

# Device Development

## OVERVIEW

In order to build and install an application on an iPhone or iPod Touch during a project development cycle, there are a few steps you need to take. You must install a **development certificate** in your account's local **login keychain**. This information is used by Xcode to code-sign your application. In order to run the code-signed applications on your device, you will install a **provisioning profile** on your device. Follow the steps below for acquiring and installing both of these. If you need to use the shared laptops in lab, there are some additional steps at the very end you will also need to do.

There are two phases. First you submit some information to the Program Portal. Then you'll wait for the admins to incorporate that information and email you. Then you can perform the second phase, downloading and installing of your certificate and profile.

## PHASE 1: SUBMITTING INFORMATION

Perform the following steps using your personal machine, or one of the Macs in the university labs (PG2, McKeldin, CSS). If you use the loaner Macs during lab, there are a few additional steps for you to perform at the very end.

1. First, accept our invitation!

You should have a message titled "You have been invited to join the iPhone Developer Program" in your inbox. Open it and follow the instructions to accept the invitation. If you haven't done so, you'll need to become a registered iPhone developer by creating an ADC (Apple Developer Connection) account and Apple ID.

2. Gather unique device IDs (UDID) of your iPhone / iPod Touches; email them to [chuck@cs.umd.edu](mailto:chuck@cs.umd.edu), Re: Device IDs

You will be allowed to use 2 devices.

If you plan to only use the loaner devices, send an email noting that to [chuck@cs.umd.edu](mailto:chuck@cs.umd.edu), Re: Device IDs

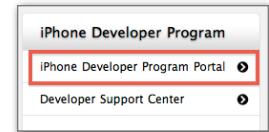
To find UDIDs, Attach your device using a USB cable. Launch Xcode (you should be using the one from iPhone SDK 3.1.2+) and the choose Window > Organizer. In the column on the left, find your device and select it. The UDID is the 40 character string labeled "Identifier". You can it string and copy it to the clip-board.



2. Submit a Certificate Signing Request (CSR) to the Program Portal.

To generate code-signed app you need a development certificate installed in your system's **login** Keychain. To obtain a this, you will generate a certificate signing request (CSR) and submit that to the portal for approval by the admins.

- a. Go to the "iPhone Developer Program Portal". This is where you'll acquire the resources needed to build for an install applications on a device. Log on to the iPhone Dev Center <http://developer.apple.com/iphone>. Then navigate to the "iPhone Developer Program Portal" using the link found in the upper right.



- b. Follow instructions on the "Create Development Certificate" screen to use the Keychain Access application to create a Certificate Signing Request, or CSR. When done, you will have a ".certSigningRequest" file that you will submit for approval.

- c. Your status should now say "Pending".

4. Stop, log out, and wait for email confirmation from the Portal admins before going further.

## PHASE 2: DOWNLOAD AND INSTALLING INFO

Perform the following steps using your personal machine, or one of the Macs in the university labs (PG2, McKeldin, CSS). If you use the loaner Macs during lab, there are a few additional steps for you to perform at the very end.

5. Download and install your Development Certificate

- a. Once your CSR has been approved the Certificates section will show a "Download" button you can use to download your certificate – named something like "developer\_identity.cer".
- b. Download and install this development certificate by double-clicking it. The Keychain Access application will automatically launch. If prompted, tell Keychain Access to install the certificate in the "**login**" Keychain. If you click on the "My Certificates" category, you'll see your certificate, "iPhone Developer: Your Name (XXX)"

6. Download and install the course Provisioning Profile (If you only plan to use the loaner devices, skip this step)

To run development code-signed app (on devices with UDIDs that you sent), you need to install a provisioning profile on your device. Provisioning profiles link development certificates, app IDs, and devices. Your profile will allow you to run any app code-signed by others in this course assuming the bundle identifier is of the form: "edu.umd.cmssc498i.\*"

- a. From within the Program Portal, find and click on the "Provisioning" item in the left source list. The page will show you a list of available profiles that you can download.
- b. Download the provisioning profile titled "CMSC498i Generic AppID Provisioning Profile".
- c. To install the development profile double-click the downloaded file with the extension .mobileprovision. Xcode will open and install the profile. You can verify this in the Provisioning Profiles section in the Organizer window.

## “LOANER” MACS

Recall that, in order to code-sign an application, Xcode looks for your Development Certificate in your **login** Keychain. Xcode requires the certificate to be in your **default keychain**. By default, the login Keychain is the default Keychain. So, when using loaner macs, we just have to temporarily change the default Keychain from the login Keychain to something else that contains your Development Certificate. In fact, we will be changing the default Keychain to something stored on your USB drive!

### **Preparing To Use “Loaner” Macs** – Copy your Development Certificate on to a USB drive

1. Connect your USB drive to the machine you are logged in to.
2. Select Keychain > File > New Keychain
3. Name the Keychain “PortableKeychain”, and save it to your USB drive. If you have problems, you may need to save it to the Desktop, then drag it into the USB drive by hand. You should now see a Item named “PortableKeychain” in the Keychains section of the main window.
4. Select the login Keychain, then “My Certificates”.
5. Select your Development Certificate (something like : “iPhone Developer: Your Name (XXX)” ), and copy it using Edit > Copy
6. Then select the “PortableKeychain”, and paste the Development Certificate there using Edit > Paste.
7. Quit the Keychain Access application, and properly eject your USB drive

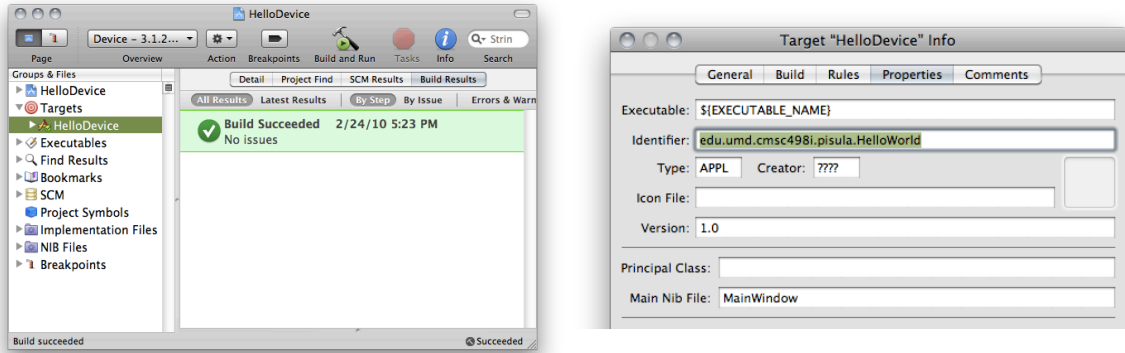
### **Using “Loaner” Macs** – Getting Xcode to use the Development Certificate on your USB drive

1. Log in to your loaner Mac, and then connect your USB drive
2. Navigate to your USB drive and double click on “PortableKeychain.keychain”. This will launch the Keychain Access application and add this keychain to the system.
3. Next, make this keychain the default. Select “PortableKeychain” in the Keychains list, then choose File > Make Keychain “PortableKeychain” Default. Xcode will now be able to find what it needs to code-sign apps.
4. Before logging out of the “Loaner”, make sure to make the **login** Keychain the default Keychain again, and properly eject your USB drive.

## TEST IT OUT!

Now that you have your Development Certificate, and your Provisioning Profile, its time to build and run something on your device. This is pretty straight forward at this point.

1. Create a new “View-based” application. Feel free to put something clever like “Hello World” in the main view.
2. Select the main Application target, and choose File > Get Info



3. In the Info window for application target, select the Properties tab, and then change the bundle identifier field to be anything that begins with “edu.umd.cmssc498i.” (See above)
4. Select Project > Set Active SDK > iPhone Device 3.1.2
5. Select Build > Build and Run
6. If you have any problems you might have to check to see which Development Certificate Xcode is trying to use. Select the main project icon in the Builds & Files section (the one with the blue icon), and “Get Info”. In the Build tab, see if something reasonable is selected for in the Code Signing Identity setting, and get help if needed. It should look like this:

