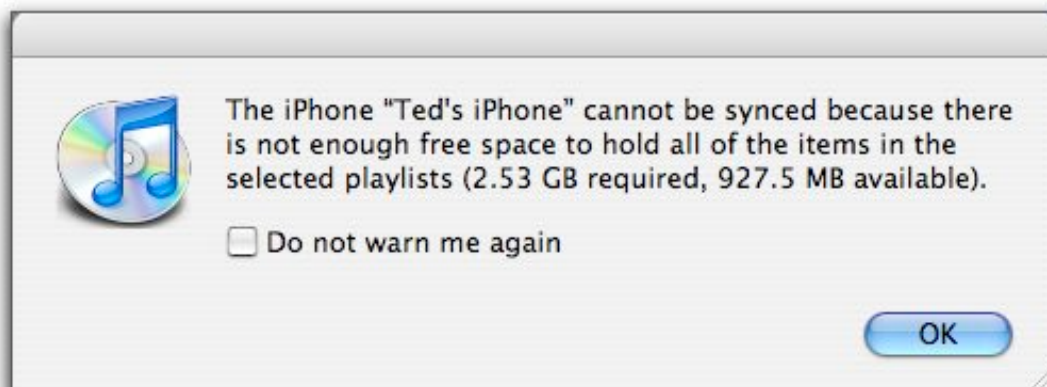


Figure 6: This message appears when you attempt to sync more content than will fit on your iPhone.

The message may also ask, “Would you like iTunes to delete enough photos and albums from the iPhone to make room for the songs?”

- If you click Yes, iTunes deletes photos from the iPhone to make room for the selected music. It, not you, decides what to delete.
- If you click No, you get to decide what to delete (which I consider to be the preferred option). For example, you can modify any of your sync settings (such as for Music), removing items so as to make room without having to delete any photos.

You may get the “Not enough free space” error even if the selected content will fit on your iPhone. This can happen if your iPhone was disconnected during a sync that was not first cancelled, leaving orphaned data on the iPhone. In iTunes, if the Other section of the disk usage graph in the iPhone’s Summary tab is unusually large (more than a few hundred megabytes), you may have orphaned data.

To fix this, follow these steps:

1. Turn off all photo, music, podcast, and video syncing (via the checkboxes in each tab), and click Apply.

Wait for the sync that begins to complete.

2. Re-enable the checkboxes you turned off, and click Apply again.

This time, syncing may take longer than usual—as it must re-copy all the data that was removed when you unchecked the various syncing options—but it should sync your desired data while restoring the expected free space. See this Apple article for further details:

<http://support.apple.com/kb/TS1503>.

Incorrect Format or “can’t play” Errors

One of the most common syncing problems is content that won’t sync to your iPhone because of the content’s file format. For example, a media file might play properly in iTunes, but be incompatible with the iPhone. When you attempt to sync such content, you’ll likely get an error message such as “Video can’t be played on iPhone.” The message should identify the problematic file.

In some cases, you may not even be able to import a file into iTunes, even though it plays successfully in QuickTime Player.

Tech Specs for Audio and Video on the iPhone

For those of you who understand what all the names and abbreviations mean, here's a complete list of which audio and video formats are supported by the iPhone's iPod application:

- **Audio formats:** AAC; Protected AAC; MP3, MP3 VBR, Audible (formats 1, 2, and 3), Apple Lossless, AIFF, and WAV.
- **Video formats:** As a general guideline, files with an .m4v, mp4, or .mov extension containing H.264 video or MPEG-4 video (640 by 480 pixels, 30 frames per second).

For more details, see <http://www.apple.com/iphone/specs.html>.

To fix the problem, convert the problematic file to a compatible format. The best procedure for doing so depends upon the type of file you have (video versus audio, for example) and whether or not you can import that file into iTunes:

- **A video file that you can import into iTunes:** Select the file in your iTunes Library and choose Advanced > Create iPod or iPhone Version. When the conversion is complete, you'll have two versions of the file; the version that will successfully sync to your iPhone is in MPEG-4 format. To verify which file is in MPEG-4 format, select each one and choose File > Get Info (Command-I); the Kind item in the Summary pane of the Info window lists the format. If desired, you can delete the original version of the video. (If you retain both versions of the file, be sure to sync only the MPEG-4 version.)
- **A video file that won't import into iTunes:** In Mac OS X 10.6 Snow Leopard, try to open the file in QuickTime Player X. If that works, choose either File > Save As or Share > iTunes. In either case, save the file in the iPhone or iPhone (Cellular) format.

Mac OS X 10.5 users can instead use the Pro version of QuickTime Player 7 or a third-party utility, such as HandBrake (<http://handbrake.fr/>).

In either case, see also [Sync video in the Photos tab](#), p. 20.

Note: To independently verify the success of a video conversion, follow the procedures at <http://support.apple.com/kb/HT1211>.

- **An audio file that won't sync:** In iTunes, select the item and choose Advanced > Create AAC Version.
- **A photo that won't sync:** You can change the file to a compatible format (see [Tech Specs for Audio and Video on the iPhone](#)) via either the Export command in iPhoto or the Save As command in Preview. If this doesn't work, you may have to delete the iPod Photo Cache (explained in <http://support.apple.com/kb/TS1314>) to get the problem photo to sync.

If even a converted file doesn't sync or play successfully, you may have a problem with iTunes or with the associated QuickTime software. To check for this, download the latest versions of iTunes and QuickTime and reinstall them. As a last resort, [Restore](#) your iPhone's software.

Info Items Fail to Sync

Maybe you got an error indicating that a type of managed information—such as contacts or Mail accounts—failed to sync. Or maybe, after an apparently successful sync, the data is wrong: perhaps contacts are missing or calendar events are duplicated.

To solve the problem, or at least identify the source of the problem, turn off—in the iPhone's Info tab in iTunes—syncing for the relevant category and click Apply:

- If the problem vanishes, re-enable syncing for that category and sync again.
- If that has no beneficial effect, try the Advanced options at the bottom of the Info tab (**Figure 7**).



Figure 7: The Advanced section of the Info tab for an iPhone connected to iTunes.

Each checkbox lets you, for the next sync only, replace a category of data on your iPhone with the corresponding data on your Mac. In other words, if contacts are the likely problem, enabling the Contacts checkbox means that *if* you click Sync or Apply, your Contacts data won't merge as it normally does; instead ***the Mac's contact data will replace the iPhone's contact data***. If the contacts on your iPhone are the problem, the replacement may fix the situation. Of course, if the contacts on the Mac are corrupted, this procedure won't help.

If you're sure this is the action you want to take, click Sync (or Apply, as appropriate).

In theory, the Mail Accounts checkbox shouldn't be needed, as syncing for Mail accounts is always unidirectional. However, if you get an error message that says: "iTunes could not sync mail accounts to the iPhone because the mail accounts are in use by the iPhone," checking the Mail Accounts box and then syncing should remedy the problem.

RESOLVE SYNC CONFLICTS

A Mac OS X program called Conflict Resolver compares synced data across all devices—computers, iPhones, iPod touches, etc.—to which your data are synced. You don't have to launch the application yourself to use it—it runs automatically in the background. If Conflict Resolver spots a difference between the same item in two sources during a sync, and it can't figure out which source is correct, it reports a sync conflict. For the iPhone, this would typically happen during a sync in iTunes.

In such cases, a Conflict Resolver window should appear. You can choose to review the conflicts via a dialog where you select the correct source for each conflicting item (**Figure 8**).

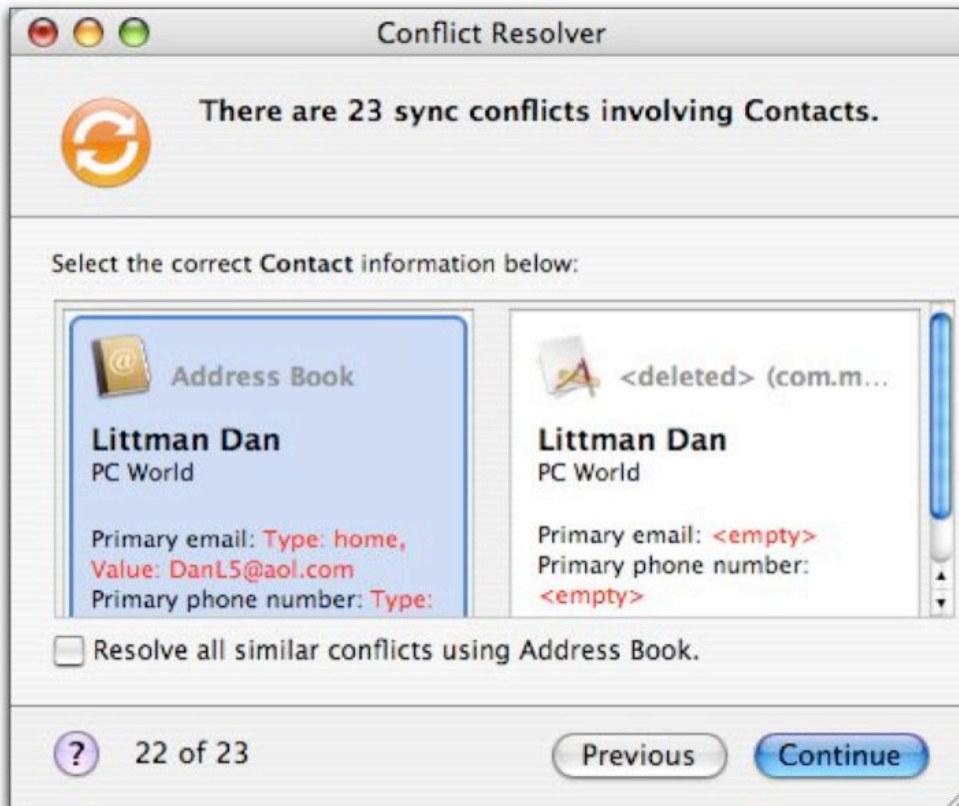


Figure 8: Conflict Resolver identifies a conflict between Address Book and the iPhone.

The Sync Menu Bar Item

To make your detective work easier, you can maintain constant access to Conflict Resolver via a menu bar item. To do so, launch iSync and enable the "Show status in menu bar" option in iSync's preferences. Or, if you use MobileMe, select the same option from the MobileMe System Preferences pane. The Sync menu bar item will list any conflicts and let you choose Review Conflicts Now to deal with them.

In addition, in Mac OS X 10.6, if you hold down the Option key before selecting the Sync item, the menu will list all your synced categories of data. It also offers access to two troubleshooting options: Sync Diagnostics and Reset Sync Services. For further details and options, see:

- <http://support.apple.com/kb/TS1627>
- <http://support.apple.com/kb/TS2481>

If conflicts persist even after doing this, you may have to resort to other solutions, such as using the Advanced options in your iPhone's Info tab

in iTunes (read [Info Items Fail to Sync](#), a few pages earlier). For sync-conflict issues specific to MobileMe, check out [The MobileMe FAQ](#).

SyncServices Data on Your Mac

The SyncServices folder is where your Mac maintains all sync information, including sync info for the iPhone. The data is stored in `~/Library/Application Support/SyncServices`. If you are having a sync problem, you may be tempted to use the Finder to delete or modify data here. Don't give in to this temptation. Except for rare circumstances (see <http://support.apple.com/kb/HT1865>), messing with this folder will only make a bad situation worse—generating problems such as duplicate records and missing items. Instead, use the other methods described here.

CREATE AND SYNC CUSTOM RINGTONES

Your iPhone comes with a collection of ringtones. You can find them at Settings > Sound > Ringtone. If you want, you can add your own ringtones to the list either by purchasing them or by creating them in GarageBand or a third-party utility. I look at various options for acquiring ringtones next, and then I discuss how to sync them.

Buy Ringtones on the Mac

With eligible songs that you purchase from the iTunes Store, you can create ringtones directly in iTunes. Unfortunately, starting with the release of iTunes 9, there is no longer any way to tell which songs in the Store are eligible (explained in more detail here: http://www.macobserver.com/tmo/article/apple_adds_confusion_to_ringtone_purchases). Eligible songs already in your iTunes Library will have a bell icon (🔔) in the Ringtone column. To create a ringtone from these songs, choose Store > Create Ringtone. Follow the prompts to pay for (\$.99) and then edit the ringtone length and segment. If you select an ineligible song, you will get an error message. For more info, see the Apple article at <http://support.apple.com/kb/HT1693>.

Tip: To quickly see ringtone-eligible songs in iTunes, click on the bell icon (🔔) at the top of the Ringtone column. Now, all songs eligible for ringtones sort to the top of the list.

Make the Ringtone Column Appear

If you don't see the Ringtone column in iTunes, verify that Ringtones is selected in the iTunes Preferences dialog, in the General pane. Next, with Music selected in the iTunes sidebar, choose View > View Options, select the Ringtone checkbox, and click OK. Scroll the iTunes window horizontally, if needed, to show the Ringtone column. Unfortunately, you will likely need to re-enable the checkbox each time you launch iTunes.

Buy Ringtones on the iPhone

Starting in iPhone OS 3.1, you can create ringtones directly from the iTunes app on your iPhone. To do so:

1. In the iTunes app, tap the Ringtones icon.
2. Browse through the ringtones section to find one that you want.

Search? *Instead of browsing, you can tap Search. If a ringtone matches your search term, it will be listed in a separate Ringtones section of the results. You will find many ringtones via this method than are not listed while browsing.*

3. Tap the \$1.29 button beside the ringtone to pay for it.
4. Tap a button to make it your default ringtone or to assign it to a contact. Or, tap Done to simply add it to your Ringtone list in Settings, where you can make an assignment later (**Figure 9**).



Figure 9: The message that appears when you purchase a ringtone on your iPhone.

Note that ringtones purchased on the iPhone are “precut”; they cannot be edited either on your iPhone or in iTunes on your Mac.

Create Ringtones in GarageBand

Because of the limited availability of ringtones in the iTunes Store, and because they cost \$1.29 each, you may prefer to create your own ringtones for free. Apple offers this option via GarageBand. Using GarageBand '09, here's how to create a ringtone from a song currently in your iTunes Library:

1. In the left column of the screen that appears when you launch GarageBand (after the Welcome to GarageBand screen, if enabled), select iPhone Ringtone.
2. From the three available options, select Example Ringtone then click the Choose button. Save your project when prompted (where you save the project isn't important, though it's useful to give the project the name you want to use for the new ringtone).
3. In the project window, click the Jingles track on the left. Choose Track > Delete Track.
4. Choose Control > Show Media Browser. In the Media Browser that appears to the right, click Audio and locate the desired song in your iTunes Library. (If you have a large library, you can use the Search field at the bottom of the Media Browser, or select a playlist at the top of the Browser, to find the track more quickly.)
5. Drag the song to the GarageBand area below the timeline labeled “Drag Apple Loops here.” Wait for the song to import.
6. A yellow cycle bar appears in the beat ruler above the song's track, indicating the *cycle region*, the portion of the song that will play over and over if you play the track in GarageBand.

If the yellow cycle bar does not appear, click the Cycle button (it's the one with two looping arrows, to the right of the Fast Forward button at the bottom of the screen).

7. In the beat ruler, drag the start and end points of the yellow cycle bar to cover the portion of the song that you want as your ringtone. Make sure that the cycle region is 40 seconds or less in length. Click the Play button to hear a preview of the ringtone cycle.

8. Choose Share > Send Ringtone to iTunes.

The selected song region is imported into your iTunes Library. To find it in iTunes, click Ringtones in the sidebar. You can now sync it (see [Sync Ringtones](#), next page) with your iPhone.

According to Apple, GarageBand-created ringtones are limited to “your original songs, your original audio recordings, Apple Loops and iLife jingles.” However, this is more of a legal warning than an actual restriction. For example, you can make a ringtone from music ripped into iTunes from a CD or from DRM-free music purchased from the iTunes Store. The only actual restriction is that you can’t create a ringtone from protected music from the iTunes Store; these songs don’t appear in the Audio section of GarageBand’s Media Browser.

Create Ringtones via Third-Party Software

Several third-party developers make software that allows you to create ringtones from music files. These include MakeiPhoneRingtone and iToner, and (my current personal favorite) RingtoneStudio. For simplicity, I provide details here just for RingtoneStudio (<http://pocketmac.net/products/ringtonestudio/>). RingtoneStudio works with virtually any unprotected audio or video file, including unprotected music from the iTunes Store. It even works with movie trailers on Apple’s site (<http://www.apple.com/trailers/>).

Empty file alert! *If you use RingtoneStudio with protected music, it may appear to succeed—but you’ll wind up with an empty file.*

To create a ringtone with RingtoneStudio, drag the desired song file from the Finder to the RingtoneStudio window:

- If the file is less than 30 seconds long, RingtoneStudio converts it to the ringtone format and imports the ringtone into iTunes—all in one step. Finito.
- Otherwise, RingtoneStudio opens a separate display from which you can select any 29-second (or less) segment to use as your ringtone. You also get several editing options, including tools for waveforms and fades.

One more click and the ringtone is in your iTunes Library. From here, you can sync it to your iPhone.

Sync Ringtones

To sync custom ringtones from iTunes to your iPhone, click the Ringtone tab of your iPhone display in iTunes. Enable the Sync Ringtones checkbox and then select either All Ringtones or Selected Ringtones, as desired. If the latter, select which ringtones you wish to sync. Click the Apply button, and any newly selected ringtones in iTunes will sync to your iPhone.

When you sync, ringtones purchased on the iPhone since your last sync will also transfer back to iTunes. The Ringtones section of your iTunes Library lists all the custom ringtones imported or synced to iTunes.

Select Ringtones on Your iPhone

Once your ringtone has been synced to your iPhone, go to Settings > Sounds > Ringtone to select it as your default. You can also select, within your Contacts list, a specific ringtone for each and any individual contact.

Solve Ringtone Problems

If you are having any difficulty getting your custom ringtones to sync as expected, check here for potential solutions.

Resync “Lost” Ringtones

Sometimes, for no obvious reason, your custom ringtones vanish from your iPhone or your contacts lose their assigned non-default ringtones. If either of these issues should happen, start by reselecting the ringtones in iTunes and resyncing. If your contacts still fail to show their custom ringtones, you will have to manually reassign each ringtone to its desired contact.

“Not copied” Error Message

When you sync your iPhone, you may get a message that says song(s) were “not copied because they cannot be played on this iPhone.” If a ringtone is cited as the cause of this error, it may be that the ringtone is in a format that is incompatible with the iPhone.

The fix here is to confirm that you followed the ringtone creation instructions correctly—especially making sure that you didn’t start with a protected-format song. As a check, select the problem ringtone in iTunes and choose File > Get Info. On the Summary pane of the Info window, the Kind should be Ringtone and the filename, in the Where

line, should end in .m4r. If the info differs, and you are sure you followed the preceding instructions correctly, try changing the file to an iPhone compatible format using an audio editing utility such as Amadeus Pro (<http://www.hairersoft.com/AmadeusPro/AmadeusPro.html>) or Fission (<http://rogueamoeba.com/fission/>).

Ringtones and Syncing from Multiple Computers

After syncing custom ringtones to your iPhone, if you later decide to sync music from another computer (see [Manage Syncing with Multiple Computers](#)), the custom ringtones will be removed from the phone, replaced by those on the secondary computer (if any).

Use MobileMe

MobileMe (<http://www.apple.com/mobileme/>) is Apple's Web-based "cloud" service. For \$99 per year, MobileMe offers several features, including email, iDisk, and Web Galleries. In this section, I discuss two important MobileMe options for the iPhone and iPod touch:

- [Sync with MobileMe](#) (next page): I explain how this differs from iTunes syncing and help you understand many nuances relating to using it optimally.
- [Find My iPhone](#) (p. 60): This feature works on iPod touches too. Besides just finding a lost iPhone, it can also send it a message, set up a passcode remotely, or even erase the device remotely.

Note: To access your MobileMe data via the Web, log in at <http://www.me.com/>. Unfortunately, you can't access this from your iPhone—at least not from the Safari browser. You typically do it from your Mac.

MobileMe iDisk App

Apple offers the free iDisk app, which allows MobileMe users to access the contents of their iDisks, as well as the contents of other users' iDisk Public Folders. The app lets you view iDisk-hosted files, including Microsoft Office, iWork '09, and PDF documents. Several third-party apps (see [Go Under the Hood](#)) have similar features, without using MobileMe. Still, it's nice to see Apple giving official support to this capability. See this Apple article for more advice: <http://support.apple.com/kb/TS2765>.

Note: If you uninstall this app, the files stored in it will be deleted from your iPhone. However, they will remain on the iDisk.

SYNC WITH MOBILEME

Although iTunes media, such as music and video, does not sync with MobileMe, much of data in the Info tab can sync either via iTunes or via MobileMe. When you sync via iTunes, you physically attach the iPhone to your Mac. In contrast, MobileMe uses a network to sync data between the MobileMe Web site, your Mac, and your iPhone.

Prior to iPhone OS 3, data synced via MobileMe could not be synced via iTunes, and vice versa. But you can now sync some types of data via both options (as I explain for Calendar syncing in [Calendars](#)) at once. For each category of data (such as Contacts or Calendars), you can separately decide whether to sync via MobileMe or iTunes.

Note: The rest of this section discusses MobileMe syncing; for info on syncing via iTunes, read [Sync Your iPhone](#).

Getting Data to MobileMe

Non-email data on your Mac (such iCal events and Address Book contacts) syncs to the MobileMe cloud based on settings in the MobileMe System Preferences pane. It may take a minute or so for data to go from your Macintosh to MobileMe. Once there, assuming you have Push enabled, it should sync to your iPhone almost immediately. You can also enter data directly into the MobileMe cloud via the MobileMe Web site (<http://www.me.com/>).

Use Push, Fetch, or Manual?

When you set up MobileMe, you'll need to decide, for each type of data you plan to sync, whether to sync via push or fetch. Alternatively, you can sync all your data manually.

With MobileMe, *push* refers to the MobileMe service's capability to send data almost instantly to your iPhone (and your phone to the MobileMe service), rather than at a specified interval or via a manual command. With push enabled for email, for example, new messages are sent directly to your phone as soon as they are received by the MobileMe mail servers; the iPhone notifies you, via an audible alert when a new message arrives.

You don't receive such update notices for other types of data from MobileMe; you'll notice the changes only when you open a relevant app (for instance, you might see updated Contact data in Contacts or Maps). However, the updates still occur automatically, even before you open a related app. The main downside of push is that it uses up the iPhone's battery at a faster rate, as it requires that the iPhone remain active to keep checking for new updates.

Push Notifications from Third-Party Apps

With iPhone OS 3.0 or later, third-party programs (downloaded from the App Store) can also offer limited push notifications. This is completely independent of data (such as email and calendar events) pushed via MobileMe. If you have an app that offers notifications, and you have opened the app at least once, its push-notification options will be listed in the Notifications section of the Settings app. From here, you can choose the type of notifications you want (sounds, text alerts, badges) or whether you want notifications enabled at all.

Push and Microsoft Exchange: You can also push data to your iPhone via Microsoft Exchange. I briefly cover the topic in [Appendix A: The iPhone in an Enterprise Environment](#).

Fetch works like push in that data syncs to your iPhone automatically. The main difference is that with fetch, data is synced at a specified interval (such as once per hour) rather than "immediately." Fetch drains the battery less than push, as it requires less frequent checking with the server.

The final alternative is to sync data manually, rather than via fetch or push. In most cases, this means that data are retrieved only when you open the relevant application; for example, appointments update when you access the Calendar app, and email is checked only when you launch the Mail app.

Get Data from MobileMe

Before you sync your iPhone with MobileMe, you must do some setup. The next procedures describe what to do.

Get Ready

Before setting any MobileMe options on your iPhone, do the following:

1. Use Software Update on your Mac to make sure you are running the latest versions of iTunes and the MobileMe pane of System Preferences. Via iTunes, make sure you are running latest version of the iPhone software.
2. Check your data in Address Book and iCal to make sure everything is up to date; for good measure, back up your Mac before syncing.
3. Connect your iPhone to your Mac. Select your iPhone under Devices in the iTunes sidebar. Click the Info tab.

As you have not yet configured MobileMe on your iPhone, you will see a message about setting up MobileMe with a Set Up Now button that links to <http://www.apple.com/mobileme/setup/>. Don't bother with it; follow the instructions here instead.

4. Enable the Calendar and Contacts syncing options, if they aren't enabled already, then click the Sync button. This ensures your Mac and your iPhone have the same data before you set up MobileMe syncing, so you won't have to worry about conflicts.
5. Disconnect your iPhone from your Mac.

Configure Your Mac for MobileMe

To use MobileMe syncing on your iPhone, you also need to set up your Mac to sync with MobileMe. Here are the steps to take:

1. On your Mac, go to the MobileMe System Preferences pane and click the Sync button to view the sync options.
2. On the Sync view, I suggest that you choose Automatically from the Synchronize with MobileMe pop-up menu. This ensures the most frequent syncing of data. Then enable the checkboxes next to Bookmarks, Calendars, Contacts, and Notes. These are the choices most relevant for your iPhone.
3. Click Sync Now. If a dialog appears asking whether or not you want to merge or replace data, make your desired choice.

4. After the sync finishes, wait a minute or so and then log in to your MobileMe account at <http://www.me.com/> and confirm that your data has been transferred to MobileMe. (Under versions of Mac OS X prior to 10.5.6, you might have to wait as much as 20 minutes before MobileMe updates.)

Now that you've set up syncing between your Mac and MobileMe, you can move on to enabling syncing between MobileMe and your iPhone.

Configure Your iPhone for MobileMe

You are now ready to enable MobileMe syncing on your iPhone. Here's what to do:

***Ideally, have a Wi-Fi connection for this task!** Otherwise, the process can take an annoyingly long time—especially if the alternative is an EDGE connection.*

1. If you have not already done so, create a MobileMe account on your iPhone. To do so, go to Settings > Mail, Contacts, Calendars. Tap Add Account.

***Have an old .Mac account?** If you've previously set up a .Mac account: delete it and then add it as a MobileMe account.*

2. From the list of account types, select MobileMe and provide your MobileMe user name and password. The iPhone should now create a MobileMe account with all the required network settings.
3. From the Accounts list, tap your newly created me.com account to access its settings. Enable the categories of data—Mail, Contacts, Calendars, and (Safari) Bookmarks—that you wish to sync with MobileMe (**Figure 10**).



Figure 10: MobileMe’s Account settings on an iPhone.

Access Account Info? *If your iPhone is connecting successfully to MobileMe, you shouldn’t need to use the Account Info button on this screen for anything we are doing here; however, if you have connection problems, check out [Navigate Wi-Fi, EDGE, 3G & Bluetooth](#).*

4. If you already have a category of data on your iPhone, such as Contacts, when you first enable syncing for that category, a message may pop up, stating: “Existing {contacts} will be removed from your iPhone.” If this happens, tap Sync. Don’t worry—if you followed the directions in [Get Ready](#), you will *not* lose any data because the data being copied to the iPhone is the same as the data that’s being removed.

Merge? *New in iPhone OS 3, you have the option, on your first sync, to merge your existing contacts and calendars between your iPhone and MobileMe, rather than to simply delete the iPhone data and replace it with the MobileMe data. You needn’t do so if you’ve followed the instructions here. Avoiding merge also avoids the risk of winding up with duplicate entries.*

5. In Settings > Mail, Contacts, Calendars > Fetch New Data (**Figure 11**), do one of the following:



Figure 11: The Fetch New Data options. Tap Advanced for further important options, as described in Step 6.

- To push data to your iPhone, move the Push slider to On.
- To get data via Fetch or Manually, tap the corresponding button. Your choice doesn't affect MobileMe syncing unless you turn off Push. If you tap Manually, syncing occurs only when you open the relevant app (up to a maximum of one sync per minute).

If Push is off, you are done setting up the iPhone and you can skip the next step.

6. As an optional last step, tap Advanced at the bottom of the Fetch New Data screen. From here, you can separately enable or disable Push for each category of MobileMe data that you are syncing. For example, you could fetch MobileMe Mail while pushing MobileMe Calendars. The Advanced screen also lists manual/fetch options for other mail accounts you have set up on your iPhone.

Fetch New Data vs. Mail's MobileMe settings: *It may seem that the Fetch New Data settings for MobileMe duplicate the options to enable Mail, Contacts, etc. in Mail's MobileMe Account settings, but they are different. In particular, if you turn off a data category in Mail's settings, you shift control of syncing back to iTunes rather than MobileMe. This is not so with the options in Fetch New Data.*

Understand the Limits of MobileMe Syncing

While MobileMe syncing works about the same for each category of synced data, you should know about some differences and limitations:

- **Fetch for contacts and calendars:** There are no options in the Advanced screen to choose Fetch for Contacts or Calendars. Still, if Push is on, but not currently working for any reason, the iPhone will use the Fetch setting for these data.
- **Bookmark syncing:** Bookmarks are not listed in Settings > Fetch New Data > Advanced. This is because if bookmarks are set to sync via MobileMe, they're always pushed.
- **Push for Mail:** Changes you make to Mail in MobileMe on the Web, such as deleting a message, are not pushed to the iPhone. You must open the iPhone's Mail app for these changes to sync. Only newly received messages are pushed.
- **Automatic notifications:** Pushed calendar or contact changes do not trigger an automatic notification on the iPhone. You need to open the Calendar or Contacts app to check for any changes. Only Mail gives an alert (for example, a chime and/or an updated badge on the app's icon) when it receives new messages.

You can invite people to events via the Invitation feature in Mail and iCal on the Mac. Invitees will receive an invitation via email on their iPhones. As just stated, the iPhone's Calendar app will not give automatic notifications of such invitations, even when using MobileMe and push. The Calendar app will, however, give such notifications if you push events via Microsoft Exchange (see [Appendix A: The iPhone in an Enterprise Environment](#)).

- **Multiple MobileMe accounts:** Push works with only one MobileMe account at a time. If you have set up multiple MobileMe accounts on your iPhone, you can push contacts, calendars, and bookmarks for only one of them.

Test Your Settings

Confirm that all is now working as expected:

1. Go to your account on the MobileMe Web site and make a change to any synced data, such as adding a new event to your calendar.
2. Wait a minute or so. Now go to your iPhone and open the Calendar app. The change you made should be there.
3. As a final confirmation of success, reconnect your iPhone to iTunes and return to its Info tab. The sections for the data now handled by MobileMe should each have a message confirming this.

Further, for data for which dual syncing is not possible, the message reminds you of this fact. For example, for Safari bookmarks, the message reads, “Your bookmarks are being synced with your iPhone over the air from MobileMe. Over-the-air-sync settings can be changed on your iPhone.”

Tip: To shift back to syncing via iTunes, you must first disable MobileMe syncing on your iPhone.

The MobileMe FAQ

Here I cover the common (and a few of the not-so-common) iPhone-related MobileMe problems.

I’m sure everything is set correctly, but MobileMe Push isn’t working. What do I do?

From your iPhone (or iPod touch), try this checklist of fixes, arranged with the easiest one first, in order until one works:

1. Read [Understand the Limits of MobileMe Syncing](#), previous page, to be sure your expectations of what should happen are correct.
2. Turn your iPhone or iPod touch off and back on.

3. For problems with Contacts and/or Calendar data, temporarily switch to manual syncing and then back to push again:
 - a. On the iPhone, go to Settings > Mail, Contacts, Calendars > Fetch New Data > Advanced (**Figure 12**). Change Push to Manual for the categories that are not working.

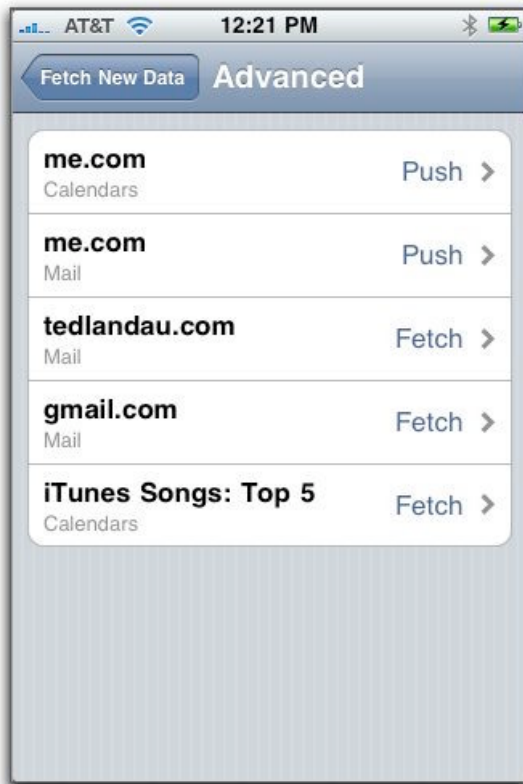


Figure 12: The Advanced options for Fetch New Data on my iPhone.

- b. Turn your device off and back on.
 - c. Return to Settings > Mail, Contacts, Calendars > Fetch New Data > Advanced and re-enable Push.
4. Go to Settings > Mail, Contacts, Calendars > MobileMe. Move the slider for any problem data category to Off. Wait for a confirmation of your change and then move the slider back to On.
5. Again from Settings > Mail, Contacts, Calendars > MobileMe, tap Delete Account. Re-create the account.

6. Go to the primary Mac that is syncing with MobileMe and see if any of the following options solves the problem:
 - **Reset sync history and/or run Sync Diagnostics:** Access Reset Sync History either via the preferences window in iSync or via the Reset Sync Services command in the Sync menu bar item (as described in [Resolve Sync Conflicts](#)). From the menu bar item, you can also run Sync Diagnostics.
 - **Reset sync data:** Go to the MobileMe System Preferences pane and click Advanced. From the dialog that drops down, click the Reset Sync Data button. From the next dialog that drops down, select the arrow keys to sync from your computer to MobileMe (assuming that your computer currently has a complete set of data) and leave the Replace pop-up menu set to the default All Sync Info option. Click Replace.
 - **Reinstall iTunes:** Delete iTunes from your drive, download a fresh copy, and reinstall it. It may not seem that this could affect syncing between the iPhone and MobileMe, but it can. See my *Macworld* article for details: http://www.macworld.com/article/134577/2008/07/iphone_sync.html.

What happens to the MobileMe data on my iPhone if I stop syncing it to MobileMe?

Good news. Starting in iPhone OS 3, if you delete a MobileMe account from your iPhone, or simply turn off its syncing options, you should be given a choice to either delete or keep the data on your iPhone. If you decide to keep the data, it will no longer sync with MobileMe, but it will still be on the phone. For details as to exactly which dialogues may pop up on your iPhone, and how to deal with them, see:

<http://support.apple.com/kb/HT3589>.

Help! I have duplicates in Contacts, Calendars or Bookmarks. What do I do?

Assuming you are using MobileMe, the most common cause is that the same data are being synced both via MobileMe and via direct syncing in iTunes. The solution is:

1. Go to Settings > Mail, Contacts, Calendars, select your MobileMe account, and move the slider for the category with duplicates (e.g., Calendar) to Off.

2. When next prompted, select “Delete from My iPhone.”
3. Turn the slider back on. If prompted to do so, select Merge with MobileMe.

See this Apple article for more details:

<http://support.apple.com/kb/HT3677>.

Help! My Contacts and Calendar data have vanished from my iPhone. What do I do?

Keep calm. Assuming you are syncing your iPhone via MobileMe, the most likely explanation is a temporary interruption of the MobileMe service. The result is that, when syncing, the iPhone “sees” no data on MobileMe and thus deletes all the data on your iPhone. Your data should nevertheless still be on MobileMe’s servers (to confirm this, you can log in to your account via the MobileMe Web site).

You can check for service interruptions at <http://www.apple.com/support/mobileme/>. If a problem is noted, wait for it to be fixed. After that, your data may automatically return to your iPhone. If not:

1. Go to Settings > Mail, Contacts, Calendars > MobileMe. Move the slider to Off for the empty data category. Wait a minute or so.
2. Move the slider back to On. Wait about 15 minutes. Your data should now be back.

Apple claims that a December 2008 update to the MobileMe service should have eliminated this symptom, at least for contacts. For more details, see: <http://www.macworld.com/article/134913/2008/08/0808bugsnfixes.html>.

How do I fix a “need to replace” error?

In Mac OS X 10.6, if you get a message on your Mac informing you that some data (such as Contacts) did not sync from MobileMe to your iPhone and that “you need to replace” information on MobileMe:

- If your Mac has the latest up-to-date information, click the Replace button.
- Otherwise, click Fix Later, go to the Mac with the up-to-date information and reset your sync data, as described in the “Reset sync data” bullet item, on the previous page.

For further advice, including dealing with “inconsistency” errors in Mac OS X 10.5, see <http://support.apple.com/kb/TS1998>.

I use Entourage instead of Address Book and iCal. Can I sync Entourage data via MobileMe?

Yes. As explained in [Sync with Entourage](#), you must sync Entourage with Address Book and iCal. However, this setup introduces another layer of complexity, which means another place where things can go wrong. For example, see my article about dealing with a duplicate-items problem: <http://www.macworld.com/article/137853/2009/01/entourageduplicates.html>.

Can I send photos and videos from my iPhone to my Web Gallery in MobileMe?

Yes. In the Photos app, just tap the button to share a photo or video. A Send to MobileMe option will appear.

Tip: For additional troubleshooting advice, check Apple’s Support site, especially this article: <http://support.apple.com/kb/TS1672>.

FIND MY IPHONE

A welcome new feature in iPhone OS 3 is Find My iPhone. With this feature enabled, you can log in to the device’s MobileMe account from a Web browser to determine the device’s location, send it an alert message, or force it to play an alert tone (even if the phone is in silent mode). You can also give it a passcode and—as a last resort, for a stolen device—you can even perform a *remote wipe*, permanently erasing all data on the phone.

Note: Find My iPhone works with any iPhone or iPod touch model. However, because an iPod touch can connect to the Internet only via Wi-Fi, the feature is of limited value for an iPod touch. An iPhone, in contrast, is almost always connected to the Internet, even when in sleep mode.


What follows here are the key points you need to know to use Find My iPhone effectively.

Set Up Find My iPhone

If you already have a MobileMe account and have it set up on your iPhone, chances are good that your phone needs no tweaking other than turning on the Find My iPhone option (Step 2 below). Otherwise, here is a complete list of what you may need to do:

1. If your MobileMe account is not already set up on your iPhone, go to Settings > Mail, Contacts, Calendars, tap Add Account, and tap MobileMe. Provide your MobileMe username and password.
2. In Settings > Mail, Contacts, Calendars > {*your MobileMe account*}, locate the Find My iPhone item. Make sure it is set to On.
3. In Settings > Mail, Contacts, Calendars, tap Fetch New Data. Make sure Push is set to On.
4. In Settings > General, make sure Location Services is On. This is needed only for the Mapping option. You can still send a message or perform a Remote Wipe with Location Services off.

Use Find My iPhone

Starting with the October 9, 2009 update to MobileMe, you can easily access Find My iPhone from a Web browser on any computer—just visit <http://www.me.com/findmyiphone>. Alternatively, you can first log in to your MobileMe account and then click the Find My iPhone icon () in the toolbar. In either case, you'll need to provide your MobileMe password when requested.

Assuming your iPhone is currently online, information about it will appear to the right. (If you have more than one device set up for Find My iPhone via the same MobileMe account, each device will be listed here. Scroll down to you find the device you want.)

MobileMe immediately attempts to find your phone and show its location on a map (**Figure 13**). If it succeeds, a blue circle indicates the phone's approximate location—the smaller the circle, the more accurate the estimate, just as with the Maps app on the iPhone.



Figure 13: Find My iPhone in MobileMe.

Unable to process your request? *If the Map feature doesn't seem to be working, your iPhone may be in an area without Internet service. Or the phone may be disconnected from the Internet, perhaps because it is powered off or in Airplane Mode. For an iPod touch, it may not be on a Wi-Fi network. In such cases, or for any other connection problems, you will typically get an error message, such as "Unable to process your request."*

In addition to using Find My iPhone to locate a missing iPhone, you could use it to locate another person on your account. For example, if your spouse's iPhone is listed in Find My iPhone, you could determine his/her current whereabouts.

Status change: *If the status of your iPhone changes (going from online to offline, for example), you may have to reload the Find My iPhone page, and perhaps even log out of MobileMe and log back in, before the status correctly updates.*

Send a Message to Your iPhone

To send a textual message that appears on your iPhone's screen, or an alert sound that plays even if the phone is in silent mode, follow these steps:

1. Click the Display a Message button. In the dialog that pops up, enter your message text (up to 160 characters).
2. Optionally, enable the checkbox Play a Sound for 2 Minutes with This Message.

Tip: You can send an audible alert sound without a text message—useful, for example, when trying to find your phone amongst the couch cushions—by leaving the Message field blank, but enabling the Play a Sound checkbox.

3. Click Send.

If the iPhone is online, the message should typically appear on the iPhone's screen within seconds. A copy of the message is also sent as email to your MobileMe account.

Secure a Missing iPhone

If you lose your iPhone and you want to ensure no one can get to your data, you have two options for limiting access. Neither of these protections are 100-percent certain to prevent access to your iPhone, especially if your device is in the hands of a person skilled in circumventing them. But they are better than no protection at all.

Enable a Passcode Lock Remotely

Starting in iPhone OS 3.1, the Find My iPhone screen includes an option to remotely enable a passcode lock. You would only need to do this if you had not previously enabled this feature on the iPhone itself. This may provide sufficient security that you do not feel a remote wipe is required. At the very least, it can buy you some time, preventing access to your data while you decide what to do. See [Use Passcode Lock](#) to learn more about this feature.

Initiate a Remote Wipe

A remote wipe can securely erase your iPhone's contents. There are pros and cons to doing this. On the one hand, if you use Remote Wipe, you lose all access to the device—you can no longer use Find My iPhone to determine a location or send it a message. However, if you delay using remote wipe, hoping to locate the device, your confidential data may be compromised in the interim.

The best course of action depends on the situation. For example, if there is no information on your device that would cause problems if it fell into the wrong hands, you may decide to forget about a remote wipe. Otherwise, you have to make a best guess as to what happened to your device. If, for example, you think it fell out of your pocket while at a restaurant, you might just send a message, hoping whoever found it

will contact you. If, instead, you are pretty sure the device was stolen from your backpack, I'd go for the remote wipe.

Here's how to do a remote wipe:

1. If multiple devices are configured to use the MobileMe account, be certain that the right one is selected. Then, click the Remote Wipe button, located in the set of options below the Map for the device.
2. When the confirmation dialog pops up, click the Erase All Data button.

Warning! *There is no undoing this action. However, if you should later get the device back, you can restore all your data and settings by re-syncing the device in iTunes.*

Because all user data on the iPhone 3GS is encrypted by default, a remote wipe should take less than a minute to complete—all that the remote wipe has to do is erase the private key for decrypting the data. With older iPhone models, however, the data must be securely deleted, bit-by-bit—a procedure that can take several hours. During this process, the iPhone attempts to prevent access to its content: the Apple logo remains on screen until the wipe is complete.

If you attempt a remote wipe while your device is offline, the request remains active for 2 hours. During this time, a remote wipe will be attempted as soon as the device comes online again—the erasure should begin within a minute or so.

Tip: To learn more about Find My iPhone, read my column on this subject at http://www.ipodobserver.com/ipo/article/find_out_about_find_my_iphone. For more troubleshooting tips, read <http://support.apple.com/kb/TS2734>.

Note: For more details regarding MobileMe, see Joe Kissell's *Take Control of MobileMe*. Also useful is Apple's MobileMe support site at <http://www.apple.com/support/mobileme/>.

Manage App Store Apps

Via the App Store, you can download and install Apple-approved, third-party software on your iPhone or iPod touch. With the Store approaching 100,000 apps, the variety of software available is nothing short of amazing. Chances are good that if something can be done with a mobile device, it can be done with an iPhone.

In this section, I explain how to:

- [Install Apps](#) (below)
- [Delete Apps](#) (p. 73)
- [Reinstall Deleted Apps](#) (p. 75)
- [Update Apps](#) (p. 76)

I also cover special questions and problems in [The App FAQ](#) (p. 77).

INSTALL APPS

You purchase and install third-party iPhone apps either (a) directly on the iPhone itself via the App Store app; or (b) indirectly via the App Store section of the iTunes Store in iTunes on your Mac. In the latter case, you transfer the apps from your computer to your iPhone via a sync. In either case, you must have an iTunes Store account.

Make sure an app is compatible! Apple doesn't offer refunds for apps purchased from the App Store, so make sure a particular app is compatible with your device before you buy it. Some apps, for example, require the GPS hardware in the iPhone 3G and 3GS; such apps won't work with an original iPhone. Similarly, some apps work only with iPhones, not the iPod touch.

Some older apps may require an update to work with iPhone OS 3. Updated apps have the phrase "iPhone OS 3.0 Tested" next to their version number listing.

To check out an app's requirements, go to its page in the iTunes App Store.

Decide on an Installation Method

Given a choice, should you download apps from the iPhone directly or use iTunes? Obviously, if you are away from your Mac, and you want an app in a hurry, the iPhone itself is the only way to go. Otherwise, I recommend downloading via the iTunes Store and syncing the apps to your iPhone. The downloads go faster, and they are less likely to be interrupted due to a network problem or to become corrupted.

Manage Apps Directly on the iPhone

To install software directly from the iPhone:

1. Tap the App Store application on the Home screen.
2. By browsing or searching, locate the desired software in the Store listings.

Genius: *New in iPhone OS 3.1, tap the Genius button in the Featured section of the App Store app to get purchase suggestions based on the apps you've already installed.*

To redeem a gift certificates in the App Store app: *go to Featured > New and scroll down to the bottom. Tap the Redeem button. There's a similar feature in the iTunes Store.*

3. Tap the button showing the app's price (or Free, if it is a free application).
4. Tap Install when prompted.
5. Follow any remaining prompts, entering your iTunes Store account ID (if asked) and your password.

The icon of the app will appear in your Home screen. At first, Loading... will appear beneath the icon; the text will then shift to Installing..., and finally, when installation is complete, to the app's name. If an installation is interrupted due to a loss of your network connection or another glitch, don't worry—the iPhone is smart enough to pick up where it left off once the connection is restored.

When installation is complete, you can start using the application.

When you install apps directly on your iPhone, the next time you sync your iPhone in iTunes, a dialog (**Figure 14**) appears asking if you want to transfer the downloaded app to your computer. Unless you intend to delete the app (because you decide you don't like it), accept the offer. The transferred app will now appear in the Applications section of your iTunes Library.



Figure 14: This message appears as you sync your iPhone if there are apps on your iPhone that aren't yet in your iTunes Library.

To accommodate new apps—the iPhone's stock apps fill its initial Home screen—the iPhone automatically creates additional Home screens as needed (up to a maximum of eleven screens), typically placing newly added apps in the first available opening.

To shift forward or backward among the Home screens, one at a time, swipe the Home screen to the left or right, respectively. To return directly to the first Home screen from any screen, press the Home button.

To move an app to a different location, touch its icon until all the icons start jiggling. Drag the icon to its desired location on the screen. To move an app to a different screen, drag its icon up against the left or right edge of the screen. This switches to the next screen in that direction, bringing the dragged icon along for the ride; just drop it in the desired location. When you are done, press the Home button to exit this "icon-moving" mode.

Tip: If you're having trouble locating an app among all your Home screens, you can use the iPhone's new Spotlight feature as an app launcher. See [Use Spotlight Search](#).

Reset the Home Screen Layout

If you move the iPhone's preinstalled icons from their original locations, you can revert to the default layout in one easy step: go to Settings > General > Reset and tap Reset Home Screen Layout. Unfortunately, this may also rearrange (beyond what is needed to reset the default locations) icons for apps that you have added.

Manage Apps in iTunes

You can download iPhone apps from the iTunes Store to your Mac in nearly the same way that you download music or other media from the iTunes Store. To do so, go to the iTunes Store in iTunes on your Mac and click App Store in the toolbar near the top of the iTunes window. Navigate to the desired app's page in the App Store and click the Buy App (or, for a free app, the Get App) button.

You can follow the progress of downloading an app in Downloads, a listing that appears under Store in the iTunes sidebar during a download. The Downloads view also lets you pause or cancel a download in progress.

Apps that you've downloaded appear in the Applications section of your iTunes Library.

Note: iTunes' Applications view, under Library, is just a listing of the apps you've downloaded. It is visible even if your iPhone is not connected to your Mac, and it is separate from the iPhone's Applications-settings screen, described ahead.

To transfer any or all of these apps to your iPhone, simply [Sync Your iPhone](#). More specifically, use the following steps:

1. With your iPhone connected to your computer, select the iPhone under Devices in the iTunes sidebar, and click the Applications tab to the right. This tab displays, on the left, a list of all downloaded apps, with the current layout of each of the Home screens on your iPhone to the right (**Figure 15**).

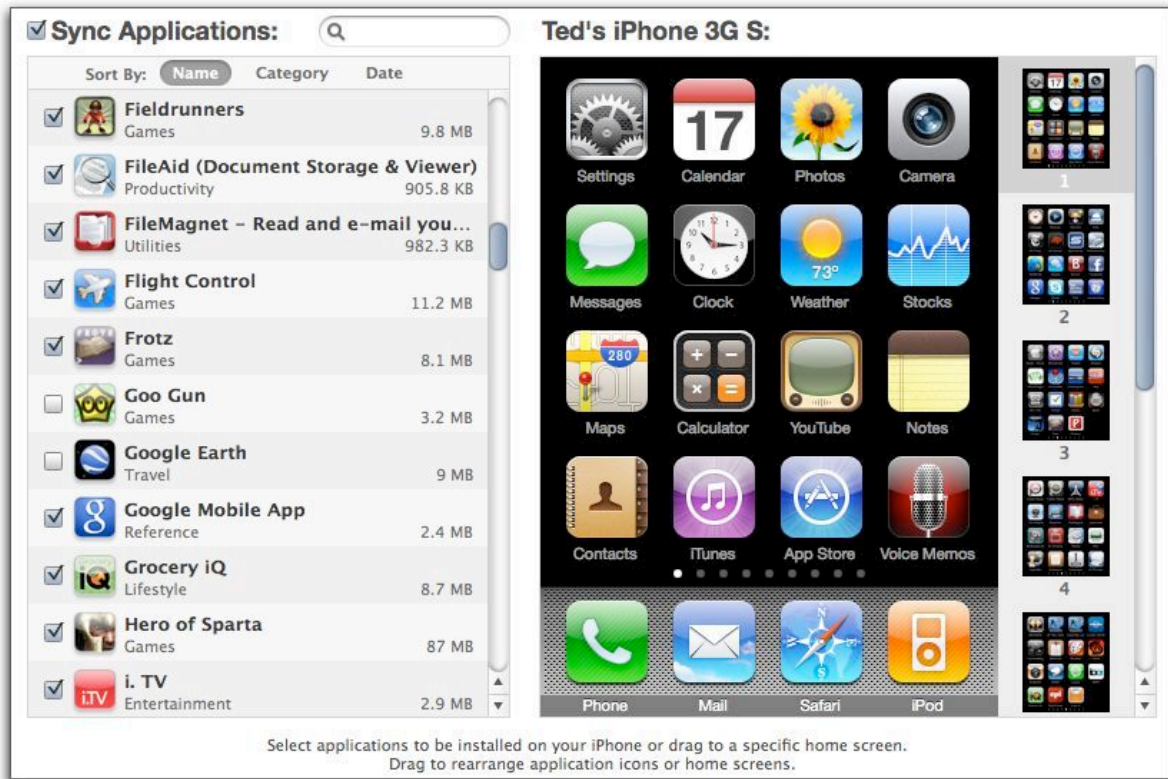


Figure 15: Use this screen to install and sync apps from iTunes 9.

2. Enable the Sync Applications option, if it isn't already enabled.
3. Choose which apps to add to your iPhone. There are two ways to choose an app:
 - In the app list on the left, check the box next to the desired app's name; the app's icon will be added in the first "open" space on one of your iPhone's Home screens.
 - Drag the app from the list on the left to the desired location on a particular Home screen on the right. You can insert a new app at any location on any screen.

If you can't easily find a particular app by scrolling through the list, use the Search text box to filter the list.

If you can't drag an app to a Home screen: Uncheck the box by the app's name and then drag the app to a Home screen again. Once the app is on a Home screen, be sure its checkbox is enabled or else the app may get deleted when you next sync. See this article for more details: http://reviews.cnet.com/8301-13727_7-10352011-263.html.

4. Click the Sync (or Apply) button.

iTunes syncs all added apps to your iPhone, and it places their icons in the Home screen locations you selected.

More Apps Than Fit on Eleven Screens?

Starting in iTunes 9.0.2, the Sync Applications tab (**Figure 15**, previous page) can display Home screens beyond the maximum of eleven visible on the iPhone. (Prior to 9.0.2, you could still sync apps beyond those that would fit on the standard screens, but no new screens were added and the apps were thus not displayed.) These additional screens have a gray, rather than black, background and are created as needed. You can move app icons to or from these gray screens in iTunes 9.0.2, just as you can the standard screens; however, the gray screens don't show on the iPhone and thus the apps they contain are not visible on the Home screens. You can [Use Spotlight Search](#) on your iPhone to search for and launch these "invisible" apps.

You can keep apps in your iTunes Library without syncing them to your iPhone. You might do this if you have more than one iPhone and sync different apps to each device. It is also helpful if you want to (temporarily?) remove selected applications from the iPhone without getting rid of them entirely, as I describe in [Delete Apps](#).

Using this same interface, you can rearrange the locations of app icons already synced to your iPhone: just drag an installed app's icon to a different location on the same Home screen, or to another Home screen. You can even swap entire Home screens by dragging a selected screen up or down the list to the right. When you next sync, these changes will be mirrored on your iPhone. This is much more convenient than making such changes directly on the iPhone.

Check Your Purchases

To see a list in iTunes of your iTunes Store purchases, which includes apps as well as music and videos, choose Store > View My Account; log in if requested. On the screen that appears, click the Purchase History button. To instead find out if you've bought any items (including apps) from the iTunes Store but not yet downloaded them, choose Store > Check for Available Downloads from iTunes.

Make In App Purchases

New in iPhone OS 3, apps can offer the opportunity to purchase additional content or features from within the app itself. Called In App purchase (<http://developer.apple.com/iphone/program/sdk/inapppurchase.html>), this option pops up most often in games; for example, to buy additional levels. Such purchases are processed by the App Store. Initially, In App purchase was restricted to paid apps; the feature can now be included in free apps as well.

Use Restrictions for Purchases

Apple uses a rating system for iTunes and App Store content. Ratings can vary from 4+ to 17+. The criteria for these ratings may not always be obvious. For example, Apple assigns a 17+ rating to any app that permits user access to the Internet. Parents can limit access to content of a certain rating, or to any purchases at all, via options in Settings > General > Restrictions on the iPhone, or in the Parental screen of iTunes preferences on a Mac.

Install Apps from Another iPhone User

If you would like to share an app with a friend, you can do so, but you must work within the limits set by Apple's FairPlay digital rights management (DRM) protection. By default, only you can use your App Store software. However, you can authorize up to five other computers to access your iTunes Store purchases—including App Store software.

Tip: Your name and iTunes Store account are associated with all iPhone software that you download from the iTunes App Store. To see this, click the Applications item in the iTunes sidebar; then click an app in the list and choose File > Get Info (Command-I). In the Summary screen, look for the Purchased By and Account Name items. The account name is the iTunes Store account—usually an email address—used by the purchaser.

Share via iTunes Home Sharing

If you want to share an app (or any other iTunes media, for that matter) with someone using a computer on your local network, the easiest way is via Home Sharing (a new feature in iTunes 9, which I explain in detail in this article: http://www.macobserver.com/tmo/article/confused_about_itunes_home_sharing/). With Home Sharing

enabled, a user can simply drag an app from your iTunes Library (as listed in the Shared section of iTunes on their computer) to their own. (They may need to click, in iTunes on their computer, the triangle to the left of your Library to see the App section.) To make sure the friend is authorized to use your apps, follow Step 3a, below. When done, the user can sync the app to their iPhone.

Share via the Finder

If the friend's computer isn't on your local network, you'll need to use a different procedure. Do the following:

1. **On your Mac:** Locate the app you want to share in the Finder. The fastest way to do this is to select the app in the Applications section of your iTunes Library and choose Show in Finder (Command-R) from the iTunes menu. (For more details on app location and transferring apps, see [Where and How Are App Store Apps Stored on a Mac?](#) and [How Do I Get an .ipa File on My Mac into iTunes?](#)).
2. **Copy the app to your friend's Mac:** Use whatever file-transferring method you prefer. You can copy the app to anywhere in your friend's Home directory (such as the Desktop).
3. **On your friend's Mac:**
 - a. In iTunes, choose Store > Authorize Computer. Enter your iTunes account information when prompted. You can authorize a maximum of five computers, including the primary one, in this way.
 - b. Drag the app's icon to the Library item in the iTunes sidebar. (Alternatively, drag the app onto the iTunes icon in the Dock.)

Note: You should now see the app's icon in the Applications screen in iTunes; the app is now located in *your friend's* Mobile Applications folder.

- c. Test the authorization by double-clicking the app's icon in iTunes. If for some reason the Mac hasn't been authorized to share your iTunes Store purchases, iTunes will ask for your iTunes Store information.

You can now transfer the app to your friend's iPhone.

Install Safari Web Clips

A *Web clip* is an app-like icon that appears on the iPhone's Home screen and acts like a bookmark for a Web page. Tap the icon and Safari launches, going directly to that page. Although a Web clip can be used for any Web page, Web clips are especially well-suited for *Web apps*—Web pages that have the look and feel of independent applications but require a Web browser.

To create a Web clip:

1. While viewing, in Safari, the Web page you want to “clip,” tap the plus (+) button in Safari's toolbar.
2. From the list of options that appears, tap Add to Home Screen.
3. In the screen that appears, enter a name for the clip and then tap the Add button in the upper right.

The new Web Clip is added to your Home screen in the first available position.

You can delete a Web clip just as you would any non-stock app on a Home screen; I provide directions next.

DELETE APPS

Occasionally, because you no longer use an app, or because it keeps crashing when you try, you may decide to delete it. You may delete it only from your iPhone (leaving it installed in iTunes, for archival purposes) or delete it entirely (from both your iPhone and from iTunes).

Delete Apps to Save Space

The Capacity graph at the bottom of the iPhone display in iTunes (**Figure 16**) has a separate Apps section. If your iPhone's memory is nearly full, and if the graph indicates that apps are taking up a significant amount of storage, you can reclaim space by removing the iPhone apps you rarely or never use.




Figure 16: The Apps section represents App Store apps.


Delete an App from the iPhone Only

You can delete an app from just the iPhone, keeping a copy in iTunes on your Mac. There are two ways to do this. If you have a problem with one of these methods (for example, if an app re-appears on the iPhone after the next sync), try the other. If neither method works, see [What Should I Do If an App Won't Delete?](#)

Warning! *Deleting an app from your iPhone—using either of the methods described here—not only deletes the app itself but also any associated data and settings. For example, if a game maintains your progress or a record of high scores, that data will be lost, and re-installing the game won't bring the data back. The only recourse is to restore your iPhone from a backup, which restores app data and settings—but even that will work only if you haven't synced and backed up since deleting the app.*

If you are away from your Mac:

1. On any iPhone Home screen, touch and hold on any icon until all icons begin to wiggle.
2. Tap the  in the upper left of the icon for the app that you want to delete; tap the Delete button to confirm.

No X? *Default applications—those preinstalled by Apple, such as Weather and Stocks—cannot be deleted, so they will not display the .*

3. You're next given the option of rating the app (which sends the rating to the App Store); tap a rating or No Thanks.

Error message: *If you download an app directly to your phone via the iPhone's App Store app, and later attempt to delete it before you've synced it to your Mac, a message pops up stating, "This application has not been backed up and you will not be able to recover it or its data." In other words, if you want to keep an archive of the app in iTunes, don't delete it from your iPhone until after you sync.*

4. Press the Home button to exit this Home-screen-editing mode.

If you are at your Mac:

1. In iTunes, with the iPhone connected, select the iPhone in the sidebar and click the Applications tab to the right.
2. Enable the Sync Applications checkbox (if you have not already done so), and uncheck the box in front of the to-be-deleted app.
3. Click Sync (or Apply).

Delete an App from Both the iPhone and iTunes

To delete an app from your iPhone *and* remove it from your iTunes Library, follow these steps:

1. Select the Applications item in the iTunes sidebar.
2. Find and select the app, and press the Delete key on your keyboard.
3. In the dialog that appears, click the Remove button.
4. In the next dialog that appears:
 - To delete the app and any data associated with it, click Move to Trash.
 - To keep the app on your Mac because you might want it later, click Keep Files. (The app will still be deleted from iTunes, but it will remain on your hard drive.)

In either case, you can install the app again; see [Reinstall Deleted Apps](#), below, for details.

5. Connect your iPhone to iTunes and sync it.

If the app is still on your iPhone, a message may appear asking if you want to transfer the app from your iPhone back to iTunes. Because you want to delete the app, click Don't Transfer. This should not only prevent the transfer of the app back to iTunes, but also remove the app from the iPhone.

REINSTALL DELETED APPS

To reinstall an app deleted only from your iPhone, simply sync it to your iPhone again via iTunes, following the same steps used to sync it the first time (see [Manage Apps in iTunes](#)).

If you deleted an app both from your iPhone and from iTunes, but kept it on your drive (described in Step 4 just previously), the app (in the form of an *.ipa* file) remains in its [Mobile Applications](#) folder (see [Where and How are App Store Apps Stored on a Mac?](#)). You can return the app to iTunes by dragging the app, in the Finder, from the [Mobile Applications](#) folder to Library in the iTunes sidebar.

If you completely delete an app—meaning you moved it to and emptied the Trash—and later want it back, you can re-download the app from the App Store. Don't worry about paying for it again: The App Store tracks all your purchased software and allows you to redownload an app an unlimited number of times, either using iTunes on your Mac or via the iPhone itself. Just follow the same steps used to download the app the first time. A message may appear asking you to confirm that you wish to buy and download the already purchased item. If so, click/tap Buy. The next dialog will inform you that you already purchased the item and that you can “download it again for free.”

UPDATE APPS

As with any other software, the developers of iPhone apps occasionally release updates to address bug fixes or add new features. You can update your apps either directly on your iPhone or using iTunes.

Update on Your iPhone

If any updates are available, the App Store icon (**Figure 17**) on your iPhone's Home screen displays a number badge.



Figure 17: The App Store icon on the iPhone, indicating that five updates are available.

To download updates directly on the iPhone, tap the App Store icon. From here, tap the Updates button at the bottom of the screen (which, like the App Store app's icon, displays a number badge indicating the

number of available updates). A list of available updates will appear. Tap the Update All button to install all listed updates at once. Or, to install an individual update, tap its name and then tap the Update or Free button that appears. In either case, you'll need to enter your iTunes Store password. These updates will transfer back to your Mac when you next sync your iPhone.

Update Using iTunes

If updates for iPhone apps are available, a number badge indicating the number of available updates should appear beside the iTunes Applications listing, under Library in the sidebar. Similarly, if you click Applications in the sidebar, you should see # Updates Available (with # equal to the number of available updates) at the bottom-right of the Applications view. Click this text to advance to the Updates view. From here, you can either download individual updates (by clicking the Get Update button next to each) or download all available updates with one click (by clicking the large Download All Free Updates button).

If the older version of an updated app is already installed on your iPhone, the updated version transfers to the iPhone on your next sync.

Downgrade an App

On rare occasions, rather than update to a newer version of an app, you may wish to downgrade back to an older version. This could be the case if a new version is incompatible with your current iPhone hardware or software, adds a new feature that you find objectionable, or removes a feature that you still want. Doing a downgrade is a bit tricky, but possible. I offer details here: http://www.ipodobserver.com/ipo/article/emoji_and_downgrading_iphone_apps/.

THE APP FAQ

If you've read this far, you should know the basics of installing an App Store app, syncing it, updating it, and deleting it. If you'd like to know more about these topics, or if you are trying to solve a problem, keep reading in this section.

How are App Store Apps Backed Up?

During a full sync of an iPhone, a backup file is either created or updated (see [Understand Sync Options](#) and [Understand the iPhone Backup](#)). This backup includes a record of what apps are currently on your iPhone, as well as app-related data files, but not the apps themselves. As a result, if you do a restore, your iPhone's apps are installed not during the restore but instead as part of a sync that commences after the restore ends. This reinstalls your apps as well as other media, such as music.

The actual downloaded apps are stored as separate files on your Mac (see [Where and How are App Store Apps Stored on a Mac?](#)).

Note: Having a problem where deleted apps erroneously re-sync to the iPhone? The app backup data is apparently the origin; see the details in [What Should I Do If an App Won't Delete?](#).

Could Apps Contribute to Long Sync Times?

The backup phase of a sync is typically longer the first time you sync after adding new or updating existing apps. This is normal. With iPhone OS 3, such delays should be far less than in earlier OS versions.

If long sync times persist even when you are not adding or updating apps, the cause may be a problematic app on your iPhone; for example, perhaps an app wasn't installed properly. Assuming you have an idea as to what the problem app might be—perhaps because it refuses to open—delete it from the iPhone, download a new copy from the App Store, reinstall it and try the sync again. Otherwise, delete all apps from your iPhone and reinstall them (described in [Delete Apps](#) and [Reinstall Deleted Apps](#)).


As a short-term workaround for an unusually long backup phase, cancel the backup by clicking the  icon in the iTunes status box (**Figure 18**).



Figure 18: Click the x icon to cancel a sync's backing up phase.

You can disable backups completely by editing the [com.apple.iTunes.plist](#) file on your Mac. (I generally recommend against doing this, because you'll want a current backup if you ever need to restore your iPhone.) To do so, enter the following command in Terminal:

```
defaults write com.apple.iTunes DeviceBackupsDisabled -bool true.
```

To undo this .plist change at any later time, change `true` to `false` and enter the command again.

Even if you disable backups completely, you can do a *manual* backup at any time by Control-clicking (or right-clicking) your iPhone's name under Devices in the iTunes sidebar and choosing Back Up from the resulting contextual menu.

Where Do I Find the Settings for an App?

While many apps provide their own settings screen, numerous apps make their preferences accessible via the iPhone's own Settings app. These include AIM, NetNewsWire, and NYTimes. Just scroll to the bottom of the main Settings screen to find options for configuring these third-party apps.

How Do I Find the Version Number of an App?

If you want to determine which version you have of a given app, click the app's icon in the iTunes Applications list and choose File > Get Info (Command-I). In the Summary view, look for the Version listing (**Figure 19**).



Figure 19: The Get Info summary for an App Store app, showing the Version, Purchased By, and Account Name info.

If you are uncertain whether the same version is installed on your iPhone, sync the iPhone. Check the version number in iTunes after syncing; syncing may have transferred a newer version from the iPhone to iTunes.

What Should I Do If an App Won't Delete?

Some users report that, after deleting an app from both iTunes and the iPhone, the app reappears on the iPhone after the next sync. If this mysterious event happens to you, delete the app again. Next, in iTunes on your Mac, choose iTunes > Preferences, switch to the Devices view, select the name of the backup file for your iPhone, and click Remove Backup. (If you find more than one backup file for the same iPhone, remove them all.) A new backup file will be created when you next sync. The unwanted app should no longer return.

What Should I Do If an App Download Didn't Finish?

If your iPhone lost the connection to the App Store before an app download completed, don't worry. The next time you have a viable connection, the download should resume. Failing that, when you next sync your iPhone to a computer that is connected to the Internet, the download will resume. As a last resort, in iTunes on your Mac, choose Store > Check for Purchases.

Halt a download: As with iTunes on your Mac, you can deliberately halt on your iPhone a download in progress. In the iTunes or App Store app, tap the Downloads button at the bottom of the screen and then tap Pause (⏸). Tap Resume (⏪) to resume the download.

What if an App Refuses to Install or Update on My iPhone?

When attempting to install apps from iTunes on your Mac to your iPhone, the install may fail. Here are two common causes of this:

- **App is incompatible:** If you have an iPod touch and attempt to install an app that works only on an iPhone, iTunes will refuse to do the install. Instead, a message will appear informing you that the application “is not compatible with this iPod.”
- **Not enough room:** As with anything you sync, if you don't have enough space on the device to hold the app, it won't install. In the case of updating an existing app, you need twice the space of the app itself. This is because the old version isn't deleted until the update has finished installing.

If you have problems updating an app on your iPhone to a newer version, on your Mac, select Applications in the iTunes sidebar. Check for apps with unusual icons, such as a black-and-white icon. If you find one, try these fixes:

- Control-click (right-click) the app in iTunes and choose Get Info. Most likely, iTunes will ask you to find the original file. If you can locate the file, click Yes and navigate to it; this may fix the problem.
- Delete the app and re-download a fresh copy from the iTunes Store.

Start over? *If problems persist, or if you have other problems syncing apps, an almost certain cure is to start over: remove all synced apps from your iPhone and then sync. Next, check (in iTunes) for updated versions of the apps. Assuming the device is otherwise working properly, reinstall the just-removed apps. All should now be well.*

How Do I Fix an “application cannot be opened” message?

If you tap on an app’s icon and see this message (**Figure 20**), in most cases, you can fix the problem by deleting the affected app from the iPhone and resyncing the iPhone to reinstall the app (see [Delete Apps](#)). If the message still occurs, delete the app from both the iPhone and iTunes; then download a fresh copy from the App Store.

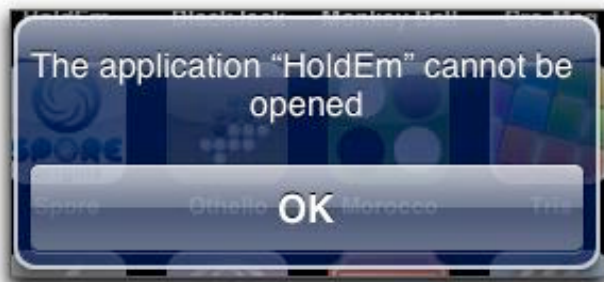


Figure 20: To eliminate this message, delete and reinstall the app.

More generally, if you recently updated your iPhone’s OS—for example, from iPhone OS 2 to iPhone OS 3—an older version of an app may not be compatible with the update. If this is the issue, you’ll need to wait for the app’s developer to release an updated version.

What If an App Refuses to Launch, with No Error Message?

The basic solution is the same as the one just given—delete and re-install the app. However, first make sure that you haven’t inadvertently (or deliberately) prevented launching of certain apps via the iPhone’s

Restrictions feature (Settings > General > Restrictions). For help solving related problems, see: http://www.macworld.com/article/142289/2009/08/iphone_app_icons.html.

What Should I Do If an App Crashes or Freezes?

Skip ahead to [Troubleshooting 101](#) (p. 100), which begins with an explanation of crashes and freezes and continues with a detailed discussion of how to handle them.

How Do I Report an App Problem?

To report of an app problem to its developer, follow these steps:

1. Launch the App Store app on your iPhone.
2. Locate the problem application, using Search if needed, and tap the app's name to display its Info screen.
3. Scroll down to the Report a Problem button and tap it.
4. On the screen that appears (**Figure 21**), select the appropriate symptom and fill in the Comments section as needed.



Figure 21: The iPhone's Report a Problem option.

5. Tap the Report button in the upper-right corner to send the report.

Where and How are App Store Apps Stored on a Mac?

Any apps stored on your Mac—including those downloaded directly to your iPhone and later transferred to iTunes—are stored in a folder on your Mac. The folder's location depends upon whether or not you are using the new iTunes Media organization introduced with iTunes 9:

- With the old organization, apps are located in [~/Music/iTunes/Mobile Applications](#).

- In the new organization, apps are located in [~/Music/iTunes/iTunes Music/Mobile Applications](#).

In either case, you can quickly navigate to the relevant folder by selecting any app in the iTunes Applications Library and choosing File > Show in Finder (Command-R).

Note: for more info on the new iTunes Media organization, read <http://support.apple.com/kb/HT3847>.

The filenames of items in this folder all end in .ipa (such as Pandora.ipa), which stands for “iPhone app” (or “iPod touch app”). Apple also refers to these files as *Apple Device Application Files*. As with Mac OS X applications, each .ipa file is actually a multi-item package (as explained in [Access iPhone Software on Your Mac](#)).

How Do I Get an .ipa File on My Mac into iTunes?

If you have an iPhone app—an .ipa file—on your Mac but it’s not listed in the iTunes Applications view, drag the file to Library in the iTunes sidebar (or to the iTunes icon in the Dock). Or simply double-click the .ipa file. In all cases, iTunes should add the app to its Applications list and place a copy of the file in the Mobile Applications folder. If there is already an older version of the .ipa file in the Mobile Applications folder, iTunes may ask if you want to replace the older copy with the newer version. Assuming the replacement version is indeed newer, click OK.

Alternatively, if your Music folder has the new iTunes 9 organization (noted in the previous item), you’ll find an Automatically Add to iTunes folder in the iTunes Media folder. If you drag an .ipa file (or any iTunes compatible media) to this folder, the item is automatically relocated to the proper Finder folder and appears in the appropriate location in iTunes (for apps, in the Applications listing).

If you need help with a message asking you to authorize in order to run the app, see [Install Apps from Another iPhone User](#).

Tip: For more advice on troubleshooting apps, check Apple’s Support site, especially this support article: <http://support.apple.com/kb/TS1702>.

Apple's Control of the App Store

Despite the overall success of the App Store, its tightly controlled delivery method raises several concerns—especially as compared to how software is obtained on a Mac or Windows PC:

- **The approval process:** Before any software makes it to the App Store, that software must receive Apple's approval. Any software that Apple doesn't deem appropriate (for whatever reason, and regardless of *your* opinion on the subject) never makes it to the App Store. On numerous occasions, Apple has come off seeming capricious in its approval decisions.

Plus, it can take several weeks between developer's submission of an app and its approval. Such a wait is especially frustrating when a developer submits an app update that contains an important bug fix—no one wants to wait weeks for access to the fixed version. Making fixing bugs even more difficult, the App Store has no mechanism for developers to offer public beta versions of software.

Further, an app may make it to the Store and subsequently be pulled, due to problems (real or perceived) that did not emerge beforehand. A bit of good news here: If you downloaded the app before it was removed, your copy should continue to function. I know of no instances (thus far) where a working app in a user's Library has been removed or disabled by Apple.

- **No free trials?** Prior to October 2009, the App Store offered no official option for try-before-you-buy software—apps were either free or paid. (Making the situation worse, if you are dissatisfied with a paid-app purchase, Apple has no official refund policy.) However, in a change from its initial policy, Apple now permits in-app purchasing for free apps, so developers can offer free, limited versions that can be "upgraded" to full versions via in-app purchases.
- **Accessory limits:** While Apple permits developers to create hardware accessories for apps in iPhone OS 3, such an accessory can work only with an app specifically designed for it. This means, for example, developers can't make a physical keyboard that would generally substitute for the virtual keyboard across all apps.

Master Keyboard and Speech Input

Whenever you need to enter text, such as in the address field in Safari or a new email message in Mail, a virtual keyboard appears on the screen. You just tap the onscreen keys to enter text.

There is an ongoing debate over the pros and cons of this type of keyboard. The biggest downside is the lack of tactile feedback, making it almost impossible to know what you are typing without staring at the screen. There is also more danger of unintentionally tapping an adjacent key, especially in portrait mode. On the plus side, a virtual keyboard allows for bigger keys than the tiny keys on most smartphones—and it does so without using up any of the device’s physical real estate. And, because the keyboard is virtual, the keys can vary to match different contexts and languages.

Regardless of the pros and cons, you’ll need to be familiar with how the keyboard works, and I cover that topic first in this section. I also discuss new features in iPhone OS 3 that relate to typing, most notably how to [Use Copy, Cut, and Paste](#) (p. 91), [Shake to Undo](#) (p. 93), and [Use Spotlight Search](#) (p. 95). Finally, I cover how to [Use Voice Control](#) input as an alternative to the keyboard (p. 97).

TYPE MORE ACCURATELY

The most common problem with the iPhone’s virtual keyboard is tapping the incorrect key: you intend to type A but you tap S by mistake. Here are some suggestions to make your typing more accurate.

Use Landscape If You Can

In many apps—more in iPhone OS 3 than in OS 2—turning your iPhone sideways shifts the display from the default portrait (vertical) mode to landscape (horizontal) mode. In apps that require text input, you’ll generally find that the virtual keyboard also switches to a horizontal orientation. If possible, use landscape mode when typing;

the keys are larger and spaced farther apart, making it *much* easier to type accurately.

No landscape? *If an app supports landscape, but its display fails to shift when you turn the iPhone to the landscape position, the iPhone may be in too flat an orientation. To help the sensors detect the shift, hold the iPhone more upright while you turn it.*

Learn Your Tapping Bias

When I started using my iPhone, I consistently misjudged the key I was going to tap. I thought I was tapping directly over the key, but typed an adjacent key instead. Eventually, I found that if I tapped slightly to the left of where I had originally intended to tap, I would hit the desired key. I now do this automatically.

Hold Down for a Key Preview

There is a natural tendency to tap a key quickly for a quick entry. Doing this, however, means that if you make a mistake, you must tap the Delete key and try again. If you are making many mistakes, instead touch and hold on the virtual key until a larger key icon pops up. If it is the intended key, let go; otherwise slide your finger to the correct key and then let go. As your typing improves, your need for this technique should lessen.

Use the Alphabet-to-Numbers Keyboard Trick

To keep the keys from shrinking too far, Apple placed the letter and number keys in separate keyboards. The number keyboard also includes common punctuation marks. You shift between the two by tapping the Number key (@123 or .?123, or 123 preceded by some other character, depending upon the context) in the lower left of the keyboard. Shuttling between the two keyboards can be frustrating and time-consuming.

In certain situations, you can go faster by touching and *holding down* the Number key; without lifting your finger from the screen, dragging your finger to the key you want; and then letting go. With a single, continuous motion, the character will be entered and you will automatically return to the letter keyboard.

For example, suppose you want to type *It costs 2 dollars*. To enter 2, touch and hold on the Number key, slide your finger to the 2 key, and

let go. The 2 is entered, and the keyboard reverts to the letter keyboard, allowing you to immediately tap space and then D for dollars. Had you instead released the Number key and tapped 2, the number keyboard would've remained active and you would've had to press the Number key again to return to the letter keyboard.

Use the Space Bar Double-Tap

To quickly end a sentence and get ready to start the next one, double-tap the Space bar. You'll insert a period followed by a space. This shortcut is especially useful because without it, you must use the Number keyboard (described just previously) to type a period. You can turn this shortcut on or off via the “.” Shortcut slider in Settings > General > Keyboard (**Figure 22**).



Figure 22: On the Settings > General > Keyboard screen, you can control whether double-tapping the Space bar on the virtual keyboard inserts two spaces, or if it inserts a period and a space.

Customize Your Capping

If you tap the Settings app on the Home screen and navigate to General > Keyboard, you'll find two potentially useful options beyond the “.” Shortcut slider that I explained just previously:

- **Auto-Capitalization:** When Auto-Capitalization is enabled, the iPhone automatically capitalizes letters that it believes should be capitalized (such as the first letter of a sentence). While this does let you skip a tap of the Shift key, I've found that it too often capitalizes words that I want to leave lowercased, so I keep it off.

- **Enable Caps Lock:** With Enable Caps Lock turned on, a double-tap of the Shift key on the keyboard enables Caps Lock. As with standard computer keyboards, this means that all subsequently typed letters are capitalized until you press Shift again. This option is a definite time saver with virtually no downside.

Avoid Touchscreen Gesture Errors

While this section emphasizes typing errors, you can also make mistakes when navigating the iPhone via touchscreen gestures: drags, flicks, taps, swipes, and so on. So here's a bit of advice: timing is everything with iPhone touchscreen gestures.

As one example: When you attempt to flick or drag a screen, such as a Safari Web page, if you lift your finger too quickly, the iPhone may think you tapped. If your finger was over a hyperlink at the time, the link will open in a new page instead of the current screen scrolling. To avoid this problem, be sure to hold down your finger a bit before releasing it.

Use Auto-Correction

The iPhone can detect potential typing errors. It may also offer to auto-complete (or auto-correct, as the case may be) a word as you type it (**Figure 23**).

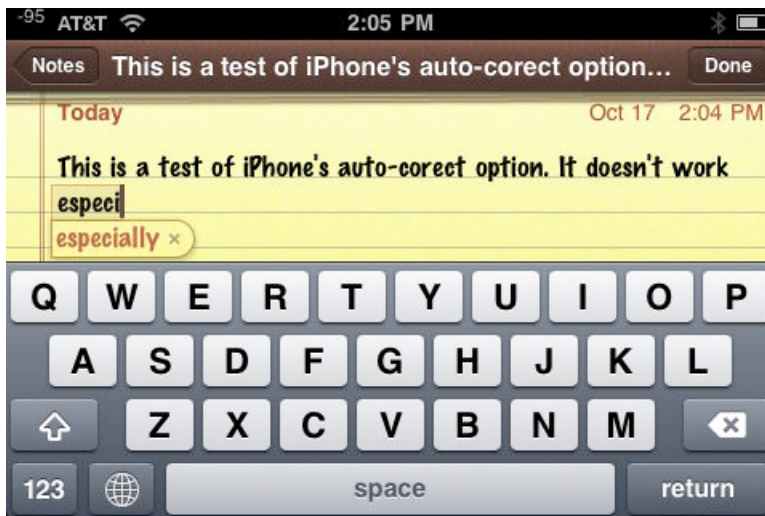




Figure 23: The iPhone's dictionary offers a suggested completion of a partially entered word.

Auto-completion suggestions appear in a kind of pop-up bubble, directly above or below the most recently entered word:

- To accept a suggestion, tap the Space bar (or tap the Return key or enter a punctuation mark, such as a period).
- To reject a suggestion, either continue typing or tap the  icon to the right of the suggestion.

For example, if I type *especi*, the completed word “especially” appears as a candidate for auto-correction. To accept the suggestion, I tap the Space bar and *especially* replaces *especi*. If I had intended to type something else, I would instead simply continue typing.

Auto-enter contractions: You can do some nifty tricks with auto-correction. For example, you can enter contracted words without typing the apostrophe. Type *cant*, for example, and the iPhone will offer *can't* instead, saving you the trouble of having to access the punctuation keyboard.

To make suggestions for correcting or completing words, the iPhone uses a special dictionary. Although you can't edit this dictionary, you can add words to it. In theory, if you reject a suggested correction *twice* (by tapping the  icon), the iPhone should add this alternative to the dictionary. This is how you would, for example, add jargon words to the dictionary so they are recognized as correct in the future.

Unfortunately, there are numerous inconsistencies with how auto-correction works. Often, even after rejecting a correction several times, the alternative is *not* added to the dictionary (this seems especially common in the Notes app). One workaround is to type the desired word in the Google text box in Safari and initiate a Search. This immediately adds the word to the iPhone's dictionary.

Another problem is that, after accepting a word for auto-completion (such as “especially” in **Figure 23**), that auto-completion suggestion may not pop up the next time you type the same partial word.

Overall, in my experience, auto-correction functions better as an auto-completion feature than as a means to correct misspellings. For this and other reasons, as noted in [Turn Off Auto-Correction?](#), next page, I no longer use auto-correction.

Reset the Keyboard Dictionary

Yet another auto-correction problem is that if you unintentionally twice reject a suggested correction for the same misspelled word, the misspelled word is added to the dictionary. Not good. You have two options here: live with your mistake, or reset the dictionary to its factory-installed state (deleting any *correct* additions you may have made, as well). To reset the dictionary, go to Settings > General > Reset and tap Reset Keyboard Dictionary.

Turn Off Auto-Correction?

Although I occasionally find the iPhone's auto-correction feature helpful, I am more often irritated by it. My biggest beef is when an unwanted suggestion is offered at the last letter of a word. This happens most often when I type jargon or abbreviations. For example, suppose I type **meds** (as in "You need to take your meds today"). After I type **s**, the iPhone offers **mess** as a correct alternative. If I next type a space without noticing the suggestion, **meds** is replaced by **mess**. If Auto-Correction starts to get on your nerves, you can disable it by navigating to Settings > General > Keyboard and sliding Auto-Correction to Off.

Use Safari's AutoFill

New in iPhone OS 3, and completely separate from the dictionary's Auto-Correction feature, is AutoFill in Safari. This is enabled and disabled via Settings > Safari > AutoFill. When enabled, AutoFill stores names and passwords for Web sites and automatically fills them as requested. AutoFill also permits Safari to fill out a Web form with your contact information.

EDIT TEXT

The following sections cover how to edit text after typing it, focusing especially on the new Copy/Cut/Paste options in iPhone 3.0.

Use the Magnifying Glass

In applications that permit editing text, you can use the magnifying glass (sometimes called the loupe) to position the cursor (**Figure 24**).



Figure 24: With iPhone’s magnifying glass, you can reposition the cursor to the desired location in your text.

To use the glass, touch and hold on the approximate desired location in the text. The magnifying glass will pop up, displaying an enlarged version of the area surrounding your finger. Drag your finger to move the cursor to the precise desired location, and then let go. The magnifying glass vanishes. From here, you can backspace (using the Delete key on the keyboard) to delete the text immediately to the left, or resume typing. To delete a substantial portion of text, touch and hold the Delete key; the pace of the deletion will gradually increase. Alternatively, you could select and cut the text as described next.

Reposition a Truncated Magnifying Glass

If the text you are editing is at the top of the screen, such as a URL in Safari (especially in landscape mode), only part of the magnifying glass may be visible. As a result, you may not be able to see the relevant text in the glass. To work around this problem, lift your finger from the screen (to exit the magnifying-glass mode), reposition the text lower on the screen, and then activate the glass again. If you can’t move the text down, shifting to portrait mode may help.

Use Cut, Copy, and Paste

In iPhone OS 3, you have much greater editing power than just the magnifying glass. You can actually select sections of text and copy or cut them, and paste the text in other locations—even across apps.

Here is what you can do in a fully editable text app such as Notes:

- **Select text:** If the keyboard isn’t visible, touch and hold on word until the magnifying glass appears, and then let go. A balloon will appear, offering selection options (**Figure 25**). Or, with the keyboard showing, double-tap on a blank area. If you tap Select, you

can drag the handles to expand the selection. Select All selects all text in the displayed document.



Figure 25: Examples of edit balloons in the Notes app.

- **Copy text:** If nothing is selected, double-tap a word that you want to copy. Once the text is selected, you can drag the handles to expand the selection. Finally, tap Copy (**Figure 25**, above).
- **Show the virtual keyboard to cut and paste:** Just tap to bring up the keyboard. With the keyboard active, the balloons that pop up from a double-tap or touch-and-hold include Cut and (if appropriate) Paste options.

If any of these balloons appear unintentionally, you can dismiss them without any action by tapping elsewhere on the screen.

Different techniques in different apps: Obviously, you won't get cut or paste options if text isn't editable, although you may be able to copy. Even when copying is supported, minor variations may occur. For example, with the third-party AP Mobile app, a touch-and-hold (sometimes I must do a double tap-and-hold) brings up the Select/Select All balloon. In the NYTimes app, the same action brings up the Copy balloon instead. Some other apps don't support Copy at all. You'll have to experiment to see what works in each app.


In Safari, you'll find still more variations: Because a double-tap on a Web page resizes the page, a touch-and-hold brings up the Copy balloon. However, when entering a URL in the address bar, or when using the Google text box, a double-tap does bring up the Copy balloon.

Starting in iPhone OS 3.1, you can copy and paste phone numbers directly into the keypad in the Phone app by double-tapping the display area and then tapping Copy or Paste in the balloon that appears.

Copy, Cut, and Paste Graphics

In several apps, including Safari, Photos, and Mail, you can also use these editing tools with images. Typically, you touch-hold to activate the Copy option.

In Safari, for example, doing this brings up a dialog that includes Save Image and Copy (as well as Open and Open in New Page, if a link is attached to the image).

In the Photos app, touching and holding on a photo brings up the typical Copy balloon. In Photos, you can even select multiple images at once. To do so, view an album and then tap the  icon in the lower left corner. You can now select multiple items. When done, tap the Share or Copy button.

After copying an image, you can paste it into any app that supports pasting graphics; Mail is one such app. You can also cut an image in Mail.

Shake to Undo

If you have used Cut or Paste, you can undo the change by shaking the iPhone and then tapping Undo Cut or Undo Paste in the dialog that appears. An app should retain a list of multiple cuts and pastes, allowing you to undo a sequence of recent actions, until you quit the app.

After you undo an action, you can also shake to redo it.

Individual applications may include an Undo button that works similarly, but requires no shaking.

USE "HIDDEN" KEYBOARD OPTIONS

In certain cases, if you touch and hold on a key on the virtual keyboard, you get additional options:

- **Use international diacritical marks:** Even with the iPhone's standard English keyboards, you can use international (that is, non-English) characters, such as é or ñ. Just touch and hold the letter to which you want to add a diacritical mark. After a second or so, a pop-up strip appears, listing all supported variants of that letter. Slide your finger to the variant you want and let go. If no strip appears, there are no supported variants for that letter.

- **Use international symbols:** In the number and symbol keyboards, the same technique of touching and holding reveals more choices for some keys. For example, if you touch and hold the \$ key, symbols for other currencies (such as pounds and yen) appear.
- **Use other “hidden” punctuation marks:** Experiment. Almost any character may contain extra options. Just touch and hold on the character to see. For example, to get an em dash, touch and hold on the hyphen key.
- **Delete by word:** If you touch and hold the Delete key, the iPhone will start by deleting single characters and eventually shift to deleting word-by-word, speeding up a lengthy deletion.

UNDERSTAND KEYBOARD CONTEXTS

The virtual keyboard is context sensitive. That is, exactly which keys display depends on which app you are using, what you are doing, and which language you have selected.

Application-Specific Options

In certain apps, the keyboard contains special “shortcut” keys. For example, in Safari, the keyboard has a .com key, which you’ll find useful when entering URLs. (Touching and holding the .com key brings up other URL variants such as .net and .org.) Similarly, Mail includes an @ key in the primary keyboard so you needn’t tap the .?123 button to access this essential character for email addresses. Experiment a bit and you may find similar options in other apps.

In many apps, when you switch to the number keyboard, the Shift changes to a Symbol key (#+=). Press it to display an additional keyboard with more punctuation and symbol options.

International Keyboards

The most significant contextual change you can make is setting the language for the keyboard. To turn on or off an international keyboard, go to Settings > General > Keyboards > International Keyboards. Enable as many languages as you prefer. If you enable more than one, you can switch between their different keyboards by tapping the Globe icon that appears to the left of the Space bar on the virtual keyboard.

Starting with iPhone OS 3, typing will go right-to-left for appropriate languages (e.g., Hebrew).

You can access the same keyboard options by going to Settings > General > International > Keyboards. The International settings also include options for Language and Region Format. These determine the overall language and display format of the iPhone, independent of the keyboard you select.

Add Emoji to Your iPhone

Would you like to add emoticons (such as the classic “smiley face”) to text? Called *Emoji*, these characters are available via a special International keyboard. Unfortunately, unless you live in Japan, Apple disables this keyboard by default. However, there are numerous App Store apps that circumvent this restriction (Apple is apparently okay with this). Just type [emoji](#) in the Store’s Search box, choose one of the apps that appear, and use it to enable the Emoji feature. Once enabled, tap the Globe icon until the Emoji keyboard pops up. For more info, check out my article:

http://www.ipodobserver.com/ipo/article/emoji_and_downgrading_iphone_apps/.

Troubleshoot international keyboards: *When you are using an international non-Roman keyboard, a separate QWERTY keyboard may occasionally appear to allow you to type a password, email address, or Web address that must be entered in English characters. If the QWERTY keyboard does not go away when done, tap the Globe icon to switch back to the desired keyboard. If that doesn’t work, try the advice at <http://support.apple.com/kb/TS2436>.*

USE SPOTLIGHT SEARCH

In iPhone 3, you can search the content of your iPhone via a new Spotlight search screen. More specifically, when you type a search term, Spotlight searches Apps (names), Contacts (first, last and company names), Mail (To, From and Subject fields, although this may vary with different mail servers), Calendar events (titles, invitees and locations), Notes (all text), and iPod data (titles, artists, albums).

There are numerous ways to reach the Spotlight screen. For instance:

- If you are viewing the main (first) Home screen, a single press of the Home button or a swipe to the right will bring up Spotlight.
- Via the option in Settings > General > Home, you can choose that a double-press of the Home button takes you to Spotlight.

Customize your search results: From the same Settings > General > Home view, tap Search Results to customize which categories of data are included in search results, as well as the order in which they appear.

Once you are viewing the Spotlight screen (**Figure 26**), you can simply start typing whatever text you wish to search. Results will appear almost immediately, and they will be refined as you continue to type. Note that Spotlight searches based on “starts-with” logic; it will not search for matching text within the middle of a word.



Figure 26: The Spotlight Search screen finds two apps that begin with the word “File.”

Tap on any item in the results list and you are taken to that item. In the case of an app, the app is launched immediately, making Spotlight an effective application launcher.

Tip: You can install more apps on your iPhone than fit on the maximum of eleven screens. You can use Spotlight to locate and launch these “invisible” apps.

Use Search Options within Apps

Some apps—for example, Contacts and Mail—have their own search feature. In Mail, the search option is at the top of the screen (you may need to scroll to bring it into view) and allows you to do a more refined search than you can do via Spotlight—you can separately search just the To, From, or Subject fields of messages in the current folder.

When searching Mail, you can also search an IMAP account’s mail server for content not yet downloaded to your iPhone. (This works with most IMAP accounts, including MobileMe and Google.) To use this feature, tap the Continue Search on Server button when it appears.

USE VOICE CONTROL

While the virtual keyboard remains the primary way of entering data into your iPhone, there is a potential alternative: your voice. In particular, if you have an iPhone 3GS or iPod touch (Late 2009), you can use the Voice Control feature for voice dialing and to select content and control playback in the iPod app.

Your first step is to select the language for Voice Control via Settings > General > International > Voice Control. After that, to use Voice Control, simply press and hold the Home button until the Voice Control screen appears. Once you hear a beep, speak your command. That’s it. You can access Voice Control via this method from within almost any app.

Voice Input beyond Voice Control

While Voice Control works with a few of the iPhone's stock apps, some third-party apps provide their own voice-activated functionality—and most of these other apps work with any iPhone, not just the iPhone 3GS. My favorite is the Google Mobile App, available free from the App Store. With its Voice Search option, you just speak a search term and the Google results appear. This is usually faster and easier than launching Safari and typing an entry into the Google text box. As a bonus, if a particular result links to Google Maps, tapping it takes you directly to the Maps app (rather than Safari) with the location displayed.

Understand Voice Control Commands

The bad news: Voice Control has a very limited vocabulary. Go outside its limits and it won't work. The good news: Stay within its limits and Voice Control does a great job of understanding you, without any training period required.

Here are typical examples:

- **To dial a number:** Say “call” or “dial” followed by the name of the person or company you want to call. If there is more than one phone number associated with the name (e.g., home and mobile), you will be queried as to which one you want. (Alternatively, you can include the desired number type in your original command; for example, “call Adam Engst mobile.”)

If you have a passcode lock enabled: In Settings, in General > Passcode Lock, you can choose whether voice dialing will work without having to first unlock the phone.

- **To play an album, artist, or playlist in iPod:** Say “play album” (or “play artist” or “play playlist”) followed by the name. You can also say “pause” to pause a song, say “next song” or “previous song” to navigate tracks, and say “shuffle” to enable shuffle mode. You cannot use Voice Control to play an individual song or a podcast.

Voice Control speaks its intended action before carrying it out. If it's about to perform an unwanted action, say “wrong” or “no” or “cancel.”

Note: If you plug a device that does not have a microphone and button (such as a cassette tape adapter for older car audio systems) in to the iPhone's headphone jack, Voice Control may immediately pop up (but without activating the iPhone's microphone, so you cannot use it). To exit from this mode, press the onscreen Cancel button or the Home button, as needed.

For a complete list of voice commands see the iPhone User Guide at http://manuals.info.apple.com/en_US/iPhone_User_Guide.pdf. For some more tips, see <http://support.apple.com/kb/HT3597>.

Use Voice Control with Wired Headsets

You can also activate Voice Control using the control button on the iPhone's headset (as well as the similar button on other iPhone-compatible headsets). To do so, press and hold the button until you hear the beep; then speak your command.

Starting with iPhone OS 3.1, you can even use Voice Control for voice dialing from a compatible Bluetooth headset (see [Use Bluetooth](#)). Not all headsets that can connect to an iPhone over Bluetooth support Voice Control; if in doubt, ask the manufacturer about this support.

Troubleshooting 101

When apps on an iPhone or iPod touch freeze or crash, or you have generic problems not specific to a particular app, this is your “go-to” section. First up, you’ll learn how to prevent and recover from freezes and crashes. Next, you’ll learn how to diagnose and solve hardware-related problems (such as when you can’t get sound from your iPhone).

Later in this section, I talk about why and how you might want to remove the SIM card in [Understand the SIM Card](#) (p. 122). After that, I look at how to best [Manage the Battery](#) (p. 123), with tips on conserving, charging, and replacing the battery.

UNDERSTAND FREEZES AND CRASHES

Freezes and crashes can occur in any app, from Safari to Maps, and especially in third-party software. In most cases, if you relaunch the app after a freeze or a crash, the problem won’t happen again—at least not any time soon. Essentially, the problem arose from a combination of events that are unlikely to recombine in the same way.

Freezes

Typically, a *freeze* is when your iPhone stops responding to your touchscreen gestures. Even pressing the Home button produces no effect. Any display activity, such as a Web page loading or a game you are playing, halts, as well. Another possible symptom of a freeze is that the screen remains black, as if the phone is off (although this symptom may also be caused by a dead battery or an iPhone that crashed at startup).

Crashes

Typically, a *crash* refers to when, while using an app, you are suddenly tossed back to the Home screen. When you return to the problem app, you may find that recent changes have been lost. For example, a Web page that you had closed may now be back. More serious crashes can result in a spontaneous restart of the iPhone with (in the worst case) a failure to successfully restart.

Handling Freezes and Crashes

The basic remedy for a freeze is to *force quit* the offending app. In iPhone OS 3.0 and later, you do this by holding down the Sleep/Wake button until the Power Off slider appears. Do *not* slide to power off at this point. Instead, hold down the Home button for around 6 seconds. The frozen app should now quit, returning you to the Home screen, with (hopefully) everything working again. (In older iPhone OS versions, it was sufficient to just press and hold the Home button.)

If a freeze recurs repeatedly, or if you need help with a crash, keep reading to get problem-prevention tips (just ahead), to learn how to [Restart Your iPhone](#), or to learn about more drastic methods of restoring an iPhone to working order.

PREVENT FREEZES AND CRASHES

The best way to deal with a freeze or crash is to prevent it from happening. Here are some things you can do to minimize the frequency of these unwelcome events.

Update the iPhone OS Software

Keep the operating system on the iPhone up-to-date. Updates fix bugs and add new features. An update may even cure an otherwise unfixable freeze or crash. Here's how to check for and install an update:

1. Connect your iPhone to your computer, access the iPhone's Summary tab in iTunes, and then click the Check for Update button.
2. If an update is available, the Check for Update button changes to Update and a dialog informs you that "a new iPhone software version is available." Click Download and Install.

***Ask again?** The above-mentioned dialog has a "Do not ask me again" checkbox. I suggest you uncheck this box so that you will be asked about each update before it installs. Of course, your Mac should never install an update without your knowledge anyway, but why take chances? You're better off having to confirm, just in case reliable reports on the Web indicate that a given update makes things worse rather than better.*

iTunes downloads the update file to `~/Library/iTunes/iPhone Software Updates/`. The file name will end in `_Restore.ipsw`. Indeed, as its name implies, this is the same file that is used when restoring an iPhone (as covered in [Full Restore](#)). After the file is downloaded, iTunes installs the update on your iPhone and, if all goes well, informs you of its success. The update installs the latest version of the iPhone OS software as well as any needed changes to the iPhone's firmware.

If the update fails to install, repeat the procedure. Often a second try succeeds where the first failed. If an error message appears and offers a specific suggestion, try it. Otherwise, see [Resolve Update and Restore Errors](#) for further advice).

Warning! *Starting with iPhone OS 3.1, all previous update files in the `iPhone Software Updates` folder are moved to the Trash when you update. If you want to save older files (perhaps because you have more than one iPhone and you want to keep one running an older version), make a backup of these items before updating.*

Update requires re-activation? *After updating your iPhone, you may see an “Activating iPhone” alert. In this case, your iPhone must access your cellular provider’s network for the update to complete. If the message persists, try moving to a different location.*

Tip: iTunes automatically checks for updates at regular intervals, unless you uncheck Check for Updates Automatically in the General view of iTunes preferences.

Update Carrier Settings

According to Apple, *carrier settings* relate to how an iPhone accesses a carrier's cellular data network and include some other special settings. If a carrier settings update becomes available, you'll receive a message about it in iTunes, just as with iPhone OS updates. This was done, for example, to enable MMS messaging on AT&T iPhones. Typically, you should update the carrier settings, as requested by the message.

After updating, you'll find carrier settings files on your Macintosh at `~/Library/iTunes/iPhone Carrier Support`. The filename will be something like `ATT_US.ipcc`.

Tip: To learn more about carrier settings, consult <http://support.apple.com/kb/HT1970> and <http://www.macworld.com/article/143088/carriersettings.html>.

Update Third-Party Apps

As covered in [Manage App Store Apps](#), you should also make sure your third-party apps are up-to-date.

Update iTunes

To ensure that interactions between iTunes and your iPhone go smoothly, which in turn can prevent the iPhone from crashing and freezing, keep iTunes up to date. iTunes updates contain software relevant to the iPhone (notably the AppleMobileDevice and AppleMobileSync software installed in `/System/Library`; for example, the AppleMobileDevice.kext file in `/System/Library/Extensions`).

Reinstall iTunes?

If iTunes-related problems occur despite running the latest version, delete your installed copy of iTunes and download a fresh copy from <http://www.apple.com/itunes/download/>.

Before attempting to install a new copy of iTunes, it is important to delete the current copy and empty the Trash.

I have read articles recommending that you also delete various iTunes accessory files (such as its .plist files) before installing a new copy of iTunes; for details on how to do this, see [Step 12](#) (p. 116) in [Resolve Update and Restore Errors](#) as well as this article: http://www.macworld.com/article/134577/2008/07/iphone_sync.html.

In most cases, however, deleting these additional files should not be necessary. But if you continue to have trouble, it's worth a try.

Don't Overload the iPhone

Pushing the iPhone to its limits can increase the odds of seeing a freeze or crash. To avoid this:

- **Don't use up every last whit of drive space:** Leave at least 250 MB free for temporary files. You can tell how much free space remains by checking the usage graph at the bottom of your iPhone's Summary tab in iTunes.

- **Don't overload the iPhone's memory:** For example, if you start downloading 200 email messages to your iPhone and then open several Web pages in Safari, you are asking for trouble.

VIEW CRASH- AND FREEZE-RELATED DATA

As you diagnose problems, you may want to view crash logs or check various versions and numbers associated with your device, or you may be asked to send diagnostic information to Apple. In the text below, I explain what to do in each of these cases.

View Console's Crash Data

While the iPhone doesn't provide any feedback when it crashes, it does keep track of such events behind the scenes. It stores this data in the `~/Library/Logs/Crashreporter/MobileDevice/youriPhone` folder on your Mac. The exact contents of this folder depend on the device's crash history. For example, if Safari has crashed, you'll find a file with a name that begins with `MobileSafari` and ends with `.crash`, such as `MobileSafari-2008-07-11-192419.crash`. In fact, you'll find a separate `MobileSafari .crash` file for every time that Safari has crashed. In addition, you'll find a matching set of `.plist` files; you can ignore these.

The `.crash` files are actually Console log files. If you double-click any one of these files, Mac OS X's Console utility launches and displays the contents of the file. Alternatively, you can save yourself a trip to this folder and instead launch Console directly. In Console's sidebar, navigate to the path provided in the previous paragraph. You'll find a list of all the same crash files and can click one to view it. It's unlikely that you'll glean much information from these `.crash` files, but you may occasionally find a clue to the cause of a crash.

Finally, there are Console log files maintained on the iPhone itself (which you can view, as explained in [Use iPhone Configuration Utility](#)). These may occasionally offer diagnostic clues.

Check Identification Data

Some iPhone crashes or freezes are specific to a particular version of the device's software or hardware. Articles on Apple's Support Web site may refer to these numbers. They include the iPhone's currently installed software version, serial number, model number, IMEI

number, and modem firmware version. To access version-related data directly from your iPhone, navigate to Settings > General > About.

If you can't access this screen, see <http://support.apple.com/kb/HT1267> to learn about alternate ways to find the information.

iTunes “diagnostic information” Dialog

When you sync your iPhone, a message may appear in iTunes that states, “Your iPhone contains diagnostic information...” (**Figure 27**).



Figure 27: This message appears in iTunes when you attempt to sync an iPhone that has had a crash since the previous sync.

This message means that one or more crashes occurred since your last sync. It has three buttons:

- **Send to Apple:** Click this to forward details of the crash(es) to Apple. Doing so may contribute to the problem being fixed in a future iPhone software update.
- **Don't Send:** Click this button to dismiss the dialog.
- **Show Details:** If you click this button, you are taken to the [MobileDevice/youriPhone](#) folder described on the previous page.

The crash dialog has a “Do not ask me again” checkbox. It is enabled by default. If you leave it enabled, the dialog will no longer appear during future syncs.

Reset warnings: After accepting “Do not ask me again,” if you should later want the dialog to return, Control-click (or right-click) the icon for your iPhone in the iTunes sidebar and choose Reset Warnings. This also resets any other iPhone-specific warning messages that may have been disabled previously.

RESTART YOUR IPHONE

As with restarting a misbehaving Mac, restarting an iPhone is a quick fix for a variety of ills.

Restart

To restart an iPhone, press and hold the Sleep/Wake button (the physical button at the top of the iPhone, next to the SIM card tray) until a red slider with a white arrow appears on the screen. Drag the slider to power off your iPhone. Once the screen goes completely black, press and hold the Sleep/Wake button again until the Apple logo appears. Wait a few seconds for the startup sequence to finish, and you should be back at the Home screen.

Force Restart

If your iPhone is deeply confused, holding down the Sleep/Wake button may have no effect. In such cases, you can usually force the iPhone to restart by holding down the Sleep/Wake and Home buttons simultaneously for around 10 seconds—until the Apple logo appears.

RESET, RESTORE, OR RECOVER

A time may come when your iPhone behaves so badly that even the fixes and preventative tips that I’ve offered elsewhere fail to resolve the matter. Such serious symptoms include:

- Frequent and repeated crashes or freezes that are not remedied by restarting.
- Failure of the iPhone to restart properly. Instead of going to the Home screen, it halts at the Apple logo or restarts itself again (and again, ad infinitum).

- When starting up, instead of the Apple logo, you see a black screen with white text. (This screen is closely related to the screen you can access on a Mac by holding down Command-S at startup.)
- The iPhone screen stays black, failing to respond to any input even after allowing sufficient time for the battery to recharge.
- A graphic indicating that you should connect the iPhone to iTunes appears and remains on the screen.

The SIM card may be the problem: *If after connecting your iPhone to your Mac and launching iTunes, you get an error message on the Mac referring to the iPhone's SIM card, make sure that the card is inserted correctly (see [Understand the SIM Card](#)). Otherwise, you'll probably have to restore your iPhone. If the iPhone also displays a message listing the default IMEI number (described in <http://support.apple.com/kb/TS2455>), you'll probably need a hardware repair.*

If any of this happens, don't despair. These symptoms don't necessarily mean your iPhone is broken. They do, however, mean that you will likely need to delete some of the information on your iPhone and start over with fresh copies (either by starting over with factory defaults or by restoring data from a backup on your Mac). Keep reading to find out what to do. The first few topics assume that you can still navigate on the iPhone. Later topics deal with situations where that may not be possible.

Reset

To reset the data on your iPhone, navigate to Settings > General > Reset. On this screen (**Figure 28**), you can tap Reset All Settings or Erase All Content and Settings—but *first read about both options, ahead*, because you may prefer to try a less invasive approach first: a one-way sync, as described in [Solve Sync Failures and Errors](#), earlier. A *one-way sync* replaces the data on your iPhone with the original data on your computer, but without deleting settings or other content.

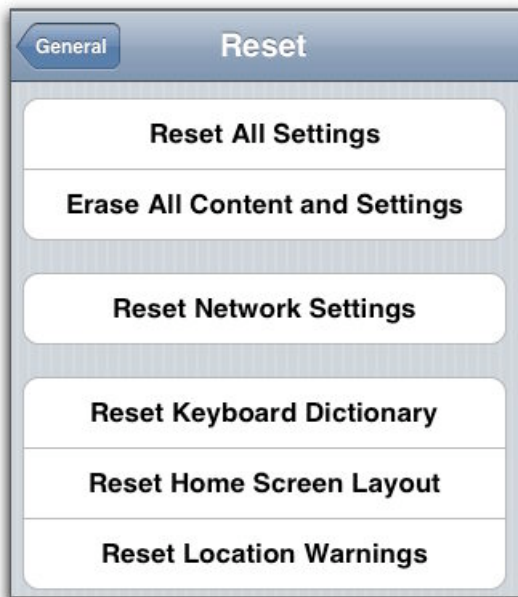


Figure 28: Find the iPhone’s Reset options by going to Settings > General > Reset.

Reset All Settings

You might assume that tapping the Reset All Settings button reverts *all* iPhone settings to the original factory-installed values. In practice, some settings do not reset. For example, in my testing, my choices in the Stocks app and my wallpaper selection did not reset. In any case, resetting settings has no effect on your iPhone’s media and data content. iPod music and videos, for example, remain untouched.

Warning! *There’s no Undo option for resetting your settings. You’ll need to re-create the now deleted settings (or tackle a more time-consuming [Restore](#)), even if the action didn’t fix your problem.*

Erase All Content and Settings

This option erases both your settings and media content. On the iPhone 3GS and latest iPod touch models, this takes about a minute. On other models, it can take hours, so connect your device to power first. The deleted content is copied back to the iPhone from your Mac the next time you sync, but you must re-create your settings manually (or perform a restore).

More Reset settings: *You’ve probably noticed that there are four other reset settings in the Reset screen. I explain their use in [Reset Network Settings](#), [Reset the Keyboard Dictionary](#), [Reset the Home Screen Layout](#), and [Location Services Basics](#).*

Restore

A significant advantage of restoring is that it does what couldn't be done with a reset: it uses your iPhone's backup file, stored on your Mac, to restore your customized *settings* as well as your content! However, it does so at the cost of requiring considerably more time before your iPhone is back in action again.

You can restore in two different ways:

- A *backup-only restore* copies data from your iPhone's backup file to the iPhone. This backup is automatically updated each time you sync, and it contains changes made in the Settings app as well as most other settings. It also includes saved notes, SMS/MMS messages, call history, calendar events, contacts, the contacts favorites list, and Camera Roll photos.
- A *full restore* restores data from your iPhone's backup, but it also replaces (and updates, if needed) the iPhone's operating system. A full restore, unlike a backup-only restore, erases your iPhone first.

For most troubleshooting, you'll want to do a full restore. A full restore is also useful for transferring all your data from your current—perhaps defective, but still functional—iPhone to a replacement iPhone.

When would you use a backup-only restore? If, for example, some data has been lost, corrupted, or deleted in error, a backup-only restore would let you recover that data (unless the data was added since the most-recent backup).

Make a backup of the backup! *It's always wise to have a backup of your iPhone backup, such as a copy stored via Time Machine. If the backup listed in iTunes fails or is incomplete, you can instead attempt to use your Time Machine backup copy.*

Note: For more details on backing up and restoring, see [Understand the iPhone Backup](#). Also see these Apple articles:

- "Backing up, updating, and restoring your iPhone and iPod touch software," at <http://support.apple.com/kb/HT1414>.
- "About backups," at <http://support.apple.com/kb/HT1766>.

Before You Restore

Before you begin a restore, consider the following:

- **Download photos:** Photos in the iPhone's Camera Roll should be automatically saved to the iPhone's backup file when you sync. However, to be sure that these photos are not lost during a restore, separately download them to your computer first (see [Photos](#)).
- **Sync first or not:**
 - ◇ For a backup-only restore, you probably don't want to sync your data prior to the restore. The point of a backup-only restore is to replace the current data with the backed-up data. If you sync first, you may accidentally replace the backed-up (good) data with newer (bad) data.
 - ◇ For a full restore, unless you are concerned about transferring corrupted data from your iPhone to your computer, you should sync your iPhone first. This ensures that you back up the latest data prior to the restore.

Backup-Only Restore

To do a backup-only restore:

1. After completing the just previous suggestions for what to do before restoring, connect your iPhone to your computer, launch iTunes, and select the iPhone in the sidebar.
2. Control-click (or right-click) your iPhone in the sidebar, and choose Restore from Backup.
3. You will get a dialog requesting that you select which backup file to use, (assuming you have more than one). You'll typically want to select the most current backup for the connected device.

Remember! *Doing a backup-only restore will restore contacts, calendars, SMS/MMS messages, applications, and settings. It won't restore the iPhone's operating system and may not restore Camera Roll photos. For that, you need to erase your iPhone and do a full restore, as described next.*

Full Restore

If none of the previous suggestions have proven successful, it's time for the big guns: erasing and reinstalling your iPhone's contents, including the operating system:

1. After completing the suggestions on the previous page for what to do before a restore, connect your iPhone to your computer, launch iTunes, and select the iPhone in the sidebar.
2. Make sure you have an active Internet connection.

A full restore will update your iPhone software! If you want a full restore but don't want the software updated (as may be the case for a jailbroken iPhone), read [Restore without Updating](#), two pages ahead.

3. In the iPhone's Summary tab, click Restore.
4. Follow the prompts that appear (such as the one in **Figure 29**).



Figure 29: This dialog appears early in the restore process.

The contents of your iPhone are completely erased. Next, if needed, the latest version of the iPhone software is downloaded. After the download is complete, the original factory settings for the iPhone are restored and your phone is re-activated by your cellular provider (AT&T in the United States).

Do not interrupt a restore! Restoring an iPhone can take several minutes. Do not disconnect the iPhone during a restore. Doing so could make any data-corruption problems even worse.

5. When your Mac says that the iPhone needs to restart, click OK.

A screen eventually appears (**Figure 30**), noting that “An iPhone has been previously synced with this computer.”



Figure 30: This screen appears in iTunes after your iPhone has been restored to its factory settings.

6. Select “Restore from the backup of...,” choose the desired backup to use for the restore (assuming you have more than one), and click Continue.

Set up as a new iPhone? In the rarer case, where you want to restore your phone as if it were fresh out of the box, with no backed up data restored, you would select “Set up as a new iPhone.”

The iPhone accesses the backup on your computer and uses it to restore your iPhone settings and related data. This can take several minutes.

Did you get an error? If an error message pops up during a restore, see [Recover](#) (two pages ahead) and [Resolve Update and Restore Errors](#) (ahead).

7. Click Sync to return all your previously synced content (music, videos, photos, calendar items, and contacts) to the iPhone. This can take a half-hour or more, depending upon how much content you have.

8. Confirm that the update installed the latest version of the iPhone software: in iTunes, click the Check for Update button in the iPhone's Summary tab.
9. If you use a passcode lock on your iPhone, you must reset it, since the restore deleted it (see [Use Passcode Lock](#), ahead).

Your iPhone should now be nearly completely restored to its pre-erased condition. A few items may be missing in action; for instance, after a restore, I've lost custom stocks I've added to the Stocks app, and account passwords in Mail. But your troubles should be gone.

Restore without Updating

Normally, when you do a full restore of your iPhone, the process simultaneously downloads and installs the latest version of the iPhone software (assuming a newer version is available). But you can typically restore the iPhone without updating the software, instead reinstalling the same version of the iPhone OS you are currently running. This could be desirable if you know that updating will break some third-party app that you want to use.

To restore without updating, hold down the Option key when clicking the Restore button in iTunes. This brings up an Open dialog. From here, navigate to `~/Library/iTunes/iPhone Software Updates`. This is where the iPhone Restore files are located. For example, for iPhone OS 3.1.2 on an iPhone 3GS, the file is named `iPhone2,1_3.1.2_7D11_Restore.ipsw`. Select the desired Restore file. With iPhone OS 3.1 or later, you'll likely find only the most-recent update file here.

With the latest iPhone models, you may not be able to reinstall your current version after a newer version is out. This is because iTunes checks Apple's servers, over the Internet, prior to restoring and may permit only the latest version. Still, it's at least worth a try. With any model, you cannot use this procedure to downgrade from the current to an older version of the software.

Note: There is a separate `iPod Software Updates` folder for iPod touch updates. Ideally, don't mix and match; especially avoid using an iPhone update file to update an iPod touch.

Recover

In the case of certain severe problems, your iPhone may fail to appear in the iTunes sidebar or, even if it does appear, your restore attempt may fail. In such cases, you may be able to remedy the situation by putting the iPhone in recovery mode.

First, with a bit of luck, the iPhone may go into recovery mode by itself. If so, the iPhone screen may show a graphic of a USB cable and the iTunes icon, with an arrow pointing from the former to the latter. When you connect the iPhone to iTunes, the message shown in **Figure 31** should appear. In this case, click OK and do a [Full Restore](#), as described just previously.



Figure 31: This message appears when you connect an iPhone in recovery mode to iTunes.

Otherwise, you can attempt to force the iPhone into recovery mode:

1. Hold down the Sleep/Wake and Home buttons—as you would do for a [Force Restart](#) (covered earlier in this section)—but don't release them after the restart begins and the Apple logo appears.
2. After a few seconds, the screen should go black. Now release both buttons.
3. Press and hold the Home button. While continuing to hold the Home button, connect your iPhone to your computer. Continue to hold the Home button until the recovery-mode graphic appears on the iPhone's screen. You should now be able to initiate a [Full Restore](#); flip back a page or two in order to find the steps.

Note: For a more detailed discussion of how to force the iPhone into recovery mode, read <http://support.apple.com/kb/HT1808>.

Tip: If you enter recovery mode but change your mind, you can exit the mode by disconnecting the iPhone from your computer and holding down the Sleep/Wake and Home buttons for about 6 to 10 seconds. The iPhone should restart normally. No data is erased.

Resolve Update and Restore Errors

Given that the Restore function is designed to make a problematic iPhone work normally again, the last thing you want is a problem to crop up during a restore. Unfortunately, such problems, although unlikely, are possible. For example, you may see “unknown error” or “time out” message. Or a “Connect to iTunes” message may appear on the device, typically followed by an error number. Apple has provided advice for dealing with numerous specific error numbers, from 2 to 9808, plus several negative errors from -18 to -9807, at <http://support.apple.com/kb/TS1275>.

In general, to resolve an update or restore error, follow these steps until you are successful:

1. Quit iTunes, and disconnect your iPhone from your computer.
2. Check Software Update to make sure you are running the latest version of iTunes. If not, [Update iTunes](#). This is because, as discussed previously, iTunes itself includes the critical Apple Mobile Device Support files.
3. Shut down the iPhone, and [Restart](#) it.
4. Make sure your iPhone’s dock-connector cable is connected to a USB port on your computer. Connect the cable to your iPhone, and re-launch iTunes.

You should see a message saying that the iPhone needs to be restored.

5. Click the Restore button.

You may need to repeat this procedure two or three times, but it has always worked for me eventually. However, if you aren’t successful...

6. Restart your computer and try again. If that doesn’t help...

7. Try forcing the iPhone to [Recover](#); then, try to restore again.
8. Try connecting the iPhone to a different USB port on your Mac. Ideally, it should be a USB 2.0 port directly on the computer. USB hubs on keyboards, for example, may use the older 1.0 protocol or not have sufficient power for the iPhone. Also remove all USB devices connected to your Mac except the keyboard, mouse, and iPhone.
9. Remove possibly corrupted files from your Mac, and then try to restore again (this is especially likely to work for errors 6 and -48). In particular, remove the files ending in `.ipsw` in `~/Library/iTunes/iPhone Software Updates`. For the iPod touch, check `~/Library/iTunes/iPod Software Updates`.
10. Try restoring the iPhone from within a different user account on your Mac or on a different computer. See this Apple document for details: <http://support.apple.com/kb/TS1275>.
11. Remove the SIM Card before connecting the iPhone to the computer, and then attempt to restore. Re-insert the SIM card after the restore is done. (Consult [Understand the SIM Card](#), a few pages ahead.
12. One or more of the installed support files may be corrupted. Unfortunately, simply re-running the iTunes installer won't replace these files. Here's the nuclear option for how to proceed:
 - a. Launch Activity Monitor and quit the iTunes Helper process.
 - b. Delete the iTunes application from `/Applications` and empty the Trash.
 - c. Delete `AppleMobileDevice.kext` in `/System/Library/Extensions` and `AppleMobileDeviceSupport.pkg` in `/Library/Receipts`. An Apple article has details: <http://support.apple.com/kb/HT1747>.
 - d. Delete all files that start with `com.apple.iTunes` in your user folder's `~/Library/Preferences` folder. Especially delete `com.apple.iTunes.plist`.
 - e. Download and install the latest version of iTunes (see [Reinstall iTunes?](#), p. 103).

If none of these steps has helped to make your iPhone working again, you may have a hardware problem that you cannot fix on your own. Keep reading to find out if your iPhone needs a repair.

Resolve iPhone sync errors: *If you get an error message when attempting to sync an iPhone after a restore, or otherwise have problems syncing, check out the earlier sections on iPhone syncing, especially [Solve Sync Failures and Errors](#) and [Resolve Sync Conflicts](#).*

Note: In case you were wondering, you cannot use Mac OS X's Disk Utility to verify or repair the drive on an iPhone. The iPhone does not even show up in the list of drives accessible by Disk Utility (or in any other similar utility, such as Alsoft's DiskWarrior).

DECIDE IF YOUR IPHONE NEEDS REPAIR

If you've tried all the prior fixes, and nothing has succeeded, you probably have a hardware problem. Such symptoms may include a persistent black screen or an iPhone that refuses to appear in iTunes. Here's how to proceed:

1. Examine your device's screen. If any of the following are true, you likely need a repair and should skip to the end of these steps:
 - You see "Repair Needed. iPhone cannot make or receive calls."
 - You see a yellow triangle with an exclamation mark.
 - If the screen is cracked or fails to respond to your finger, especially if the failure is restricted to part of the screen, and you've tried obvious quick fixes such as restarting, take it to an Apple Store immediately. If the device is still under warranty, it should be fixed or replaced for free. Sometimes Apple offers a free fix even for out-of-warranty devices.
2. Check if the problem relates to an accessory or power adapter. For example, if the iPhone won't charge from a particular charger, make sure the charger is connected to an active power source (for instance, if the electrical outlet is controlled with a switch, make sure that switch is on). If the charger is getting power but not working, try a different charger.

3. Skip ahead a few pages to [Damage Control](#) and [Replace the Battery](#) for hardware-related diagnoses and fixes that you can usually do yourself.
4. Check Apple's Support site for solutions not covered in this book. Read especially:
 - “How to verify iPhone hardware is working correctly,” at <http://support.apple.com/kb/TS2802>
 - “How to verify iPod touch hardware is working correctly,” at <http://support.apple.com/kb/TS2771>
5. Search Apple's iPhone Discussions site at <http://discussions.apple.com/category.jspa?categoryID=201>.

GET A REPAIR

If the above steps suggest that you do need a repair, you can either call Apple Technical Support or bring your iPhone to an Apple retail store. Here are a few important tips:

- Check this page for information about Apple's iPhone repair service, including details about the iPhone's warranty and renting an AppleCare Service iPhone: <http://www.apple.com/support/iphone/service/faq/>.
- Remember to remove the SIM Card before parting with your iPhone; see [Understand the SIM Card](#), a few pages ahead. While your iPhone is being serviced, you may be able to use another phone, if available, by inserting your SIM card into that phone. Apple can supply an AppleCare Service iPhone for an extra \$29.
- If possible, do a full sync, just to be sure all your data is backed up. If your battery ends up being replaced, you will lose any data that isn't backed up.
- AT&T does *not* service iPhones, so don't bother bringing your iPhone to an AT&T store, even if you purchased it there. However, for help regarding non-hardware problems specific to AT&T's service, call 611 on your iPhone or check out this Web page: <http://support.apple.com/kb/HT1688>.

DAMAGE CONTROL

Several symptoms appear to indicate that something is damaged and a hardware remedy is likely needed. It's not always the case. Here are a few examples—and what to do about them.

Too Hot to Handle?

If your iPhone becomes uncomfortably warm, it's rarely cause for concern. Usually, just returning to the Home screen or restarting is sufficient to solve the problem. If the problem persists, see this article for more details: http://www.macworld.com/article/141471/2009/06/hot_iphone3gs.html.

Liquid Damage?

If you peer into the headphone jack, you will see a white “dot” at the bottom. At least, you hope it is white. The dot is a moisture-sensitive Liquid Submersion Indicator. If it is any color besides white (such as pink), it means that liquid has come in contact with the device at some point. This dot is how Apple checks for potential liquid damage when you send it in for servicing; any damage resulting from such moisture is not covered by Apple's warranty. See this article for more details: <http://support.apple.com/kb/HT3302>.

No Sound from Speakers?

If no sound is coming from the iPhone's built-in speakers, and you've checked that you have not muted the sound, the most likely reason is that the iPhone mistakenly believes that headphones are still plugged in. To fix this, firmly insert the plug from a set of headphones into the iPhone's headphone jack and remove them. Repeat this action a few times if it has no effect the first time.

For more tips on what to do if no sound is coming from the iPhone's speakers, see <http://support.apple.com/kb/TS1630>.

Volume Problems?

To make sure you hear the sound you want to hear at the volume you want to hear it, note the following:

Speakers:

- The receiver speaker at the upper end of the face of the iPhone is for a phone conversation when the iPhone is next to your ear.

- A louder speaker on the bottom of the iPhone, to the left of the dock connector, is for the speakerphone, iPod functions, and any other “out loud” iPhone audio.

Ring/Silent switch:

- This switch is located on the left of the iPhone, near the top):
- If you set the switch to silent, the iPhone will not play a ringtone sound when a call is received, nor will it play alerts. It vibrates instead (assuming you’ve enabled this option in Settings > Sounds).
- Even in Silent mode, you can listen to audio from the iPod app.
- Other apps vary in how they act: some play audio through the speaker only when set to Ring; others play through the speaker even if the iPhone is set to Silent.
- The Ring/Silent switch does not affect audio played through connected headphones.

Volume control:

The iPhone has a volume control on its left side, just below the Ring/Silent switch. It can adjust the volume in four ways:

- When you are on the phone, it regulates the receiver volume.
- When you are using the iPod app, it sets the media playback volume.
- In some apps that produce audio, it sets that volume level.

***App-specific volume adjustments:** Individual apps, including third-party apps, may have app-specific options for adjusting the volume of the app. In some cases, adjustment may be independent of the iPhone’s volume control. Check each app’s settings for details. The iPod app (Music on the iPod touch), for example, has a volume slider that appears along the bottom of the screen.*

- Otherwise, it sets the ringtone and alert volume.

Combined, these settings help you avoid damaging your ears with loud volume settings. For example, you can set the ringtone to be as loud as possible (so you can hopefully hear it over moderate crowd noise) while keeping the headset volume lower.

Problems with Third-Party Accessories?

When you connect your iPhone to a third-party peripheral (such as external speakers), a dialog may pop up that says: “This accessory is not made to work with iPhone” or “This accessory is not supported by iPhone” (**Figure 32**).



Figure 32: This message may appear when you connect your iPhone to a peripheral device, such as a clock radio or speaker system.

In the case of speakers, I usually recommend tapping Yes to turn on [Airplane Mode](#). Otherwise, every time the iPhone does a routine network check, several seconds of annoying static will come from the peripheral device. This can happen even if the iPhone is a few feet away from the device; it needn't be connected. The downside of turning on Airplane Mode is that incoming phone calls are automatically shunted to voicemail. Don't worry about the fact that the accessory was “not made to work with iPhone.” The iPhone should work with almost any device designed to work with recent iPod models. Of course, you can tap No instead and decide for yourself if the interference is a problem.

If you believe the accessory is designed to work with the iPhone, and the message is thus in error, make sure you have a firm connection at the iPhone dock.

Should You Buy AppleCare?

As with other Apple products, the standard iPhone warranty covers hardware repairs for 1 year and provides 90 days of free call-in technical support.

For \$69, you can purchase AppleCare for your iPhone at <http://www.apple.com/support/products/applecareiphone.html>. This coverage extends your hardware coverage for a second year and provides the full two years of phone-based support. The cost is likely worthwhile if you plan to use your phone heavily: if the battery drops below 50 percent of its original capacity while covered by AppleCare, Apple will replace it for free. Apple's out-of-warranty battery replacement normally costs \$79 plus \$7 shipping and local tax. If you think you won't qualify for a new battery within 2 years, I suggest that you skip buying AppleCare, as the probability that it will pay for itself is too low.

Protect Your Screen

You may want to place a film over your iPhone's screen, such as the anti-glare film from Power Support (<http://www.powersupportusa.com/>). A film not only resists smudges but protects the screen from minor scratches and cracks. If you don't use a film, know that the touchscreen of the iPhone 3GS has an oleophobic (oil-resistant) coating. While this does not prevent smudges, it makes them easier to remove. Just use a soft dry cloth.

UNDERSTAND THE SIM CARD

Like most current mobile phones, the iPhone uses a *SIM* (Subscriber Identity Module) card. These cards store your name and phone number, and they may store additional data, such as a contacts list.

Decide If You Should Remove Your SIM Card

The SIM card is removable. Here are some reasons why you might want to remove it:

- If you are sending your iPhone in for repair or a battery replacement, you can first remove the SIM card to temporarily use it in

another phone. Plus, removal prevents anyone else from stealing the card or using it to make calls while the phone is out of your possession.

- If you have a new iPhone, you can (sometimes) get it ready for action instantly by removing the card from your old iPhone and putting it in the new one. In some cases, you may need to activate the new iPhone via iTunes before this procedure works.
- The SIM card is defective.
- Removing the SIM card may allow for a successful [Full Restore](#) in rare cases when the restore fails with the SIM card in place. However, I have also seen cases where iTunes refuses to restore an iPhone without the SIM card installed.

Remove or Replace a SIM Card

The SIM card is stored in a tray located at the top edge of the iPhone, between the Sleep/Wake button and the headphone jack. A small hole is located on the side of the tray near the headphone jack.

To remove the card, first turn off the iPhone. Next, insert a straightened paper clip (or the SIM eject tool that comes with the iPhone 3G and 3GS) into the small hole and push firmly until the tray pops out. Remove the SIM card and re-insert the tray.

To replace the card, make sure the iPhone is powered off, and then reverse this procedure, reopening the now empty tray and reinserting the card. If you've replaced a SIM card with a different one, you may need to connect your iPhone to iTunes before you can use it to make calls again.

MANAGE THE BATTERY

An iPhone runs on battery power when it is not connected to a power source. You can recharge the battery by connecting the iPhone to a computer or a USB power adapter, using the iPhone's dock-connector cable. Alternatively, you can place it in the dock cradle of an accessory (such as a speaker system) that provides charging power. You can even charge your iPhone in a car, via a 12-volt DC adapter.

An icon indicating the charge level of your iPhone appears in the upper right, on the iPhone's status bar. A similar icon also appears in iTunes, next to the iPhone icon under Devices in the sidebar. When the battery charge falls to 20 percent or less, a warning message pops up on your iPhone's screen. If you ignore the message, the iPhone will eventually shut down (see [Charging Tips](#), next page, for more details).

New in the iPhone 3GS: To display the percentage of remaining charge, enable the option in Settings > General > Usage.

Apple claims that a properly maintained iPhone battery should retain “up to 80% of its original capacity at 400 full charge and discharge cycles.” There is a continued gradual decline in capacity with each charging.

There are two major concerns regarding iPhone batteries: making a single charge last as long as possible, so you don't run out of power before you can recharge, and maximizing the length of time before the battery's capability to hold a charge declines to the point that it needs to be replaced. The following tips and fixes address these concerns.

Conserve Battery Life

To keep your iPhone working as long as possible on a single charge, do as many of the following as you find convenient:

- Turn off (via Settings options) unused features that are wasting power, especially Bluetooth, Wi-Fi, Push, and Fetch. If you must use automatic fetching, set it for Hourly (the longest possible interval).
- Lower the screen brightness. The screen is the biggest drain on the battery. To minimize this drain without turning the screen off, go to Settings > Brightness, set the brightness slider to the lowest acceptable level, and move the Auto-Brightness switch to Off.
- Go to Settings > General > Auto-Lock and set the auto-lock interval to the shortest time you find acceptable. The greater the percentage of time that your iPhone is locked, with the screen off, the less battery power it uses. See [Use Auto-Lock](#) for more details.
- Disable the iPod-app's EQ. Surprisingly, the equalizer eats significant battery power. To turn it off, go to Settings > iPod > EQ and tap Off. On an iPod touch, go to Settings > Music > EQ.

The Off setting may be overridden for particular songs if you have enabled song-specific EQ settings in iTunes on your Mac. If this applies to you, Apple recommends setting the EQ to Flat rather than Off, to best conserve battery power.

- Use the phone less. Of course, any time you use your iPhone, as opposed to having it in standby mode, you deplete its battery at a faster rate. Long phone conversations and watching video use up a charge especially fast. If you want a charge to last as long as possible for crucial activities, such as making or receiving phone calls, minimize other activities.
- Charge when you can. Numerous peripheral devices allow you to recharge your iPhone via your car's DC power port. If you frequently use your iPhone while driving, especially for listening to iPod selections, get one!
- Update to the latest version of the iPhone software. It may include fixes for bugs that were unnecessarily draining battery power.

Conserve Battery Lifespan

To make your iPhone's battery last as long as possible before it must be replaced:

- At least once a month, drain the battery until it is almost fully depleted. The simplest way to do this is to use your iPhone without recharging it, at least until the first warning message appears (and ideally all the way down until the iPhone shuts off). To speed the process up, turn Auto-Lock off and leave the iPhone's screen on. Play a movie, if possible.
- Prevent your iPhone from getting too hot or too cold for any extended time. Room temperature is ideal.

Charging Tips

When charging your iPhone, keep the following in mind:

- If you let your battery deplete low enough, you will get a warning message such as: "Low Battery. 20% of battery remaining." Eventually, a more ominous screen appears, such as a large low-battery icon with smaller icons of a plug and an arrow pointing to a lightning bolt. You can no longer work with the iPhone at this point. It's time to recharge it.

If you do not recharge at this point, the iPhone will soon shut off entirely. When you next connect the iPhone to a power source, the iPhone may remain blank. Be patient. Within a few minutes, the battery will recharge to a level that allows the standard battery-charging screen to reappear.

- There is no danger of “over-charging” the battery by charging it for an extended time.
- While your iPhone is recharging, the battery icon in the status bar displays a lightning bolt symbol. When the iPhone is completely charged, the symbol changes to a plug icon. (While a locked iPhone is charging, a large battery image replaces the normal wallpaper. The image fills as the battery charges to indicate the current charge level.)
- If your Mac goes to sleep while the iPhone is connected to it, the battery may stop charging and possibly drain. To prevent this, automatic sleep is disabled when you connect an iPhone to a Mac. However, you can still put the Mac to sleep manually.
- If you wake a sleeping Mac while an iPhone is connected, the iPhone may no longer appear in iTunes. To fix this, simply disconnect the iPhone from the Mac and reconnect it.
- Overall, recharging is more reliable via an electrical outlet than via a computer.
- When recharging via computer, use a USB 2.0 port on the Mac itself. Otherwise, you may not have sufficient power to charge the iPhone. If this is the case, you’ll likely get an error message. In theory, you should be able to charge successfully via a USB hub that is directly connected to AC power. However, with an iPhone 3G or second generation iPod touch, I have had trouble even here.
- The iPhone 3G and 3GS and second-generation iPod touch can’t charge from a FireWire-based power source. This can include various older third-party devices, such as car chargers and speaker systems.
- For further tips, from Apple, see this Web page:
<http://www.apple.com/batteries/iphone.html>.

Check Battery Usage

You can check on your device's usage in Settings > General > Usage. Here you will find two key metrics:

- **Usage:** This is the amount of time you've kept the iPhone awake and in use since its last full charge, including time spent making calls, checking email, surfing the Web, listening to music, and using any other iPhone feature.
- **Standby:** This is the amount of time that the iPhone has been powered on since its last full charge, including time the iPhone has been in sleep mode.

If you plug the iPhone into a charger but detach it again before it is fully charged, these numbers are not updated.

To track an iPhone's decline in battery performance over time, fully charge the battery and let it deplete until the first low battery warning appears. Record the usage and standby data. Do the same check later under similar conditions and compare results.

Replace the Battery

When the battery no longer holds a charge for long enough to meet your needs, it is time to replace it. The battery isn't designed for replacement by the user, but Apple will replace it for \$79 plus shipping and tax (unless the battery is defective and under warranty, in which case Apple will replace it for free, as explained in [Should You Buy AppleCare?](#)). The process takes about 3 days. For details, visit <http://www.apple.com/support/iphone/service/faq/> and look for the Battery Replacement information.

Make a backup and remove the SIM card! Replacing the battery wipes out all the data on your iPhone, so make sure you sync with your computer before shipping your iPhone. You should also remove the SIM Card (described a few pages earlier) before shipping off an iPhone.

Some companies will replace the battery for less than Apple charges, and some will even do it while you wait, so it may be worthwhile to look for a local establishment. Some Web sites show how to replace the battery yourself, although I personally would not attempt this.

Solve Safari Problems

Of all the apps included with the iPhone, Safari is probably the one that will most often give you problems. It is also the one with most troubleshooting-related features. As such, I've included this special section on troubleshooting the iPhone version of Safari (also referred to as Mobile Safari). Of course, Safari shares many of the same problems that can beset any Web browser, but I focus here on iPhone-related Safari-specific problems.

Start your Safari troubleshooting by navigating to Settings > Safari. Located here are several options that can eradicate a wide array of symptoms (**Figure 33**).

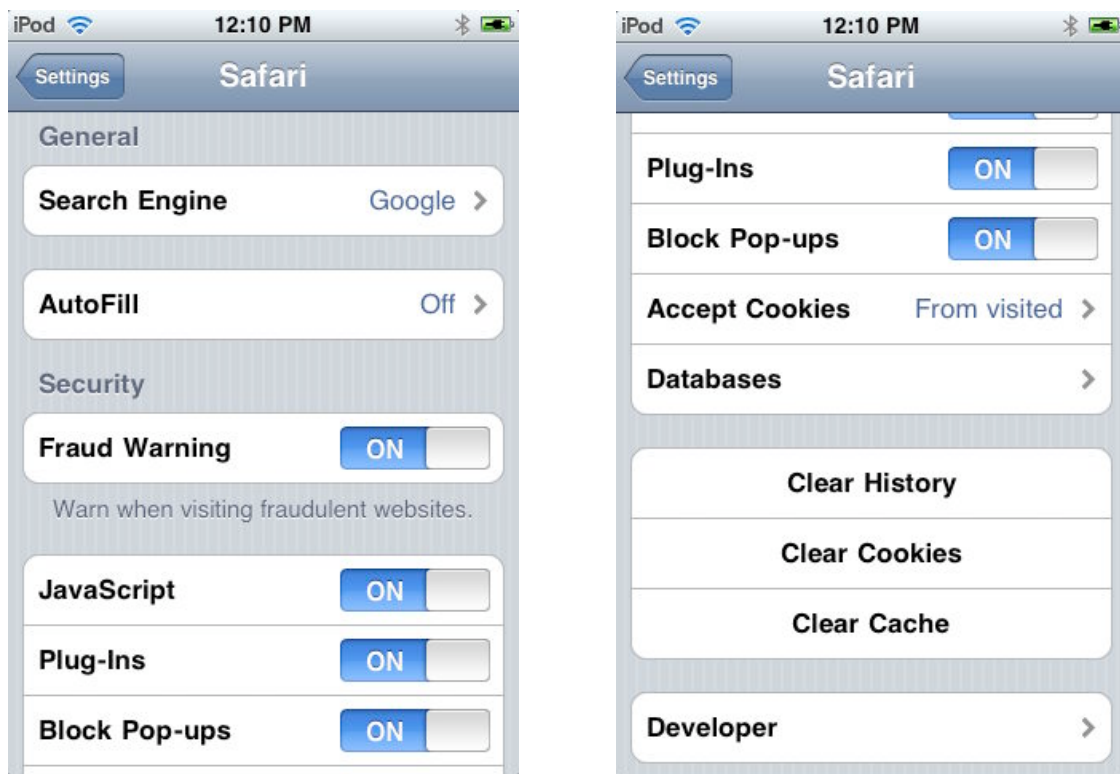


Figure 33: Safari's settings, accessed via Settings > Safari.

USE THE CLEAR OPTIONS

The Settings screen has three useful buttons that you can use to solve many Safari-related problems: Clear History, Clear Cookies, and Clear Cache. Here are a few situations where these options can come in handy:

- **Some pages (but not all) don't load, or pages load inexplicably slowly:** Click the Clear Cache button. The cache stores information about pages you've recently visited, supposedly allowing the pages to load faster if and when you return to them. However, a large or corrupt cache can cause Safari to slow down.
- **An older version of a Web page persists even after you reload it:** Click Clear Cache. If that doesn't help and you are willing to lose your History list, try clicking Clear History.

Note: You access Safari's History by navigating to the top level of Bookmarks and tapping the History item at the top of the list.

- **An Internet password isn't accepted, even though you are certain you typed it correctly:** Click Clear Cookies, since your password is stored there. Unfortunately, on the iPhone, you can't delete the cookie file for just a particular site. To delete one cookie, you must delete them all. This means that you may have to re-enter cookie-related data for any Web site that uses cookies and that you have previously visited.
- **Data that should be "remembered" for a page is forgotten:** Again, click Clear Cookies. Again, you'll have to re-enter all cookie-related data for all Web sites.

USE THE SECURITY SETTINGS

The options in the Security section allow you to turn on or off features that affect the security risks associated with visiting Web pages. Here's how I suggest you set them:

- **Fraud Warning:** Leave this on. Also referred to as anti-phishing, this option alerts you to known fraudulent Web sites.

Warning: *Fraud warning message will pop up only if Safari is aware of the phony site. Such awareness depends on a database installed on your iPhone. According to Apple, to install the database, you must: (1) Launch Safari on your iPhone while connected to a Wi-Fi network and (2) Connect your iPhone to a charger, leaving the screen off. Apparently, the idea is to ensure sufficient bandwidth and power for the database to transfer.*

- **JavaScript and Plug-Ins:** Leave these both on (which means each feature is enabled) even though this slightly increases your security risk. This is because these options are needed for many perfectly safe pages to function properly. For example, with Plug-Ins off, you can't view QuickTime movies on a Web page.
- **Accept Cookies:** Leave this set to From Visited in order to maximize the benefits of cookies (which allow a Web site to “remember” data entered during a previous visit) while minimizing the risks.
- **Block Pop-ups:** Leave this set to On in order to block most pop-ups. As pop-ups are usually ads, there is not much downside here.
- **Databases:** This option, new in iPhone OS 3, appears only if a Web site has stored data on the device. These databases are mainly used by Web apps to store data so the Web app can run offline. In most cases, I would leave these alone. However, if you have security concerns or want to free up space, you can delete databases by tapping the Databases item, tapping Edit in the screen that appears, and tapping the Delete icon by the database you want to delete.

Be flexible and cautious! *You may want to make temporary changes to your Security settings before visiting certain Web sites. For example, I strongly recommend avoiding Web sites that are unknown to you, especially sites obtained from spam email. If you are determined to go to such a site, first turn off JavaScript and Plug-Ins, leave Block Pop-ups on, and set Accept Cookies to Never. You can return to your prior settings when you are done.*

Tip: Hold down on a link—in Safari, Mail, or most other apps—to view the link's full URL. This can be a useful security check, confirming that a link will go where you expect.

DEBUG SAFARI

Although Safari’s debug feature was designed as an aid to developers, end users may occasionally find it useful. To access it, go to Settings > Safari > Developer (**Figure 34**) and enable the Debug Console option.



Figure 34: The Settings > Safari > Developer screen.

A Debug Console section now appears below the Address Bar in Safari. When viewing a perfectly coded Web page, the Debug Console says “No Errors”; otherwise, it displays the number of code errors for the current page; tap the Errors message to learn more. The details provided may help resolve your problem.

I keep Debug Console off by default. Why have it take up valuable screen space just to say “No errors” most of the time? Turn it on only when you want to see if a coding error might explain problems you’re having with a particular Web site.

SOLVE OTHER SAFARI PROBLEMS

If using the tools in the Settings screen, as just described, did not fix your problem, check the problems and solutions offered next.

Web Pages Won’t Load or Don’t Fully Work

There are several possibilities here:

- You may be surfing the Web via the EDGE network, as opposed to Wi-Fi or 3G, while you talk on the phone. (While Wi-Fi and 3G let you access the Internet and the phone network simultaneously, EDGE does not.)
- The site may be incompatible with Safari, but work with other browsers. If this happens on my Mac, I use Firefox to access the site. On the iPhone, you also have the option to try a competing browser

(such as iCab Mobile) available from the App Store. Alternatively, the site may offer its own iPhone app.

- The Web page's content may not work with the iPhone version of Safari. Examples include Flash video, Java content, and any other content that requires plug-ins not included with the iPhone. MP3 audio files and QuickTime movie files *do* play in Safari, as well as YouTube videos in MP4 format. (Many newer YouTube videos are in MPv4, and YouTube has converted many older Flash videos to MP4, as well; if a video on YouTube is available in MP4, that version will be chosen automatically in Mobile Safari. For other Flash-dependent sites, you are out of luck.)
- You may be at a hotspot where you must first log in (covered in [Join Wi-Fi Hotspots](#)). Some hotspots are incompatible with the iPhone, regardless of login requirements. Check with the Wi-Fi provider for details.
- For generic networking-related problems, such as an inability to connect to a Wi-Fi network (and thus an inability to load Web pages), check out [Navigate Wi-Fi, Edge, 3G & Bluetooth](#).
- If the Web page contains frames, use the iPhone's two-finger scroll technique to browse the content within each frame.

Use Mobile-optimized Pages

Some Web pages use complicated layouts with many (often large) graphics. These pages may load very slowly in Mobile Safari and be difficult to view without frequent horizontal and vertical scrolling. To compensate for this, many Web sites have alternate pages optimized for mobile devices such as the iPhone. Typically, you needn't do anything to access iPhone-friendly pages; the Web site recognizes that you are using an iPhone and shifts automatically. As one example, if you enter www.cnn.com on your iPhone, you are automatically sent to <http://m.cnn.com/>, the mobile version of the CNN home page.

With some other sites, you may be given a choice of which version you want after entering the main URL. If not, you must know the URL of the mobile version.

Fix Safari Crashes

Updating to the latest version of the iPhone OS is your best bet for eradicating frequent and otherwise unexplained crashes. If you still have frequent crashes, in addition to trying the various clear options discussed a few pages earlier, it may help to delete all bookmarks from the iPhone and resync them from your Mac, via iTunes or MobileMe.

For help with generic causes of freezes and crashes, see [Troubleshooting 101](#).

Go Under the Hood

Out of the box, the iPhone remains tightly closed—the only way to directly view, modify or otherwise interact with your iPhone content from your Mac is via the restricted access of syncing in iTunes.

What can't you do? You can't:

- Mount the iPhone as an external drive on your Mac, as you can with an iPod.
- Directly copy files to or from the iPhone.
- View the iPhone's SMS/MMS messages on your Mac, even though these items are backed up when you sync your iPhone.
- Peer into the contents of iPhone Software Update files (unlike Mac OS X update files, they are encrypted).
- Most importantly, Apple blocks you from even peeking at the installed *OS X iPhone* software (that's Apple's name for the iPhone version of Mac OS X) from your Mac or from the iPhone itself.

A few tricks and various third-party programs can circumvent most of these restrictions. Some of these programs exist with Apple's approval, and are available from the App Store. Others exist without official sanction. In this section, we descend into the iPhone rabbit hole. We won't reach anywhere close to the bottom, but we'll go deep enough for you to discover the possibilities that await.

TRANSFER MAC FILES TO YOUR IPHONE

The iPhone supports viewing common graphic formats (JPEG, GIF, and TIFF), iWork and Microsoft Office documents (Pages, Keynote, Numbers, Word, Excel, and PowerPoint), as well as PDF, RTF, plain text, and HTML files. In order to view such files on an iPhone, each file needs a proper file extension in its name. For example, text files need a .txt extension, PDF files need a .pdf extension, and Word files need a .doc or .docx extension.

The most common way to transfer these files to your iPhone is as email attachments, but that's not always convenient. Fortunately, several iPhone apps let you directly copy and view these files on your iPhone.

Two good examples are Air Sharing and FileMagnet, both available from the App Store. With Air Sharing, you use the Finder's Connect to Server command to wirelessly mount your iPhone on your Mac. With FileMagnet, you launch a matching FileMagnet application on your Mac and transfer files wirelessly between the two versions. Air Sharing allows copying in both directions; FileMagnet goes only from Mac to iPhone. Otherwise, they are quite similar. Once files are copied to the iPhone, you can view them via these same utilities.

Other sharing utilities include iDisk (for MobileMe users), DataCase and DropBox. For viewing plus editing options especially for Microsoft Office and iWork documents, consider Documents To Go (<http://www.dataviz.com/products/documentstogo/iphone/>).

ACCESS IPHONE SOFTWARE ON YOUR MAC

Various iPhone-related software is permanently stored on your Mac. I've already noted examples of this in other sections of the book (such as [Update the iPhone OS Software](#), [Update iTunes](#), [View Console's Crash Data](#), and [Restore without Updating](#)). Here is a more in-depth look at the most important of these files, and how to access them.

Update Files

The iPhone update files (the files that end in .ipsw, in `~/Library/iTunes/iPhone Software Updates`) are zipped archives. If you care to explore the contents of one of them, first duplicate it. Then change the copy's filename extension from .ipsw suffix to .zip. Finally, double-click the .zip file to unarchive the file and access its contents. Unfortunately, even after doing this, you won't get very far—the key items in the unzipped folder are encrypted disk images (.dmg files) that you cannot mount. There are methods to circumvent these restrictions, but they go beyond the scope of this book.

Backup Files

As explained in [Understand the iPhone Backup](#), a backup of an iPhone's data is created on your Mac when you sync the device in

iTunes. You can view some of the data stored in these backup files (such as SMS/MMS messages and call history) on your Macintosh via third-party utilities such as MobileSyncBrowser (<http://homepage.mac.com/vaughn/msync/>, donationware). Your iPhone need not be connected to your Mac to view the backup data via these utilities. However, these utilities will *not* work if you have selected the option, in iTunes, to encrypt your backup file.

To be truly amazed at all that can potentially be extracted from the backup files, including virtually every image stored in every temporary cache on the drive, try File Juicer (<http://echoone.com/filejuicer/>, \$17.95).

App Files

The App Store app (.ipa) files in the `~/Music/iTunes/Mobile Applications` folder (see [Where and How are App Store Apps Stored on a Mac?](#)) are actually compressed .zip archives. To view the contents of an .ipa file, duplicate it, change the copy's filename extension from .ipa to .zip, and then double-click the .zip file to uncompress it.

Even this will not give you full access to all the contained folders and files. For that, use the third-party utility Pacifist (<http://www.charlessoft.com/>, \$20). For details, see my article at http://www.tedlandau.com/files/under-the-hood_iphone.html.

Another useful utility for viewing app-file data is iPhone Backup Extractor (<http://supercrazyawesome.com/>, freeware). As its name implies, this program extracts data directly from the iPhone's (unencrypted) backup file. However, the app package in the Payload folder, as seen when you unzip the app file or view it via Pacifist, isn't stored in the backup, so you won't see this file/package when using Extractor. Extractor, however, extracts interesting data *associated* with the app that is not in the app itself and is thus not revealed via the other methods. This includes cookies and preferences files (stored in the Library folder on the iPhone) as well as any database that an app might use.

ACCESS IPHONE DATA FROM YOUR MAC

With your iPhone connected to your Mac via its USB cable, several Mac utilities allow you to access, within limits, files currently on the iPhone. These utilities permit access to personal content, such as Notes and MMS message data, as well as Finder-like access to the contents of the iPhone's drive. Two examples of such utilities are PhoneView and DiskAid.

PhoneView

PhoneView (<http://www.ecamm.com/mac/phoneview/>, \$19.95) allows you to view notes, SMS/MMS messages, call logs, photos, music, videos, and just about anything else that normally syncs to or installs on your iPhone. Moreover, you can copy any of these items from your iPhone to your Mac. This allows you, for example, to save and later read individual SMS/MMS messages even when the iPhone is not connected.

PhoneView also lets you copy files back from the Mac to the iPhone. For example, you can create new or edit existing iPhone notes from the Notes app. You can then transfer these new/edited notes back to your iPhone (you may have to restart the iPhone to see them). This is an alternative to working with and syncing notes via iTunes and the Mail application (described in [Notes](#), earlier).

Finally, via PhoneView's Disk option, you have access to the iPhone's drive.

DiskAid

The free DiskAid (**Figure 35**, next page) focuses mainly on a feature comparable to PhoneView's Disk option, allowing bidirectional transfer of files (<http://www.digidna.net/diskaid/>).

Take Screen Captures

To take a picture of the current iPhone screen, hold down the Home button, press and quickly release the Ring/Silent switch. The iPhone's screen will briefly flash white to signal that a picture was taken. You'll find the image in the Camera Roll folder in Photos. From there, you can transfer the screenshot to your Mac just as you would a photo taken with the iPhone's camera.

OBTAIN ROOT ACCESS TO YOUR iPhone

The default access provided by utilities such as PhoneView and DiskAid, as just described, is very limited. You can access only the contents of one folder, called [Media](#) (**Figure 35**). Apple keeps the rest of the iPhone off-limits. To view all of its content, you need root access.

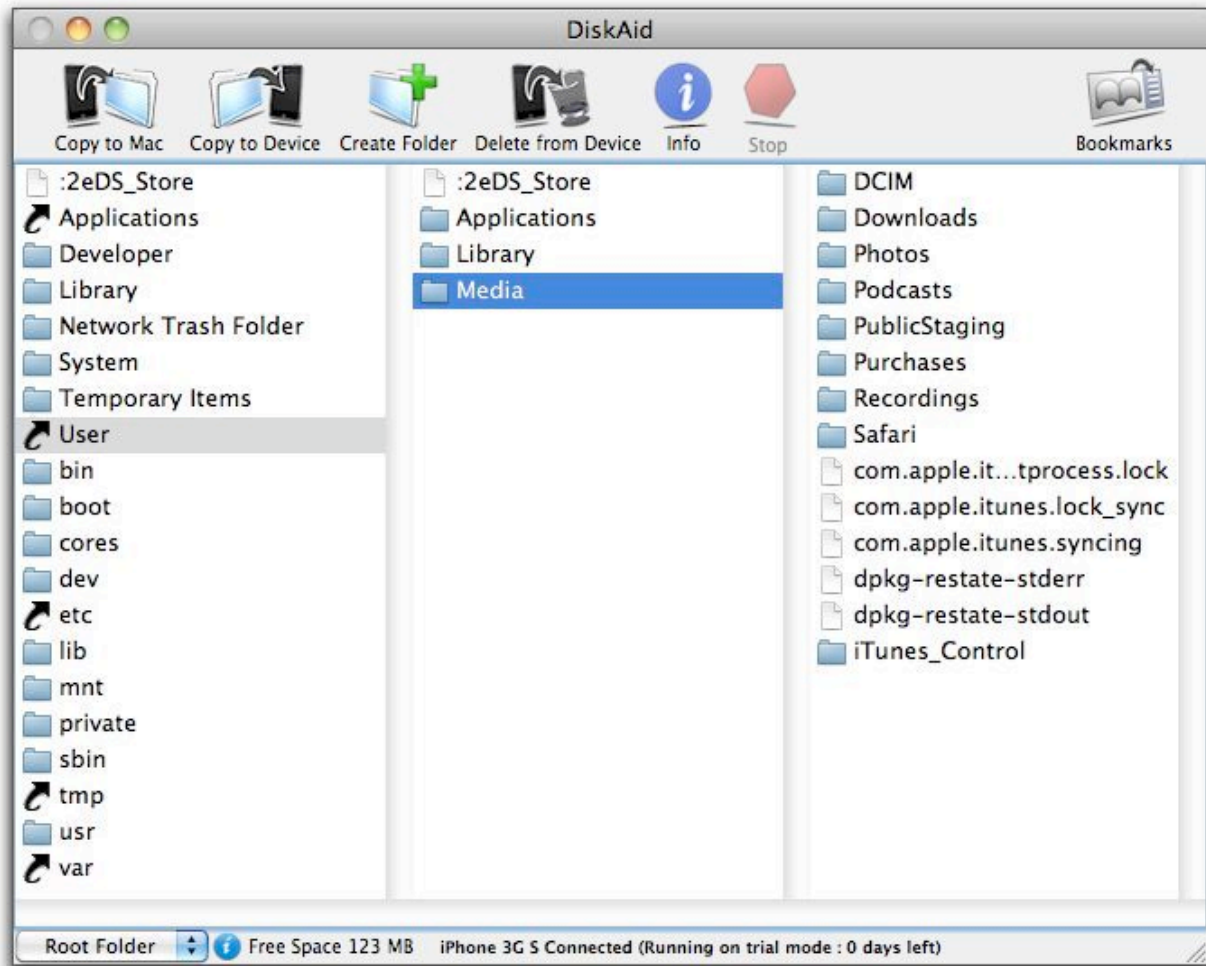


Figure 35: Here is the root level of a jailbroken iPhone, as viewed from DiskAid. The left column shows root-level folders, the right column the contents of the Media folder.

The root level of the iPhone looks very much like the root level of Mac OS X on a Mac—with the Unix folders visible. These are the files and folders that make up the majority of the iPhone OS.

The iPhone equivalent of a user’s Home directory is the [mobile](#) directory. The [mobile](#) directory holds all your media files and App Store apps. You can see its top level in the middle column in **Figure 35** (where it is shown with its alias name of [User](#); the actual

directory, with the `mobile` name, is located inside the `var` directory). Inside the `mobile` directory is the `Media` folder (seen in the right column of **Figure 35**).

To go beyond the `Media` folder, you must jailbreak your iPhone. On a jailbroken iPhone, PhoneView or DiskAid can access the full root level contents of the iPhone from a Mac (as shown in **Figure 35**). You can also access and view this content from the iPhone itself, via apps such as iFile, which can be downloaded to a jailbroken iPhone. (I discuss jailbreaking in [Jailbreaking: What, Why, and How](#), next page).

Know the iPhone's Hardware Specs

Apple, even on its tech spec pages for iPhones and iPods, provides precious few details about the hardware that's actually inside an iPhone. Basic details, such as the speed of the processor and the amount of RAM are not to be found. Happily, people have taken apart the iPhone to get the answers. For example, we know that the iPhone 3GS has a 600 MHz processor and 256MB of RAM. This exceeds the specs of any other model of iPhone—which explains why the 3GS is faster at almost everything than the older models. The iPod touch 3G sports the same hardware.

To check on other hardware-related data, such as current memory use or Internet transfer speeds, there are numerous iPhone apps available. Two that I use are Memory Status and Speedtest.

USE IPHONE CONFIGURATION UTILITY

Apple offers a free utility called iPhone Configuration Utility (iCU; <http://www.apple.com/support/iphone/enterprise/>). Its primary function is for iPhones in an enterprise environment. The utility lets you create and install configuration profiles (used to set up a phone using a particular company's security settings, accounts, restrictions, etc.) and provisioning profiles (used to directly install and run private apps—ones not available via the iTunes App Store). Details of these topics are beyond the scope of this book. However, the iCU also has several general-troubleshooting-related features that are potentially valuable even to a “non-Enterprise” audience.

Briefly, these features let you:

- **Read Console logs:** As with the Console logs on a Mac, the iPhone's Console logs allows you to track various status and error messages that could help diagnose the source of a problem.
- **Hack configuration profiles:** You can create and install simple configuration profiles to accomplish various hacks without the need to jailbreak your iPhone. One examples is to turn off both the EDGE and 3G data networks while still allowing phone calls. For details on this, see my article on how to modify carrier settings via a configuration profile: <http://www.macworld.com/article/143088/carriersettings.html>.

If any configuration or provisioning profiles are installed on your iPhone, you'll find them listed in Settings > General > Profile (Figure 36). From here, you'll be able to remove a given profile.



Figure 36: The details of an installed configuration profile.

JAILBREAKING: WHAT, WHY, AND HOW

Jailbreaking is defined as a procedure that frees your iPhone or iPod touch from its Apple-imposed “jail cell,” thus gaining unfettered access to the full (root) contents of the device’s directory structure. After jailbreaking an iPhone, you may also be able to *unlock* it. This refers to a separate procedure, modifying what is called the iPhone’s *baseband*, that allows the iPhone to work with a carrier other than its designated one (in the United States, for example, that would be a carrier other than AT&T).

Note: See [Create and Sync Custom Ringtones](#) for details regarding ringtone “hacks.” These do not require jailbreaking.

Read Me Before Jailbreaking!

Before even thinking about jailbreaking your iPhone, know this:

- Via updates to the iPhone OS and hardware, Apple attempts to prevent jailbreaking methods from succeeding. Hackers then attempt to find ways to circumvent Apple’s blockades. This cat-and-mouse game continues.

More specifically, each iPhone OS update will likely include modifications that prevent current jailbreak methods from working. To update to the new OS version and still keep your iPhone jailbroken, you may have to wait for updated jailbreak software that circumvents Apple’s latest efforts. This typically takes a few weeks. However, it may take longer, and there is always a risk that Apple will come up with a block that stymies the jailbreak developers altogether. A similar situation occurs when Apple comes out with new iPhone and iPod touch models. See [How to Jailbreak](#) for other advice and warnings regarding these matters.

- I recommend that you *not* attempt to unlock your iPhone. It is a riskier procedure than just jailbreaking. There is some risk that you will *brick* your iPhone—meaning making it non-functional. While you may find a Web page that offers hope for resuscitating a bricked iPhone, there are no guarantees. Apple’s advice if your iPhone is bricked? Buy a new iPhone. Really. I’m not kidding.

You could end up with an unsupported SIM card error!

*If you succeed in unlocking your iPhone and later try to update the iPhone’s OS software, you may get a message saying, “The SIM card inserted in this iPhone doesn’t appear to be supported.” If this happens, try typical fixes such as restoring the iPhone, either with your current or original SIM card installed. Otherwise, contact your original carrier about getting and activating a new SIM card. **If none of this works, you have a bricked iPhone.***

- Jailbreaking requires modification of the iPhone’s software. While there is almost no chance that such changes will brick your iPhone, there is a small chance (especially if you fail to follow the

instructions precisely) that a jailbreak may lead to problems using your iPhone, such as crashes or even startup failures.

If a problem is linked to a specific jailbreak app, uninstalling the software may resolve the matter. Otherwise, restoring the iPhone should get everything working again.

- Jailbreaking your iPhone typically involves restoring it. This means that, after the jailbreak is done, you'll have to reinstall all the music, video, apps, photos and other files that were on your iPhone prior to the jailbreak. So remember to backup your iPhone with iTunes *before* jailbreaking.

If you restore an already jailbroken iPhone, you will likely also lose all your jailbreak-installed software. If so, you'll have to reinstall all of these as well.

- Apple considers jailbreaking to be a violation of the iPhone end-user license agreement, thus voiding the iPhone's warranty. At a practical level, however, because you should be able to restore your phone to its original state at any time, this is a risk only if you leave the jailbreak software installed and it is detected by Apple during the course of having your iPhone serviced.
- An Apple article (<http://support.apple.com/kb/HT3743>) offers a list of issues that Apple claims can be caused "by unauthorized modifications to the iPhone OS." These include dropped calls and shortened battery life. Overall, the cited risks are exaggerated. Other than what I knew to expect (such as shortened battery life when using a jailbreak app that draws a lot of power), I have never had any of the predicted problems with my jailbroken iPhone.

These limitations and concerns remain a primary reason that jailbreaking is attempted by only a small minority of iPhone users.

Why Jailbreak?

The elephant question in the room is, of course, now that we have an App Store for third-party software, why do we need jailbreaking? There are several answers. For many people, the official App Store is all that they need. The assortment of games in the App Store, for example, is far superior to those you'll find via jailbreaking. And App Store utilities such as the aforementioned FileMagnet and Air Sharing provide

options that, prior to the App Store, you could obtain only by jailbreaking.

For me, however, there remain two major reasons to jailbreak:

- **Access to the root level:** As noted in [Obtain Root Access To Your iPhone](#), after jailbreaking you have full root-level access to *all* the files and folders on your iPhone—just as you do as an admin user on a Mac. As a troubleshooter, I welcome the opportunity to view and edit root-level items. On a Mac, tasks such as editing or deleting .plist files are common troubleshooting techniques. On an iPhone, you need to jailbreak to perform such tasks. As a fun example, the following article showed how modifying an iPhone app's .plist file directly on the phone could enable or disable a hidden preference: http://www.tedlandau.com/files/under-the-hood_iphone.html.
- **Access to “banned” software:** Apple's restrictions on what gets accepted to the App Store mean that many potentially useful apps never show up there. For example, MobileTerminal allows you to use the same Unix commands on the iPhone that you can use with Terminal on a Mac. Netatalk allows you to wirelessly mount your iPhone as a shared device on your Mac. ScreenSplitr allows you to view your iPhone screen on your Mac. It is unlikely that you'll ever see these apps in the App Store. But they are available on a jailbroken iPhone.

In the end, should someone with an interest in what jailbreaking can do jailbreak their phone? I am currently on the fence. If the current jailbreak procedure does not seem unduly complicated, and you are willing to put up with the inevitable hassles that will occur after the release of each new iPhone OS version and iPhone model, I'd say go for it. Otherwise, no.

How to Jailbreak

Describing how to jailbreak an iPhone for a book like this is an exercise in futility. What you can or cannot do, and how best to do it, keeps changing as Apple continues efforts to prevent jailbreaking and hackers continue to search for better solutions to circumvent what Apple does. There are also differences between iPhone and iPod touch models, and even between different iPhone generations, in terms of what you can do.

If you are interested in jailbreaking an iPhone 3GS, the situation is especially dire. In order to jailbreak this model, you may need the iPhone's ECID SHSH data. If you don't already have this data, it may be impossible to get (read http://www.macobserver.com/tmo/article/jailbreaking_iphones_going_going_gone/). Similar issues affect the latest iPod touch models, at least some of which are still not jailbreakable as of the publication of this book.

In a bit of good news, as of iPhone OS 3.1.2, you can bypass this ECID requirement for at least some iPhone 3GS units (discussed in http://www.macobserver.com/tmo/article/iphone_jailbreaking_the_landscape_shifts_again/). But don't expect the situation to stay this way. It is entirely possible (I would even say likely) that jailbreaking may be impossible on future generations of the iPhone and iPod touch, as Apple continues to block the exploits that allow jailbreaking to work.

As such, it's pretty much pointless for me to give step-by-step guidelines here regarding jailbreaking any iPhone or iPod touch. For a useful summary, see the Mac Observer article cited in the previous paragraph. It briefly covers how to jailbreak and how to use the Cydia and Icy installer apps to add or delete third-party (non-App Store) software. It also includes links to Web sites that contain even more details.

Warning! *If you use iTunes to do a standard update or restore (rather than a custom jailbreak restore) on a currently jailbroken or jailbreakable iPhone or iPod touch, you may lose any ability to jailbreak the device ever again! That's why, before you attempt any jailbreaking, updating, or restoring, you should check with sites such as [iphone-dev.org](http://blog.iphone-dev.org/) (<http://blog.iphone-dev.org/>) and [iclarified.com](http://www.iclarified.com) (<http://www.iclarified.com/tutorials/iphone/>) for the latest advice and step-by-step instructions.*

Navigate Wi-Fi, EDGE, 3G & Bluetooth

Among the iPhone's numerous talents is that it can easily connect to the Internet, offering you the capability to surf the Web, check email, map directions, and get stock and weather updates. For these features to work, you must have a network connection, and ideally a fast one. That's what this section is about: how the network settings work, how to set them optimally, and, of course, what to do when they don't work as expected.

This section focuses on the major networks used to connect the iPhone to the Internet: Wi-Fi, 3G, and EDGE. In the final part of this section, I cover Bluetooth connectivity, including a look at peer-to-peer connections and Internet Tethering.

SELECT A NETWORK TYPE

The iPhone supports two different network types: Wi-Fi and cellular data networks. In contrast, the iPod touch only offers Wi-Fi. Don't underestimate this difference. It is common to refer to the iPod touch as an "iPhone without the phone." For me, however, the biggest difference is the iPhone's data network support. This is what allows you to get on the Internet almost anywhere (in your car, in a park, on an airplane before take-off), regardless of whether or not there is Wi-Fi access at your location. If you can make a phone call, you can probably use your phone carrier's Internet data network.

In some locations, you will have a choice: both Wi-Fi and data network support will be available. This leads to an initial question: If you have a choice, which network type should you prefer?

- **Wi-Fi:** Wi-Fi is, by far, the faster type of Internet connection. Unless you are worried about the lack of security of the network, this is almost always the better choice. It is possible that a very weak Wi-Fi signal will perform worse than a strong data network connection, but such a combination won't happen often. Otherwise,

the only potential downsides are that some Wi-Fi networks require a fee or a password to log on.

- **Data network:** The phone carrier’s data network (3G, EDGE, or GPRS) is much more widely available than Wi-Fi and doesn’t require a login. Unlimited use of the network is included in your iPhone’s monthly service plan, except for *roaming charges* (which accrue if you access the network outside of your carrier’s defined home area—for US users, this typically means out of the country). The biggest disadvantage of a data network is slower speed, especially if you don’t have 3G access (or have a weak signal of any type).

3G iPhone? *In the context of networks, when I write “3G iPhone”, or “3G-capable iPhone,” I mean any iPhone that supports 3G networks; specifically the iPhone 3G and the iPhone 3GS.*

If a Wi-Fi network is available, the iPhone either automatically joins it or asks if you wish to join it. On the other hand, if no Wi-Fi network is available, or you choose not to connect to one, you are automatically connected to an available data network from your phone provider (AT&T in the United States). You will be connected, in preferential order, to a 3G, EDGE, or GPRS network. For example, in the case of a 3G iPhone, if there is EDGE but no 3G coverage in your current location, you will be connected to EDGE.

As you travel about, a 3G-capable iPhone should seamlessly switch between Wi-Fi, 3G, and EDGE, depending on which networks are available.

Tip: For a general introduction to all iPhone connection types, see this Apple article: <http://support.apple.com/kb/HT1355>.


Internet speed: *Even the fastest Internet connection on your iPhone won’t be as fast as on your Mac. In particular, loading Web pages in Mobile Safari, especially pages with lots of graphics that have not been optimized for iPhone access, can be excruciatingly slow even under the best of circumstances.*




To make all this work successfully and according to your specifications, you’ll have to spend a bit of time in the iPhone’s Settings app. Exactly what you need to do is the subject of the next topic.

Network Icons in the Status Bar


The status bar at the top of your iPhone provides important cues as to the current state of your network connection.





Starting from the left, you should see the signal strength icon for your mobile phone, typically followed by AT&T in the United States ( AT&T). The more bars, the better your signal strength (see [Check Signal Strength](#) for related information). The number of bars relates directly to your ability to make phone calls successfully and to the quality of your network connection. Fewer bars can translate to a slower Internet connection.

If you are using a data network from your phone carrier, you will next see an icon for 3G (), EDGE (), or (rarely in the United States) GPRS (). Like EDGE, GPRS is a slower “2G” network.

For a useful discussion of how to interpret the number of bars, especially when comparing EDGE to 3G connections or different iPhone models, see <http://support.apple.com/kb/HT1976>. For example, you’ll learn why a 1-bar 3G connection may perform better than a 4-bar EDGE connection.

If you are instead connected to a Wi-Fi network, you’ll see the Wi-Fi icon () to the right of the carrier name (AT&T). More dark bars in this icon indicate a stronger, faster connection.

If you’ve turned on [Airplane Mode](#), the icons I’ve just described will instead be replaced by an airplane icon. If there is no network availability, you may see “No Service.”

Finally, if Bluetooth is enabled, you’ll see a Bluetooth icon on the right-hand side of the status bar, just to the left of the Battery icon ( ). The icon is gray if Bluetooth is on, but no paired device is currently connected. It changes to blue or white when a device *is* paired.

JOIN A WI-FI NETWORK

The first time you attempt to join a given Wi-Fi network takes more effort than subsequent attempts. After that first connection, the iPhone “remembers” that Wi-Fi network and, unless there is a problem at the

network end (having nothing to do with your iPhone), future connections to that network are automatic.

Here are the steps required to join a Wi-Fi network for the first time:


Closed networks: *These steps work for Wi-Fi networks that broadcast their availability. I discuss how to [Join a Closed Network](#) later.*

1. By default (that is, if Ask to Join Networks in Settings > Wi-Fi is enabled), when the iPhone first detects a Wi-Fi network, it asks if you wish to join that network. If more than one network is available, they will all be listed (**Figure 37**). Next to the name of each listed network is a signal strength icon and, if the network requires a password, a padlock icon. You can use this information to decide which network to join.



Figure 37: The Select a Wi-Fi Network list pops up when there are Wi-Fi networks in your vicinity but none to which you automatically connect.

2. Tap the name of the network you want to join. If prompted, enter a password and tap the Join button. (You may need also need to log in via a Web site; see [Join Wi-Fi Hotspots](#), p. 162.)

If all goes well, you will join the network, and the  icon will appear in the status bar. You can verify your network connection in the Settings app; at the top of the main Settings screen, you should see the network name to the right of the Wi-Fi item (if you are not connected to any network, it will read “Not Connected.”).

In the future, when your iPhone is in range of this network, it should automatically connect to it.

If this does not occur, or if you wish to select a different Wi-Fi network, go to Settings > Wi-Fi to manually connect to a network. From the Choose a Network list (**Figure 38**), tap the name of the network you wish to join. If it is locked, enter its password when prompted and tap the Join button. Once the connection is made, a checkmark will appear next to the network's name.



Figure 38: Choose a Wi-Fi Network from the list here.

Tip: For more details about automatically joining Wi-Fi networks, including a warning, see [Avoid Joining Unknown Open Wi-Fi Networks](#). For more general information about joining Wi-Fi networks, and related connection settings, see these two Apple articles: <http://support.apple.com/kb/HT1695> and <http://support.apple.com/kb/HT1355>.

Join a Closed Network

Some Wi-Fi networks are *closed*, which means their names are not publicly broadcast and thus don't appear by default. To join a closed network, go to Settings > Wi-Fi and tap Other in the Choose a Network list to bring up the Other Network screen (**Figure 39**). On this screen, enter the network's name and select the security method (None, WEP, WPA, or WPA2). If you selected anything other than None, a field appears for entering the password. After doing so, tap Join.



Figure 39: The Other Network screen appears if you tap Other in the Choose a Network list.

Note: If you are using a VPN, see [Use a VPN](#).

Note: If you tap Cancel when asked to join a Wi-Fi network, you remain connected to your current data network and you should no longer receive prompts to join a Wi-Fi network—at least until the iPhone is put to sleep and re-awakened. If you continue to be bothered by these prompts, you can go to Settings > Wi-Fi and disable the Ask to Join Networks setting.

Warning! The iPhone currently can't connect to an 802.11n-only Wi-Fi network; instead, it needs a network that supports 802.11b or 802.11g. For more information on setting up Wi-Fi networks, see Glenn Fleishman's [Take Control of Your 802.11n AirPort Network](#).

ACCESS MORE INFO FOR A WI-FI NETWORK

To the far right of each network listed in the Settings > Wi-Fi screen is a More Info icon (ⓘ). If you tap this icon (instead of tapping the network name itself) for the network to which you are connected, the iPhone displays details about the network (**Figure 40**). For other networks, the fields are empty.



Figure 40: An example of the screen that appears if you tap the More Info icon for your currently connected Wi-Fi network.

You should rarely, if ever, need to edit these settings. Typically, your iPhone receives an IP address via DHCP from the Wi-Fi server or

router to which it is connected, so you can't edit the settings even if you want to. That's also true of the BootP. You can enter data manually only if you tap Static.

What you *may* need to access are the Renew Lease and Forget this Network buttons, which I cover in the problem-solving topics later in this section.

Airplane Mode

During most airline flights, it is okay to use an iPod but not a mobile phone or Internet device. This presents a dilemma for iPhone owners, as the iPhone is all these things. Apple's solution is Airplane Mode.

To activate it, open the Settings app and at the top of the main Settings screen, slide the Airplane Mode slider to On. An icon of a plane appears in the upper left of the status bar, replacing the network indicators that are normally there. At this point, you have no Wi-Fi, EDGE, 3G, or Bluetooth access. You can't check email, make or receive phone calls, surf the Web, or perform any other network-based function. But you can use the iPod functions of the phone, along with any apps that don't require network access.

Of note, even when Airplane Mode is on, you can manually re-enable Wi-Fi and Bluetooth access (via the Wi-Fi and General > Bluetooth options in the Settings app), leaving disabled only cellular data networks (EDGE and 3G) and the ability to make phone calls.

The iPod touch does not have Airplane mode. Instead, you must disable Wi-Fi and Bluetooth separately.

SOLVE WI-FI NETWORK PROBLEMS

Common problems with connecting to Wi-Fi networks include:

- You can't get your iPhone to join a particular Wi-Fi network or (in the worst case) any Wi-Fi network.
- You connect to a Wi-Fi network but have no Internet access.
- You get unwanted messages asking if you want to join a Wi-Fi network.

- You automatically connect to a Wi-Fi network that you do not want to join.
- Your Internet connection seems unusually slow.

If you have one of these problems, or a similar sounding problem, check out the suggestions in the pages that follow. Please note that some of the advice assumes that you've read the earlier portions of this section.

Toggle Airplane Mode

[Airplane Mode](#) (previous page) is a quick way to disable all network services, but toggling it can also be a useful tool for fixing network problems with an iPhone: just turn Airplane Mode on for 10 to 15 seconds, and then turn it off. This resets all network connections and may fix your issues via the same magic by which restarting a computer can cure a variety of intractable problems.

Toggle Wi-Fi

In Settings > Wi-Fi Networks, slide Wi-Fi to Off. After waiting about 10 seconds, turn it back on. This is similar to the Airplane Mode trick, but it targets just Wi-Fi access and you can try it on an iPhone or iPod touch.

Turn Wi-Fi Off Altogether

In rare instances, you may find that the only available Wi-Fi connection is less reliable than 3G or EDGE. In such cases, even though you appear to have a successful Wi-Fi connection, you may see frequent "could not connect to server" messages in Safari. The Wi-Fi connection may even intermittently fail, dropping you back to EDGE. In such cases, it may pay to turn off Wi-Fi temporarily, by moving the Wi-Fi slider in Settings > Wi-Fi to Off. Re-enable it periodically to see if a better connection is available.

In a variation of this situation, you may have previously connected to a Wi-Fi account that requires a Web-page-entered password or charges a fee. Because the network is now remembered, the iPhone automatically joins it when you return to the same location. This time, however, if you don't recall the password or choose to pay the fee, you'll be connected to the network, but with no Internet access. If you can't select another Wi-Fi network, you can solve the problem by disabling Wi-Fi,

forcing the iPhone to use 3G or EDGE instead. You might also choose to forget the Wi-Fi network; see [Forget a Network](#), below.

Move to a Different Location

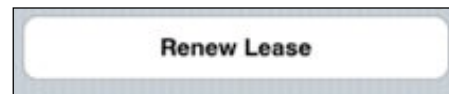
The weaker the signal strength, as indicated by the Wi-Fi icon in the status bar, the slower your Wi-Fi activities may be. If possible, move closer to the Wi-Fi access point to get a better connection. For example, just moving to a different room is often enough to affect the desired change.

Switch Wi-Fi Networks

Different networks may have different upstream connections to the Internet, may be under smaller or larger loads from other users, or may suffer from varying degrees of interference. If your network connection is performing poorly, and another Wi-Fi network is available, try that one instead. Similarly, if the connected network isn't the one you expected to join, switch to the one you intended to use. (See [Join a Wi-Fi Network](#), a few pages earlier, for help.)

Renew the DHCP Lease

Go to Settings > Wi-Fi and tap the More Info icon (ⓘ) for the currently connected network. If the network is providing your IP address via DHCP, a Renew Lease button is present (shown here), though you may have to scroll to see it. Use this button to force the DHCP server to renew the lease on your IP address, which may have the effect of acquiring a new IP address and/or establishing a better connection. This is especially likely to help with connection problems at a public hotspot, such as at an airport or hotel.



Forget a Network

To remove a network from an iPhone's list of known networks, go to Settings > Wi-Fi, tap the More Info icon (ⓘ) for any known network in the list, and tap the Forget this Network button (shown here). The iPhone will no longer join the network automatically or remember the network's password.



Forgetting a network can be useful if, for example, you want to bypass automatically joining a given network in favor of another one, or if you want to enter a different password for the network. It can also be

an alternative to turning off Wi-Fi (as described earlier) for situations where your iPhone automatically rejoins a network that you no longer want to join. For related advice, especially regarding the Auto-Join option, see [Join Wi-Fi Hotspots](#).

Beware of open Wi-Fi networks! After you join any Wi-Fi network, it becomes a remembered network. This means that you will rejoin it (or any other network with the same name) automatically the next time it is in range. While this is convenient, it can also present a security risk, as explained in [Avoid Joining Unknown Open Wi-Fi Networks](#).

Forget and Rejoin a Network

For problems where you *want to* automatically rejoin a known network, but don't, tap the Forget this Network button, as discussed on the previous page. Then immediately try to join the network. Often, this resolves the problem and you will automatically join successfully in the future.

Check for Password Problems

If you get an error message that says something like “Unable to Join Network Failure” or “Incorrect password,” you may have entered the wrong password. If so, try again. If necessary, forget the network and rejoin it (described just previously), so you are prompted to enter a password when you attempt to rejoin.



Other password problems and solutions include:

- **Hexadecimal problem:** You may need to enter the password as either an ASCII passphrase (such as *baddog45*) or its hexadecimal equivalent (a collection of numbers and the letters from A–F). Further, some hexadecimal passwords must be preceded by a dollar sign (\$). Experiment with different variations until one works.
- **Language problem:** If you use a language other than English (set in Settings > General > International), be aware that the password may need to be entered with English language characters. The iPhone should switch automatically to permit this, but if it doesn't, try changing the keyboard and language to English before you enter the password.

- **8021X or WPA problem:** Some networks may be listed as unlocked, implying that a password is not needed. However, they still require authentication for Internet access. Such networks include those running under 802.1X and WPA/WPA2 Enterprise, as used by many large companies and institutions. The iPhone does not provide the required authenticating software in these cases.

Note: For related information on password issues, check out the advice in [Make Your Passwords iPhone-Friendly](#) (p. 192) and [Use “Other…” to Solve Wi-Fi Problems](#) (p. 158).

Check the Network’s IP Settings

If it appears that you are successfully connected to a Wi-Fi network (the  symbol appears in the status bar), but you can’t access the Internet, check the IP settings: In Settings > Wi-Fi, tap More Info () next to the currently connected network.

The IP settings for a typical DHCP connection look like those shown in [Figure 40](#) (a few pages earlier). (If possible, when all is working well, you should note these settings so you can compare them to your settings if you encounter a problem.) Most notably, if the IP address starts with 169.254 (the self-assigned IP address all devices use if they aren’t given a real one), something is wrong with your connection. To fix this, use the tips just previously to check for a password issue, and to renew the lease and to forget the network. Otherwise, the problem is probably with the router, modem, or ISP.

Check the Router and Modem

If you are connecting to a Wi-Fi router in your home, such as an AirPort Extreme base station, make sure you haven’t enabled settings that would prevent the iPhone from joining the network. For example, if you enabled the *MAC Address Access Control* option in AirPort Utility, you’ll need to enter the iPhone’s MAC address in the router’s filter list. Similarly, if your trying to connect to someone else’s router, they will need to add your iPhone to their MAC list if they have enabled such a feature.

MAC address: *Your iPhone’s MAC (Media Access Control) address is listed as the Wi-Fi Address in Settings > General > About.*

A further potential quick fix, assuming you have access to the hardware, is to unplug the wireless router and Internet modem for a minute or so. Then plug them back in again—first the modem, and then the router. Especially try this if the problem affects all devices connected to the network, not just the iPhone.

Otherwise, contact your ISP for advice. For example, the problem may be that upstream Internet access is temporarily down at the ISP.

Reset Network Settings

As a near-last resort for networking problems, go to Settings > General > Reset and select Reset Network Settings. This will remove virtually all network-related settings from your iPhone. If a corrupt setting caused your problem, this should fix it. You'll have to spend a bit of time re-entering deleted settings, but at least your problem will have been solved.

No Wi-Fi or Bluetooth Address Listed

Rarely, Wi-Fi may fail to work even though it appears that you have a successful connection. Or the Wi-Fi icon may remain dimmed no matter what you do. According to Apple (<http://support.apple.com/kb/TS1559>), this symptom can occur “if, during the initial setup of the iPhone or iPod touch or after performing a software update or restore using iTunes, no Wi-Fi or Bluetooth address was registered.”

In such cases, go to Settings > General > About and check the Wi-Fi Address entry. If no address is listed, first sync your data and then tap Reset Network Settings. If this has no effect, go the extra mile and, on the same screen, select Erase All Content and Settings.

The same cause may result in a Bluetooth connection failure. In this case, the Settings > General > About screen will not list a Bluetooth address. The suggested (Reset) solutions are the same as for the Wi-Fi symptom.

Note: For more problem-solving tips, see <http://support.apple.com/kb/TS1398>.

Use “Other...” to Solve Wi-Fi Problems

A few pages earlier, I described how to [Join a Closed Network](#). This same option can also solve a problem joining an open network wherein the iPhone (perhaps due to a bug) attempts to use an incorrect security protocol. This is unlikely to occur with an Apple AirPort base station, but it happens occasionally with other routers, such as combination DSL modem/routers.

Exact symptoms vary, but the most common symptom is that the EDGE (E) or 3G (3G) symbol remains in the status bar even though the Settings app indicates that you are connected to a Wi-Fi network. Internet access will vary from unusually slow to nil. Further, when you tap the More Info (ⓘ) button for the supposedly connected network, the IP fields are blank!

The solution is to force the correct protocol. Here’s what to do:

1. In Settings > Wi-Fi tap the More Info (ⓘ) button for the problem network and then tap the Forget this Network button.
2. Even though the desired network remains listed in the Choose a Network list, tap Other instead.
3. In the Other Network screen, type in the name of the network.
4. Tap the Security field—this is the critical step. In the screen that appears, select the correct encryption type. When this happened to me, I needed to select WPA. Apparently, the iPhone was incorrectly defaulting to WEP.
5. Tap the Other Network button return to the Other Network screen, and then enter the password. A hexadecimal password may need to be preceded by a \$.
6. Tap Join.

You should now join the network, and the Wi-Fi icon should replace the EDGE (E) or 3G (3G) icon in the status bar. The network is now a known network, so you should not have to repeat this procedure.

SOLVE DATA NETWORK PROBLEMS

Other than the fact that 3G and (especially) EDGE cellular data networks are generally slower than Wi-Fi, you should have relatively few

problems using them—fewer than with a Wi-Fi connection, in fact. Still, there is some potential for trouble. Common problems with connecting to data networks include the following:

- You want to use 3G but get EDGE instead.
- You can't get a data network connection, sometimes even though you can make phone calls.
- The connection speed is slower than typical for the network type.

The next two topics offer basic advice for fixing these problems. I am assuming here that shifting to a Wi-Fi network is not an option.

Move to a Different Location

The speed of a data network can vary depending upon your exact location and the current traffic load on the network. In the worst case scenario, the status bar may say “No Service” where the signal strength bars should be, indicating that you are not on a data network at all. Obviously, if this happens while you are using an Internet service, that service is immediately interrupted. If you are trying to load a Web page, for example, it will fail to load.

If the signal strength of a 3G connection drops to a low enough level, the iPhone will automatically shift to EDGE. Even while sitting in a single location, your iPhone may repeatedly shift from 3G to EDGE and back to 3G again. The good news is that you should maintain your Internet connection throughout all this shifting. The bad news is that the connection will typically slow significantly when it shifts to EDGE. Unfortunately, you can't force the iPhone to stay on a 3G network over an EDGE one.

Note: In some cases (especially with an iPhone 3G), the shift from 3G to EDGE may occur even though the status bar at the top still indicates a 3G connection. After a minute or so, if the EDGE connection is maintained, the status bar will update correctly.

If you get a message that says, “Could not activate EDGE,” the problem is not with your iPhone, but with the network itself. For example, the network may be temporarily down in your area, for some reason. In all such cases, moving to a different location may allow you to connect or improve your speed. Even walking to a different part of a room or

changing the orientation in which you hold the iPhone may help. However, if there isn't any network coverage in your current location, all you can do is move to an area where coverage exists. Or, if the problem is a temporary glitch, wait for your carrier (AT&T in the United States) to fix the problem.

Check Signal Strength

AT&T iPhones let you view a numerical indicator of the iPhone's current data-network signal strength. To do so, type the characters `*3001#12345#*` in the Phone app's Keypad screen and tap the Call button. This brings up Field Test mode. The signal-strength bars in the upper left are replaced by a negative number. The less negative the number, the greater your signal strength. For a reasonably reliable signal, the number should be less negative than -100. Ideal strength would be somewhere around -50.

For more on signal strength, including how to retain the numerical Field Test readout even after you end the call, see my two Bugs and Fixes articles on the topic:

- http://www.macworld.com/article/141405/2009/06/iphone3gs_signalstrength.html
- http://www.macworld.com/article/141521/2009/07/appletv_iphone_bugsandfixes.html

Access the Internet While on the Phone

On the original iPhone, you cannot simultaneously make a phone call and use an Internet data network. For example, if you are on the phone, you can't switch to Maps to check the location of a restaurant. Conversely, if you are currently transmitting data via Safari, you cannot receive calls—incoming calls go directly to voicemail, and you don't even realize you missed a call until you receive the voicemail notification.

With the iPhone 3G and 3GS, you *can* access the Internet and make or receive phone calls while on the 3G network, though the limitation still applies when on the EDGE network.

On any iPhone, you can use a Wi-Fi connection and access the phone simultaneously.

Disable 3G or Wi-Fi

If you have a strong EDGE connection but only a weak 3G connection, the EDGE connection may be faster. In this case, an iPhone 3G will attempt to connect to EDGE, but it may occasionally fail. In such cases, you disabling 3G networking will force the iPhone to use the EDGE network. To do this, go to Settings > General > Network and move the Enable 3G slider to Off (**Figure 41**). Note: Even with 3G disabled, you can still make phone calls.



Figure 41: Go to this Network screen to disable 3G or Data Roaming.

Disable 3G and EDGE

Apple doesn't provide an obvious way to disable both 3G and EDGE other than via [Airplane Mode](#) (p. 152) or (if you are in a roaming area) by disabling Data Roaming. However, with Airplane Mode enabled, you can re-enable Wi-Fi via Settings > Wi-Fi. This gives you Wi-Fi access without 3G or EDGE. Of course, with these settings you will not be able to make or receive phone calls. The only way I know to disable all data services but allow the iPhone to continue to function as a phone is via a carrier settings hack that I describe in this article: <http://www.macworld.com/article/143088/carriersettings.html>.

For a related situation where you may need to disable Wi-Fi so as to force a 3G or EDGE connection, see [Turn Wi-Fi Off Altogether](#), a few pages previously.

Restart Your iPhone

Occasionally, you may be unable to make phone calls or send SMS/MMS messages even though you appear to have a sufficiently strong 3G or EDGE connection. This happens most often when the local cell area is overloaded with activity; however, symptom may persist after traffic activity has declined. A reliable solution is to [Restart](#) the iPhone.

***Why didn't my phone ring?** When someone calls your iPhone, the call may be routed to voicemail rather than ringing. Carriers use separate network channels for voice calls versus messages and voicemail; if a voice network is currently overloaded or you have a weak signal, voicemail and SMS/MMS messages may arrive immediately, even though calls fail (explained in <http://db.tidbits.com/article/9796>). Restarting the iPhone may solve the problem. Also see [Access the Internet While on the Phone](#).*

JOIN WI-FI HOTSPOTS

If you've ever connected to the Internet at one of the myriad Wi-Fi hotspots, such as in hotels, coffee shops, and airports, you know the drill. I'm talking about the mildly irritating two-step dance you must do before you can access the Internet, even when such access is free:

1. Join the Wi-Fi network. With your iPhone, this is usually as easy as a single tap on the network name when it appears, as there is no password requirement or other sort of restriction. At this point, while you have a Wi-Fi connection, you still have very limited, if any, Internet access.
2. Separately log in to the hotspot. To complete this step, you launch Safari and attempt to load any Web page; your request is intercepted, and a login page for the Wi-Fi network appears instead. You enter the data requested, such as a password or agreeing to a set of conditions, and then log in. If a password is required, it is typically provided to you by staff at the hotspot location.

What makes this dance even more frustrating is that you typically must repeat it, re-entering the same information, each time you return to the same hotspot. Yet another annoyance occurs if you are unaware of (or forgot about) the two-step requirement and assume that, after

connecting to the Wi-Fi network, your work is done. Rather than use Safari to complete the login, you launch another Internet app (such as Mail, Stocks, or Weather) and are perplexed to discover that you have no Internet access. Happily, new features in iPhone OS 3, notably Auto-Login and (to a lesser extent) AutoFill, eliminate virtually all of these annoyances. To take advantage of these features, it pays to understand how they work.

Use Auto-Login at AT&T Wi-Fi Hotspots

If your iPhone uses AT&T as its carrier, you have free access to any and all AT&T Wi-Fi ([attwifi](#)) hotspots in the United States, such as the ones at Starbucks. With other Wi-Fi devices (including the iPod touch), such access typically requires a fee.

Note: As of July 2009, Wi-Fi access is free for everyone at Barnes & Noble bookstores that use AT&T Wi-Fi.

If your iPhone is running OS 3, logging in to the [attwifi](#) network is easy. Just tap the button to join. Done. This not only connects you to the local Wi-Fi network, but also automatically logs you in. As a bonus, next time you are in range of *any* [attwifi](#) network, not just the one to which you originally connected, your iPhone should join automatically.

Starbucks' Apple-only Internet Access

While the iPod touch can't take advantage of this free At&T Wi-Fi access, it may be able to use an alternate option for free limited Wi-Fi access at participating Starbucks. To do so, just join the [attwifi](#) or [tmobile](#) network at the store. If it works as expected, your will have Internet access limited to Apple Web sites and the iTunes Store. (With an iPhone, you may be able to obtain this special access by joining the [tmobile](#) network, if the location has both [attwifi](#) and [tmobile](#).)

One special feature of this connection: When using the iTunes (Store) app, you should see a Starbucks section, where you can get the name of whatever music is "Now Playing" and download selections if you wish.

It is my impression that this feature is being phased out; so don't be surprised if your local Starbucks is no longer "participating." See this article for details: <http://support.apple.com/kb/HT1690>.

Use Auto-Login at Other Hotspots

For all other Wi-Fi hotspots, iPhone OS 3 offers a new Auto-Login feature that, while a bit less automatic than the attwifi setup, still avoids most of the hassles of the two-step login:

1. Join the Wi-Fi network at your hotpot, using the standard procedure of tapping the network name (either when prompted or via the list in Settings > Wi-Fi).
2. Open *any* Internet application (it need not be Safari; it could be Stocks, for example). A special Log In overlay screen appears. This screen displays the same login Web page that would normally load in Safari.
3. Enter the data on the screen, as requested. When done, tap to log in.

At this point, you are returned to your selected app, but now with Internet access. It gets better: Not only does this avoid the need to go to Safari initially, but the next time you return to the same hotspot, you don't need to contend with the Log In overlay at all! The iPhone remembers the data you've previously provided and enters it for you automatically, behind the scenes. You are automatically logged in as soon as you join the Wi-Fi network.

Use AutoFill

There are some hotspots where auto-login does not seem to work. That is, the Log In overlay never appears. Instead, you must log in manually via Safari. However, even here, iPhone OS 3 offers a new feature that makes this more convenient: If you find that you repeatedly need to fill in login forms, you can save time and hassle by using Safari's AutoFill. With this feature, you enter the required data the first time, as usual. On subsequent logins, when the keyboard pops up, an AutoFill button appears (**Figure 42**). Tap the button and the text box(es) are filled in automatically with the data you previously entered.



Figure 42: The AutoFill button appears when you can automatically fill in previously entered data.

Forget This Network vs. Auto-Join Off

There may be times when you prefer *not* to auto-join the Wi-Fi network at a particular hotspot. Perhaps you don't have the required password, or you find the 3G connection to be more reliable in a given location. In such cases, you have two options:

Forget This Network

When you are within range of the Wi-Fi network, go to Settings > Wi-Fi and tap the More Info icon for the network. Here you will find a Forget this Network button. If you tap this, and confirm your choice, you will immediately disconnect from the network, assuming you are currently connected, and you will not automatically rejoin the network in the future.

All stored data for the network is removed when you choose Forget this Network. This means that, should you decide to manually rejoin the network, you will need to re-enter its Wi-Fi password (if there is one). In addition, for hotspots that have a separate login, you'll have to re-enter the requested login data.

Auto-Join Off

Starting in iPhone OS 3, and only for commercial hotspots that require a separate login (as opposed to home network setups), you'll typically find an Auto-Join option just below the Forget this Network button (**Figure 43**). The option may not appear until after the first time you successfully join the network and log in.



Figure 43: Make sure Auto-Join is on if you want the iPhone to automatically rejoin a previously visited Wi-Fi hotspot.

Like Forget This Network, sliding Auto-Join to Off prevents automatic rejoining of the network on future occasions. However, unlike Forget this Network, turning Auto-Join off does *not* log you out of a current

connection. In addition, if you later revert to Auto-Join On, the Wi-Fi network's previously entered password is remembered. Depending on the length of time since your last login, and the particular hotspot setup, the Log In window may or may not reappear.

Manually rejoining a network when Auto-Join is Off does not automatically shift the slider to On. You have to manually do this. Even if you shift Auto-Join to On, the change will not be retained unless you successfully join the network.

Solve Problems with Hotspot Logins

If you can successfully join a Wi-Fi network, but its separate login fails, it may be that the network's Web-based login software is incompatible with the iPhone OS. In this case, there is nothing you can do except hope that a compatible update is in the works.

If you can't even join the Wi-Fi network, or if you appear to have logged in successfully but you still have no Internet connection—and assuming that you've performed the standard iPhone troubleshooting, such as making sure that Wi-Fi is enabled—there is most likely a problem with the hardware at the local hotspot. Check with the establishment to find out what they may know.

For more troubleshooting advice regarding joining Wi-Fi hotspots, see my article: <http://www.macobserver.com/tmo/article/auto-join-wi-fi-hotspots-with-iphone-os-3.0/>, as well as the advice in [Solve Wi-Fi Network Problems](#).

TRAVEL ABROAD WITH YOUR iPhone

Do you live in the United States, but plan to take your iPhone with you on a trip to another country? You may want to reconsider.

For starters, if you have an original iPhone, note that many countries support only 3G networks—the original iPhone simply won't work there. AT&T has a Web page that can help you determine the network requirements for your phone and destination, as well as related useful information: <http://www.wireless.att.com:80/learn/international/roaming/international-roaming.jsp>.

Assuming you can access phone services on your trip, you'll have to pay international rates. Depending upon where you go and what discounts you may have, just making or receiving a phone call will cost at least \$1.00 per minute, and could cost as much as \$3.00 per minute or more! Text messaging will cost 50 cents per message. These fees are in addition to your normal monthly fees.

For Internet data services, the situation is even worse. On my recent trip to Japan, for example, it would have cost me 2 cents per kilobyte to access the Internet via 3G from my iPhone. That translates to \$1,024 for every 50 MB of data usage!

Cost-Saving Packages and Tips

Thankfully, there is a cheaper alternative. Much cheaper. You can purchase (*before* you leave on your trip) one of AT&T's International Data Packages. By doing this, I knocked down the cost of that 50 MB to just \$60. Assuming you plan to use data services, get one of these plans. Not doing so is just plain idiotic. However, don't be lulled into a false sense of security—even with a discount package, costly pitfalls await the unwary. For the full scoop, see an article that I wrote about the topic: http://www.tedlandau.com/files/iphone_overseas.html.

The following are several other cost-savings tips:

- **Use Wi-Fi where possible:** As much as possible, treat your iPhone as if it were an iPod touch, connecting only to Wi-Fi networks, and ideally only to free ones. One caution: If you expect to connect to the Wi-Fi network in your hotel, you may be disappointed. The hotel may offer only a wired Ethernet connection, as I discuss at http://www.macobserver.com/tmo/article/Traveling_with_my_iPhone_and_MacBook_Pro_in_Japan/.
- **Disable data roaming:** In Settings > General > Network, make sure that the Data Roaming slider is Off. This prevents your iPhone from automatically accessing *any* cellular data networks, and being charged for such access when you might be unaware of it—for example, if your iPhone checked for new email. When Data Roaming is disabled, you can still make and receive calls.

Roaming in your home country: *Roaming charges may also apply in less populated areas within your own country. That's why it's probably best to keep data roaming off by default. Turn it on only if and when you specifically want to use data roaming.*

- **Disable Push and Fetch:** In Settings > Fetch New Data, turn off any push and fetch services that might otherwise trigger an automatic connection to the Internet.
- **Turn off Location Services:** You'll find the option in Settings > General.
- **Disable 3G or use Airplane Mode:** In Settings > General > Network, slide Enable 3G to Off. In countries where no EDGE is available, this prevents you from making or receiving phone calls or SMS/MMS messages. (Remember, you are charged even if someone calls you and you don't answer.)

Even better, keep [Airplane Mode](#) enabled except when you need to use the phone and/or Internet services.

Note: You can use a carrier-settings hack to prevent any access to your data networks, whether roaming is on or off. The prohibition remains in effect until you undo the simple change. I cover the details in this article: <http://www.macworld.com/article/143088/carriersettings.html>.

Monitor Your Data Usage

To monitor your data services usage, either to help you decide how big a data package to purchase or to keep track while traveling, go to Settings > General > Usage, and scroll down to the Cellular Network Data category. You'll see the amount of Sent and Received data (in MB) since the time of your last reset (**Figure 44**). If you [Use Internet Tethering](#), the Tethering Data also count as data usage.



Figure 44: The Cellular Network Data area, near the bottom of the Usage screen, shows how much data you've sent and received.

Right before you leave on your trip, reset the statistics back to zero by tapping **Reset Statistics** (Figure 44, above). This lets you return to this screen at any time to check your accumulated usage for the trip.

Note: Wi-Fi usage does *not* affect these numbers; they are for cellular-data-network usage only.

Charging While Traveling

The iPhone's power adapter is designed for international use, with the capability to handle 100 to 240 volts at 50 to 60 Hz. These ranges include almost every possible combination you might confront, so you needn't buy a converter to charge in other countries. This is also true for Apple's laptop chargers, by the way.

However, you may need to buy an adapter (such as Apple's somewhat pricey World Travel Adapter Kit) to accommodate the varying plug designs in different countries. You can search on the Web to find the specifics for each country.



USE BLUETOOTH

In addition to Wi-Fi and cellular data networks, the iPhone and the second-generation iPod touch (but not the first-generation iPod touch!) support one other type of wireless connection: Bluetooth. Compared to most other mobile phones, the iPhone is limited in its

Bluetooth capabilities. Most notably, you can't connect an iPhone to a Mac via Bluetooth file sharing. However, with iPhone OS 3, Apple has expanded what you can do with Bluetooth, as detailed ahead.

For some of these features, Bluetooth is just one of two or more methods of accomplishing a task. For example, Internet tethering can work with either Bluetooth or USB. In such cases, I also discuss the non-Bluetooth alternatives. In a few cases, such as voice dialing via a Bluetooth headset, I've noted Bluetooth options elsewhere in this book.

Enable Bluetooth

The first step to making a Bluetooth connection with your iPhone is to make sure Bluetooth is enabled. To enable Bluetooth, go to Settings > General > Bluetooth and move the slider to On. (After doing this, the Bluetooth icon appears in the status bar beside the battery icon, like this:  .) While you are at the Bluetooth screen, your iPhone is *discoverable*—meaning it's available to make connections with other devices. The iPhone simultaneously initiates a search for other discoverable Bluetooth devices to which it can connect. When you exit the Bluetooth screen, your iPhone is no longer discoverable by unpaired devices.

Pair (and Forget) Devices

Once a device is *discovered* (seen) by the iPhone, it is listed in the Devices list of the Bluetooth screen. Your next step is to pair the iPhone and the device together. (*Pairing* is the name of the process by which two Bluetooth devices are linked together.) To do so, tap the name of the device in the Devices list. At this point, you may also need to enter a passcode, provided by the device, on the iPhone.

Exact procedures vary: In some cases, you instead initiate pairing from the other device, rather than from the iPhone. Instructions that come with the device should clarify what needs to be done.

Once paired, a device remains in the Devices list. If the device is not in range, its name shows up in the Devices list as Not Connected. The next time the device is within Bluetooth range of the iPhone (usually within 25 to 30 feet), the iPhone automatically connects to it. There is no need to return to the Bluetooth screen or enter any passcodes. You can pair your iPhone with many different Bluetooth devices, but only one can be used with the iPhone at a time.

Note: If a currently paired Bluetooth device is temporarily out of range of your iPhone, the phone may not automatically reconnect to that device when it comes back into range. You may need to press the connect/action button (or perform some similar action) on the Bluetooth device to get the iPhone to recognize it again.

If you ever want the iPhone to forget a paired device, tap the device's More Info icon in the Devices listing and then tap the Forget This Device button. Restoring the iPhone software may similarly result in the iPhone forgetting *all* pairings. Should you want to re-connect to a forgotten device, you will have to start over with a manual pairing.

Forget This Device is also useful for troubleshooting. If a paired device refuses to connect, try forgetting it and pairing it again. More generally, you might try to [Reset Network Settings](#) in order to resolve some Bluetooth issues.

Note: A Bluetooth device's More Info screen on the iPhone may include options beyond Forget This Network. For example, the listing for my Garmin GPS offers an option to sync the iPhone's contacts.

Use a Bluetooth Headset or Car Kit

Bluetooth headsets and car kits allow you to talk on the iPhone hands-free, a feature that is becoming increasingly important as laws are passed requiring hands-free mobile-phone use while driving.

Pairing

Most existing Bluetooth headsets and car kits work with the iPhone, so you needn't buy a new headset or car kit if you already own one. For example, my old Motorola headset, which I used with my previous mobile phone, worked perfectly. Here's what to do:

1. Make the Bluetooth headset discoverable. To learn how to do this, check the manual that came with the headset.
2. On your iPhone, go to Settings > General > Bluetooth. When the headset appears in the Devices list, select it.
3. You may be prompted to enter a passkey. If so, check the headset's manual to find out what the passkey is. If you can't locate the passkey, try the most common default, 0000.

After a few seconds, the headset should be listed as paired (**Figure 45**).



Figure 45: The iPhone's Bluetooth settings, showing a Bluetooth headset currently paired with the iPhone.

Receiving and Placing Calls

With pairing complete, you can use the buttons on the Bluetooth headset to answer a call. To make a call, you must “dial” the number on the iPhone, but you can use your headset for the conversation. If your headset is on and paired with your iPhone, the call automatically routes to the headset, although the iPhone will offer alternatives (**Figure 46**).



Figure 46: The option to converse via a Bluetooth headset is indicated by the speaker icon next to the Motorola name.

Note: For background information on using Bluetooth headsets with an iPhone, see: <http://support.apple.com/kb/HT1664>.

Use Stereo Bluetooth

Starting with iPhone OS 3, you can stream music from the iPhone to a wireless Bluetooth device, such as headphones, speakers, and even a car's audio system. (Using Bluetooth to stream to a car's audio system is an alternative to using third-party devices that wirelessly play your iPhone music through an "unused" FM frequency on your car's radio). Bluetooth-streamed sound quality will not be as good as with a wired connection, but the Bluetooth approach should be better than FM.

In order for stereo Bluetooth to work with an iPhone or iPod touch, the headset or carkit must use the Bluetooth Advanced Audio Distribution Profile (A2DP), as noted here: <http://support.apple.com/kb/HT3647>.

Pairing and connecting to a stereo Bluetooth device follows the general guidelines described previously. However, if those steps fail to work for some reason, you have an additional option: launch the iPod app and tap the Bluetooth icon at the bottom of the Now Playing screen (it will be there if a compatible device is within range).

After connecting, you adjust audio on the third-party device, not from the iPhone. You can also play or pause playback directly from the third-party device, although, at least as of iPhone OS 3.1.2, you can't skip tracks or otherwise browse the iPhone's media. If your Bluetooth headphones include a microphone, you should be able to make and receive phone calls, as well.

Switch the audio output back to the iPhone before turning off the third-party accessory! Otherwise, you may have trouble restoring audio to the iPhone; a restart may be required.

Tip: For more troubleshooting advice regarding Bluetooth stereo connections, see <http://support.apple.com/kb/HT1664>. See also this *Macworld* article by Dan Frakes: <http://www.macworld.com/article/141249/2009/06/iphonea2dp.html>.

USE PEER-TO-PEER CONNECTIVITY

New in iPhone OS 3 is peer-to-peer connectivity. This allows two or more iPhones to set up a temporary wireless network between them via apps that support this feature. You can use it to exchange contact information, for voice chat, and, most notably, play multi-player games.

Typically, to initiate a multi-player game, all players launch the relevant game (Flight Control is a popular example) and tap its multi-player button. One person elects to be the host and other(s) request to join the host. The host can accept or reject each request. Once everyone is connected, the game commences.

For the iPhone 3G and 3GS and the second-generation iPod touch, peer-to-peer connectivity works via Bluetooth. If Bluetooth is not supported, you may be able to connect via the Internet, but only if the app specifically supports this option. In my experience, most games so far support peer-to-peer only via Bluetooth. In any case, you can't mix and match; all devices must be on the same network type.

If you're having trouble establishing a peer-to-peer connection, your first step should be to try using a different iPhone as the host. Otherwise, see <http://support.apple.com/kb/HT3621> for more advice.

USE INTERNET TETHERING

Suppose you want to connect your MacBook to the Internet while traveling, but there is no Wi-Fi or Ethernet network available. If you have an iPhone 3G or 3GS, and it is currently connected to the Internet via 3G, your problem is solved! You can use Internet Tethering to use the iPhone as a "modem" to supply the MacBook with Internet access.

To use Internet Tethering, you must meet some basic requirements. For starters, you need an iPhone 3G or 3GS running iPhone OS 3, and your carrier must support tethering (a carrier-settings update may be required to activate the option). For more details, see this Apple article: <http://support.apple.com/kb/HT3574>.

While you can technically tether via EDGE, you should avoid doing so, as a tethered EDGE connection will likely be unbearably slow. Generally, you also wouldn't use tethering if your iPhone is connected

to a Wi-Fi network; in such a case, you would simply connect your MacBook directly to the Wi-Fi network. One exception would be if Wi-Fi access is free via the iPhone but not via the laptop.

You can make an Internet tethering connection wirelessly via Bluetooth (which is why I include this topic here) or wired via USB, using the iPhone's USB dock cable to connect the iPhone to the Mac.

Warning! *If your carrier has not yet enabled tethering, you will not see the tethering options in Settings. As of this writing, AT&T has not enabled tethering in the United States. When it does, expect tethering to cost extra (current predictions are in the range of \$30 per month. Even at this price, you may be limited in terms of how much usage you are permitted per month. To track your usage, go to Settings > General > Usage > Tethering Data.*

The Internet Tethering Hack

If you are still running iPhone OS 3.0, you needn't wait for AT&T to officially enable tethering. You can enable it for free, via a simple hack that requires no jailbreaking. For example, go to <http://help.benm.at/> in Safari on your iPhone and follow the prompts. This process will install a configuration profile that activates tethering. If you cannot enable tethering at this point, restart your iPhone and the feature should work.

This hack makes no permanent changes to your iPhone. To undo the hack, simply remove the profile: Go to Settings > General > Profiles, tap the name of the added profile (US AT&T in the United States) and tap Remove. For more detail, see my *Macworld* article (<http://www.macworld.com/article/143088/carriersettings.html>).

Not surprisingly, neither Apple nor AT&T sanctions this hack. In fact, Apple has blocked the hack from working in iPhone OS 3.1 (although a 3.1 hack may be forthcoming).

In the meantime, the benm.at Web site includes a tutorial (<http://www.benm.at/tutorials/howto-iphone-3g-firmware-3-1-downgrade-os-x/>) for downgrading the iPhone's firmware back to 3.0, so you could use the current hack—although it does not work with the iPhone 3GS. In any case, I remain wary of such downgrades and recommend avoiding them.

Here is the setup procedure for tethering:

1. On your iPhone, go to Settings > General > Network > Internet and move the slider to on (**Figure 47**).



Figure 47: The iPhone's Internet Tethering screen.

2. What you do next depends upon whether you plan to tether via Bluetooth or USB:
 - Bluetooth:
 - a. On your iPhone, go to Settings > General > Bluetooth. Make sure Bluetooth is on. Remain here, as this screen must be active for the iPhone to be discoverable by your MacBook.
 - b. On your MacBook, go to the Bluetooth pane of System Preferences and click the plus (+) button to set up a new device. The exact procedure depends upon the version of Mac OS X on your Mac (it differs between Leopard and Snow Leopard). Follow the Bluetooth Setup Assistant prompts; ultimately, a passcode number will appear.
 - c. Return to the iPhone and enter the passcode in the PIN screen that should now be showing. The two devices are now paired.

After completing this one-time setup, you are ready to connect your MacBook to the iPhone for tethering. To do so, I suggest using the Bluetooth menu bar item (you can enable it in the Bluetooth System Preferences pane, if needed). From this menu, choose **Devices > your iPhone > Connect to Network**. If a connection is made, the iPhone's name in the menu becomes bolded and its submenu item changes to **Disconnect from Network**.


- **USB:**
 - a. Connect the iPhone to the MacBook via the iPhone's USB dock cable. (The first time you connect the USB cable while tethering is on, an alert message should appear, informing you that the relevant network service has been created.)
 - b. On the Mac, go to the Network pane of System Preferences and locate the relevant service name: in Leopard, look for *Ethernet Adaptor (en5)*; in Snow Leopard, look for *iPhone USB*. If the service is listed but shows as Inactive, make it active by choosing **Make Service Active** in the Action () pop-up menu.
 - c. If the service is listed as Not Connected, as is likely at this point, select the service and click **Apply**. After a few moments, the service's entry should change to **Connected (Figure 48)** with an IP address displayed on the right side of the pane.



Figure 48: iPhone USB service listed as Connected in Network preferences.

On subsequent tethering attempts, you should be able to omit the visit to Network preferences. Tethering should be enabled almost immediately after the USB cable is connected.

Warning! *This immediate tethering occurs even if you don't want it; for example, if you connect your iPhone just to sync or recharge it. You can ignore the tethering, if you choose. Otherwise, you can turn off Internet Tethering on your iPhone before connecting it to your Mac.*

Now that you've followed the steps to set up tethering, a blue bar should appear across the top of the iPhone's screen displaying the connection time along with the words "Internet Tethering" (**Figure 49**) and your Mac should have Internet access.



Figure 49: Internet Tethering is currently active on this iPhone.

If you have any problems getting tethering to work, your first troubleshooting step should be to disable and re-enable your connection, trying the exact same procedures a second time. To do so for Bluetooth tethering, unpair your iPhone from your Mac and re-establish the pairing. For USB tethering, go to the Network pane of System Preferences, make the relevant service Inactive and then Active again, clicking Apply after each change. If problems persist, check out this Apple article for further advice: <http://support.apple.com/kb/TS2756>.

Understand Location Services

The preinstalled Maps program (the uber-versatile app that is my personal favorite of all iPhone software) can take advantage of technology in your iPhone to determine your current location. You can use this feature to get directions to any destination from your current location. Maps can even track your location in real time as you move.

Any other app can also use location information, if it supports the feature. For example, movie apps often use your location to automatically list show times for theaters nearby. The Camera app uses it to “geotag” your photos.

In all instances, this capability depends upon the iPhone’s Location Services feature. This section explains how it works and why you should care. I also cover the Compass feature in the iPhone 3GS.

LOCATION SERVICES BASICS

All location-aware iPhone apps depend upon Location Services to determine your current geographic location. Exactly how Location Services makes this determination, and how accurate it is, depends upon which device you are using and which network services are currently available:

- **Wi-Fi:** Any iPhone or iPod touch uses information gleaned from nearby Wi-Fi networks (even if you are not connected to a specific network) to help determine its location.
- **Cellular:** An iPhone (original or 3G) also uses information from nearby cellular-network towers to triangulate the current location.
- **GPS:** If you have an iPhone 3G or 3GS, congratulations. The GPS (Global Positioning System) hardware in these models can determine your location via the same satellite technology used by standalone GPS devices, such as those from Garmin or TomTom.

GPS is generally the most accurate of the three locating methods. See this Web page for more details: <http://www.apple.com/iphone/features/gps.html>.

Your iPhone or iPod touch determines its location by combining data from any and all of the available methods. For example, with an iPhone 3G or 3GS, tall buildings can block GPS signals, but you may still have Wi-Fi and 3G network access. In such a case, the iPhone determines your location without the benefit of GPS, combining data from the remaining two methods. This is why the accuracy of your location (or whether or not a location can be determined at all) varies depending upon exactly where you are and what network services are accessible.

Tracking Location via Wi-Fi

The company handling Wi-Fi triangulation is Skyhook Wireless; it currently covers 70 percent of the population of the United States, Canada, and Australia, with more-limited European coverage.

You can see if they cover your area by punching in an address at <http://www.skyhookwireless.com/howitworks/coverage.php>. If have trouble getting accurate results in a particular location, contact Skyhook via http://skyhookwireless.com/howitworks/submit_ap.php.

Generally, the first time you launch an app that uses Location Services, the iPhone asks if you want to enable Location Services for this app (**Figure 50**).

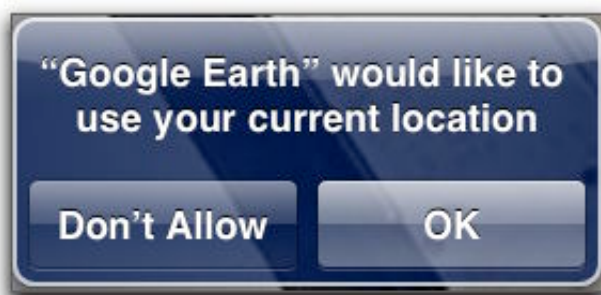


Figure 50: This message pops up the first time you launch an app that uses Location Services—or any time an app decides it needs to reconfirm.

The message serves as a security precaution. Although Apple states that “Location Services does not correlate the data it collects with your personally identifiable information,” you may still be concerned about

what a third-party app may do with your location data. If so, you can prevent the app from using Location Services by tapping Don't Allow; just be aware that doing so will likely prevent location-based features of the app from working.

What if you later want to enable Location Services for an app? The app's own settings may include such an option, or you can go to Settings > General > Reset and tap Reset Location Warnings.

If desired, you can disable Location Services altogether, preventing all apps, including Maps, from using it. You may decide to do this, for example, to conserve battery power. To do so, go to Settings > General and move the Location Services slider to Off. You will be prompted to turn it on the next time you launch an app that uses it. To do so, return to Settings > General and shift the Location Services slider back to On.

USE THE COMPASS

The iPhone 3GS ships with a Compass app. You can use it to determine the direction you are facing relative to true north or magnetic north. This app uses a built-in digital compass that is separate from any of the aforementioned iPhone location technologies (including GPS!). The technology behind the Compass app can be incorporated into other apps where directional information is relevant, such as Maps.

Before you can accurately use the Compass app, you may need to recalibrate it; even once you do so, you may need to periodically recalibrate it. The most likely cause for this problem is nearby magnetic interference. In such cases, a message will appear, stating, "Recalibrate Compass. Wave in a figure 8 motion." I know it sounds like voodoo, but follow the advice and all should be well. If you suspect a problem even though the message does not appear, try the figure-8 trick anyway. If possible, also move away from any suspected source of magnetic interference, such as a speaker or even earbuds.

If the iPhone can't be waved at the moment—for example, if it is mounted on a car dashboard—ignore the message and the whole figure-8 business. The Compass should recalibrate itself after you've made several turns. Periodic recalibration may occur as you drive.

USE LOCATION SERVICES AND COMPASS IN MAPS

As an example of Location Services in action, let's briefly consider how to find your location in Maps. To do so, tap the Current Location button (📍) in the lower left. The button turns bright blue and, after a brief wait (anywhere from a few seconds to a minute or so), Maps shows your general location via a circle centering on your approximate location; the smaller the circle, the greater the confidence in the accuracy.

On an iPhone 3G and 3GS, if GPS tracking is accessible, a small, pulsing blue marker also appears, indicating your presumed precise location (**Figure 51**).

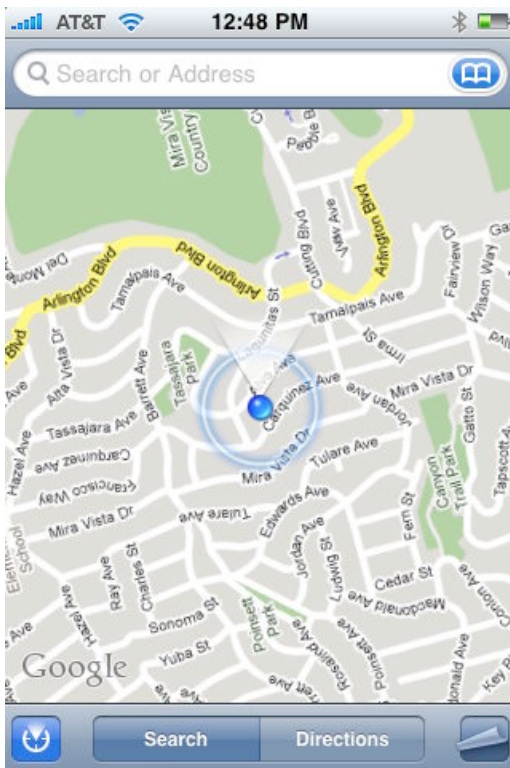


Figure 51: On an iPhone 3G, if GPS tracking is accessible, a pulsing blue marker appears, indicating your presumed precise location.

Maps will keep the circle or blue marker visible as you move about. However, if you manually drag the map so that the marker is no longer visible, the Current Location button (📍) turns off (it is no longer bright blue). Just tap the Current Location button again to re-center the map on your location.

On an iPhone 3GS, when the Current Location button is blue, if you tap the button again, its icon changes slightly to show a small flashlight-like projection (**Figure 51**, previous page). The blue dot on the map similarly shows this flashlight effect, and the map itself changes position so that the light is “shining” in the direction that you are currently facing. The smaller the spread of the flashlight arc, the more accurate the presumed direction. To achieve this trick, Maps uses the iPhone’s built-in compass data.

Maps and Turn-by-Turn Navigation

As great as Maps is, you may want something more; something that, for example, offers spoken turn-by-turn directions, with the ability to automatically recalibrate directions if you make a wrong turn. Standalone GPS devices, such as those sold by Garmin and TomTom, do this. Maps cannot do this, making it relatively ineffective for real-time use (unless you have a passenger in the car to assist you).

However, starting with iPhone OS 3, third-party apps can offer the same navigation features previously available only in stand-alone GPS units. Programs such as Navigon’s MobileNavigator, combined with hardware accessories for mounting and charging the iPhone, almost duplicate the advantages of a stand-alone GPS unit. For a detailed comparison, see my *Mac Observer* article:

http://www.macobserver.com/tmo/article/garmins_nuevi_vs._navigons_mobilenavigator_for_iphone_the_ultimate_showdown/.

Keep Your iPhone Secure

By default, the iPhone doesn't enable security measures that would prevent someone else from using it, should it be lost, stolen, or temporarily "borrowed" without your knowledge. However, you can enable a variety of optional security features, such as Passcode Lock and SIM PIN lock.

In this section, I first help you set up a passcode lock and a SIM PIN lock, and then I discuss how to [Handle Other Passwords](#) (p. 189) for services such as secure Web pages, email accounts, and voicemail. Finally, I discuss how to [Use a VPN](#) (virtual private network) (p. 193), which you may wish to do when you access the Internet from a public hotspot or other remote location.

LOCK YOUR IPHONE

To keep others from accessing your iPhone or iPod touch, you can enable a passcode lock. For an iPhone, you can also set up a SIM PIN. With a *passcode lock* on, entering a code is required to gain any access to the device. Enabling a *SIM PIN* protects the SIM card, preventing anyone from making a phone call without knowing the SIM PIN.

Although I understand that your concerns may be different than mine, I rarely use these security features. I find them not worth the hassle of continually re-entering codes (assuming I don't forget them entirely). "But what if your iPhone is stolen?" you may ask. Not a big deal for me (aside from the monetary loss and hassle of replacing the phone). Very little on my iPhone is so confidential that I would be concerned about someone else seeing it. And in most cases, unscrupulous people who wind up with a stolen iPhone will have no interest in its content. What is much more likely is that they will erase the iPhone and set it up for their own use.

Of course, I would still report a lost or stolen iPhone as missing, as soon as possible, so as not to be held responsible for any unauthorized calls and to cut off unauthorized access to my voicemail. And if my iPhone or iPod touch were stolen, I would worry about unauthorized

access to my email accounts, Wi-Fi networks, and secure Web sites. Enabling a passcode lock can prevent this sort of unauthorized access, or at least reduce the risk. Even with a passcode lock enabled, however, I would change the relevant passwords as soon as I had the chance. As a MobileMe member, I would also take advantage of the Find My iPhone features, as noted just below.

Remote Wipe Your iPhone and Passcode Lock

If my iPhone were ever lost or stolen, I would take advantage of [Find My iPhone](#), available to MobileMe members, to attempt to locate, protect, and (if needed) *remote wipe* (erase) the contents of my iPhone. If you sync data via Microsoft Exchange (as noted in [Appendix A: The iPhone in an Enterprise Environment](#)), you can alternatively wipe just your Exchange-synced data from the iPhone. A remote wipe requires that the device be connected to the Internet, so while it can work on an iPod touch, it will work only if the device has an active Internet connection.

Enabling a passcode lock greatly reduces the need to remote wipe, as access to your data is prevented by the passcode. And with Find My iPhone, you can enable the passcode lock remotely, even if you had not done so prior to the loss of the device.

Use Auto-Lock

Your iPhone automatically goes into “sleep” Mode after a specified period of time that you set at Settings > General > Auto-Lock. The specified intervals range from 1 minute to 5 minutes, or Never. You can also sleep the iPhone manually by pressing the Sleep/Wake button. In either case, the iPhone has not powered off. You can easily wake it by pressing either the Home button or the Sleep/Wake button. When you do so, you arrive at the Lock Screen.

Auto-Lock is not, by itself, a form of security, because you can simply slide the Slide to Unlock slider to return to the Home screen. Auto-Lock is mainly designed to save battery power by making sure you actually wanted to wake the phone. However, combined with a passcode lock (as described next), it is an effective form of protection.

Use Passcode Lock

After you enable a passcode lock, and the specified time interval has passed, a passcode must be entered before you can successfully unlock

the iPhone, which will be locked whenever it sleeps. This prevents anyone who doesn't know the passcode from using the iPhone.

To set a passcode, go to Settings > General > Passcode Lock and provide a four-digit passcode, twice, when prompted. After entering the code, you will be returned to the Passcode Lock settings screen with Passcode Lock enabled (**Figure 52**). From this point on, before you can unlock your iPhone—whenever you wake it and drag the Slide to Unlock slider, or whenever you turn it on—you will be prompted to enter the passcode.



Figure 52: Make your desired settings for Passcode Lock here.

In the settings screen, you can also configure the passcode as follows:

- The Require Passcode interval determines how much time must pass with the iPhone idle, from immediately to 4 hours, before you would need to enter a passcode to again unlock the device. Generally, the Require Passcode setting works with the Auto-Lock setting (located in Settings > General) to determine the next time a passcode is required. For example, suppose you've set Auto-Lock for "2 minutes" and Require Passcode for "After 10 minutes." This means that, after 2 minutes of idleness, the iPhone goes to sleep.

However, you won't have to enter your passcode to wake the device until another 8 minutes have passed.

If you want to make sure that a Passcode Lock is required after any instance of your iPhone going to sleep due to a period of idle activity, make sure the Require Password interval is less than the Auto-Lock interval.

As long as your iPhone does not go to sleep, either because you set Auto-Lock to Never or because your iPhone remains active (such as if you are watching a movie), you will not be asked for a passcode. If you manually put your iPhone to sleep, the Require Passcode interval begins counting at that point.

- With Erase Data enabled, all data on the iPhone is erased after ten consecutive failed passcode attempts. In other words, if someone steals your iPhone and guesses the code incorrectly ten times, your data is gone and, thus, no longer at risk (except from hackers capable of recovering data even from an erased iPhone).

If you change your mind about using a passcode, toggle it off with Turn Passcode Off.

Once a passcode lock is set, you'll be prompted to provide that passcode whenever you wake the phone. If you mistype and start to enter your passcode incorrectly, tap the Cancel button before entering the final digit. This prevents the entry from counting as an attempt.

If you enter an incorrect passcode, you get a red "Wrong Passcode...try again" message. If this happens several times, you get a time out, much like a misbehaving child, with a message, "iPhone is disabled...try again in 1 minute." This means you must wait 1 minute before you can try to enter the correct code. If you continue to enter the wrong code, the time out interval increases. Eventually, you may need to connect the iPhone to the computer it syncs with before you can try again. If the Erase Data option is enabled, your data is erased after ten consecutive failed attempts.

If you forget your code, you must [Restore](#) your iPhone. Restoring wipes out your passcode, allowing you to create a new one, if you wish.

Set the iPhone to Turn Off When iPod Is Playing

Regardless of your Auto-Lock setting, there are occasions when the iPhone will not sleep. For example, the iPhone will not sleep while a video is playing. Should you forget about this, you may accidentally let your iPhone continue to play after you are no longer attending to it. To prevent the battery drain that can result, you can set the iPhone, on a one-time basis, to automatically sleep after a specified period of time, regardless of what it is doing at that time: Go to Clock > Timer. Set a desired time interval and, from the When Timer Ends list, select Sleep iPod.

Use Encryption

Encryption is a form of data protection. As noted in [View Backup Lists, Items, and Data](#), if you enable the “Encrypt iPhone backup” option in iTunes, the backed-up iPhone data on your Mac is protected from prying eyes. A password is needed to access the backup for restoring, whether from your Mac or from another Mac. That is, neither a Backup-only Restore nor a Full Restore with a backup will be possible under any circumstances (see [Restore](#) for details on these options). You can, however, continue to use and back up the iPhone. Your only alternative, if and when you need a restore, is to start over with a full restore, erasing all the content and setting it up as a new device.

An entirely separate hardware-level encryption occurs on the iPhone 3GS, which automatically encrypts, on the fly, all data on the device. This encryption protects your data from hackers who might otherwise be able to directly read data from the iPhone’s drive. This option is not available for older iPhone models.

Use a SIM PIN

The SIM PIN feature prevents phone calls from being made—until the correct SIM PIN is entered—but allows access to all other iPhone features. The SIM PIN number is recorded on the SIM card, not the iPhone’s drive. Thus, even if the SIM card is removed from the iPhone, it can’t be used with another phone until its SIM PIN is entered.

To activate the SIM PIN:

1. Go to Settings > Phone > SIM PIN and drag the slider to turn SIM PIN on.

You are asked to enter the SIM PIN number.

Warning! *If you change your mind about entering a SIM PIN after moving the slider to On, tap Cancel rather than Done. If you tap Done, the iPhone may assume you've entered an incorrect SIM PIN. If so, your allowable attempts for entering the correct code (explained a few paragraphs ahead) drops from three to two.*

2. If you are an AT&T user in the United States, enter 1111 (the default setting) and tap Done. Otherwise, check the default setting for your mobile provider at <http://support.apple.com/kb/HT1316>.

The SIM PIN lock is now on.

3. Choose Change PIN to change the PIN to any other four-digit number. (Doing so requires you to first enter the current SIM PIN.)

Now that you've turned on the SIM PIN, a "SIM Locked" message appears each time you turn on or restart the iPhone:

- If you click OK, the message goes away but the SIM remains locked. You can use your iPhone for non-phone-related functions, but you must unlock the SIM before you can make a phone call.
- If you tap Unlock, you are prompted to enter your SIM PIN. Assuming you do so correctly, the SIM is unlocked and you have full access to the iPhone, which remains unlocked until the phone is restarted.

If you enter your SIM PIN incorrectly three times, you get a "PUK Locked" message. If this happens, you must contact your cellular provider, such as AT&T Customer Care (<http://www.wireless.att.com/about/contact-us/contact-us.jsp>) to get a special ten-digit PUK (Personal Unlocking Key) code. After you've unlocked the phone's PUK lock, you can make calls again and use the phone normally. You can also create a new SIM PIN if you wish.

HANDLE OTHER PASSWORDS

Your iPhone may contain a variety of other saved passwords, such as a voicemail password, email-account passwords, and Web-site passwords. Unfortunately, apart from the passcode lock, the device

offers no protection against the use of these passwords should it be lost or stolen. The best that can be said is that the passwords aren't listed in plain text in Settings. So, while these saved passwords can be used by anyone with access to your iPhone, such users can't easily discover what the passwords are. In any case, you should be aware of these passwords and how they work, so you know what is at risk.

Tip: For securely storing Web site passwords, as well as assisting in auto-filling password requests, consider an iPhone app such as PasswordWallet or 1Password.

Restoring to a new iPhone zaps passwords! *When restoring from a backup to a new iPhone, most passwords stored on your iPhone (such as for Mail accounts and Wi-Fi networks) are not restored. You will need to re-enter them.*

Voicemail Password

Your voicemail account has its own password, separate from the phone's SIM PIN and passcode lock codes. The voicemail password is required for access to your voicemail and cannot be turned off. However, once it is set, the iPhone does *not* ask you to re-enter it each time you attempt to access your voicemail.

You are prompted to set this password the first time you tap the Voicemail icon in the Phone app. After that, you can change the code by tapping Settings > Phone > Change Voicemail Password. From here, enter your current password, followed by the new one. Then, tap Done. At the risk of stating the obvious, a cellular connection is required to change the password.

If your iPhone is lost or stolen and you notify your phone provider (AT&T in the United States), they will break the link between the phone number and the iPhone's SIM card. This will prevent your iPhone from accessing any phone services, including voicemail.

If your iPhone no longer recognizes your voicemail password—this might happen after a restore—a Password Incorrect alert will likely appear when you attempt to access your voicemail. You are prompted to enter your password. Do so and all should proceed as normal. If you no longer recall the password, tap the question mark icon in the alert. A Call button will appear. Tap it to contact AT&T for assistance.

Similarly, if you otherwise forget your voicemail password, contact your phone provider to have it reset.

The Voicemail Token

The iPhone's voicemail uses a *voicemail token*, which is like a password but separate from the password you create yourself. The phone provider creates the token to validate that you are authorized to hear the voicemail. The token is stored in your iPhone backup, but it can be restored only to a phone with the matching SIM card. If you change SIM cards, you must set up voicemail again, as you did when you first activated the phone, to get a new token.

Restrictions Password

If you are the primary user of your iPhone, you needn't enable a restrictions password. Typically, you would use this feature only as a parental control—if you intended to give an iPhone to your son or daughter (lucky them!) and wanted to limit how they could use it.

To enable this feature, navigate to Settings > General > Restrictions and tap Enable Restrictions. Next, turn on or off each setting (such as Safari, YouTube, or Apps), as desired. Tap Disable Restrictions to disable all restrictions, or you can disable individual restrictions. If you forget the Restrictions password, your only option is to [Restore](#).

Network and Mail Passwords

If you connect to a Wi-Fi network or access an email account on your iPhone, you must initially enter the relevant password. However, you needn't re-enter these passwords each time you attempt to log in. This means, for example, that a person with unauthorized access to your iPhone (assuming a passcode lock has not kept them out) would be able to receive and send email via any accounts you have set up. To prevent this, change your email and network passwords (from your computer) as soon as you discover that your iPhone is missing.

Make your passwords iPhone-friendly! Because the iPhone's virtual keyboard doesn't include every character available from your computer's keyboard, it is possible to create a password on your computer that includes characters you can't enter on your iPhone. If this has happened, return to your computer and change the password to one that can be typed on the iPhone.

I recommend choosing a password that can be entered without requiring multiple shifts back and forth between virtual keyboard screens on the iPhone (as would be needed for a password that alternates numbers and letters).

Web Passwords

Secure sites on the Web, from Amazon.com to MobileMe, require that you enter a password to log in. A Mac has various ways to store such passwords so that you need not re-enter one each time you go to a secure Web site. Some of these methods, such as ones that depend on the Mac's Keychain, do not apply to the iPhone. However, Mobile Safari does store cookies (see [Solve Safari Problems](#)). This means, for example, that if you've enabled a Remember Me checkbox on a Web site accessed from your iPhone, you may be automatically logged in to that site when you return using your iPhone.

All of this means that a person with unauthorized access to your iPhone could be automatically logged in to certain sites. That's why I almost never use Remember Me options when logging in to important sites (such as my bank) via my iPhone. If you use this option on particular sites, and your iPhone is lost or stolen, be sure to change the passwords for those sites as soon as possible.

For other ways in which the iPhone may store and recall login data, see [Join Wi-Fi Hotspots](#). For greater flexibility in storing and using secure data such as passwords, consider an app such as 1Password (<http://agilewebsolutions.com/products/iphone/>, \$4.99).

iPhone updates and security: As with any computer, the iPhone may have security vulnerabilities that unscrupulous hackers may be able to exploit. Apple attempts to plug these holes with iPhone software updates. For example, to learn about the security fixes in iPhone OS 3.1, see <http://support.apple.com/kb/HT3860>.

USE A VPN

Large corporations, as well as educational and government institutions, often use a *VPN* (virtual private network) as a secure way to communicate with others within the organization over an otherwise public network. This can be important, for example, when sending email, or when viewing files and data, that you want to make sure can't be viewed by anyone snooping on the public network. However, any iPhone user may wish to use a VPN. For example, you may want the security of a VPN when using public Wi-Fi hotspots. That is, if you check your email at your local Starbucks, you may prefer knowing that a skilled hacker sitting nearby won't be able to read your email.

If your employer uses a VPN, your employer will likely supply a VPN service and assist you in setting it up your iPhone. If you're on your own, you can register for a public VPN service, such as <http://www.witopia.net/> or <http://www.publicvpn.com/>. While these VPN services typically charge a fee, you can get VPN for free with AnchorFree (see <http://db.tidbits.com/article/9881>). I think of these services as "50 percent" VPNs. The recipients of your email, unless they are similarly using a public VPN service, will not have the benefit of VPN security. But at least you will be protected at your local hotspot.

To configure a VPN connection, go to Settings > General > Network > VPN. In this screen, move the VPN slider to On. An Add Configuration screen will appear; enter the required information (provided by your VPN service). When you are done, tap the Save button. Assuming all goes well, you are now on your VPN.

To return to your previous Wi-Fi, EDGE, or 3G connection, move the VPN slider back to Off. Your VPN settings are retained. To re-enable VPN, move the slider back to On. This time you will not be prompted to add a configuration. However, if you wish to modify an existing configuration, or add a new one, you can do so from the Choose a Configuration options.

In the future, you can enable and disable your VPN connection using the VPN slider that appears on the main Settings screen (although if you have multiple VPN configurations, you'll still need to visit Settings > General > Network > VPN to switch between them).

For more information on setting up a VPN network, see:

- “iPhone and iPod touch: Supported protocols for VPN,” at <http://support.apple.com/kb/HT1288>
- “Secure Your iPhone Connections at Macworld Expo—and Beyond,” at <http://db.tidbits.com/article/9391>

The latter article has several related security tips.

Solve problems with dropped VPN connections: *If you are connected to a VPN, and you travel around such that your iPhone automatically switches among Wi-Fi, EDGE, and 3G connections, you may lose your VPN connection—or even lose your entire Internet connection—during such a switch. If so, you’ll likely need to either turn off VPN, or wait until the VPN connection times out, to restore your Internet connection. You can then re-enable the VPN connection. More generally, if you have frequent unexpected losses of your VPN connection, you should ask your network administrator for advice. Also see this Apple article: <http://support.apple.com/kb/HT1980>.*

Avoid Joining Unknown Open Wi-Fi Networks

Your iPhone may locate unencrypted Wi-Fi networks (ones that require no password to join). These open networks might be in nearby homes, for example. These can be convenient to join if you are looking for a Wi-Fi connection and no familiar network is available. However, if you don't know who "owns" a given network, I recommend caution before connecting to it. Connecting could put your data at risk, especially if the owner is someone who knows how to snoop data over a network—they could access your data while you are connected.

Generally, the iPhone protects you against joining any Wi-Fi network without your express permission. Exactly what happens depends on how you set the Ask to Join Networks option in Settings > Wi-Fi. If this option is off, you must manually join any unknown network; you will not be prompted to do so. With this option turned on, and if there are no known networks in the vicinity, the iPhone displays a list of any detected unknown networks (regardless of whether or not each requires a password); you choose which one you want to join, if any.

However, regardless of the Ask to Join Networks setting, you still automatically join "known" networks—ones that you've previously joined. While this is usually okay (this is how you rejoin your home network, for example, without having to re-enter your password each time), there is a risk. For example, some people don't bother giving their Wi-Fi network a unique name. Instead, they retain the default name supplied by the wireless router (such as [linksys](#)). If such a network is unencrypted and you join it (perhaps at a friend's house), your iPhone will later be unable to distinguish that network from other unencrypted networks with the same name. The result: your iPhone will automatically join any same-named network, even if you've never joined it before, putting your data at risk. To prevent this, after you connect to an unencrypted network with a generic name, go to Settings > Wi-Fi and select the network. In the screen that appears, tap the Forget This Network button.

Of course, if you have a Wi-Fi network at home, give it a unique name and enable encryption security!

Appendix A: The iPhone in an Enterprise Environment

Most iPhone owners maintain an iPhone for *personal* use. However, some people work for large institutions that supply employees with mobile phones. In these *enterprise* or *business* environments, mobile phones are typically wirelessly connected to a central server that coordinates what information is sent to and from the phone. It's a bit like MobileMe on steroids. This section offers a brief introduction to iPhones in the enterprise.

SET UP AN ENTERPRISE IPHONE

For iPhones in an enterprise environment, a major task is making sure that all iPhones used by employees conform to the institution's requirements. For example, an employer may want to limit the use of certain features (perhaps disabling the iPhone's camera) or require a VPN connection. Rather than manually modifying each iPhone to meet these requirements, an IT administrator can create a *configuration profile* (*.mobileconfig file*) that contains all the needed settings. The profile can then be efficiently distributed to, and installed on, all relevant iPhones. To do so requires two steps:

1. Create the configuration profile using Apple's free *iPhone Configuration Utility* (see [Use iPhone Configuration Utility](#)).
2. Distribute the profile to all relevant iPhones via one of four different methods: (1) install it directly on an iPhone connected to a Mac via USB, using iPhone Configuration; (2) attach the profile to an email sent to all employees; (3) provide a link to the profile on a Web site; or (4) use Over-the-Air Distribution.

With an enterprise setup, an employer can also distribute apps without going through the App Store. This allows the distribution of private apps. An Enterprise setup may be further configured to limit access to almost *any* specified iPhone feature or app. For example, it can be set to prohibit playing games or syncing movies from iTunes.

Resources for More Information

For an overview of all aspects of using iPhones in business, see:

- <http://www.apple.com/iphone/business/>
- http://images.apple.com/iphone/business/docs/iPhone_Business.pdf.

For considerably more detail, get Apple's iPhone OS Enterprise Deployment Guide: http://support.apple.com/manuals/en_US/Enterprise_Deployment_Guide.pdf.

MICROSOFT EXCHANGE ACTIVESYNC

iPhones in enterprise environments can be configured to work with Microsoft's Exchange ActiveSync. You set this up either via a configuration profile or by having each user set it up manually in Settings > Mail, Contacts, Calendars > Add Account > Microsoft Exchange (for help, consult: http://images.apple.com/iphone/business/docs/How_To_Setup_Guide.pdf).

If an iPhone has been set up to work with Exchange, Exchange ActiveSync pushes email messages, calendar events, and contacts to the iPhone. In doing so, it offers some options not otherwise available on the iPhone, even with MobileMe. For example, when an authorized user sends you a calendar invitation, you are immediately alerted (much as you are when a text message arrives). Similarly, your boss can update your contacts list (for example, to include the information for a new employee) without any intervention from you.

Exchange ActiveSync supports its own version of Remote Wipe, allowing you to erase all the secure data on a lost or stolen iPhone via Web access from any computer.

On the downside, an iPhone set to work with Exchange loses some capabilities to function as a personal device. For example, you can no longer use iTunes to sync your Address Book contacts. It's either Exchange or Address Book, but not both. A partial exception is that if you use MobileMe, you can maintain both your personal MobileMe and Exchange calendars. See this Apple article for some more details: <http://support.apple.com/kb/HT3778>.

About This Book

Thank you for purchasing this Take Control book. We hope you find it both useful and enjoyable to read. We welcome your comments at tc-comments@tidbits.com. Keep reading in this section to learn more about the author, the Take Control series, and the publisher.

ABOUT THE AUTHOR



Ted Landau has been writing about the Macintosh since the 1980s, starting as a contributing editor for *MACazine* and *MacUser*. He is currently a Senior Contributor for *Macworld*, writing the Bugs & Fixes column as well as numerous other articles. He also writes the *User Friendly View* and *User Friendly Blog* columns for *The Mac Observer*.

In addition to penning this iPhone book, Ted is the author of two prior well-known books on Macintosh troubleshooting: *Mac OS X Help Line* and *Sad Macs, Bombs and Other Disasters*, both from Peachpit Press. The latter title was a number-one bestselling Mac book.

In 1996, Ted founded the *MacFixIt* Web site (<http://www.macfixit.com/>), where he continued as editor for the next 6 years. Until September 2009, he wrote a regular column for the site, mac.column.ted. The site remains the top troubleshooting site for the Mac, having received dozens of awards and citations over the years, including being listed in *PC Magazine's* Top 100 Web Sites. The site is now run by CNET (a division of CBS Interactive).

Ted is also a member of the MacNotables podcast group and a regular speaker at Macworld Expos.

If you want to know even more about what Ted has done, is doing, or will be doing, check out <http://www.tedlandau.com/>.

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AUTHOR'S ACKNOWLEDGMENTS

I could not have completed this book without the apparently limitless support of my wife, Naomi. How she tolerates me when I get into “book mode,” I will never know. But I am thankful that she does.

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Additional thanks go to the tireless work of the people behind the Web sites that cover the iPhone, many of which have been a source for material in this book. These include:

- iPhone Atlas: <http://reviews.cnet.com/iphone-atlas/>
- iPhone Central: <http://iphone.macworld.com/>
- Apple’s own Support site: <http://www.apple.com/support/>

Finally, I dedicate this book to my son Brian. Without his occasional friendly prodding, I might never have pursued many of the fruitful paths of my career, from creating a Web site to joining Twitter.

SHAMELESS PLUG

I encourage you to check out my blogs and columns online:

- Ted Landau’s User Friendly View: http://www.macobserver.com/tmo/features/user_friendly_view/
- Ted Landau’s User Friendly Blog: http://www.macobserver.com/tmo/features/user_friendly_blog/
- *Macworld’s* Bugs & Fixes: <http://www.macworld.com/weblogs/mac911.html> (and monthly in the print magazine)

ABOUT THE PUBLISHER

Publishers Adam and Tonya Engst have been creating Macintosh-related content since they started the online newsletter *TidBITS*, in 1990. In *TidBITS*, you can find the latest Macintosh news, plus read reviews, opinions, and more (<http://www.tidbits.com/>).

Adam and Tonya are known in the Mac world as writers, editors, and speakers. They are also parents to Tristan, who thinks ebooks about clipper ships and castles would be cool.

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