Getting Started

I f you are new to iPhone development or you are considering it, you may feel like it is a daunting prospect. We wish we could say it's a piece of cake, but the truth is, there's a little more to it. However, with a little guidance and encouragement, you will soon see your creations up and running on your device.

We cannot mention this enough about iPhone development: The best part is the reward. As a developer, nothing is more gratifying than to see your applications take life. It's even more satisfying to see your creations take life on the screen of the iPhone. Applications can really come alive when they respond to Multi-Touch, an accelerometer, and a compass.

Appreciating the History of Mobile Devices

Apple has had the vision for a powerful mobile device like the iPhone for many years. In August 1993, Apple announced the Newton Message Pad, a device that marked Apple's entry into the market of personal digital assistants (Figure 1.1).

The Apple Newton was not the success Apple hoped for—perhaps it was ahead of its time, and the market was just not ready for such an innovative idea. There is much speculation to why the Apple Newton failed, but after its fall, the market remained quiet for a few years. In March 1996, U.S. Robotics entered the marketplace. Taking design cues from the Apple Newton, they introduced the Pilot 1000 (or Palm Pilot). This time the market was ready, and the Palm Pilot became the first successful PDA. In the years that followed, more and more PDAs were introduced: Pocket PC, Handspring, and Compaq iPaq, to name a few. At the same time, mobile phones were becoming more affordable and commonplace. To help bridge this journey, devices like Palm, iPaq, and the Blackberry began to integrate with these mobile phones creating the "smart phone" device space.

In 2001 Apple announced the iPod, which was an almost-instant success (Figure 1.2).

1 **In This Chapter**

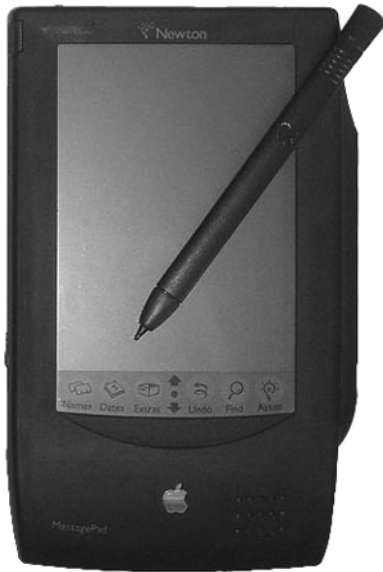Appreciating the history of mobile devices

Introducing the iPhone SDK

Introducing the iPhone Developer Program

Un-boxing your iPhone developer tools

Testing applications on your device

Figure 1.1

Possibly the first personal digital assistant
(PDA): the Newton Message Pad

Figure 1.2

The first iPod was introduced in 2001.

It is not surprising that Apple seized the opportunity and ingeniously combined the PDA, iPod, and mobile phone into one brilliant device, and in 2007, the iPhone was born (Figure 1.3).

Figure 1.3

The iPhone took the market by storm when it was introduced in 2007.

The iPhone was not the first device to combine the elements of PDA, media player, and phone. Blackberry and Windows mobile devices with these capabilities were being sold long before the iPhone. So why is the iPhone considered to be new and revolutionary? We believe it can be attributed to the unique and powerful design and user interface. In a nutshell, Apple got it right, marketing and designing the iPhone with the day-to-day user, not the businessperson or those just interested in business tools, in mind. You do not have to be a tech-savvy user to embrace the iPhone. In fact, the original iPhone lacked a lot of features found in other devices; however, it includes all the critical features that the average consumer cares about, and it arranges these features in a brilliant user interface.

Introducing the iPhone SDK

While thinking of the needs and desires of a day-to-day user, Apple realized that it needed to include variety. Apple had created a device that could, of course, browse the Web, check e-mail, and play music. However, this was just the tip of the iceberg. The device was also powerful enough to host many applications, including games. At first, developers were restricted to developing applications that were strictly browser-based. Applications in this space leveraged HTML, JavaScript, and Web-Kit. These applications were actually surprisingly good; however, the tides turned when Apple released the 2.0 OS and the iPhone SDK. To leverage the iPhone to its fullest capability and create the maximum amount of variety, Apple released the iPhone SDK in 2008. Developers flocked to the gates and began creating the first entries into the massive collection of native applications we see on the App Store today. The iPhone SDK is your opportunity to add to this variety of applications available for the iPhone.

The SDK itself is broken into four major layers:

- **Cocoa Touch.** Contains the tools necessary to create rich event-driven user interfaces without diving into the details of the lower levels.
- **Media.** When stock user interfaces are not enough, you can use the media layer to create the best multimedia experience available on a mobile device today.
- **Core Services.** This layer grants you access to iPhone OS services such as file access, data types, Bonjour services, network sockets, and more.
- **Core OS.** At the lowest layer of access in the group, you can manage the memory system, create threads, access the file system, connect to the network, and more. Leverage this layer in situations where the other layers do not meet your needs.

Introducing the iPhone Developer Program

Because you bought this book, we know you are interested in developing game applications for the iPhone. If you are not familiar with the iPhone Developer Program, then it's time to get acquainted.

Joining the iPhone Developer Program gives you access to the technical resources in the iPhone Development Center. This includes getting access to the SDK, developer tools, getting-started videos, documentation, sample code, and more. Once you have joined, you'll have access to the tools necessary for developing, debugging, and distributing your applications for the iPhone and iPod touch.

T I P
If you are curious about iPhone development but not ready to spend the money, you can sign up for free as a registered iPhone developer. As a registered iPhone developer you will have access to documentation and videos. If you have an intel-based Mac at your disposal, you can download and install the iPhone SDK, which includes the Xcode IDE, iPhone Simulator, and a suite of additional tools. With these tools you can try your hand at developing applications and running them in the Simulator. Register at `http://developer.apple.com/iphone/program/start/register/`.

The cost of getting started

To get started in iPhone development, you are going to have some unavoidable expenses. You will need to sign up for the iPhone Developer Program, which costs $99 at the time of this writing. You will want to implement your native iPhone applications using Xcode, which will only run on a Mac, so if you do not have a Mac to develop on, you will need to get one. If you do need to purchase a Mac, consider signing up for an Apple Developer Connection Membership at `http://developer.apple.com/products`. This gives you access to many resources and developer discounts. At the time of this writing, the standard membership costs $499; however, if you use the membership discount to purchase a MacBook Pro, it more than pays for itself. If you are just looking to spend as little as possible, you can get a Mac mini for around $599, depending on where you buy it.

Finally, if you don't already have one, you'll need to get an iPhone or an iPod touch to test your applications on. The iPhone SDK does come with a Simulator; however, it is just that—a simulator, not an emulator. To get a true and accurate experience, you must deploy your application to a physical device. With a new mobile plan and a two-year contract, you can purchase an iPhone 3G for $99. The iPhone 3GS will cost at least $199 with a two-year contract. Alternatively, you can purchase an iPod touch for around $220.

Decide what to buy based on the needs of your application. Most game application needs will be met by the iPod touch, especially the second generation, which now includes speakers. Look at the features you want to include in your application and make sure the device you are looking to buy supports those features. For instance, if you need a camera, you need the iPhone because the iPod touch has no camera. If you need a compass, currently the iPhone 3GS is the only device that has one.

TIP
Sometimes it's better to develop for a lower-end device like the iPod touch. This ensures that your application will reach the broadest audience.

Signing up to be an iPhone Developer

If you are serious about developing games, we recommend that you go ahead and spend the money necessary to join the iPhone Developer Program. The cost is $99 for the Standard program. This is the program you need to sign up for in order to publish your applications on the App Store. Start by browsing to `http://developer.apple.com/iphone/program/` and click the Enroll Now button. Continue through the steps, making sure to select the Standard program.

The Standard iPhone Developer Program is currently the only choice that allows you to publish applications to the App Store. With this program you get all the tools you need to develop applications for the iPhone. Most importantly, it includes your pass to publish and sell your creations on the App Store.

The other option is the Enterprise program, which costs $299. This is not an enhanced version of the Standard program; rather, it is designed to allow large companies to create and distribute in-house applications within an organization without going through the App Store. This is probably not what anyone would want for game development.

Once you have signed up for the program, you will need to provide personal and banking information before you can submit paid applications to the App Store. Before doing this you will need to decide if you would like to set up an Individual or Company account. In your situation, this answer may be clear, but if not, you need to choose carefully. With a Company account you can add team members who will be able to log in to the iPhone Developer Program Portal and gain access to the SDK and other related development tools. If others are working on your projects with you, a Company account is definitely the better way to go. If you choose an Individual account, all of these tools can only be accessed by one person.

We are not going to advise you one way or the other, but consider your intent and decide carefully.

CAUTION
It is possible to convert an Individual account to a Company account; however, there is a drawback. During the conversion process, Apple will temporarily disable your Developer account and pull your apps from the App Store while your account is in transition, which can take several days. Also note that you currently cannot convert from a Company account to an Individual account.

Un-Boxing Your iPhone Developer Tools

After joining the iPhone Developer Program, you will have access to a wealth of tools and resources. Here are some of the things you'll find when you crack open your new toolbox (Figure 1.4):

Figure 1.4

Home sweet home: Welcome to the iPhone Dev Center home page.
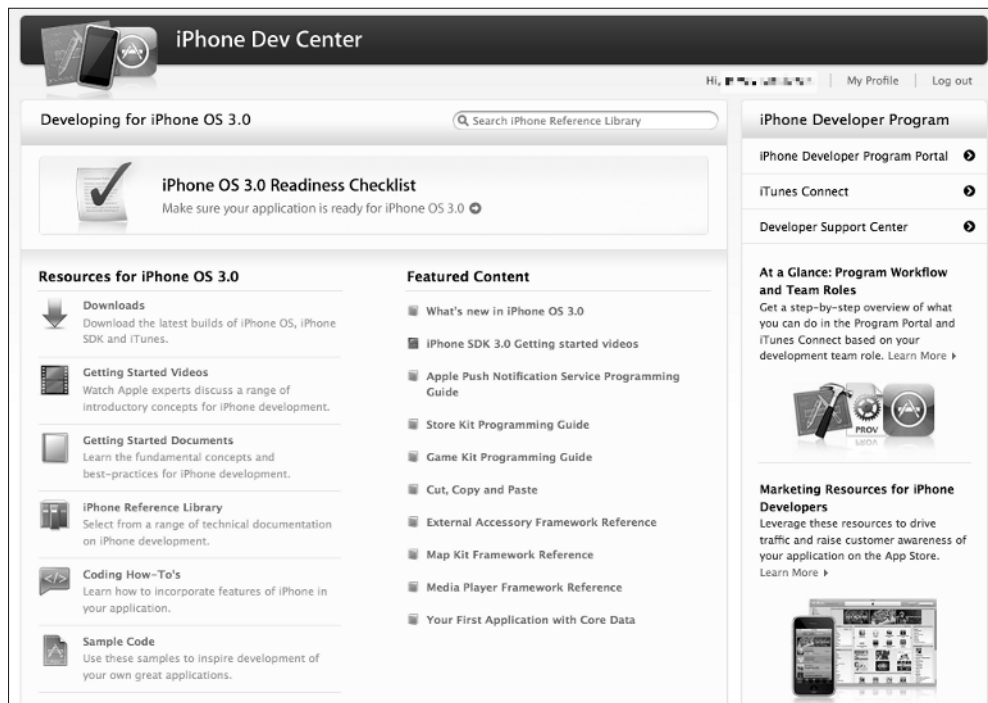
- **Full Access to the iPhone Dev Center.** This includes access to documentation and resources you will need when developing applications for new and existing features of the iPhone OS: `http://developer.apple.com/iphone/`.

- **iPhone Developer Program Portal.** Here you will be guided through the steps needed to test applications on your iPhone and iPod touch. You'll also find the tools and resources necessary to prepare your applications for distribution: `http://developer.apple.com/iphone/manage/overview/`.

- **iTunes Connect.** This site provides you with a growing collection of tools you will need in order to upload and manage your applications in the iTunes App Store: `https://itunesconnect.apple.com/`.

- **iPhone Developer Support Center.** Here you will find detailed information about using the features listed in the previous bullets. You'll also find information about participating in discussion forums, obtaining technical support, reporting bugs, and more: `http://developer.apple.com/support/iphone/`.

iPhone Dev Center

When you first sign up for the program, the iPhone Dev Center is one of the first places you will want to visit. Here you can review the documentation, download example programs, and watch all the technical videos. The videos are a great place to start. You can download them all to your iPod or iPhone and watch them any time. Next time you go to the gym you can "get your learn on" while you are on the treadmill.

When a beta OS is on the horizon, the iPhone Dev Center will be divided according to version, with sections for the public and beta versions of the OS. Beta versions of the OS and SDK are sometimes released early to paid members of the iPhone Developer Program. In each section you should find version-specific information and resources. If you are looking at the public/release version of the OS, you probably won't be able to download the OS itself or iTunes there. If iTunes is not there, you can download the latest version of iTunes directly from Apple. If the OS is not there, you can install the publically available OS from the current version of iTunes. Also keep in mind that an application developed on a beta SDK won't be accepted on the App Store until the beta is in general release.

In the iPhone Dev Center you have access to the following resources:

- **Downloads.** Gives you access to the latest iPhone OS, iPhone SDK, and iTunes.
- **Getting Started Videos.** Watch the experts as they guide you through the basic concepts you need to get started.
- **Getting Started Documentation.** Teach yourself the fundamentals and best practices recommended by Apple.
- **iPhone Reference Library.** Find detailed instructions on every concept and library in the frameworks.
- **Coding How-To's.** Find more guidance and instruction on integrating new and existing features into your applications. This is a great first place to look when trying something new.
- **Sample Code.** One of our personal favorites. Download, compile, and execute sample code that was written by the experts. Download it all and pick it apart line by line. (Of course, we love examples, which is why we created `http://AppsAmuck.com`.)

● **Apple Developer Forums.** When all else fails and you are stuck or question your implementation, this is where you want to go. You can discuss your issues and questions with peers and Apple engineers.

iPhone Developer Program Portal

When you are ready to install your application on your iPhone or iPod touch, you can find detailed information and the resources that you need in the iPhone Developer Program Portal. Preparing your device for development requires that you install a Provisioning Profile and a Development Certificate before you can install applications on it. The iPhone Developer Program Portal is where you need to go to create Development Certificates, create Provisioning Profiles, register Device IDs, and do everything else you need to do to distribute your application (Figure 1.5).

Figure 1.5

The iPhone Developer Program Portal provides all the tools and resources you will need for tasks like distributing your application.
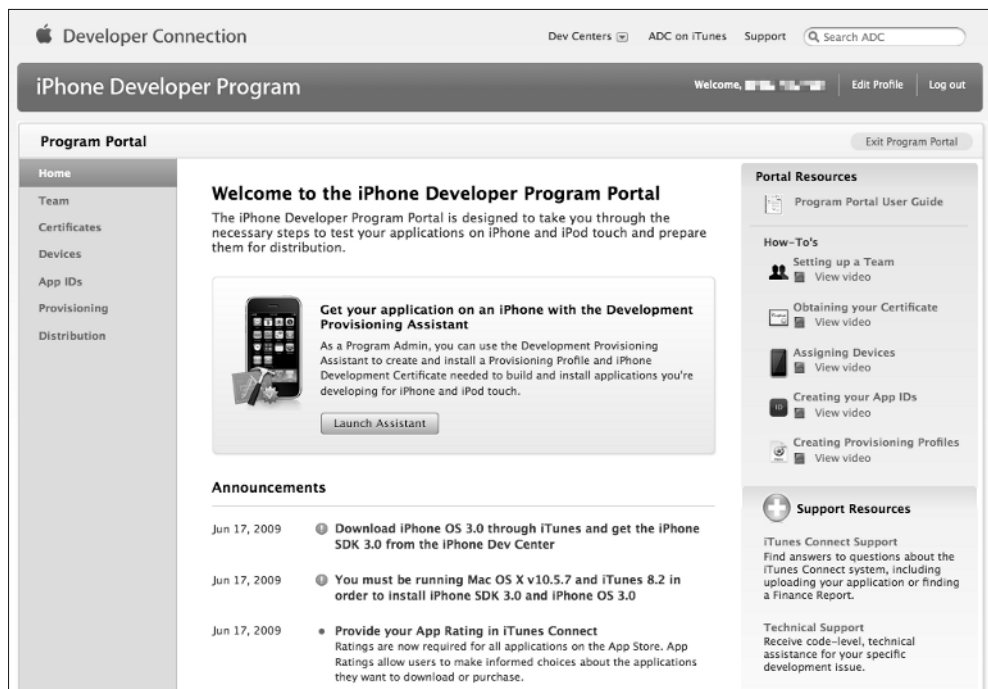

The tools and resources found in the iPhone Developer Program Portal enable you to accomplish the following:

● **Test Applications on Devices.** Before you can install an application on your development device, you must have a Development Certificate, Device ID, App ID, and Provisioning Profile. These requirements can be created and downloaded, or registered here.

● **App Store Distribution.** When preparing an application for the App Store, you will need a Distribution Certificate, App ID, and Provisioning Profile.

● **Ad Hoc Distribution.** This type of distribution allows you to share your application with testers and other developers remotely. You will need to get their Device ID and send them the application's Provisioning Profile. Once they have this, they can install your application from iTunes. For Ad Hoc distribution, you need a Distribution Certificate, Device ID, App ID, and Provisioning Profile (Figure 1.6).

Figure 1.6

The iPhone Developer Program Portal contains tools and information that carry you through the steps necessary to publish your application to the App Store or share your application through Ad Hoc distribution.
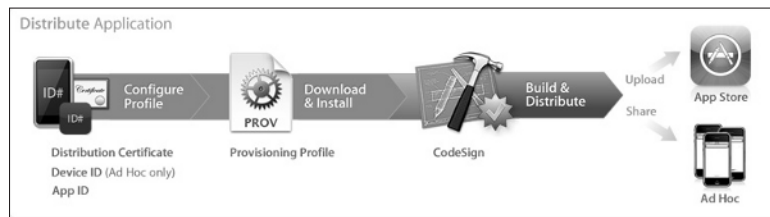
● **In App Purchase.** This feature allows you to charge for application add-ons, optional features, or additional content. You will need to visit the App IDs section of the iPhone Developer Program Portal to enable this feature for your application.

● **Apple Push Notification Service.** This service allows you to push events in the form of alerts, sounds, and tags to your application even when it is not running. Because this process requires you to communicate with the Apple Push Notification server, you will need to come here to activate this feature for your application. You will need to visit the App IDs section of the iPhone Developer Program Portal to create and download a Push SSL Certificate.

This list should help you decide which features of the iPhone Developer Program Portal you will need, depending on what you are trying to accomplish. When you visit the site, you will have the following options to choose from:

● **Home.** This is a general dashboard to the portal. The Portal Resources section is where you will find a collection of videos that we recommend watching. There are links to Support Resources and a feed where you can read Apple's latest developer announcements. The Development Provisioning Assistant is a new addition and a great tool for getting started (Figure 1.7).

Figure 1.7

Get a jump-start by using the Development Provisioning Assistant.

- **Team.** This option is divided into the following sections:
  - **Manage:** If you join the iPhone Developer Program as a Company, this is where you will manage your list of team members. If you join as an Individual, you will be the only person on your team.
  - **Tech Support:** Incidents grant you code level assistance from Apple engineers. The Standard program includes two such incidences for the year.
  - **Agreements:** Here you can revisit the list of agreements you or your company has accepted.
  - **Contact Info:** Here you can review the contact information you or your company submitted when you signed up for the program.
- **Certificates.** In this section of the portal, you can request iPhone Development and Distribution Certificates. This option is divided into the following sections:
  - **Development:** This sub-section allows you to create and download Development Certificates. iPhone applications must be signed by a valid certificate before they can be installed on an iPhone or iPod touch.
  - **Distribution:** This sub-section allows you to create the certificate you will use to sign your application in preparation for submission to the App Store. This certificate is needed to associate a developer or company with the applications they submit.
  - **History:** Here you can view a list of all development and distribution certificates you have created in the past.
- **Devices.** This option is divided into the following sections:
  - **Manage:** You will be allowed to install your applications on up to 100 devices for testing purposes. This sub-section is where you will manage this list of registered devices. Be aware that any devices you remove from your list still count against your 100-device limit. However, you can reset the total count of your Registered Devices List for the upcoming membership year. You can only do this once per membership year. Be sure to leave open slots for new devices that may come out during the year.
  - **History:** Here you can view a list of all the devices you have added and removed in the past.

- **App IDs.** You need to generate App IDs to identify your applications. This allows your application to associate with a certificate, connect to Apple Push Notification servers, communicate with external hardware, and share keychain data between applications.

  An App ID begins with a unique 10-character Bundle Seed ID that is generated by Apple. The ID ends with a Bundle Identifier that is entered by you. It is recommended that you use reverse-domain-style strings for your Bundle Identifier; for example, **1234567890.com.yourdomain.YourAppName**.

  If you need to share the same keychain between applications, you will need to create a single App ID for all of these applications by appending a trailing asterisk as a wildcard character to the end of the App ID; for example, **1234567890.com.yourdomain***.

- **Provisioning.** Provisioning Profiles are necessary to tie devices to an authorized iPhone Development Team. Development and Ad Hoc Provisioning Profiles combine an App ID, a certificate, and a list of Device IDs. A Distribution Provisioning Profile combines only an App ID and a certificate, because it can be installed on any device from the App Store.

  - **Development:** Use this option to manage your list of Development Provisioning Profiles.

  - **Distribution:** Use this option to manage your list of Distribution and Ad Hoc Provisioning Profiles.

  - **History:** Here you can view a list of all the Provisioning Profile activity that has taken place in the past.

iTunes Connect

iTunes Connect is where you upload your applications and start cashing in! Here you will find tools to help manage your applications on the App Store. The following options are available (Figure 1.8):

- **Sales/Trend Reports.** Go here to see how many times your applications have been downloaded. This is the first place you are going to want to go the morning after your application is published on the App Store. The reports here are for monitoring trends only and should not be used for firm financial purposes.

- **Contracts, Tax, & Banking Information.** This is where you manage your iTunes contracts and agreements. You have a different contract for free applications and paid applications. You need to provide contact, bank, and tax information in order to complete the contract that enables you to publish paid applications.

- **Financial Reports.** Download or view your monthly financial reports here. There is a separate report for each currency/territory your application has been sold in. Apple withholds payment until you accumulate more than $250 USD (or equivalent) in a given currency/territory.

- **Manage Users.** In this option you can create and manage iTunes Connect and In App Purchase test user accounts.

Figure 1.8

iTunes Connect is your vehicle for managing and publishing your applications in the iTunes App Store.
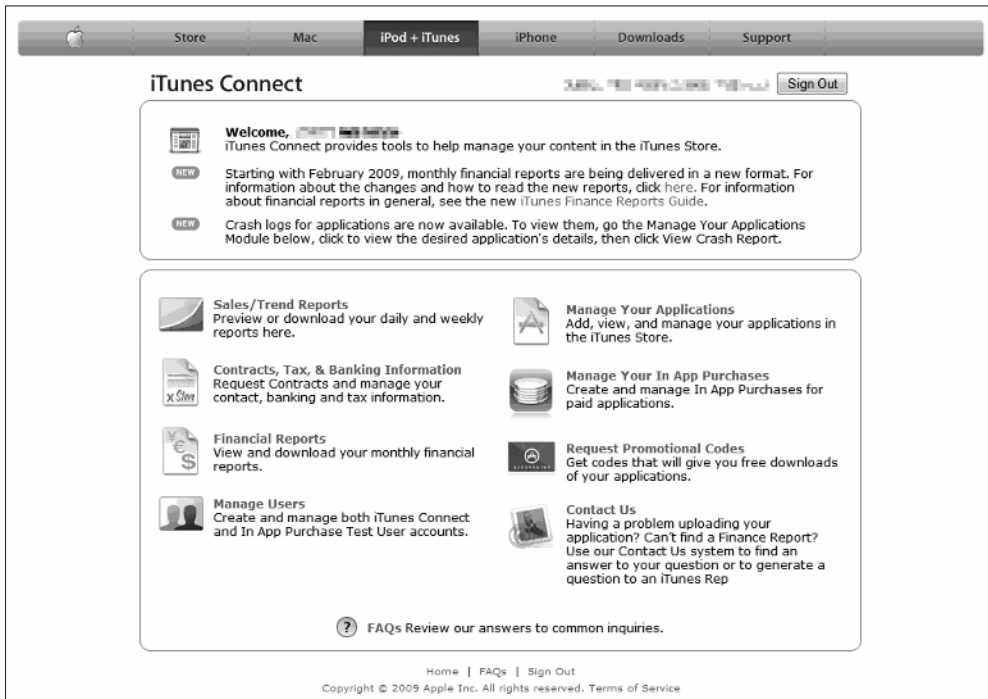
- **Manage Your Applications.** This is where you manage the applications you have sub-mitted to the App Store. There are several pieces of information you need to provide when you publish an application. Have this information and the files handy before you begin or you will spend a lot of time running back and forth:
  - Name, description, and device type
  - Primary and secondary categories
  - Copyright
  - Version number
  - SKU number
  - Application URL
  - Support URL
  - Support e-mail address

- Demo account—full access login credentials (if applicable)
- Rating information
- Application binary
- Large 512 x 512 icon (used in iTunes)
- Primary screen shot
- Additional screen shots (optional, up to four)
- Availability date
- Price tier ($0.99–$999.99)
- Supported languages

- **Manage Your In App Purchases.** Manage the price and availability of add-ons to your applications here. The types of In App Purchases allowed are Consumables, Subscriptions, and Non-Consumables. Consumables and Subscriptions require users to pay for the In App Purchase each time it is downloaded. With Non-Consumables, users only pay for the In App Purchase once. Once set, the In App Purchase type cannot be changed.

- **Request Promotional Codes.** You are allotted 50 promotional codes for each version of your application. These non-commercial codes can be used in the U.S. iTunes Store to allow users to download review or promotional versions of your application for free. This is the option you need to use to request these codes.

- **Contact Us.** If you are having any problems using iTunes Connect, you can use this option to search for an answer or to submit a question to an iTunes representative.

iPhone Developer Support Center

The iPhone Developer Support Center provides you with answers to questions about all areas of the program. This includes support resources for the following:

- Program enrollment
- Account management
- iPhone Dev Center
- Discussion forums
- iPhone Developer Program Portal
- App submission
- iTunes Connect support
- Tech support
- University program
- Bug reporting

Testing Applications on Your Device

One of the biggest benefits of being in the iPhone Developer Program is the ability to test your creations on physical devices. If you are like us, this is also one of the first things that you'll want to try to do. Unfortunately, it's not as easy as just plugging the device into your Mac and clicking Run. If you could do this, you could potentially install your application on any device that you plug into the Mac—and that is exactly what Apple does *not* want you to do. If this were possible it would be easy to circumvent the App Store entirely. Apple has put a series of checks and balances in place to ensure that only developers can install software on their registered devices easily. The following steps illustrate what you need to do to install an application on your iPhone or iPod touch (Figure 1.9):

Figure 1.9

Installing and testing your applications on your iPhone and iPod touch
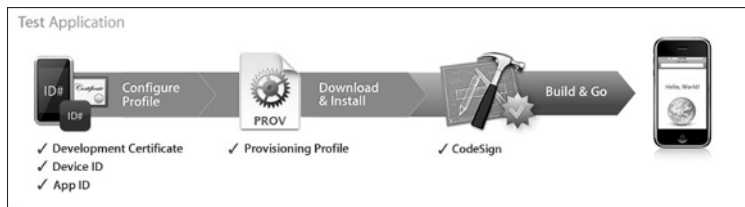
1. Generate and install a Development Certificate.

2. Register iPhone and iPod touch Device IDs.

3. Create an App ID to identify your application.

4. Generate and install a Development Provisioning Profile.

5. Configure the Code Signing Identity of your application.

6. Build and test your application on your development device.

Let's look at each of these steps in more detail.

Generate and install a Development Certificate

Certificates are electronic documents that associate your digital identity with your iPhone Developer Program account. iPhone Development Certificates can only be used for application development and are set to expire after a limited amount of time. Apple can also revoke your Development Certificate before it expires. In short, you need the certificate to deploy and test applications on your device, but Apple has ensured that it can prevent developers from abusing this privilege.

There are two steps to generating the certificate. First, you have to use the keychain tool on your Mac to create a certificate request. Next, you upload your certificate request in the iPhone Developer Program Portal, where the certificate is generated. Once this is done you can download and install the certificate.

To generate a certificate request, follow these steps:

1. On your Mac, launch the application Keychain Access.

2. From the application menu, choose Keychain Access ⇨ Preferences. From here, set Online Certificate Status Protocol (OSCP) and Certificate Revocation List (CRL) to Off.

3. Choose Keychain Access ⇨ Certificate Assistant ⇨ Request a Certificate From a Certificate Authority (Figure 1.10).

Figure 1.10

Using Keychain Access to request a certificate from a certificate authority to begin the process of generating your certificate
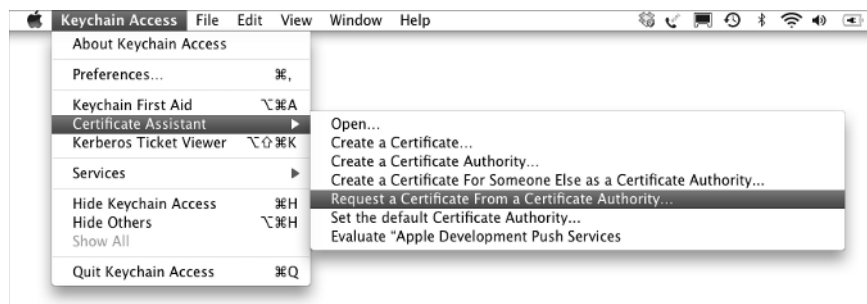
CAUTION

Make sure you are choosing Request a Certificate From a Certificate Authority and not Request a Certificate From a Certificate Authority with <Private Key>. If you happen to have a private key selected in Keychain Access when executing this action, the certificate request generated will not be accepted by the iPhone Developer Program Portal.

4. Enter your e-mail address in the User Email Address field. Be sure that the e-mail address you enter here matches the e-mail address that you used when you registered as an iPhone Developer.

5. Enter a name in the Common Name field. Likewise, the name you enter here should match the name you used when you registered as an iPhone Developer.

6. Leave the CA (Certificate Authority) Email Address field blank.

7. Click the Saved to disk radio button and click in the Let me specify key pair information check box (Figure 1.11). Click Continue.

8. In the popup menu, specify a filename and click Save. For the Key Pair Information settings, choose 2048 bits for the Key Size and RSA for the Algorithm (Figure 1.12). Click Continue.

9. The Certificate Assistant creates your CSR file. By default the CSR will be saved to your desktop with the name you specified in Step 8.

Figure 1.11

When specifying your certificate information for your certificate request, make sure that the e-mail address you enter matches the e-mail address that you used when you registered as an iPhone Developer.

Using the iTunes Developer Program Portal to generate your Development Certificate

Follow these steps to generate and install your Development Certificate:

1. Log in to the iPhone Developer Program Portal and choose Certificates ➪ Development ➪ Add Certificate.

2. In the Open File dialog box, click Choose file and select the CSR you created using Keychain Access.

3. After submission, a Team Administrator will need to click Approve to approve the certificate request if you are using a Company account. If you are the Team Administrator, it is your job to click Approve.

Figure 1.12

When asked to specify key pair information, make sure you choose 2048 bits
for the Key Size and RSA for the Algorithm.
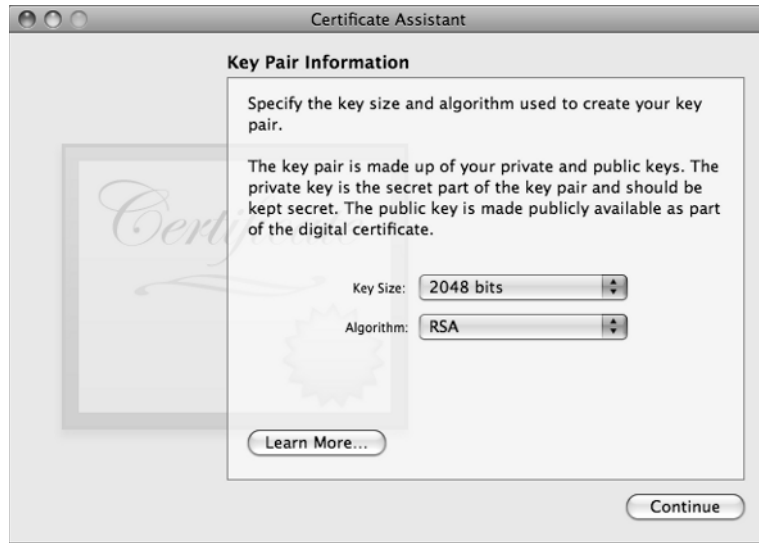
4. After approval, the status of the certificate changes to Pending Issuance; if successful,
   it then changes to Issued. After the status has changed to Issued, click the Download
   button next to the certificate name and download your iPhone Development
   Certificate to your local machine.

5. On the same Web page, you will see the following link near the bottom of the grid: If
   you do not have the WWDR intermediate certificate installed, click here to download
   now. Click the link to download the WWDR certificate.

6. On your local machine, double-click the WWDR intermediate certificate. The Keychain
   Access application will launch and install the certificate.

7. Double-click the iPhone Development Certificate file that you downloaded in Step 4
   and install it the same way.

Exporting your private key

It is important that you save your private key in case you need to develop on multiple comput-
ers or you need to reinstall your OS. If you neglect to do this, you will not be able to sign your
binaries in Xcode and test your applications. The Keychain Access application creates a private
key for you on your login keychain. This key is tied to your user account and cannot be repro-
duced. You will need to import this private key onto all systems that you develop and test on. If

you are using a Company account, individual team members will go through this process inde-pendently and create a personal Development Certificate for themselves. It is not necessary to copy the private key to development computers for other team members.

To export your private key and certificate, follow these steps:

1. Launch the application Keychain Access and choose the category Keys.

2. Ctrl+click the private key that is paired with your iPhone Development Certificate you created earlier. Click on Export <Name> from the menu.

3. Save the file in a secure location using the Personal Information Exchange (.p12) file format.

4. Choose a password to secure the .p12 file with.

5. Now you can share your private key as long as you have this file and the password you created. To install the file, just copy it to another machine and double-click it. Keychain Access launches and prompts you for the password.

NOTE
Your private key is never sent to Apple. Private keys can only be found in the keychain on the machine that generated the CSR. It's important that you export your private key for safekeeping and so you can use it on other machines.

Register iPhone and iPod touch Device IDs

Apple wants to know which devices you are using to develop on before you install applications on them for testing. Every iPhone and iPod touch has a Unique Device ID (UDID) that uniquely identifies that device. Registering your device is as simple as inputting your Device IDs on the iPhone Developer Program Portal site. Here are the steps to do this:

1. Locate and record your Device ID. The easiest way to do this is to plug in your device and open Xcode. From the Xcode menu, choose Window ⇨ Organizer. You will see your Device ID immediately to the right of the label Identifier (Figure 1.13).

Figure 1.13

Locating your Device ID in the Xcode Organizer window
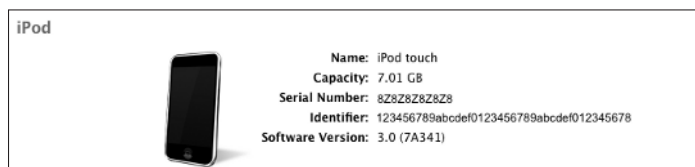
T I P
Even though it looks like a label, you can select the Device ID (Identifier) in Organizer and copy it.

2. Go back to the iPhone Developer Portal and choose Program Portal ⇨ Devices ⇨ Manage.

3. On the Manage tab, click the Add Device button.

4. On the Add Devices screen (Figure 1.14), enter the Device ID you copied from Organizer and a Device Name to help you identify the device you are registering.

Figure 1.14

Use the Add Devices screen to register the devices you wish to use for development.
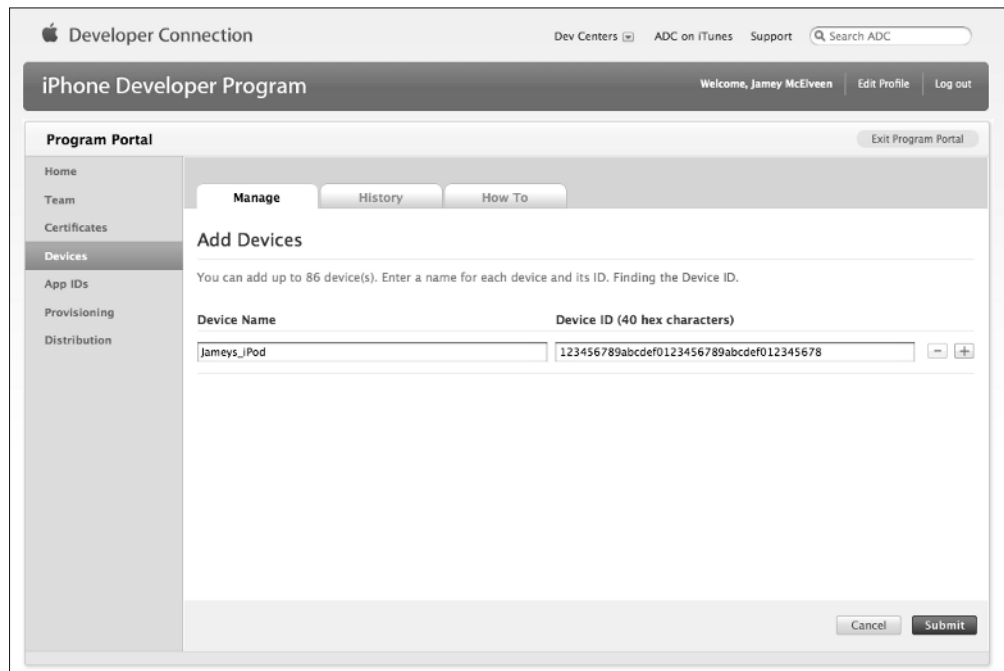
Users can also determine their Device ID by clicking on the Serial Number field in the iTunes Summary screen. When displayed, the Device ID can be copied to the clipboard by choosing Edit ⇨ Copy from the iTunes menu. This can be particularly useful when assigning Device IDs for beta testers who may not have the SDK installed.

Create an App ID to identify your application

App IDs are necessary to tie applications into the provisioning process. In addition, they allow your applications to use Apple Push Notification and to connect with external hardware and accessories. App IDs are also necessary when you need to share keychain data between your applications. To create an App ID, follow these steps:

1. Return to the iPhone Developer Portal and choose Program Portal ➪ App IDs ➪ Manage.

2. On the Manage tab, click the Add ID button.

3. On the Create App ID screen (Figure 1.15), enter an App ID Name and an App ID. We recommend using a wildcard unless you need to use the Apple Push Notification service. To create an App ID with a wildcard, it should be of the format **com.yourdomain***. A wildcard App ID can be used on all of your applications. If you do not use a wildcard, your App ID should follow the format **com.yourdomain.YourAppName**.

Figure 1.15

Use the Create App ID screen to create an App ID for your application or applications.
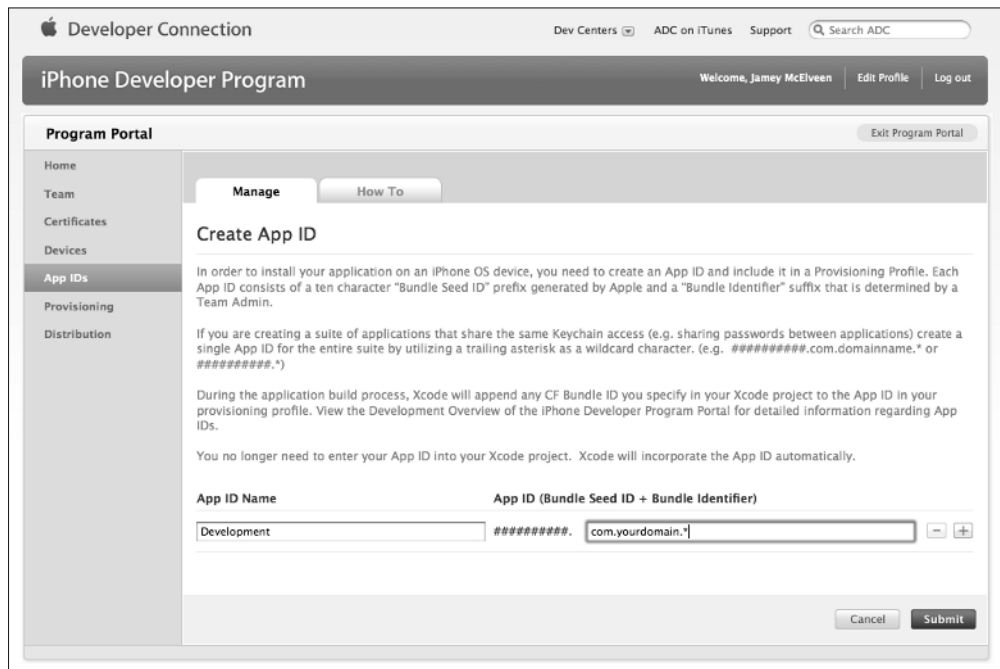
4. Finally, click Submit to save the App ID.

Generate and install a Development Provisioning Profile

Now that you have a Development Certificate and you have registered your device, you need to create a Development Provisioning Profile to associate with your iPhone Developer Account, Development Certificate, application, and device. Follow these steps to generate and install the Provisioning Profile:

1. Return to the iPhone Developer Portal and choose Program Portal ➪ Provisioning ➪ Manage.

2. On the Manage tab, click the Add Profile button.

3. On the Create iPhone Development Provisioning Profile screen (Figure 1.16), fill in all the field values, making sure you select a certificate, App ID, and at least one device.

Figure 1.16

Use the Create iPhone Development Provisioning Profile screen to register the devices you wish to use for development.

4. Click Submit to save. This returns you to the list of Development Provisioning Profiles. Find the profile you just created and click Download in the Actions column. Save the downloaded profile to your desktop.

5. Back on your machine, find the file you just downloaded and drag the file onto your Xcode icon.

6. Plug in your device and open Xcode. In Organizer, choose Devices ⇨ <Your Device Name> ⇨ Summary. In the Provisioning section of the Summary tab, you should see your new Provisioning Profile in the list indicating that it was installed on the device, as shown in Figure 1.17.

Figure 1.17

You can use Xcode Organizer to confirm that your iPhone Development Provisioning Profile has been installed on your device.
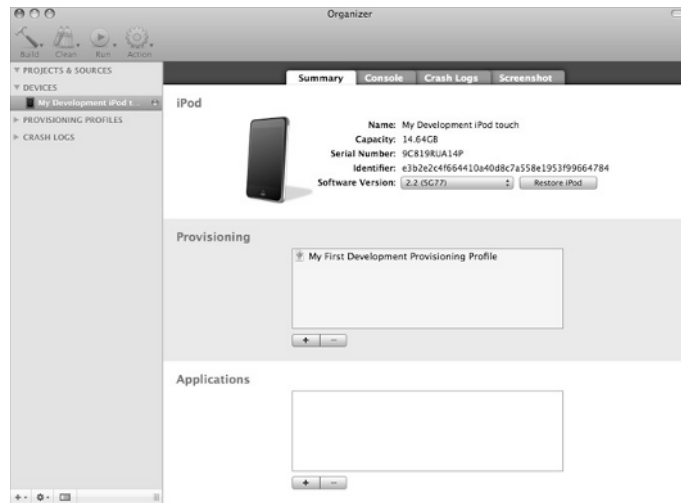
Configure the Code Signing Identity of your application

Finally, you need to associate your Development Certificate with your application and assign your App ID. Once this is done, you are ready to test your application on your device.

Here are the steps you need to follow to get started testing your application on your device:

1. Launch Xcode and open your project.

2. In the Xcode Project Window, the top-left pull-down control in the toolbar is the Overview popup menu. Click this pull-down menu and change the setting to #.# Device | Debug. To do this, choose Active SDK ⇨ iPhone Device #.# (Figure 1.18). (The current SDK version number is represented by #.#; version 3.0 is selected in the figure.)

3. In the Xcode Project Window, choose Groups & Files ⇨ Targets and click your project target. Next, click the Info icon on the toolbar.

4. Once inside the Info window, click the Build pane. Make sure that, in the settings list, Code Signing ⇨ Code Signing Identity is expanded, and then click on the Any iPhone OS Device popup menu in the Value column. Choose the iPhone Development Provisioning Profile and Certificate pair that you created earlier (Figure 1.19).

Figure 1.18

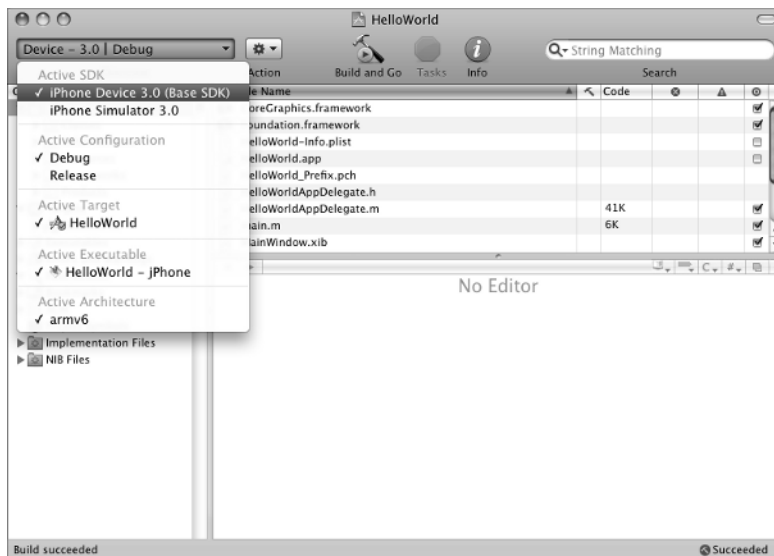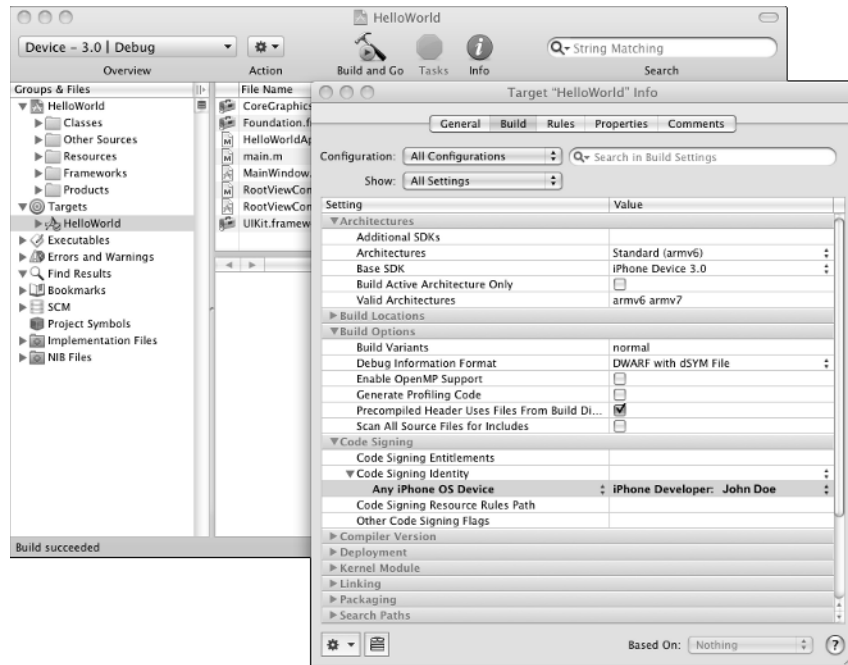Changing the Active SDK setting to build for a physical device.

Figure 1.19

Configuring the Code Signing Identity of your application

5. Click on the Properties pane of the Info window. From there, input the Bundle Identifier you defined when you created your App ID. In our example we entered **1234567890.com.yourdomain*** as an example. For this example you will want to enter **com.yourdomain.HelloWorld** as the identifier leaving off the Bundle Seed ID portion and replacing the wildcard asterisk character with your application name (Figure 1.20).

If you did not use a wildcard, you will need to use the full Bundle Identifier and only leave off the Bundle Seed ID. In our previous example we used the App ID **1234567890.com.yourdomain.YourAppName**. In this case you would want to input **com.yourdomain.YourAppName**.

Figure 1.20

Setting the target Identifier with the Bundle Identifier from your App ID
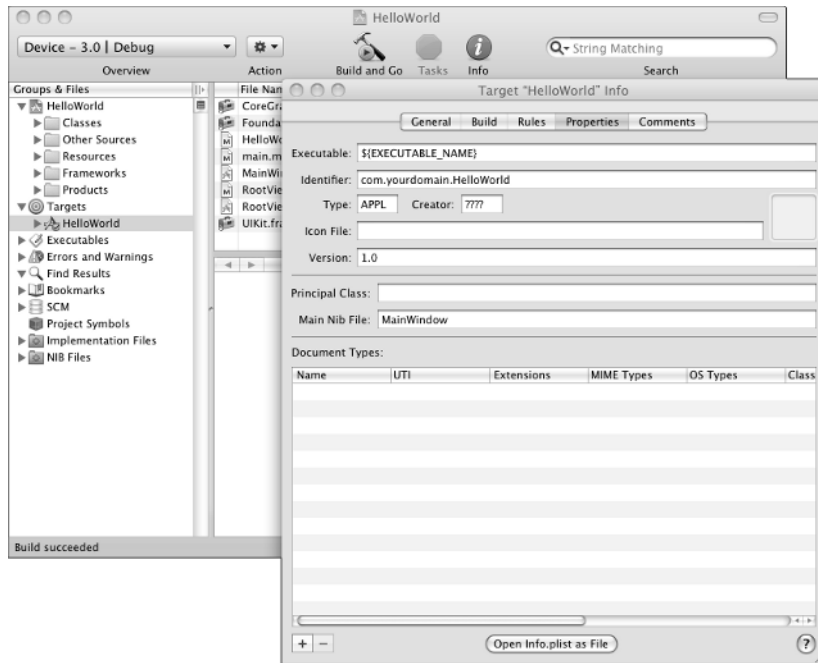
Build and test your application on your development device

After completing all of the previous steps, you are ready to build and test on your iPhone or iPod touch. At this point all you need to do is plug in your device and click Build and Go. You should see your application load up and start running after a few seconds (Figure 1.21). In this environment you can run and debug just as you would have in the Simulator. Breakpoints, watches, and console output work the same way.

Figure 1.21

Follow the steps in this chapter, and you'll soon see your first application running on your iPhone or iPod touch.

Summary

In this chapter you learned a little about the history of mobile devices. It has been a long road with successes and failures that have paved the way to where we are today. Most notable is that Apple started this journey with the Apple Newton, which ended in failure. However, despite setbacks, Apple has kept the vision alive, setting the bar with the iPhone. As a result, you can enjoy the benefits of developing games for this beautifully designed device.

Next, you took a first look at the iPhone SDK and what it has to offer. You gained an understanding of what steps you will need to take to get started as an iPhone developer, including how deep you will need to dip into your pocket for cash. You took a tour of the iPhone SDK and the iPhone Developer Program, and you learned about all the tools from the iPhone SDK you can expect to leverage as a developer. You also got a peek at the resources and benefits offered to you as a member of the iPhone Developer Program.

Finally, you learned how to utilize your new set of tools and deploy applications to your iPhone and iPod touch for testing. You walked through all of these steps in detail, since this is one of the more difficult tasks and causes developers to stumble when they are getting started. You will find this walk-through most beneficial, especially if you are new to the Mac world, as many iPhone developers are. This guide will help you find your way through a process that can feel alien to first-time visitors.