

Settings

Mobile Application Development in iOS

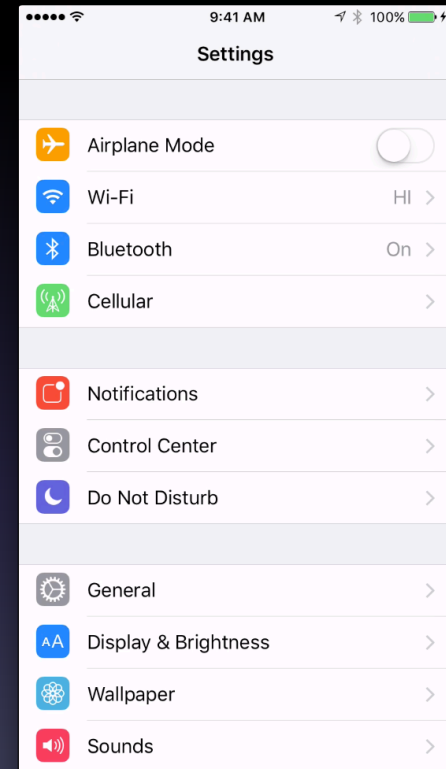
School of EECS

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Outline

- In-app settings on device
 - UserDefaults
- Global settings on device
 - Settings Bundle
- Settings across devices
 - iCloud key-value store



UserDefaults

- Persistent key-value store for app
- Accessing user defaults

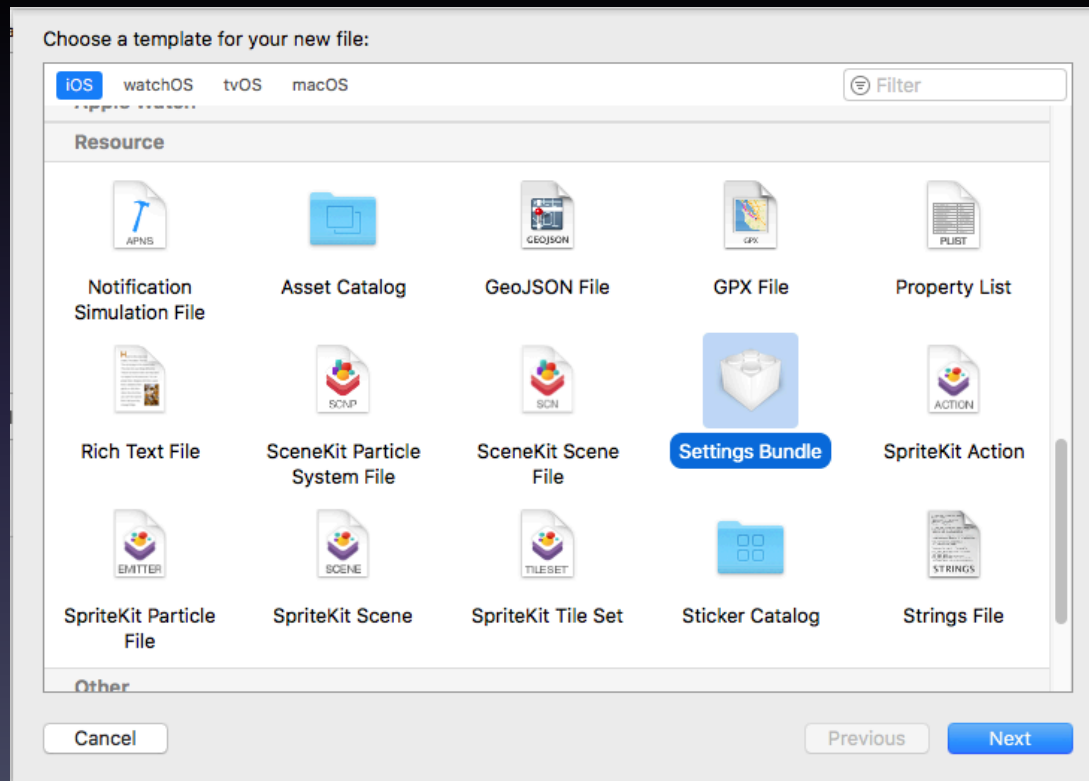
```
if (UserDefaults.standard.object(forKey: "volume") != nil) {  
    self.volume = UserDefaults.standard.integer(forKey: "volume")  
} else {  
    self.volume = 10  
}
```

- Setting user defaults

```
let volume = 15  
UserDefaults.standard.set(volume, forKey: "volume")
```

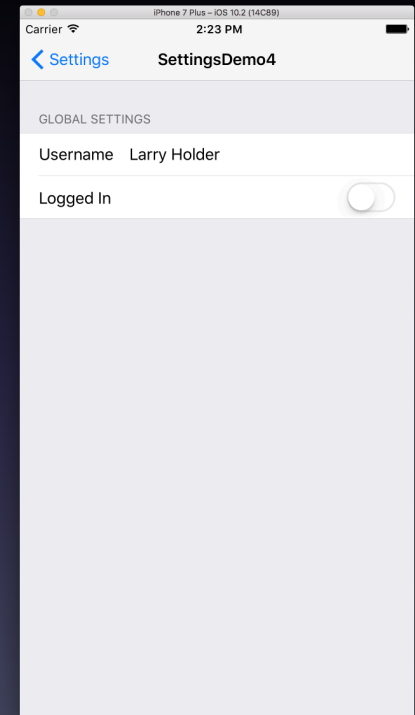
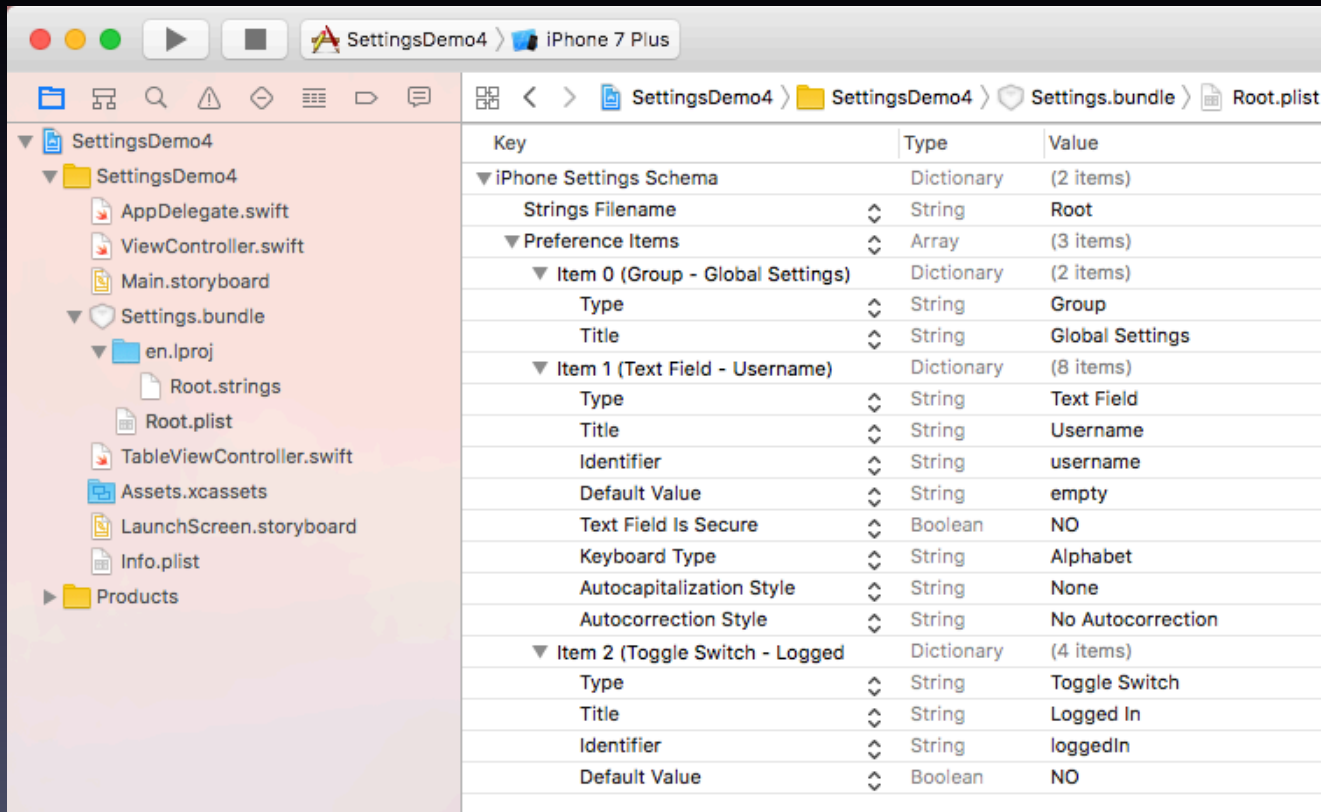
Settings Bundle

- Add Settings Bundle to app



Settings Bundle

- Modify root.plist to create settings



Settings Bundle

- Set in device's Global Settings
- Access in UserDefaults as before



```
if (UserDefaults.standard.object(forKey: "username") != nil) {  
    self.username = UserDefaults.standard.string(forKey: "username")  
} else {  
    self.username = ""  
}
```

- Notify app when changed (next time...)

iCloud Key-Value Store

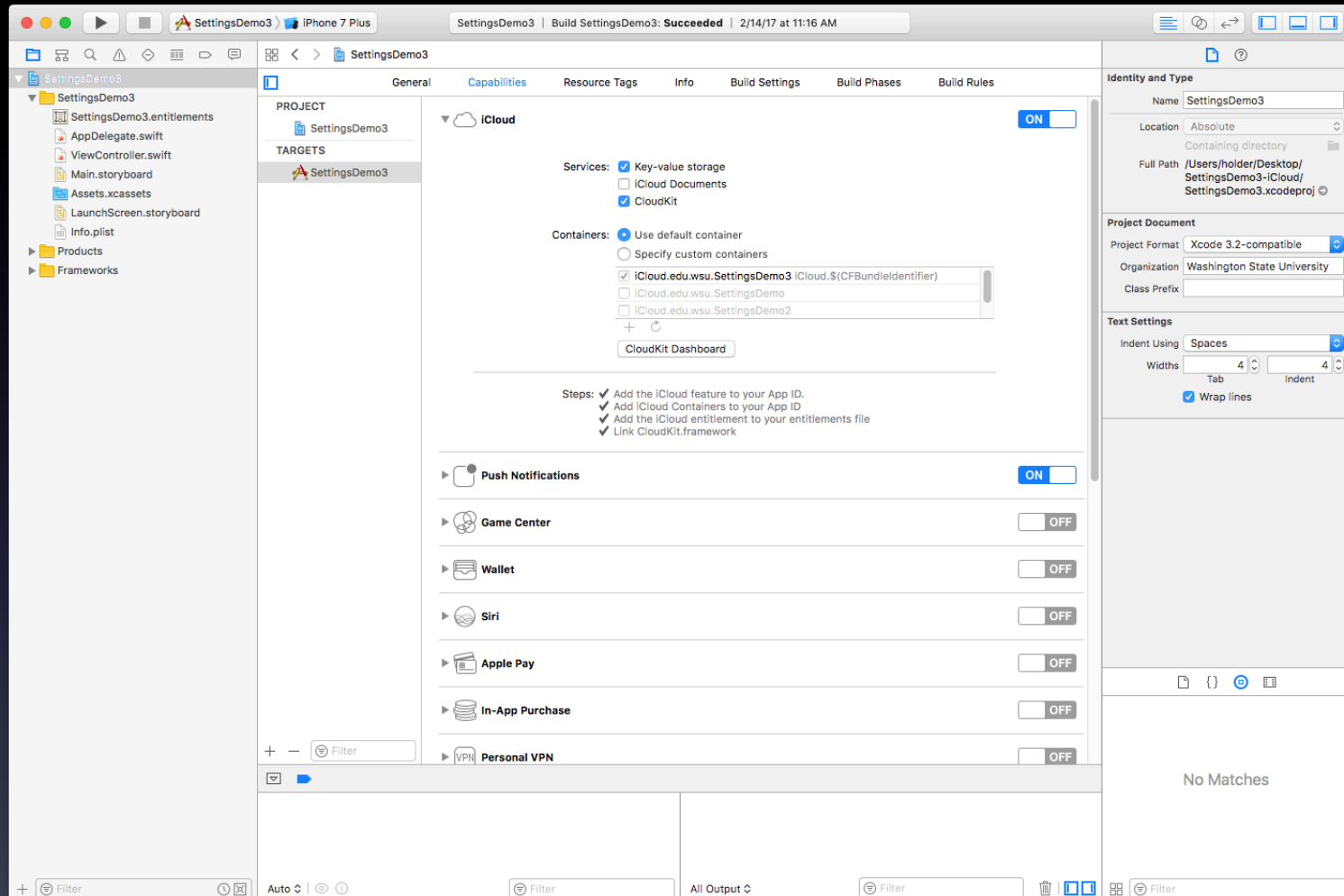


- Settings across apps & devices
- Add iCloud capabilities to app
- Need an App ID with iCloud entitlements

iCloud Key-Value Store (1)

- Create new project
- Give it a unique name, not previously used to generate App ID
- In Capabilities, turn on iCloud
 - Key-value storage already checked
 - Also check CloudKit

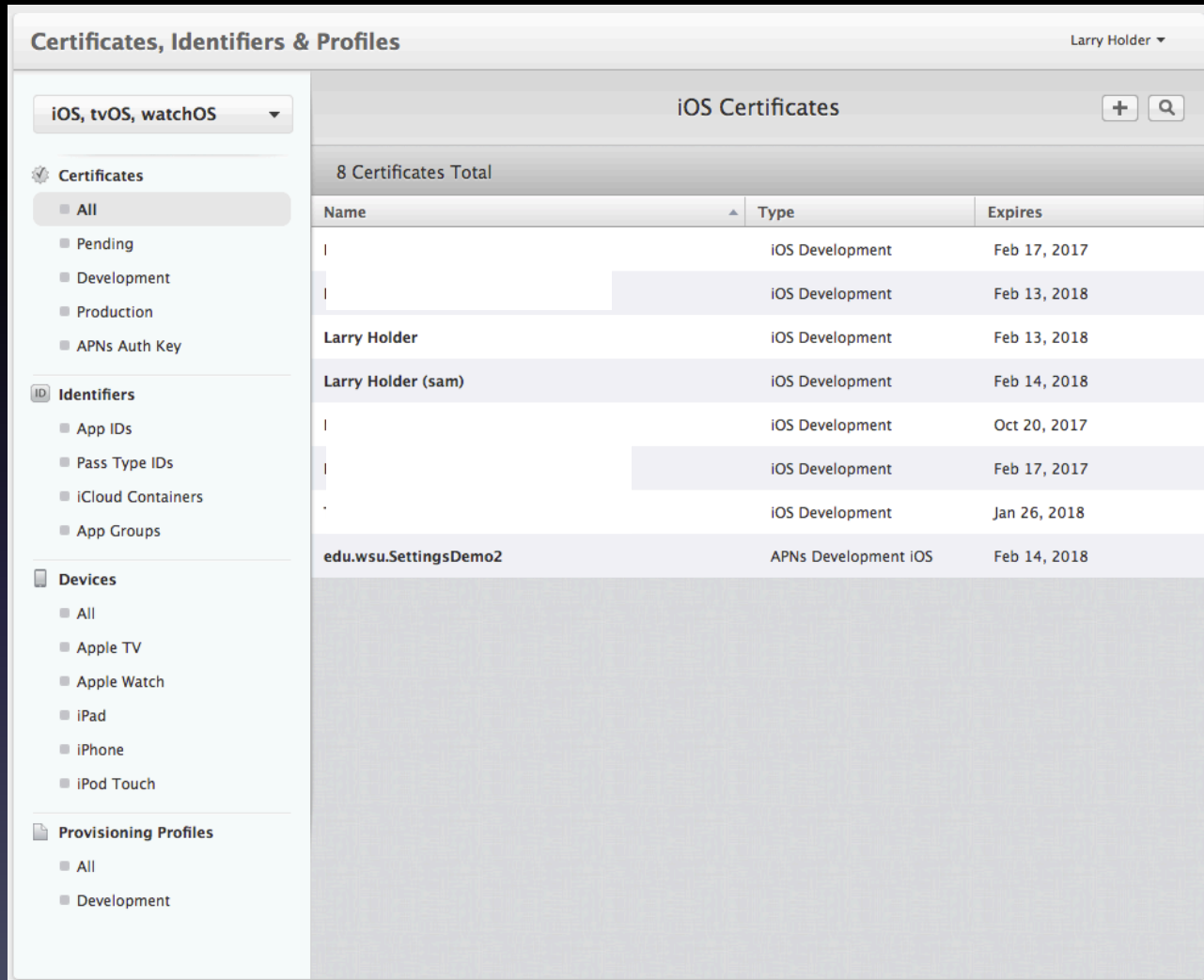
iCloud Key-Value Store (1)



iCloud Key-Value Store (2)

- Login to developer account
- Will need at least one real device
- Make sure device is registered on developer account
- Under Certificates, make sure you have one for your development environment
 - Should be auto-generated
- Create iCloud Container and register
 - Must have same name as app

iCloud Key-Value Store (2a)



iCloud Key-Value Store (2b)

Certificates, Identifiers & Profiles Larry Holder ▾

iOS, tvOS, watchOS ▾

Certificates

- All
- Pending
- Development
- Production
- APNs Auth Key

Identifiers

- App IDs
- Pass Type IDs
- **iCloud Containers**
- App Groups

Devices

- All
- Apple TV
- Apple Watch
- iPad
- iPhone
- iPod Touch

Provisioning Profiles

- All
- Development

Register iCloud Containers + 🔍

ID **Registering a iCloud Container**

Registering your iCloud Container lets you use the iCloud Storage APIs to enable your apps to store data and documents in iCloud, keeping your apps up to date automatically.

iCloud Container Description

Description:
You cannot use special characters such as @, &, *, ', "

Identifier
Enter a unique identifier for your iCloud Container, starting with the string 'iCloud'.

ID:
We recommend using a reverse-domain name style string (i.e., com.domainname.appname).

iCloud Key-Value Store (3)

- Create explicit App ID for this app
 - Wildcard App ID won't work for iCloud use
 - Check iCloud App Services (need CloudKit)
 - Select and assign your iCloud container
 - Register

iCloud Key-Value Store (3a)

Certificates, Identifiers & Profiles

Register iOS App IDs

ID Registering an App ID

The App ID string contains two parts separated by a period (.) — an App ID Prefix that is defined as your Team ID by default and an App ID Suffix that is defined as a Bundle ID search string. Each part of an App ID has different and important uses for your app. [Learn More](#)

App ID Description

Name:

You cannot use special characters such as @, &, *, ", '.

App ID Prefix

Value: J3N3V4335U (Team ID)

App ID Suffix

☒ **Explicit App ID**

If you plan to incorporate app services such as Game Center, In-App Purchase, Data Protection, and iCloud, or want a provisioning profile unique to a single app, you must register an explicit App ID for your app.

To create an explicit App ID, enter a unique string in the Bundle ID field. This string should match the Bundle ID of your app.

Bundle ID:

We recommend using a reverse-domain name style string (i.e., com.domainname.appname). It cannot contain an asterisk (*).

☐ **Wildcard App ID**

This allows you to use a single App ID to match multiple apps. To create a wildcard App ID, enter an asterisk (*) as the last digit in the Bundle ID field.

Bundle ID:

Example: com.domainname.*

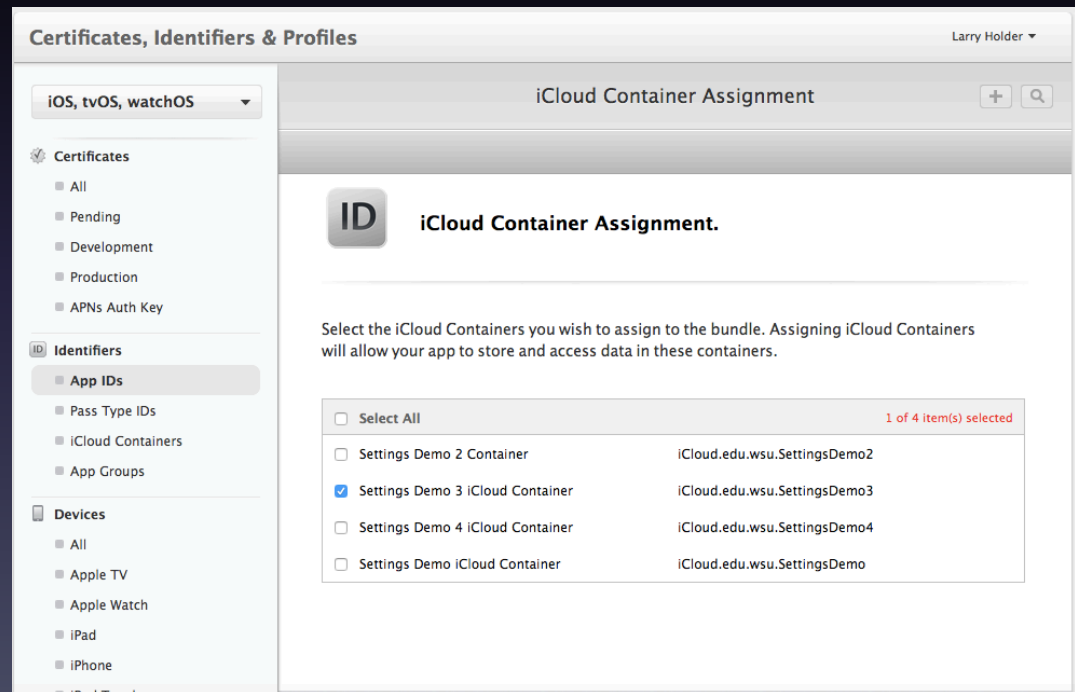
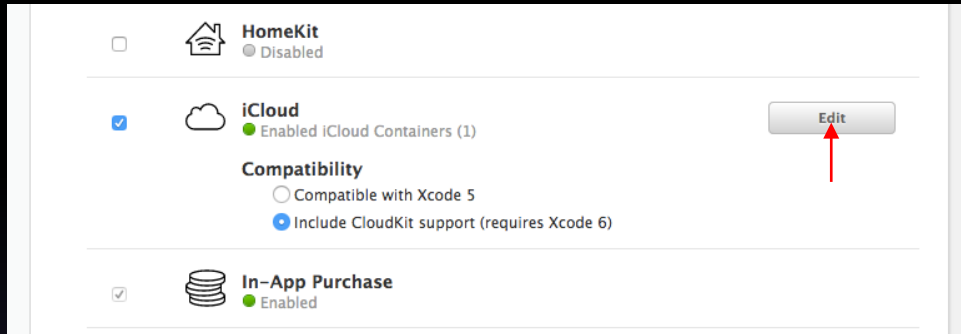
App Services

Select the services you would like to enable in your app. You can edit your choices after this App ID has been registered.

Enable Services:

- ☐ App Groups
- ☐ Associated Domains
- ☐ Data Protection
 - ☒ Complete Protection
 - ☐ Protected Unless Open
 - ☐ Protected Until First User Authentication
- ☒ Game Center
- ☐ HealthKit
- ☐ HomeKit
- ☒ iCloud
 - ☐ Compatible with Xcode 5
 - ☒ Include CloudKit support (requires Xcode 6)
- ☒ In-App Purchase
- ☐ Inter-App Audio
- ☐ Personal VPN
- ☐ Push Notifications
- ☐ Wallet
- ☐ Wireless Accessory Configuration

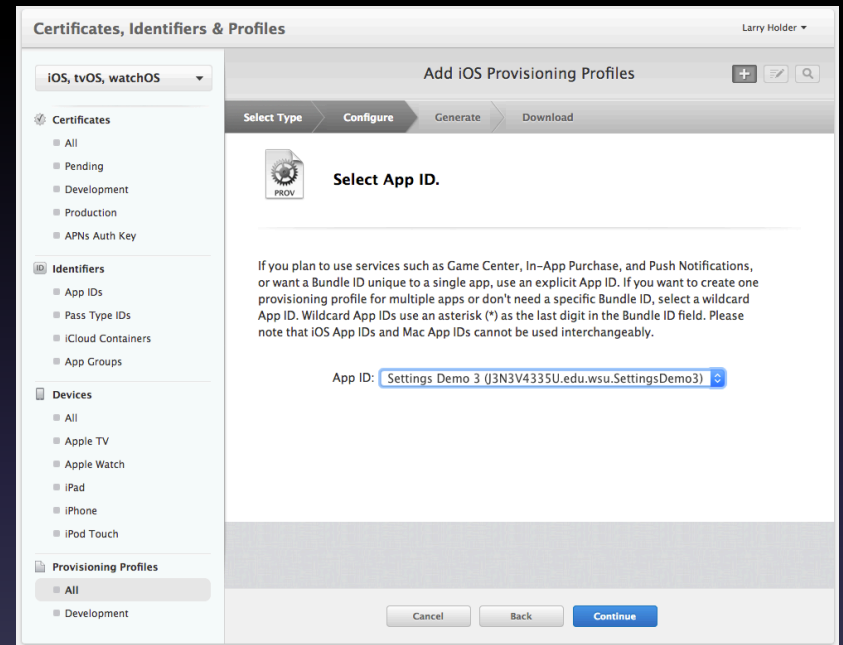
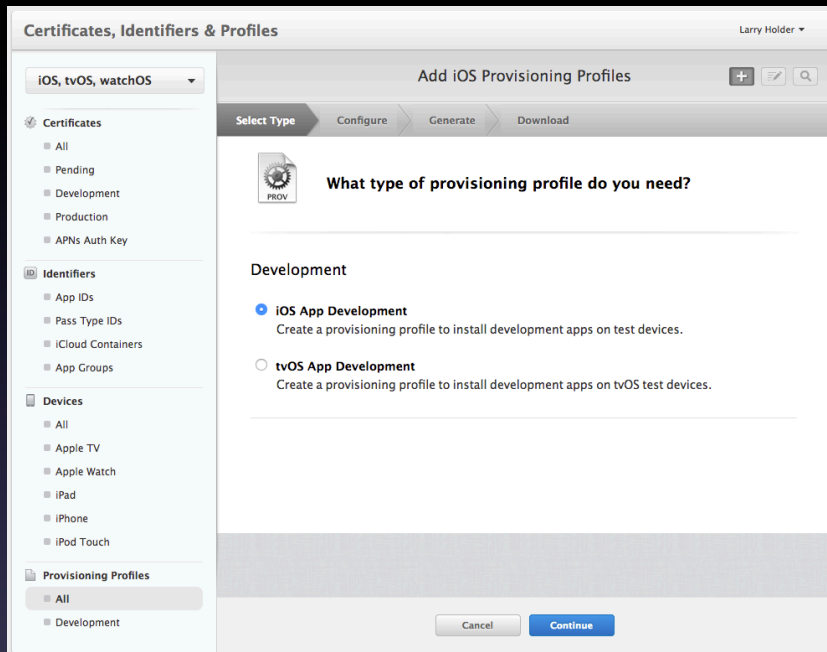
iCloud Key-Value Store (3b)



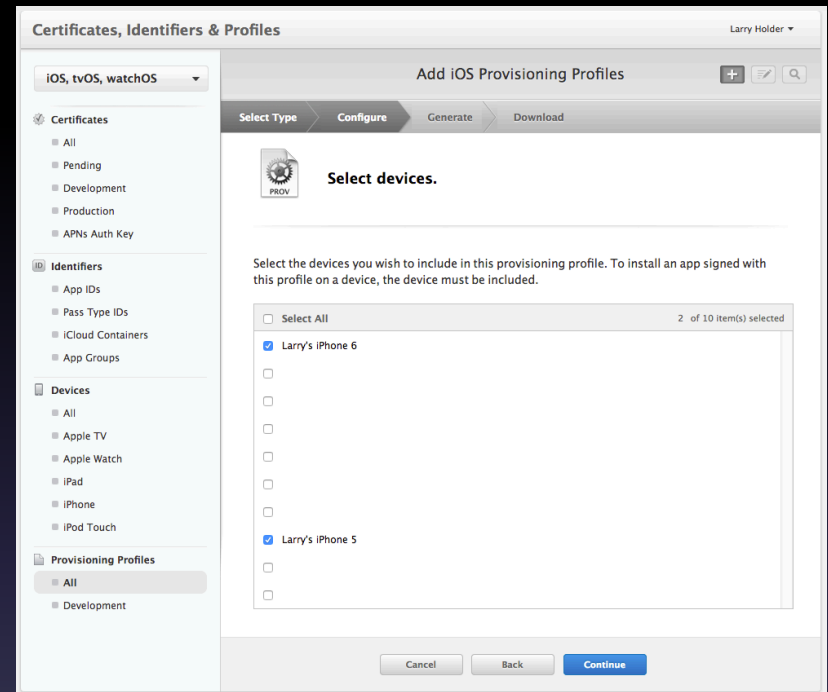
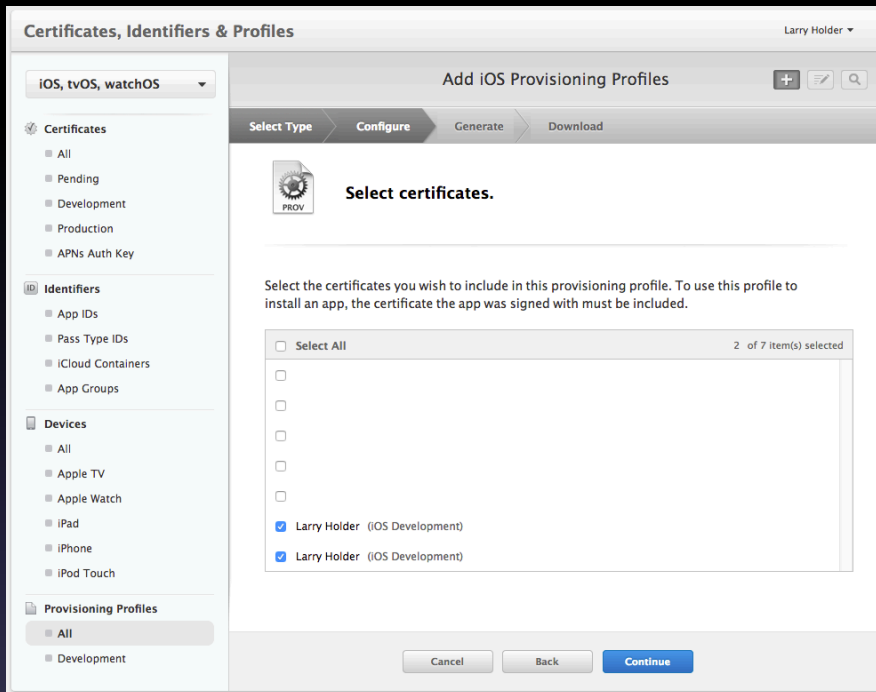
iCloud Key-Value Store (4)

- Create Provisioning Profile
 - iOS App Development
 - Select newly-created App ID
 - Select your development certificate(s)
 - Select your devices
 - Give profile a name
 - Download, double-click to install in Xcode
- Uncheck automatically manage signing
- Select new provisioning profile

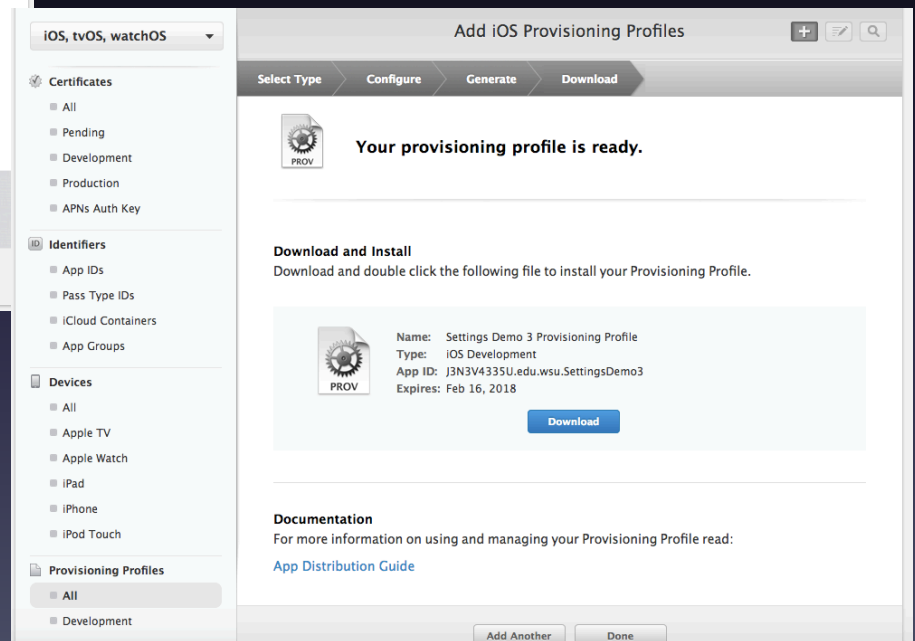
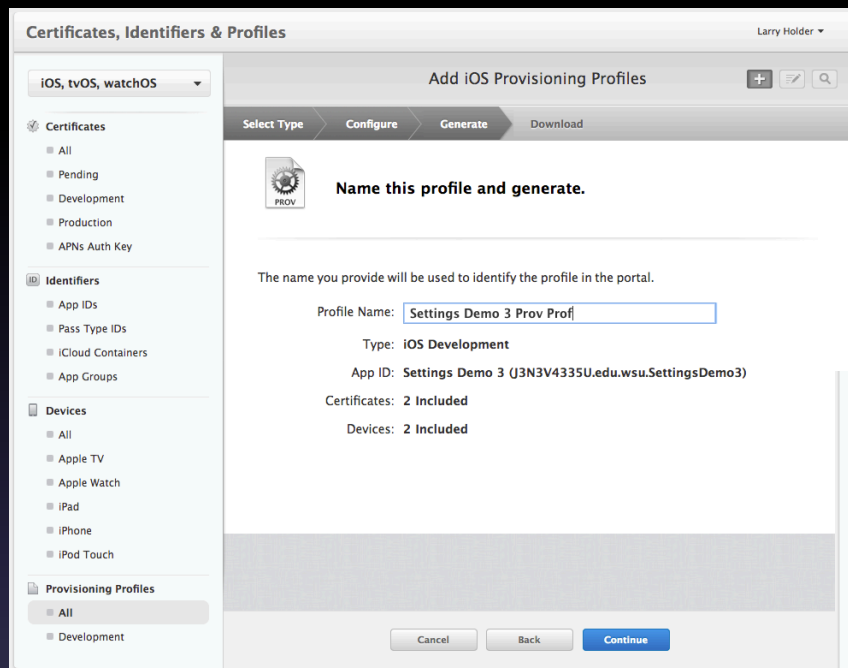
iCloud Key-Value Store (4a)



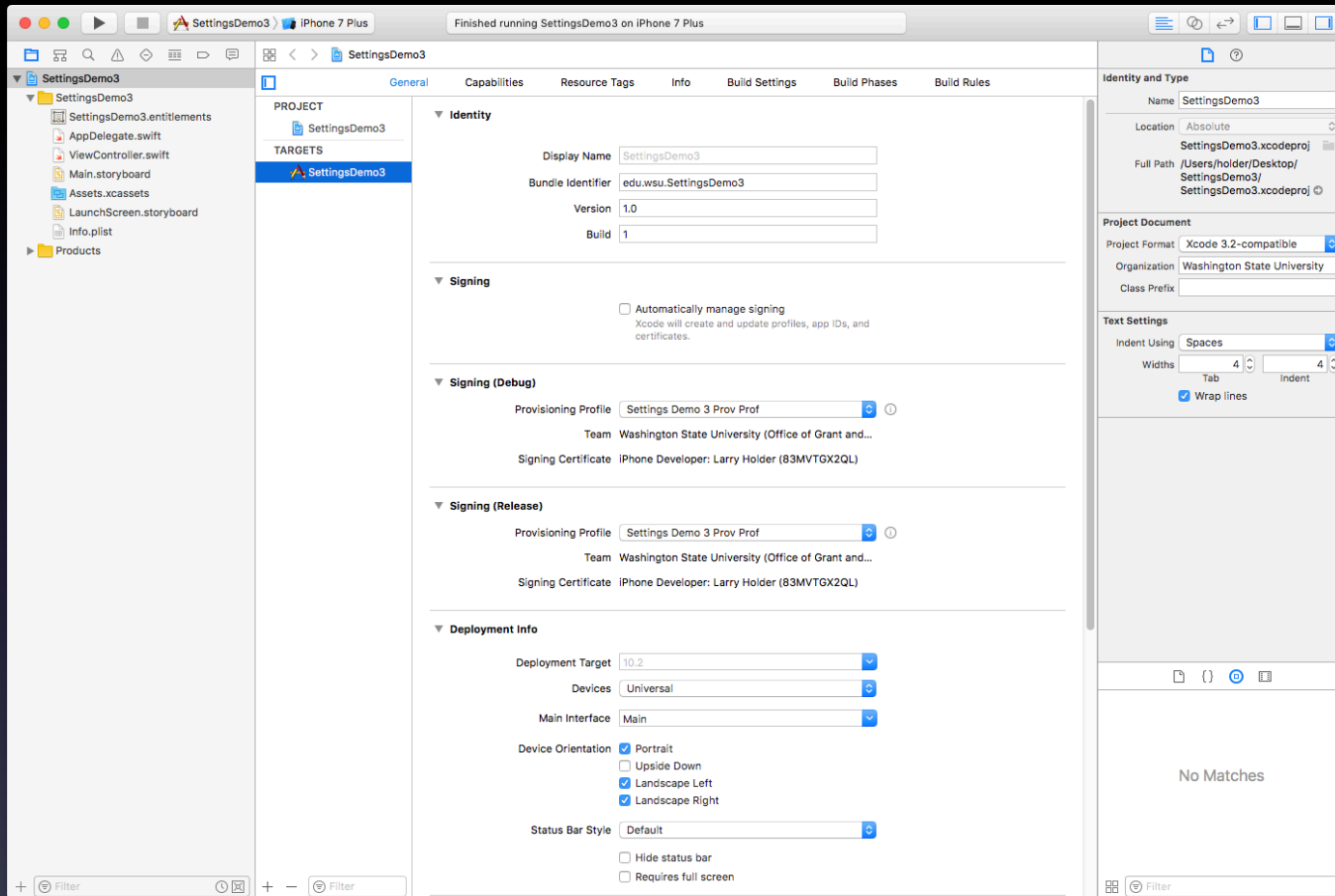
iCloud Key-Value Store (4b)



iCloud Key-Value Store (4c)



iCloud Key-Value Store (4d)



iCloud Key-Value Store (5)

- Run app on simulator and device
 - Make sure both signed in to same iCloud account
- Changes via simulator propagate to device
 - But not vice versa (not sure why?)

Code

```
// Initialize key-value store
var keyStore = NSUbiquitousKeyValueStore()

// viewDidLoad
keyStore.synchronize()

// Set a key to a value
keyStore.set("value", forKey: "keyName")
keyStore.synchronize() // optional if you can wait

// Read value of key (mind your latency)
if let storedString = keyStore.string(forKey: "keyName") {
    print("Cloud Value = \(storedString)")
} else {
    print("Cloud Value = empty")
}
```

Resources

- Preferences and Settings
 - developer.apple.com/library/content/documentation/Cocoa/Conceptual/UserDefaults