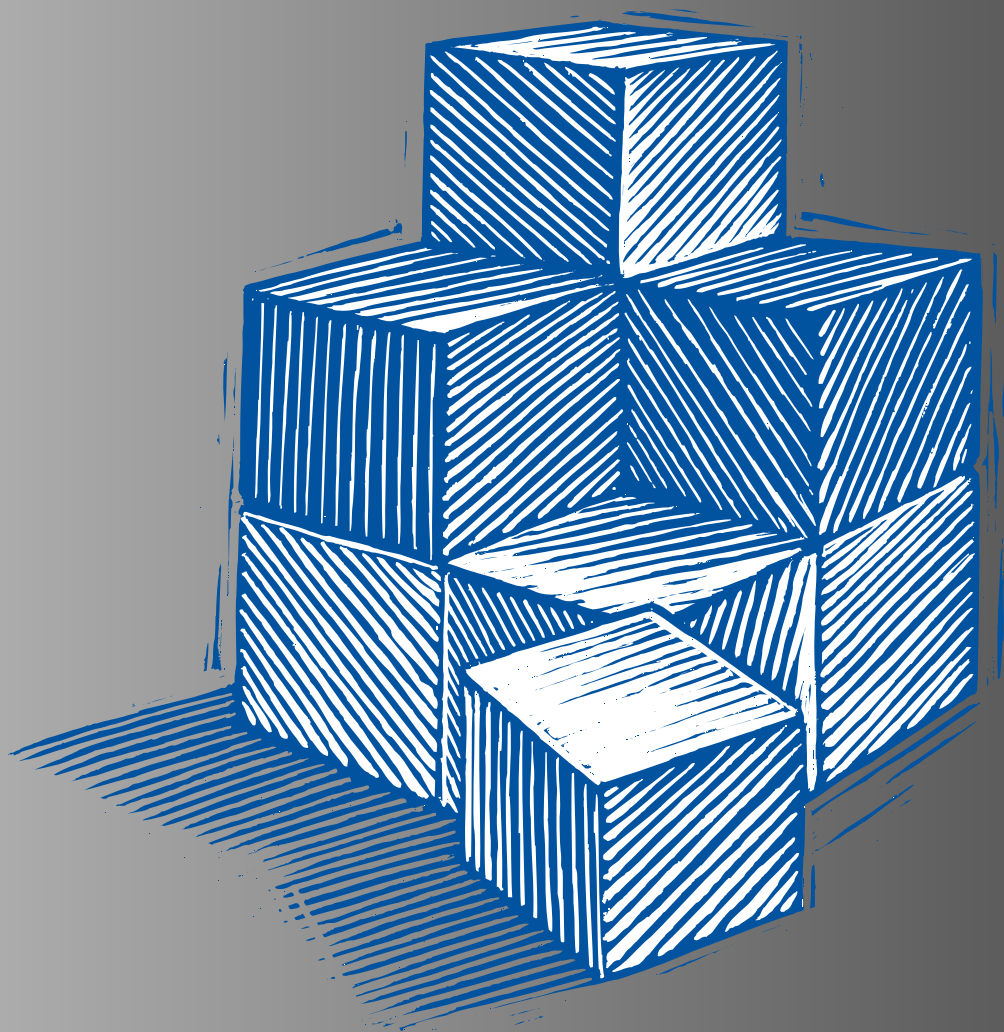


# Where to Go From Here

## Chapter 5



# 5

## **Chapter 5** **Where To Go From Here**

### **Sections**

**World Wide Web**

**Programming Tools and  
Resources**

**Information**

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If you've completed the tutorials in this book, you're no longer a novice in OpenStep development. You should be able to attempt an OpenStep application on your own, and should expect to carry it off successfully. However, there is much more for you to learn (or to learn in greater detail). There will probably be times when you'll need information or help. You might want to pursue a training course, you might want to order a NeXT product, or you might have questions you'll need answered, or problems you'll need resolved.

This section points you toward these sources of information and help. It also includes descriptions of tools, resources, and documentation frequently used in application development.

## **World Wide Web**

NeXT's corporate home page is at: <http://www.next.com>.

From there you can navigate to summaries of products, such as WebObjects<sup>®</sup>, Enterprise Objects Framework<sup>®</sup>, and D'OLE<sup>®</sup>—and order the products online. You can learn about NeXT programs in education, consulting and technical support. You can also use the NeXTanswers document retrieval system. For WebObjects, you can download versions of the product, try out demonstration WebObjects applications, and access related documentation.

## 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
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.
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.
IconBuilder	A simple graphics program for creating application and document icons.
Yap	A utility for editing and previewing PostScript code.
Sampler	Analyzes performance problems with your application by sampling the call stack of your program over a period. (In <b>/NextDeveloper/Demos</b> )

### 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
System	Operating-system and low-level Objective-C runtime APIs
SoundKit	Sound recording, playback, and editing capabilities.
InterfaceBuilder	Creation of custom static (compiled) palletes for use in Interface Builder
NEXTIME	Real-time video imaging
NIAccess	NetInfo's access layer
NIInterface	NetInfo's interface layer

## 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
cc	Compiles C, Objective-C, C++, and Objective-C++ source code files.	/bin
gdb	Source-level symbolic debugger for C, extended by NeXT to support Objective-C, C++, Mach, Windows NT, and (by late 1996) Windows 95.	/bin
gnumake	Utility for making programming projects.	/bin
as	Assembler; translates assembly code into object code.	/bin
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
pswrap	Creates C functions that "wrap" PostScript code and send it to the Window Server for interpretation.	/usr/bin
nibTool	Reads the contents of an Interface Builder nib file. Prints classes, the hierarchy, objects, connections, and localizable strings.	/usr/bin
libtool	Creates static or dynamic libraries from specified object bin files for one or multiple architectures.	
otool	Displays specified parts of object files or libraries.	/bin
nm	Displays the symbol table, in whole or in part, of the specified object file or files.	/bin
oh	Records allocation and deallocation events.	/usr/bin
AnalyzeAllocation	Analyzes program memory allocation.	/usr/bin
fixPrecomps	Creates a precompiled header file for each of the major frameworks.	/usr/bin
strip	Removes or modifies the symbol table attached to assembled and linked output.	/bin
lipo	Creates, lists, and manipulates multi-architecture object files	/bin

## 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—one without any specific operation-system dependencies—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
SystemResources	Character-set information and location of headers for automatic precompilation ( <b>fixPrecomps</b> )
Colors	Bundles containing the default set of color binaries for the Colors panel
Fonts	Default set of system fonts, including AFM, bitmap, and outline versions
PS2Resources	PostScript files containing calibrated color space and color rendering, printing halftones, and gray-shading patterns
Rulebooks	Glyph generators for various string encodings
Sounds	Default sound files (".snd") such as Cricket, Ping, and Rooster

## Information

NeXT publishes documentation for users, developers, and system administrators. It also, through its Professional Services, offers customers access to NeXTanswers, an automated document retrieval system.

To order documentation, call 1-800-TRY-NEXT.

### Accessing Documentation

On OPENSTEP for Mach, several tools help you access documentation:

- Digital Librarian's **NextDeveloper** bookshelf includes most of the documents described in "Developer Documentation" below, as search targets. This bookshelf, which located at **/NextLibrary/Bookshelves**, also includes instructions for creating your own custom bookshelf.
- In Project Builder, you can use the Project Find panel to display reference documentation on classes, protocols, methods, functions, and other types.
- In Project Builder or in a Terminal window, you can issue commands to UNIX's man pages system to display information on command-line tools.

For more information on Digital Librarian and on other means for accessing documentation, see "Where To Go For Help" on page 54.

For details of using the Project Find panel, see "Finding Information Within Your Project" on page 94.

### Developer Documentation

The core set of documentation for OPENSTEP is the reference specifications describing OpenStep classes, protocols, methods, functions, types, and constants. The reference documentation for the two major OpenStep frameworks is stored within the frameworks:

**/NextLibrary/Frameworks/AppKit.framework/Resources/English.lproj/Documentation**  
**/NextLibrary/Frameworks/Foundation.framework/Resources/English.lproj/Documentation**

Several documents—some printed but most only in on-line form—supplement this core set of documentation. The following table describes these materials directly related to OPENSTEP for Mach; all documents are located at **/NextLibrary/Documentation/NextDev**



Book/Document	Description	/NexDev Directory
<i>Object-Oriented Programming and the Objective-C Language</i>	Title says it all	TasksAndConcepts (as ObjectiveC)
<i>OPENSTEP Development: Tools and Techniques</i>	Using Project Builder, Interface Builder, and other tools in program development	TasksAndConcepts (as DevEnvGuide)
Programming Topics	Contains conceptual background and step-by-step instructions for common programming tasks. ( <b>Note:</b> the number of covered topics will grow in the months following release 4.0.)	TasksAndConcepts
General Reference	Display PostScript reference documentation plus information pertinent to all OpenStep frameworks	Reference
Release Notes	Current release notes on frameworks, development applications, and tools	ReleaseNotes

### Other Developer Documentation

If you've installed Enterprise Objects Framework or Portable Distributed Objects documentation for these products will also be installed in **/NextLibrary/Documentation/NextDev**. This includes the API reference and *Developer's Guide* for Enterprise Objects Framework.

You will also find third-party documentation installed in **/NextLibrary/Documentation**, including reference documentation for the GNU libg++ (C++) library.

### System Administration Documentation

Documentation for system administrators of OPENSTEP for Mach networks can find a helpful manual in **/NextLibrary/Documentation/NextAdmin**. This manual describes planning and setting up networks, as well as the creation of user accounts. It also explains details of NFS, discusses administrative tasks such as backups and security, and provides troubleshooting guidelines.

In **/NextLibrary/Documentation**, you'll also find back issues of the magazine for system administrators, *NEXTSTEP In Focus*.

NeXT's Professional Services also distributes OpenStep programming information through NeXTanswers, an automated document retrieval system. See page 204 for details.

## Professional Services

NeXT provides training, consulting, and technical support for its customers. For more information on the programs described below, call 1-800-955-NEXT (U.S.), +1 415-780-2922 (elsewhere in North America), +44 181-565-0005 (Europe). You can also visit the Professional Services section of the NeXT website at <http://www.next.com/Services> for up-to-date information on current programs in technical education, consulting, and support.

### Education

Courses offered by NeXT's Training department give developers of all backgrounds a strong foundation in the fundamentals of OpenStep application development. This background is critical to the successful implementation of OpenStep programs by development teams.

Customers can choose from three training formats:

- Open enrollment classes, held at NeXT's training facilities in Redwood City, Washington, D.C., and Chicago
- On-site classes at the customer's location
- On-site Object Learning Solutions, which over periods of several weeks provide customers with training and tailored development of skills.

### Object Expert Consulting

The Object Expert program assigns an expert in OpenStep development to assist customers in their projects on a full-time basis. The commitment can be from two months to as many months as necessary. The Object Expert can help with developing a prototype (including project planning, requirements, integration, and testing) or can provide analysis, design, planning, programming, integration, and testing expertise for full-fledged application-development projects.

### Software Maintenance and Technical Support

With the Software Maintenance program customers can get one copy of each covered release of software and documentation as well as major and minor software upgrades. They can select from four levels of technical support and software maintenance offered by NeXT.

Support includes a range of offerings, from installation assistance to NeXTanswers. Developers receive debugging assistance and problem

investigation, memory management and performance tuning, portability advice, and help with converting NEXTSTEP code to OpenStep. System administrators can obtain help with problems related to network connectivity, NetInfo domain requirements analysis and implementation, hardware selection and configuration questions, and other areas.

## NeXTanswers

NeXTanswers is an automated retrieval system that gives customers access to the latest product information, technical documents, drivers, and other software. You can access NeXTanswers through NeXT's website (<http://www.next.com>) and by:

- Electronic mail: Send requests to **nextanswers@next.com** with a subject line of HELP to receive instructions on how to proceed.
- Fax: Call 415-780-3990 from a touch-tone phone and follow instructions (you'll need to know the ID numbers of the files you want).
- Anonymous FTP: Connect to FTP.NEXT.COM and read **pub/NeXTanswers/README** for further instructions.
- BBS: Call 415-780-2965, log in as "guest", and go to the Files section. From there you can download NeXTanswer documents.

Requests sent to NeXTanswers are answered electronically, and are not read or handled by a person. It does not answer your questions or forward your requests.

## Ordering NeXT Products and Services

To order NeXT products and services, you can:

1. Call 1-800-TRY-NEXT (U.S. only); a sales representative will assist you.
2. Send electronic mail to [trynext@next.com](mailto:trynext@next.com).
3. Fill out the on-line form on the World Wide Web at <http://www.next.com/AboutNext/Feedback.html> and a sales representative will promptly contact you.
4. Contact one of the sales offices below, which can also furnish you with product brochures, data sheets, and other information.

### Worldwide Headquarters

900 Chesapeake Drive  
Redwood City, CA 94063  
Tel: (415) 366-0900  
Fax: (415) 780-3714

### North American Field Sales Offices

#### Washington DC Office

1650 Tysons Boulevard, Suite 650  
McLean, VA 22102  
Tel: (703) 938-6398  
Fax: (703) 506-3990

#### New York Office

One Park Avenue, Sixth Floor  
New York, NY 10016  
Tel: (212) 503-4750  
Fax: (212) 503-4751

#### New Jersey Office

90 Washington Valley Road  
Bedminster, NJ 07921  
Tel: (908) 719-8905  
Fax: (908) 719-8903

**Chicago Office**

311 South Wacker Drive, 22nd Floor  
Suite 2250  
Chicago, IL 60606  
Tel: (312) 697-4500  
Fax: (312) 697-4501

**Canadian Office**

4370 Dominion Street  
Suite 400  
Burnaby, British Columbia  
Canada V5G - 4L7  
Tel: (604) 451-1877  
Fax: (604) 451-1819

**Mexico (MeXT)**

Tel: 011 525-530-7278

**European and Asian Sales Offices****NeXT Computer UK Limited**

Technology House  
Meadow Bank  
Furlong Road  
Bourne End  
Bucks  
SL8 5AJ  
Tel: + 44(0) 1628 535222  
Fax: +44(0) 1628 535200

**NeXT Computer Paris, France**

Tour CBC  
8rue Felix Pyat  
F-92800 Puteaux la Defense  
Tel: (+33) 1 46 93 27 82  
Fax: (+33) 1 46 93 29 28

**NeXT Software K.K. (Asia Pacific)**

Tennoz Central Tower 7F  
2-2-24 Higashi-Shinagawa  
Shinagawa-ku, Tokyo

140 Japan  
Tel: +81-3-5461-7161  
Fax: +81-3-5461-7170

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