taking the wraps off Release 3

by Dave Cottle

You've been hearing about NeXTSTEP Release 3 for a while. Maybe you caught Steve's keynote at NeXTWORLD ExPOˢᵐ or saw the Release 3 data sheet. Maybe (surely) you read "a preview of Release 3 and more" in the last *support bulletin*. Or maybe you've just been listening to rumors. In any event, with the imminent arrival of Release 3, you've got one burning question: "How is Release 3 going to change my life?" Well, it's not going to make you a rock star, but some features will definitely affect how you support your users. Here, then, is an overview of the Release 3 components that have the greatest significance for support providers.

what's new for users

Many features in Release 3 will have an impact on both you and your users. For example, the Finder has been updated to include searching by file content as well as by name, which helps users track down an elusive document when they can't remember what they called it. The Workspace Manager™ now allows you to merge files onto an existing backup. When you copy files from one location to another (such as from a hard disk onto a floppy disk), and the target location includes one or more of the files being copied, you're given the option of

replacing the target files or performing a merge, as shown in figure 1.

figure 1:   merging files

Merge.tiff ¬

When you choose the merge option, the only files copied are those that have been changed more recently than the versions in the target directory or that don't exist in the target. You've now got a simple, incremental backup scheme that requires only dragging a folder icon. Add file compression available directly from the Workspace Manager and the ability to copy large amounts of data across multiple volumes, and users can not only create simple backups but can also archive large amounts of data or use fewer disks to transfer files to another computer.

Release 3 gives you more options with disks, too. You can still format floppy disks with a NeXT (UNIX) or DOS file system, but now you have the added choice of reading or formatting a disk with a Macintosh file system. All formats support 1.4 MB disks, and the NeXT file system supports 2.8 MB disks. Inserting an unformatted disk brings up a panel that asks you to pick one of the three choices, as shown in figure 2. Macintosh CDs are now supported, and you can even access a SCSI hard disk that contains a Macintosh file system.

figure 2:   formatting a NeXT, DOS, or Macintosh Disk

MacInit.tiff ¬

Release 3 adds some enhancements that make fax administration more flexible. A user sending faxes can now schedule them to be sent at a later time and can set up address books (much like mail aliases) that send the fax to multiple addresses at once, as shown in figure 3.

figure 3: faxing to multiple addresses

FaxGroups.tiff ¬

The FaxReader application lets you assign incoming faxes to specific users, save them to disk, or forward them via NeXTmail. When you configure a fax modem with PrintManager, you can identify a list of users who can read faxes received over that modem. As shown in
figure 4, you can also assign access levels that determine whether users can see all incoming faxes or just faxes assigned to them. Unrestricted users will be notified by mail when faxes arrive.

figure 4: designating fax users

FaxUsers.tiff ¬

Release 3 offers many other user features you'll probably want to check out. Several new printers, including some dot-matrix models, are supported in PrintManager. An integrated on-line help system provides context-sensitive, hypertext-based information (maybe this will cut down on user questions?). On-line help is available for Mail, Preferences, Edit, FaxReader, and the Workspace Manager. See table 1 for a complete list of user features.

more tools for system administrators
System administration tools haven't been ignored in Release 3. The biggest news is the arrival of SimpleNetworkStarter, an application that allows you to configure a complete NetInfo network-including network time service, mail service, home directory service, and general file service-all at once. Although its primary function is to configure small NetInfo networks (about 20 or fewer computers), it can also come in handy for configuring networks of any size.

table 1:   Release 3 features for users

feature	highlights

Color	PANTONE MATCHING SYSTEM® Color calibration Color printer support
Disks	Formats for CD-ROM, DOS, and Macintosh files systems
Faxing	Ability to schedule faxes for later delivery Group addresses for multiple delivery
FaxReader	Archive incoming faxes Log incoming faxes Notify multiple users of incoming faxes Reassign, forward, or save faxes to disk
Localization	Available in English, French, German, Italian, Japanese, Spanish, and Swedish
On-line Help	Context-sensitive, hypertext-based, consistent across applications Available to developers for inclusion in new applications
PostScript® Level 2	Display PostScript® support for PostScript Level 2

Printing	New printer support, including dot-matrix models
	PostScript Printer Definition files included
Workspace Manager	Expanded use of color in icons
	Find panel searches by file name or contents
	Menu command for file compression
	Copy merge option and multivolume copy

NetManager has gone away, and many of its tasks have been taken over by the new HostManager application. With HostManager, you can modify the network features configured with SimpleNetworkStarter,   including automatic host addition and network time service. As its name implies, HostManager can also be used to add, delete, and modify host entries. In addition to the traditional host entry information, HostManager lets you designate the owner and system type of a computer and even create host name aliases and netgroups, as shown in figure 5.

figure 5:   designating host aliases and netgroups

Hosts.tiff ¬

The three functions the MailManager application used to provide have been assumed by SimpleNetworkStarter, NetInfo, and the UNIX command mailDBupdate. SimpleNetworkStarter sets up a computer to serve the mail spool and aliases directories. To determine which sendmail configuration file to use, the system now looks in NetInfo, rather than /etc/sendmail. The necessary information is stored in NetInfo when you use SimpleNetworkStarter to set up the mail server. Finally, mailDBupdate is used to update mail pictures and aliases.

Another new application, NFSManager, lets you export and import (mount) NFS directories. All the significant options can be set here, including limiting exported directories to specific computers and allowing root access to remote directories (see figure 6). With NFSManager you no longer need to edit /etc/exports for exporting information.

figure 6:   exporting NFS directories

Export.tiff ¬

In the Imported Directories window, as shown in figure 7, you can set all the normal mount options, including mounting read only or mounting in background. With NFSManager you no longer need to edit the NetInfo database

directly.

figure 7:   importing NFS directories

Import.tiff ¬

The Release 3 NetInfoManager has its own set of enhancements. In addition to manipulating existing NetInfo domains, you can now create new ones. This makes setting up a multilevel NetInfo domain hierarchy much easier than in the past. The new Security menu provides commands that let you change any domain's root password, and enable or disable modifications of the database.

As you examine a domain with NetInfo, you'll notice some new directories. Information about exported NFS directories is now kept in the /exports NetInfo directory rather than in the exports file. The /localconfig directory stores information about Integrated Services Digital Network (ISDN), NetWare, and AppleTalk configuration; language and keyboard choice; and installation of multiple monitors. New subdirectories in /locations store the location of the appropriate sendmail configuration file and identify mail servers, application servers, and home directory servers.

Other new system administration features include a pop-up list in UserManager

that lets you set the default language for a user. Another lets you select the home directory from a list that includes all the computers that have been configured as home directory servers with SimpleNetworkStarter. BuildDisk can set up a small disk as a swap disk and will install either the base release or the Extended release on larger disks, depending on available space. Connecting with Novell NetWare or AppleTalk networks is now supported with client software for each.

For a complete list of system administration features, see table 2. For details about any of these applications, see the *NeXTSTEP Network and System Administration manual*, which is included on the CD-ROM with each new system and available through Addison-Wesley.

table 2:   Release 3 features for system administrators

feature	highlights
AppleTalk	Client support for AppleTalk printers and AppleShare® file servers
HostManager	Add, delete, and modify host entries Create host aliases and netgroups Modify network configuration

NetInfo	Storage of export information New localconfig directory for configuration information specific to local computer Storage of location of sendmail configuration file New printer subdirectories
NetInfoManager	Secure access to domains Change root password Create new domain
NetWareManager	Log into or out of NetWare servers Set up access to printers on NetWare network
NFSManager	Manage import and export of remote NFS directories
PhoneConnector	Make connection via ISDN
PhoneManager	Configure ISDN networking
SimpleNetworkStarter	Basic network configuration, including time service, mail service, home directory service, and general file service

SNMP	Allows NeXT computers to share network statistics with other computers running Simple Network Management Protocol
UserManager	Pop-up lists for home directory and language

new features for developers

NeXTSTEP is famous for its development environment, and Release 3 continues the tradition. New object kits have been added, including the Database Kit™ (DBKit), the 3D Graphics Kit™ (3DKit), and the Phone Kit™. The eagerly awaited DBKit provides developers with the means to manage database transactions independently of the database used. A palette for Interface Builder™ is included to provide access to the objects that make up the DBKit. A small layer of database-dependent information, called an adaptor, is required for each vendor's database. Release 3 includes adaptors for SYBASE® and ORACLE®. Other database vendors will be making their adaptors available in the future. 3DKit, based on Pixar's RenderMan™ standard, lets programmers create applications that render three-dimensional images-interactively to the screen or photorealistically to the printer. The Phone Kit provides access to ISDN telephone functions. With this kit, developers can create applications like a speed dialer or an answering machine.

Another new feature is support for Distributed Objects. With Distributed Objects, programmers can have objects send messages to each other whether they're running on the same computer or on different computers connected to a network.

IBicon.tiff ¬
Some existing developer applications have been modified as well. Interface Builder still builds user interfaces and now includes support for the new on-line help system that allows any developer to include a help system consistent with other NeXTSTEP applications. The Tools menu includes the Help Inspector command, which allows you to examine help information attached to a specific object, and the Help Builder command, which allows you to create your own help data. Interface Builder also includes a new Connections Inspector that provides a panel summarizing object connections and classes. Like all the developer applications, Interface Builder is part of the Extended release.

PBIcon_1.tiff ¬
Project management tasks, formerly provided by Interface Builder, have been taken over by the new ProjectBuilder application. With ProjectBuilder, you build new projects, set up make files, incorporate help files, and compile and test your application, as shown in figure 8. ProjectBuilder allows you to drag in

component files of your application from the File Viewer and is smart enough to recognize how various file types (header files, for example) should be treated. Localization support means you can include different versions of the help files and maintain multiple .nib files. With a separate .nib file for each language version, you can make sure the user interface is appropriate regardless of the language. (One language might need wider menu items than another, for example.) Because ProjectBuilder is strictly a project management tool, you can maintain applications that don't use the NeXTSTEP user interface and therefore don't have any .nib files.

figure 8:   compiling an application with ProjectBuilder

PBPicForDave.tiff ¬

EdIcon.tiff ¬
Edit can now be run in either developer or user mode. In developer mode, the commands specific to programming are available. Programmers will probably find the way Edit interacts with ProjectBuilder and the GNU Debugger (GDB) version 4.0 most useful. In ProjectBuilder, you can compile an application and run it with the debugger. This opens the source file in Edit and allows you to open a View panel to set break points. You're also provided with a graphical

object instance browser. If the compile uncovers any errors, you don't even have to know line numbers-selecting the error in ProjectBuilder places you in the source file at the line that triggered the error.

With the close integration of Edit, Interface Builder, ProjectBuilder, and the GNU Debugger, the development tools are now truly "compile and go." A programmer can create, compile, test, and debug an application without ever having to access the UNIX command line.

Other developer improvements include IconBuilder, a pixel-based graphics editor for creating (surprise) icons; support for precompiled headers, which reduces compile time by eliminating redundant work; and MIDI Time Code (MTC) synchronization, which allows sound, music, or graphics events to be generated in sync with external devices, such as VCRs. For a complete list of developer features, see table 3.

table 3:   Release 3 features for developers

feature	highlights
3D Graphics Kit	3D graphics rendering based on RenderMan
Database Kit	Objects to support database manipulations

	Database-independent
DBModeler	Builds database models for use with DBKit
Demonstration applications	RenderManager
	ScreenScape
	3View
Dragging	Flexibility for any view to be source or destination for image
	Copy, link, move as appropriate
	Arbitrary animation of images from point to point
	Supported by all AppKit objects
Edit	Developer and user modes
	Definitive example of NeXTSTEP user interface
GNU Debugger 4.0	Latest version
IconBuilder	Pixel-based graphics editor for icons
Interface Builder	Support for on-line help

Connections Inspector

MTC synchronization	Synchronization of events with MIDI devices
Object links	Provides link between text objects so copies are updated as the original changes
Phone Kit	ISDN telephone functions
Precompiled headers	Reduction of compile time
ProjectBuilder	Tool for managing development projects Integrated with Edit and GDB Interpreted UNIX shell output Localization of help and .nib files
Protocols	Ability to share interface across classes
Distributed Objects	Interprocess communication across networks
Sound Kit	Largely DSP-independent Multiple applications can access sound chip

simultaneously

Text object   Drag and drop of objects
                                 Direct support for rtfd file format
                                 Color text

make way for the new demos
Yes, it's true-Stealth is nowhere to be found in Release 3. Poker, Date, BreakApp, and several others are also among the missing (for a complete list, see "among the missing" below). Now, before you get upset, take a deep breath and we'll tell you why. What was the purpose of these demos? Besides being entertaining, each was designed to demonstrate features of NeXTSTEP (that's why they're called demos) and to help developers come up with their own dynamite applications.

Some of the older demos have found a new life. For example, Break-App has become an example application in Release 3, and BoinkOut-a spiffier, much more challenging variation-has taken its place in the Demos directory. Grab has graduated to the /NextApps directory and is even available as a service, so you can take screen shots from any application. Icon has evolved into the fully supported application IconBuilder (part of the Extended release). Other demos

have served their purpose well by inspiring developers to create their own versions. Several calendar and game programs, for example, are available commercially, as shareware, or in the public domain.

Release 3 includes some great new demos to show off its new features. ScreenScape sends a piece of your screen that follows your cursor to the video output of a NeXTdimension™ board, 3View previews RenderMan files, and RenderManager sets up a server process for photorealistic rendering.

You've probably noticed that not everything on the missing list is a demo. WriteNow® was unbundled in Release 2.1 and is now available through Appsoft, Inc.

among the missing
The following software is no longer available in Release 3:

Automata
Balancer
BreakApp*
CircuitBuilder
Crop
Date
DSP Tools[2]

FractalTrees
Gourmet
GuidedTour
Icon
ImprovDemo
Music Kit™²
PendulumLab
Poker
RealTimeAlgebra
Saturn
Scene
ShowAndTell
StatLab
Stealth
Topology Lab
WriteNow³

*Available elsewhere in Release 3.
²Should be available from CCRMA.
³Available from Appsoft, Inc., 255 Shoreline Drive, Suite 520, Redwood City, CA 94065, phone 415-802-2900.

I want my Release 3

Now that you're suitably impressed, you'll want to know how to get your hands

on Release 3. The most obvious way is to buy a new NeXT computer. NeXTSTEP Release 3 will be preinstalled on the hard disk, along with the complete Extended release on CD-ROM (the Extended release is automatically installed on 400 MB-class hard disks).

If you want to upgrade your existing NeXT computers, you can obtain the CD-ROM Upgrade (N5527), the Right-to-Use License (N5531), or the Floppy Disk Installation Set (N5528) by calling 1-800-848-NeXT or contacting your local NeXT Authorized Reseller in the United States, Canada, and Mexico. In Europe, contact your local reseller to arrange for an upgrade. With the CD-ROM product, you can use the Upgrade 3.0 application, which allows you to upgrade while preserving existing user and configuration files. Note that the floppy disk set doesn't include the Extension software.