

5. Where to Go From Here

Programming Tools and Resources

Other Development Applications

OPENSTEP Developer for Mach includes applications other than Project Builder and Interface Builder. Except where noted, these applications are installed in **/NextDeveloper/Apps**.

| Name | Description |
|---|--|
| TableHeadRule.eps ↪ FileMerge | Visually compares the contents of two files or two directories. You can use FileMerge, for example, to determine the differences between versions of the same source code file or between two project directories. You can also use it to merge changes. |
| TableRule.eps ↪ MallocDebug | Measures the dynamic-memory usage of applications, finds memory leaks, analyzes all allocated memory in an application, and measures the memory allocated since a given time. |
| 168749_TableRule.eps ↪ IconBuilder | A simple graphics program for creating application and document icons. |
| 279863_TableRule.eps ↪ Yap | A utility for editing and previewing PostScript code. |
| 388699_TableRule.eps ↪ Sampler | Analyzes performance problems with your application by sampling the call stack of your program over a period. (In /NextDeveloper/Demos) |
| 486640_TableRule.eps ↪ | |

Other Installed Frameworks

A framework contains a dynamic shared library, related header files, and resources (including nib files, images, sounds, documentation, and localized strings) used by the library. All frameworks are installed in **/NextLibrary/Frameworks**. OPENSTEP Developer for Mach provides these other frameworks in addition to the Application Kit and the Foundation frameworks:

| Name | Description |
|----------------------------|--|
| 592102_TableHeadRule.eps ↵ | |
| System | Operating-system and low-level Objective-C runtime APIs |
| 690297_TableRule.eps ↵ | |
| SoundKit | Sound recording, playback, and editing capabilities. |
| 783890_TableRule.eps ↵ | |
| InterfaceBuilder | Creation of custom static (compiled) palletes for use in Interface Builder |
| 878954_TableRule.eps ↵ | |
| NEXTIME | Real-time video imaging |
| 974221_TableRule.eps ↵ | |
| NIAccess | NetInfo's access layer |
| 69501_TableRule.eps ↵ | |
| NIInterface | NetInfo's interface layer |
| 165194_TableRule.eps ↵ | |

Useful Command-Line Tools

NeXT has created or modified several tools for compilation, debugging, performance analysis, and so on. The following table lists some of the more useful of these tools. You can get further information using the man pages system.

| Name | Description | Location |
|----------------------------|---|----------|
| 269600_TableHeadRule.eps ↵ | | |
| cc | Compiles C, Objective-C, C++, and Objective-C++ source codefiles. | /bin |
| 372511_TableRule.eps ↵ | | |
| gdb | Source-level symbolic debugger for C, extended by NeXT to support Objective-C, C++, Mach, | /bin |

Windows NT, and (by late 1996) Windows 95.

| | | |
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| 479241_TableRule.eps ↵ | | |
| gnumake | Utility for making programming projects. | /bin |
| 573672_TableRule.eps ↵ | | |
| as | Assembler; translates assembly code into object code. | /bin |
| 669023_TableRule.eps ↵ | | |
| defaults | Reads, writes, searches, and deletes user defaults. The defaults system records user preferences that persist when the application isn't running. When users specify defaults in an application's Preferences panel, NSUserDefaults methods are used to write the defaults. | /usr/bin |
| 776053_TableRule.eps ↵ | | |
| pswrap | Creates C functions that "wrap" PostScript code and send it to the Window Server for interpretation. | /usr/bin |
| 873842_TableRule.eps ↵ | | |
| nibTool | Reads the contents of an Interface Builder nib file. Prints classes, the hierarchy, objects, connections, and localizable strings. | /usr/bin |
| 970281_TableRule.eps ↵ | | |
| libtool | Creates static or dynamic libraries from specified object files for one or multiple architectures. | /bin |
| 64617_TableRule.eps ↵ | | |
| otool | Displays specified parts of object files or libraries. | /bin |
| 159831_TableRule.eps ↵ | | |
| nm | Displays the symbol table, in whole or in part, of the specified object file or files. | /bin |
| 255292_TableRule.eps ↵ | | |
| oh | Records allocation and deallocation events. | /usr/bin |
| 351610_TableRule.eps ↵ | | |
| AnalyzeAllocation | Analyzes program memory allocation. | /usr/bin |
| 446246_TableRule.eps ↵ | | |
| fixPrecomps | Creates a precompiled header file for each of the major frameworks. | /usr/bin |
| 543029_TableRule.eps ↵ | | |
| strip | Removes or modifies the symbol table attached to | /bin |

| | | |
|------------------------|---|------|
| | assembled and linked output. | |
| 636889_TableRule.eps ↵ | | |
| lipo | Creates, lists, and manipulates multi-architecture object files | /bin |
| 733268_TableRule.eps ↵ | | |

Converting NEXTSTEP Code to OpenStep

You can take advantage of an automated conversion process to convert NEXTSTEP® Release 3.x code to OPENSTEP Release 4.0. By completing this process you'll make your application an OpenStep application (that is, an application conforming to the OpenStep specification). An OpenStep application should run on any OpenStep system.

The TOPS scripts you run to perform the conversion process, along with 3.3 header files and intermediate frameworks, are located at `/NextDeveloper/OpenStepConversion`. The *OpenStep Conversion Guide* provides instructions on using the scripts as well as summaries of API changes and conversion tips.

Other Programming Resources

You can find programming resources—such as fonts, sounds, and palettes—in various subdirectories of `/NextLibrary`.

| Name | Comments |
|----------------------------|---|
| 857574_TableHeadRule.eps ↵ | |
| SystemResources | Character-set information and location of headers for automatic precompilation (fixPrecomps) |
| 954243_TableRule.eps ↵ | |
| Colors | Bundles containing the default set of color binaries for the Colors panel |
| 87484_TableRule.eps ↵ | |
| Fonts | Default set of system fonts, including AFM, bitmap, and outline versions |
| 182169_TableRule.eps ↵ | |
| PS2Resources | PostScript files containing calibrated color space and color rendering, printing halftones, and gray-shading patterns |
| 277721_TableRule.eps ↵ | |

Rulebooks Glyph generators for various string encodings

372755_TableRule.eps ↪

Sounds Default sound files (^a.snd^o) such as Cricket, Ping, and Rooster

468285_TableRule.eps ↪