



# Mac OS X Developer Tools Compatibility and Installation (July 2002 Release for Mac OS X Version 10.2)

## Contents

- Introduction
- Compatibility with Earlier Versions of Mac OS X
- Compatibility of Built Applications
- Use of the Developer Tools with WebObjects Developer
- Installing the Mac OS X Developer Tools
- Installing the Older ProjectBuilderWO IDE (DevPBWO.pkg)
- Possible Installation Problems and Workarounds

## Introduction

The Developer Tools include everything you need to begin developing applications for Mac OS X, including tools, documentation, and software. For the latest information and updates to Mac OS X development tools, documentation, code samples, and technical notes, please visit <http://developer.apple.com/macosx>.

Developers are encouraged to join the Apple Developer Connection, which provides the most convenient access to Mac OS X development resources, including technical support and pre-release software. For information, visit <http://www.apple.com/developer>.

Please read the separate “What’s New” document for information on what has changed since the April 2002 Public Beta Seed Developer Tools release.

## Compatibility of the Developer Tools with Mac OS X Versions

The July 2002 release of the Developer Tools is compatible **only** with systems running the Mac OS X version 10.2 operating system release. Prior releases of the Developer Tools will not function properly on Mac OS X version 10.2.

## Compatibility of Built Binaries

With the July 2002 Developer Tools, you can build two-level namespace binaries which run on Mac OS X 10.1 and later. Those two-level namespace binaries will also run on systems earlier than Mac OS X 10.1, provided that:

- those binaries do not **require** new APIs which did not exist on earlier systems. Instead, at runtime you can check for the existence of APIs and dynamically load the necessary symbols if you are running on a system where they are available.
- those binaries do not reference symbols of the same name from more than one shared library (or your application). While systems earlier than Mac OS X 10.1 can run two-level namespace binaries, those systems cannot properly resolve multiple symbols of the same name.

The gcc compiler's ABI (Application Binary Interface) for C++ programs has been changing as the compiler's support for the full C++ language has become more complete. As a result of these changes, C++ code that is bound together must be created by the same version of the compiler in order to be guaranteed to work. Consequently, it is a bad idea to create libraries with C++ interfaces that are built (or distributed) independently of the code that uses those libraries.

Specifically, the gcc 3.1 compiler (the default compiler for the July 2002 release of the Developer Tools) has a different C++ ABI than gcc 2.95 (the default compiler for earlier releases of the Developer Tools). C++ ABI differences include changes to name mangling, exception handling, and class layout and alignment. All your C++ code, including libraries and frameworks, must be built with the same compiler.

Because of this ABI change, IOKit-based device drivers and kernel extensions built with gcc 3.1 cannot be used with Mac OS X 10.1.x and earlier systems. Special compatibility code was added to Mac OS X version 10.2 to enable it to load drivers and kernel extensions that had been built with gcc 2.95. If you need your device driver or kernel extension to run on both 10.1 and 10.2, you will need to build it with gcc 2.95.

## Use of the Developer Tools with WebObjects Developer

For information about any issues with the use of Mac OS X version 10.2 and the July 2002 Developer Tools for WebObjects development, please refer to the WebObjects Current Patch List in this AppleCare Knowledge Base document:

<http://www.info.apple.com/kbnum/n70037>

## Installing the Mac OS X Developer Tools

This section gives installation instructions for the Mac OS X Developer Tools. There is a single Developer.mpkg package which contains several separate sub-packages to allow flexibility in installation and updating. These sub-packages are in the Packages folder. The Developer package includes the following sub-packages:

- Developer Tools (DevTools.pkg)
- Mac OS X SDK (DevSDK.pkg)
- Developer Documentation (DevDocumentation.pkg)
- Developer Examples (DevExamples.pkg)
- BSD SDK (BSDSDK.pkg)

**NOTE: The older ProjectBuilderWO IDE package (DevPBWO.pkg) is no longer included in the Developer.mpkg package, but it is still in the Packages folder. If you need it for WebObjects 4.5.1 development, it must be separately installed. See instructions below.**

#### **Installation instructions:**

- 1) Boot into Mac OS X.
- 2) Double-click the Developer.mpkg icon on the Developer Tools CD.
- 3) Click the lock icon to authenticate as a user with administrator privileges. The first user you create when setting up Mac OS X has administrator privileges by default.
- 4) Follow the instructions in the installer. We recommend that you do an Easy Install.

NOTE: The developer software MUST be installed on the same hard drive partition that you booted Mac OS X from. The Installer prevents installation on any other partition.

- 5) Be patient at the end of installation! After all files have been written to the disk, but prior to "Optimizing System Performance", the post-install scripts build precompiled headers for use with gcc 3.1. This takes substantially longer than the "less than a minute" reported by the Installer. To see what's going on during this period, you can go to the Installer's File menu and choose Show Log. This delay should be reduced in future releases.

If you encounter any problems in installation, including not having enough disk space to do the installation, please refer to the "Possible Installation Problems and Workarounds" section below.

The Developer package includes all the software, tools, and documentation you need to start developing Mac OS X applications. Once you've installed the Developer package, you can access developer documentation by launching Project Builder and choosing any of the menu items in the Help menu to view documentation directly in Project Builder, or by launching Help Viewer and clicking on the Developer Center link at the bottom of the Help Center welcome page. Developer applications, such as Project Builder and Interface Builder, are installed in /Developer/Applications.

## Installing the Older ProjectBuilderWO IDE

ProjectBuilderWO is an older Apple IDE that should now be used only by those developers still doing WebObjects 4.5.1 development. The DevPBWO.pkg package is no longer included in the Developer.mpkg. The package itself is still located inside the Packages folder. To install it, open the Packages folder and double-click on the DevPBWO.pkg icon.

## Possible Installation Problems and Workarounds

- There is a large amount of new documentation in the Developer Documentation package. If you are attempting to install on a disk partition with little space remaining, you may need to make more space available on your disk, or go into Customize and unselect the Developer Documentation package.

If you are partitioning your hard disk to separate root and data partitions, bear in mind that the size of the Developer Tools releases are likely to continue to grow over time, so leave some room to expand on the root partition. For future releases, we may investigate breaking up some of the installation packages further to help with this issue.

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