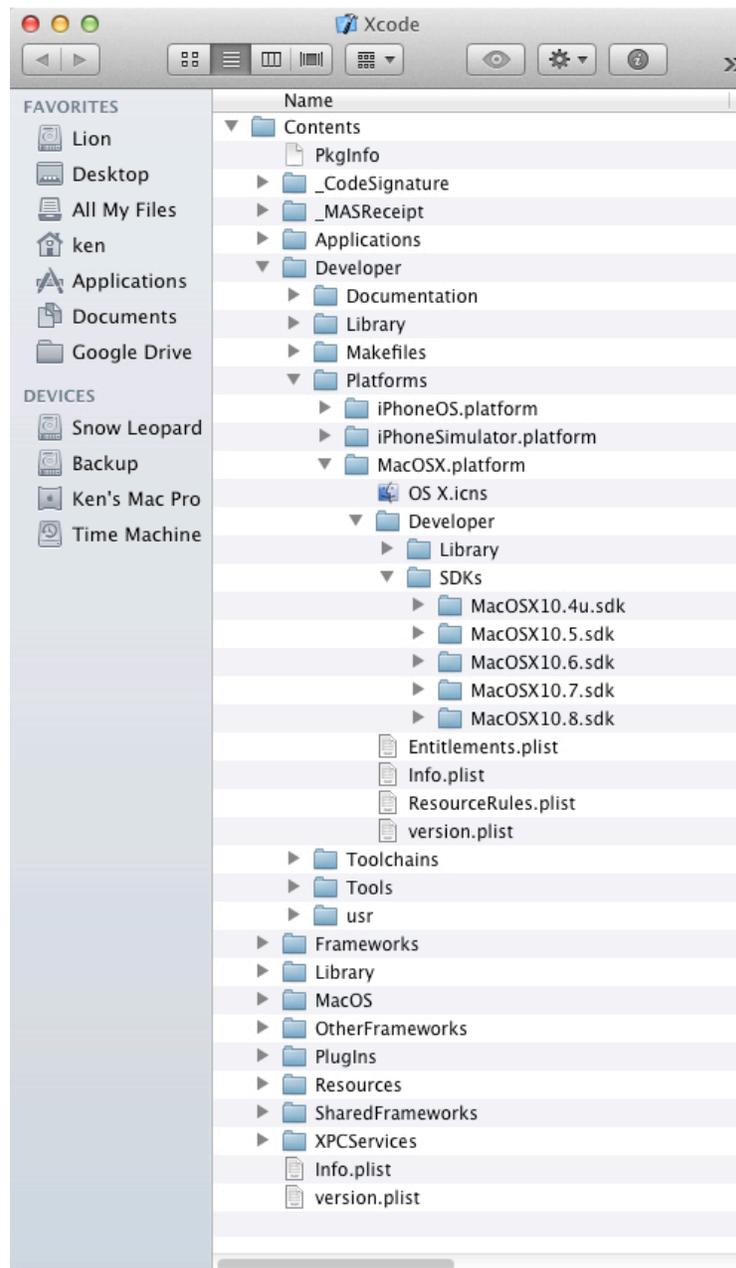


Transitioning FutureBasic to OS X 10.7+

The following document focuses on transition from OS X 10.6 to Lion and the transition to from Xcode 3 to Xcode 4. Most of this won't apply if you're new to FB. If you are using OS X 10.8+ and Xcode 4.2+ (either Xcode 4 or Xcode 5) the setup is changed and summarized in these steps:

(1) For Xcode 4.2+ (including Xcode 5) the /Developer/ directory is contained inside the Xcode package. Go to /Applications/Xcode; right click on Xcode; and select "Show Package Contents." You should find a hierarchy like the following (the contents of your SDKs directory may be different, but we will address that.)



We want to set FBtoC's "Build Settings -Advanced" preferences "Path to Developer folder" to point to the /Developer/ directory inside the Xcode package:

/Applications/Xcode.app/Contents/Developer

and be sure the "Use Compiler from Developer folder" is checked.

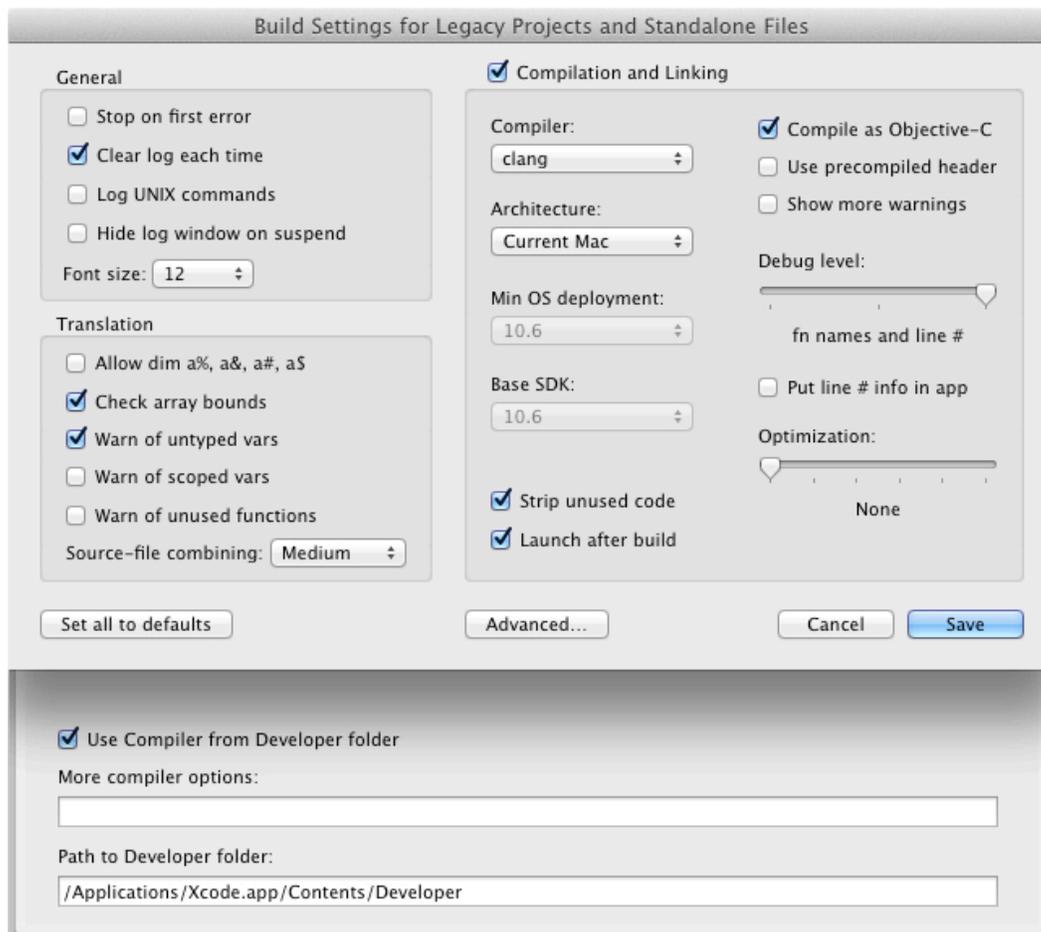
(2) Unless you have a specific reason to target OS X 10.5 and lower, "Compiler" in Build Settings should be set to clang.

(3) Architecture in Build Settings should be set to 'Current Mac' unless you are still building Universal Binaries (PPC + Intel binary).

(4) FB relies on the OS X 10.6 SDK from Apple. That SDK file needs to be in the SDKs folder at:

/Applications/Xcode.app/Contents/Developer/Platforms/MacOSX.platform/Developer/SDKs

Here is a screenshot of correctly configured FBtoC preferences:



The MacOSX10.6.sdk can be downloaded from:

<http://freegroups.net/innovative/fbcocoa/SDKs/>

Note: Build Settings comments includes the standalone settings (available within FBtoC) and the project Build Settings available from the FB Project window.

Practical Examples

OS X 10.7 Lion has several differences from 10.6 that affect FutureBasic programmers. Although it is possible to use earlier FB versions, FB 5.6 or later is strongly recommended because it prevents errors resulting from Apple's removal of QuickDraw headers in OS X 10.7.

Scenario No. 1

Starting point: OS X 10.6 with Xcode 3

Obtain Lion from App Store and install it.

What happens: Lion installation removes all the system compilers from /usr/bin, but leaves your existing Developer folder intact.

Probable error building with FB:

**The compiler specified by build settings could not be found:
/usr/bin/gcc-4.0**

Fix: In FBtoC preferences (Advanced drawer) click the checkbox "Use compiler from Developer folder." All builds should now work normally.

Scenario No. 2

Starting point: OS X 10.6 with Xcode 4

Obtain Lion from App Store and install it.

Download Xcode 4 from App Store and install it via Install Xcode.app, which can be found in the Applications folder when the download is complete.

What happens: Xcode installation renames your existing Developer folder to Developer-old, adds a new Developer folder, and installs system compilers gcc 4.2, llvm-gcc 4.2 and clang in /usr/bin. gcc 4.0 is gone from /usr/bin.

First possible error building with FB:

The compiler specified by build settings could not be found:
`/usr/bin/gcc-4.0`

Fix 1: In FBtoC preferences (Advanced drawer) set the textfield path to /Developer-old, and click the checkbox “Use compiler from Developer folder.” All builds should now work normally.

Fix 2: in FBtoC settings change the Compiler pop-up to anything but gcc 4.0.

Second possible error building with FB:

The SDK corresponding to 'Base SDK' could not be found:
`/Developer/SDKs/MacOSX10.5.sdk`

Fix 1: In FBtoC preferences change the Base SDK pop-up to 10.6 (Xcode 4 has no SDKs before 10.6).

Fix 2: In FBtoC preferences (Advanced drawer) check that the path is valid.

Third possible error building with FB

`gcc-4.2: error trying to exec '/usr/bin/powerpc-apple-darwin11-gcc-4.2.1': execvp:
No such file or directory
lipo: can't figure out the architecture type of: /var/folders/52/jjd30gq/T//
ccDkhj.out
Compilation failed`

Fix: In FBtoC preferences change the Architecture pop-up to Current Mac or Intel (Xcode 4 has no PPC support).

Scenario No. 3

Starting point: A new Mac with OS X 10.7 (Lion)

Download Xcode 4 from App Store and install it (via Install Xcode.app, which appears in the Applications folder).

First possible error building with FB:

The compiler specified by build settings could not be found:
`/usr/bin/gcc-4.0`

Fix: In FBtoC preferences change the Compiler pop-up to anything but gcc 4.0.

Second possible error building with FB:

The SDK corresponding to 'Base SDK' could not be found:
/Developer/SDKs/MacOSX10.5.sdk

Fix: in FB settings change the Base SDK pop-up to 10.6 (Xcode 4 has no SDKs before 10.6).

Third possible error building with FB:

gcc-4.2: error trying to exec '/usr/bin/powerpc-apple-darwin11-gcc-4.2.1': execvp:
No such file or directory
lipo: can't figure out the architecture type of: /var/folders/52/jjd30gq/T//
ccDkhj.out
Compilation failed

Fix: In FBtoC preferences change the Architecture pop-up to Current Mac or Intel (Xcode 4 has no PPC support).

Other Areas of Concern

Problem with nib files

The Interface Builder.app in earlier versions of Xcode is gone, and Carbon nibs can no longer be edited in Xcode 4.

If you are unhappy with these limitations, copy a Developer folder (containing Xcode 3) from another machine to the new one. From here on, see Scenario No. 2 (except that the path /Developer-old would be /wherever/it/is/Developer).

Note that you can't formally install Xcode 3 on Lion, but you can copy the Developer folder over. Xcode 3 and Interface Builder both will continue to work.

Making an Xcode Project from FBtoC's File Menu

Problem No. 1: The project opens in Xcode 4, but you need to build with Xcode 3.

Fix: Quit Xcode 4 without making any changes to the project. In the Finder, locate the *.xcodeproj file and use a contextual click to open it with Xcode 3.

Debug Last App in Xcode (from FBtoC's File menu)

Problem No. 2: Xcode 4 shows a DebuggerHost project but there's no trace of the original FB app. FBtoC's log window shows:

/MyHD/FB/FutureBasic 5.app/Contents/Resources/FBtoC/build_goodies/
DebugInXcode.scpt:545:585: execution error: Xcode got an error: Can't get project
"DebuggerHost". (-1728)

Debugging error code 256

Fix: Quit Xcode 4 and launch Xcode 3. In FBtoC, re-issue the command Debug Last App in Xcode.

FutureBasic 5.7.7 and Beyond Support for OS X 10.7, 10.8 and 10.9 SDKs

FutureBasic 5.7+ works almost seamlessly in OS X 10.7/10.8/10.9 (version 5.7.4+ required for 10.8+). Universal builds and those targeting 10.4 or 10.5 require an Xcode 3 Developer folder.

First, download the latest version of FutureBasic at:

<http://www.4toc.com/fb/index.htm>

Apple discontinued QuickDraw headers support in OS X 10.7. Since FutureBasic relies on QuickDraw, some user intervention is required to restore QuickDraw functionality. The process is not entirely automatic and requires the user to make one-time changes for the desired SDKs (i.e. either 10.7, 10.8 or 10.9)

There are two options for making the necessary SDK changes:

First, the automated method is the FixSDK app:

<http://www.4toc.com/fb/FixSDK.zip>

FixSDK may not work on some MacPro1.1 models. However, the required SDK modifications can also be done manually. The process involves two steps:

(1) Update your copy of FutureBasic to FB 5.7.7 or newer to support the selection of 10.7, 10.8, 10.9 in the “Min OS deployment” and “Base SDK” popup menus in the FBtoC preferences.

(2) Copy the QD.framework Headers from the 10.6 SDK, and paste them into the 10.9 SDK along with “ColorSyncDeprecated.h” file.

To copy the QuickDraw headers directory from your copy of Xcode, right click on Xcode and “Show Package Contents.” and follow this path in the 10.6 SDK:

```
Contents/Developer/Platforms/MacOSX.platform/Developer/SDKs/MacOSX10.6.sdk/  
System/Library/Frameworks/ApplicationServices.framework/Versions/A/  
Frameworks/QD.framework/Versions/A/Headers/
```

Make a copy of that last folder—the complete Headers directory.

Another option is to download the 10.6 SDK at:

<http://freegroups.net/innovative/fbcocoa/SDKs>

Note: This is a 72.7 MB file, so it will take some time to download.

Once the SDK is downloaded, open it and follow the steps above to locate and copy of the QuickDraw Headers directory.

Once you have the 10.6 SDK QD Headers folder copied, follow a similar path to get to the QD Headers for 10.9 SDK:

```
Contents/Developer/Platforms/MacOSX.platform/Developer/SDKs/MacOSX10.9.sdk/  
System/Library/Frameworks/ApplicationServices.framework/Versions/A/  
Frameworks/QD.framework/Versions/A/Headers/
```

When you get there, change the name of the Headers folder that is already in there to "Headers_orig," and then paste in the 10.6 Headers folder which you previously copied from the 10.6 SDK.

One more file named "ColorSyncDeprecated.h" should be in the 10.9 "Headers_orig" that you just renamed. Make a copy of that file and then paste it into the ColorSync.framework which is at path:

```
Contents/Developer/Platforms/MacOSX.platform/Developer/SDKs/MacOSX10.9.sdk/  
System/Library/Frameworks/ApplicationServices.framework/Versions/A/  
Frameworks/ColorSync.framework/Versions/A/Headers/
```

Paste "ColorSyncDeprecated.h" into that last "Headers" folder of the ColorSync framework (one QD file expects it find it there). Also paste a copy of this file into the new 10.9 QD.framework Headers folder which you just created so that it will match the original.

Note: "ColorSyncDeprecated.h" only needs to be copied for the 10.9 SDK and not the 10.7 and 10.8 SDKs

Note 1: Be careful making changes in your SDKs. This optional process is only required if you need to build against 10.7, 10.8 or 10.9 SDKs.

Note 2: FixSDK, or its manual equivalent, should be included in the normal Xcode update cycle but otherwise only needs to be run once for each SDK.