3.3 Release Notes: Objective C++ Compiler

This file contains developer release notes for the 3.3, 3.2, 3.1, and 3.0 releases of the Objective C++ Compiler.

Notes Specific to Release 3.2

The Release 3.2 Objective-C++ compiler is based on version 2.2.2 of the GNU compiler.

New Features

- The new language features supported by the 2.2.2 version are described in the GNU documentation that accompanies the compiler sources.
- The list of C++ extensions is now: ***.C, .cc, .cxx, .cpp*** and ***.M***.

- The ***-ObjC++*** flag overrides the auto-language-selection so that, for example, a .c file can be compiled as Objective-C++ code. However, the **/bin/cc++** shell script which calls the **/bin/cc** driver with the ***-ObjC++*** flag continues to be supported.
- The new system header path for C++-specific headers is **/NextDeveloper/Headers/g++**. Currently this directory only contains headers specific to libg++ and C++ compatible system header files.
- The **cc**(1) driver has been modified to invoke the script ***ld++*** to demangle symbol names in **ld** output for a more user-friendly error messages.

Notes

- The current version of the compiler does not support templates.
- Most system headers still require that Objective-C++ source files wrap inclusions to them with the extern "C" or extern "Objective-C" syntax.   For example,

```
extern "C" {
#import <stddef.h>
#import <streams/streams.h>
};
```

Notes Specific to Release 3.0

The Release 3.0 Objective-C++ compiler is based on version 1.39.1 of the GNU Compiler which directly supports version 2.0 of the C++ language, as specified by AT&T (the Release 2.0 compiler was based on version 1.36.4 of G++). The GNU compiler has been extended to recognize Objective-C constructs within C++ source files.

New Features

Integrated Compiler Driver

The Release 3.0 compiler driver **/bin/cc** handles C, Objective-C, C++ and Objective-C++ source files. The C++ compiler driver program **/bin/cc++** is no longer needed (but is still present for compatibility). The compiler driver determines the appropriate language from the suffix of the source files or command line options. Files ending in **.c** are taken to be C source files, **.m** indicates an Objective-C source file, and **.cc**, **.cxx**, and **.C** are recognized as C++ source files. The ***-ObjC*** flag specifies that source files should be considered to be Objective C source files regardless of their extension. Similarly, the ***-ObjC+*** flag specifies that source files should be considered to be Objective-C++ source files. The **/bin/cc++** driver is simply a shell script which calls the **/bin/cc** driver with the ***-ObjC+*** flag.

New Constructor and Destructor Sections

The Release 3.0 compiler no longer uses the **collect** program to gather references to C++ constructors and destructors (which requires linking twice). The compiler now automatically places these references in the new __**constructor** and __**destructor** sections of the __**TEXT** segment, which are automatically coalesced by the linker. Link time should be substantially decreased.

C++ constructors are called from startup routines in **crt0.o**, and destructors are registered to be called in the reverse order when the program terminates using **atexit()**. The archive library **/usr/lib/libc++.a** present in Release 2.0 is no longer needed.