Installation Instructions and Release Notes

NeXTSTEP 3.3 Patch 2

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NXT-6046

 Apple Computer, Inc.

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Introduction

This document details Apple's Patch 2 fixes for NeXTSTEP Release 3.3. This patch set includes fixes that address the Year 2000 compliance issue (century rollover). Apple recommends that all users of NeXTSTEP 3.3 install this patch set. These Release Notes also document the issues found in Enterprise Objects Framework (EOF) 1.1.

What This Patch Covers

This patch affects the following products:

- NeXTSTEP 3.3 User for Intel Processors and NeXT Computers (the "CISC" release)
- NeXTSTEP 3.3 User for SPARC and PA-RISC Workstations (the "RISC" release)
- NeXTSTEP 3.3 Developer (for all architectures)
- Enterprise Objects Framework (EOF) Release 1.1

This Patch set does NOT apply to NeXTSTEP 3.3J (Japanese language version). Do not install NeXTSTEP 3.3 Patch 2 on any system with NeXTSTEP 3.3J installed.

Apple has tested NeXTSTEP 3.3 and EOF 1.1 with Patch 2 installed and has determined based on the results that the software meets Apple's standard of Year 2000 compliance*. This includes the use of the database adaptors included with EOF 1.1, when used through EOF. It has been determined that the direct use of client library API, custom SQL statements, or other use of the database adaptors or software other than through the EOF APIs may produce results that do not meet Apple's standard of Year 2000 compliance.

** For Apple, Year 2000 compliance means that the software does not produce errors processing date data in connection with the year change from December 31, 1999 to January 1, 2000, when using accurate date data in accordance with its documentation, provided all other products used with it properly exchange date data with the Enterprise Software product.*

What Is Not Covered

Resetting System Date on Intel Platform Machines

NeXTSTEP systems on Intel hardware platforms may not have the year set correctly when booting for the first time after December 31, 1999. This problem may appear the first time you shut down, restart, or start up your system after the December 31, 1999-January 1, 2000 transition. To correct this problem, you will have to use your system's SETUP mode to set the correct year the first time the system is booted or rebooted in the year 2000.

Third Party Software Applications

Apple has not performed testing on certain third party software applications that shipped with NEXTSTEP 3.3 and earlier versions. Accordingly, this patch does not include fixes for such third-party software applications that may or may not have Year 2000 compliant issues, including but not limited to:

- TeXView
- TeX and Metafont
- SoftPC
- WriteNow
- Mathematica
- Novell Netware client software
- AppleTalk client software
- Sybase server and client libraries

About this Document

This document is divided into the following sections:

- Section 1: Installation Notes and Instructions
- Section 2: Issues - All Architectures
- Section 3: Issues - NeXTSTEP 3.3 CISC only
- Section 4: Issues - NeXTSTEP 3.3 RISC only
- Section 5: Issues - NeXTSTEP 3.3 Developer
- Section 6: Issues - Enterprise Objects Framework 1.1

Section 1: Installation Notes and Instructions

NeXTSTEP 3.3 Patch 2 supercedes NeXTSTEP 3.3 Patch 1, released in 1995. If you have already installed Patch 1 on your system, you can install Patch 2 over your existing installation. If you have not installed Patch 1, you do not need to. See http://til.info.apple.com/techinfo.nsf/artnum/n72066 for details on NeXTSTEP 3.3 Patch 1, including issues fixed in Patch 1.

NeXTSTEP 3.3 Patch 2 also supercedes the Foundation User Patch. Again, Patch 2 can be installed on a system with this patch previously installed. You do not need to install the Foundation User Patch first. See http://til.info.apple.com/techinfo.nsf/artnum/n72116 for details on the Foundation User Patch.

If you use Enterprise Objects Framework on your system, it should be installed before you install NeXTSTEP 3.3 Patch 2. Patch 2 includes fixes in system components that were originally installed by either EOF or the Foundation User Patch. The NeXTSTEP and EOF software packages should be installed in the following order:

- NeXTSTEP 3.3 User
- NeXTSTEP 3.3 Developer (optional)
- EOF 1.1 User (optional)
- EOF 1.1 Developer (optional)
- NeXTSTEP 3.3 Patch 2 User package
- NeXTSTEP 3.3 Patch 2 Developer package (optional)

NeXTSTEP 3.3 Patch 2 comes in several packages, depending on the User platform version. For CISC platforms, the patch package will be named NS33CISCUserPatch2.pkg (CD version) or NS33CISCUserPatch2.tar (web version). For RISC platforms, the patch package will be called NS33RISCUserPatch2.pkg (CD version) or NS33RISCUserPatch2.tar (web version).

In addition, there is a NeXTSTEP 3.3 Patch 2 Developer package. This is a multi-architecture installer package, and should be installed on systems that have NeXTSTEP 3.3 Developer installed. IMPORTANT: If you are installing the Developer patch, please see Section 6 of this document. There are some manual steps you must take to prevent some Year 2000 issues.

If you download NeXTSTEP 3.3 Patch *2* from the internet, you may need to decompress the file with the tar command (example):

```
tar xf NS33CISCUserPatch2.tar
```

This will unpack the single 'tar' file used for download into the .pkg format compound document used by the NeXTSTEP installer. Your web browser or FTP client may perform this step for you.

Installing NeXTSTEP 3.3 Patch 2

1. Log in as root on your NeXTSTEP system. If you're not sure how to log in as root, see your system administrator.
2. Double-click on the NS33CISCUserPatch2.pkg (or NS33RISCUserPatch2.pkg) file.
3. Click the Install button in the Installer package window. An Install Package panel will open.
4. Click 'Install' in the Install Package panel and, when prompted for confirmation, click OK to proceed. The Installer window displays information about the progress of the installation, which may take several minutes.
5. 5. If you do not need to install the Developer patch, skip to step 8 to complete the installation. To install NeXTSTEP 3.3 Developer Patch *2*, double-click on the NS33DeveloperPatch2.pkg file.
6. Click the Install button in the Installer package window. An Install Package panel will open.
7. Click 'Install' in the Install Package panel and, when prompted for confirmation, click OK to proceed. The Installer window displays information about the progress of the installation, which may take several minutes.
8. When the installation completes, the system must be rebooted. Log out and use the reboot button on the login panel.

Section 2: Issues - All Architectures

All issues addressed in NeXTSTEP 3.3 Patch 2 which are common to both versions of NeXTSTEP 3.3 User are detailed in this section.

'at' command executed jobs queued after 31 Dec. 1999 before scheduled run date

Apple Reference #2324143, 2325511

Problem: The name of the spool file which the 'at' command created for storing a job encoded the job's run date using a two-digit year date format. This caused 'atrun' to execute jobs queued for dates after 31 Dec. 1999 before they should be run.

Resolution: 'at' now creates spool filenames that use four-digit years.

'atq' command formatted dates incorrectly

Apple Reference #2324153, 2325512

Problem: The 'atq' command used the strings '19%2d' or '19%d' for formatting the last run date for the 'at' queue and the date at which the individual entries should be run.

Resolution: This command now formats the date with the correct century. To handle legacy filenames, two-digit dates less than '69' and three-digit dates are interpreted as being in the 21st century.

Leap year calculation in 'at' command didn't include 400-year rule

Apple Reference #2324154, 2325513

Problem: The leap year calculation in the 'at' command failed to take into account the 400-year rule, resulting in incorrect behavior after leap day in the year 2000.

Resolution: This calculation has been corrected.

'atq' leap year calculation didn't include 400-year rule
Apple Reference #2324158, 2325514

Problem: The leap year calculation in the 'atq' command failed to take into account the 400-year rule, resulting in incorrect behavior after leap day in the year 2000.

Resolution: This calculation is corrected.

'atrun' command assumed two-digit year for spooled jobs
Apple Reference #2324160, 2325515

Problem: The 'atrun' command assumed that spooled jobs were named with a two-digit year format.

Resolution: 'atrun' now handles job filenames with two-, three-, and four-digit years correctly.

RCS did not work correctly after 1999
Apple Reference #2327725, 2328459

Problem: The RCS version shipped with NeXTSTEP 3.3 did not work correctly after 1999.

Resolution: This patch upgrades to RCS version 5.7, which handles dates past 1999. Refer to the RCS documentation for information on additional changes, features and bug fixes in this version of RCS.

'/bin/date' command didn't allow dates later than 1999 to be set

Apple reference #2328124, 2327723

Problem: The '/bin/date' command didn't allow the system date to be set to any year past 1999. A secondary problem resulting from this error was that users of the Preferences application were unable to set a date later than 1999.

Resolution: The 'date' command now correctly handles two-, three-, and four-digit years for dates in the valid UNIX range (1 Jan 1970 00:00:00 - 31 Dec 2037 23:59:59). Two-digit years from 70-99 are interpreted as 1970-1999; two-digit years from 00-37 are interpreted as 2000-2037. Three-digit years from 070-099 are interpreted as 1970-1999; three-digit years from 100-137 are interpreted as 2000-2037.

'gnutar' command didn't accept dates later than 1999

Apple Reference #2328449, 2327724

Problem: The 'gnutar' command has an option to only write files newer than a given date, but version 1.11.2, the version shipped with NeXTSTEP 3.3, didn't accept dates past the end of 1999, even using four-digit years.

Resolution: 'gnutar' has been updated to version 1.12, which accepts dates after 1999.

'zsh' command could have displayed incorrect date in command prompt after 1999

Apple Reference #2331360, 2332042

Problem: The 'zsh' command could be configured to display the date in the command prompt. This date display did not function correctly after 1999.

Resolution: This problem is corrected.

NSCalendarDate's two-digit year format returned three-digit years after 1999
Apple Reference #2331365, 2331975

Problem: NSCalendarDate's **+descriptionWithCalendarFormat:** method's two-digit year format (%y) returned three-digit years after 1999. For example, '2000' was displayed as '100,' rather than '00'.

Resolution: This method now returns an appropriate two-digit year when the %y format is employed. Users are strongly cautioned that two-digit year values are inherently ambiguous and can result in serious software errors.

'enscript' command displays incorrect year in file timestamp after 1999
Apple Reference #2331367, 2331658

Problem: The 'enscript' command has an option that printed a file's timestamp as a page header. This header displayed an incorrect year after 1999.

Resolution: This problem is corrected.

'nroff' and 'troff' macros displayed two-digit dates that were incorrect after 1999
Apple Reference #2331436, 2331978

Problem: The macros used by 'nroff' and 'troff' automatically generated certain date values which displayed two-digit years, and which were incorrect after 1999.

Resolution: These macros now display correct four-digit years both before and after 2000 for automatically generated dates.

NSCalendarDate calendar format methods interpreted all two-digit dates as 20th century
Apple Reference #2331983, 2332180

Problem: NSCalendarDate's **-dateWithString:calendarFormat: and -initWithString: calendarFormat:** methods interpreted all two-digit dates as being in the 20th century; i.e., "00" was interpreted as "1900".

Resolution: These methods now follow the Microsoft Excel™ convention used in later versions of Foundation, where two-digit dates less than 30 are interpreted as 21st century dates (2000-2029) and two-digit dates 30 and greater are interpreted as 20th century dates (1930-1999). Users are strongly cautioned that two-digit year values are inherently ambiguous and can result in serious software errors.

Motorola DSP assembler output incorrect page header in 2000
Apple Reference #2331999, 2332113

Problem: The Motorola 56K DSP assembler output an incorrect page header in year 2000.

Resolution: This problem is corrected.

Motorola DSP librarian output incorrect library file dates after 1999
Apple Reference #2332012, 2332136

Problem: The Motorola 56K DSP librarian output incorrect dates in library file listings after 1999.

Resolution: This problem is corrected.

Motorola 56K DSP Linker output incorrect page header
Apple Reference #2333271, 2333840

Problem: The Motorola 56K DSP Linker output an incorrect page header in year 2000.

Resolution: This problem is corrected.

'/usr/ucb/w' displayed year values later than 1999 incorrectly as three-digit values
Apple Reference #2334633, 2333834

Problem: The '/usr/ucb/w' command displayed the year value in date stamps after 1999 as three digits, i.e., the year 2000 displayed as '100' rather than '00'. Although the use of a two-digit year format is not preferred practice, changing the date format to use four-digit years could cause errors in programs that call the 'w' command.

Resolution: '/usr/ucb/w' now outputs two-digit years after 1999. It is the responsibility of the calling program to resolve the ambiguity of the two-digit year values in w's output.

Generated date for text pasted into new mail message incorrect for dates after 1999
Apple Reference #2334672, 2333902

Problem: When creating a new message in a mailbox by pasting text into the mailbox, the generated date for the message was not correct for dates after 1999.

Resolution: This problem is corrected.

FTP daemon sent wrong file modification time for files created or modified after 1999
Apple Reference #2336094, 2336098

Problem: The FTP daemon's 'MDTM' command sent the wrong modification time in reply to files created/modified past 1999. For example, the year 2000 was formatted as 19100.

Resolution: A correcting factor allows the 'MDTM' command to correctly format dates after 1999.

Fax software date stamps used two-digit year format
Apple Reference #2337034, 2337450

Problem: The date stamps written by the fax software used a two-digit year format, and the aging code which detected and removed old fax log files failed when the year changed from '99' to '00'.

Resolution: To avoid causing problems with any software that might parse the fax log date stamps, the two-digit year format is still used, but the aging algorithm is modified to behave correctly both before and after the year 2000.

Verbose file listing from the 'tp' command printed incorrect two-digit dates after 1999
Apple Reference #2337845, 2338047

Problem: The verbose file listing from the 'tp' command printed two-digit dates that were incorrect after 1999.

Resolution: The 'tp' command is now modified to output a correct four-digit date both before and after 1999.

Active.mbox had two-digit year in the Date header
Apple Reference #2339224, 2338436

Problem: The welcome email message from Steve Jobs had a two-digit year in the header.

Resolution: This message now displays a four-digit year.

'Mail.app' read receipt date parsing could have failed for two-digit years less than 70
Apple Reference #2339301, 2338432

Problem: The 'Mail.app' date parsing for read receipts could have failed for two-digit years less than 70.

Resolution: The 'Mail.app' date parsing is now modified to accept two-digit years less than 70 and treat them as within the 21st century. Two-digit years from 70-99 are interpreted as within the 20th century. This problem is very similar to Apple reference 2344011/2338435, also corrected in this patch.

Additionally, three-digit years are interpreted as an offset from the year 1900, so year '100' is taken to be 2000.

Invalid date arguments could crash Sybase 4.6
Apple Reference #2340499, 2339379

Problem: In the Sybase 4.6 version that shipped with NeXTSTEP 3.3, lack of error-checking code could cause an array underflow when certain invalid date values are passed. This error causes Sybase's Year 2000 compliance test suite to crash.

Resolution: More complete error checking now detects the problem date values and raises an appropriate Sybase exception.

'Mail.app' read receipt date parsing could have failed for two-digit years less than 70

Apple reference #2344011, 2338435

Problem: The 'Mail.app' date parsing for read receipts could fail for two-digit years less than 70.

Resolution: 'Mail.app' has been modified to accept two digit years less than 70 and treat them as 21st century years. Two-digit years from 70-99 are interpreted as 20th century. Additionally, three-digit years are interpreted as an offset from the year 1900, so year '100' is taken to be 2000. Note, however, that the date value being parsed is in the form of a literal string taken from the received mail's header (which is displayed with the message) and there is no way to modify this string to display the year as a four-digit value. If mail is received with a date in year '100', the value '100' is displayed as the year, but internally the year is evaluated as 2000.

'sendmail' date header used two-digit year format

Apple reference #2345707, 2345799

Problem: The 'Date:' header line of mail messages created with the '/usr/ucb/mail' command showed the date and time of creation using a two-digit year format.

Resolution: The 'mail' command now writes a four-digit year in the 'Date:' header.

'/usr/bin/refer' command assumed all references had dates in 20th century

Apple reference #2345894, 2345940

Problem: The 'nroff' and 'troff' preprocessor, '/usr/bin/refer,' discarded references with dates whose century was not '19' in certain circumstances.

Resolution: The 'refer' command now recognizes bibliographic references in any century.

'at' command sometimes scheduled jobs incorrectly after Feb 29 in leap years
Apple reference 2346578, 2346551

Problem: The calculation in the 'at' command used to determine the day of the year that a job should execute didn't properly account for the additional day in leap years when the user entered the job in the year prior to a leap year.

For example, if a user scheduled a job for March 2, 2000 in June of 1999, with the syntax 'at 8am Mar 2,' the 'at' command incorrectly scheduled the job for March 1, 2000.

Resolution: The day-of-year calculation used by 'at' for scheduling jobs in the next year is corrected to account properly for leap years.

Section 3: Issues - NeXTSTEP 3.3 CISC Only

All issues addressed in NeXTSTEP 3.3 Patch 2 that are specific to the CISC version of NeXTSTEP 3.3 User are detailed in this section.

Year wasn't set correctly after 1999 in i386 and m68k real-time clock chips

Apple reference #2253936

Problem: The year value wasn't stored correctly after 1999 in the RTC chip on i386 and m68k hardware. One symptom of this error was that users of the Preferences application were unable to set a date later than 1999.

Resolution: This problem is corrected.

NeXT-based 68HC68T1 clock chip doesn't store the century

Apple Reference #2339331

Problem: The 68HC68T1 clock chip in NeXT computers didn't store the century of the year.

Resolution: Since the clock chip uses the "every fourth year is a leap year" calculation, this won't cause any problems until 2100.

Section 4: Issues - NeXTSTEP 3.3 RISC only

All issues addressed in NeXTSTEP 3.3 Patch 2 that are specific to the RISC version of NeXTSTEP 3.3 User are detailed in this section.

Hewlett-Packard real-time clock used a two-digit year

Apple Reference #2333833

Problem: The Hewlett Packard real time clock used a two-digit year, and the code that set the real time clock date behaved improperly after 2000.

Resolution: Two-digit years less than 70 are now interpreted as 21st century, while years greater than or equal to 70 are interpreted as 20th century.

Section 5: Issues - NeXTSTEP 3.3 Developer

All issues addressed in NeXTSTEP 3.3 Patch 2 that are specific to NeXTSTEP 3.3 Developer are detailed in this section.

Indexing Kit example used two-digit date field

Apple Reference #2332090, 2331940

Problem: The example application for the Indexing Kit used a two-digit year date entry field, which caused columns to be incorrectly sorted by date.

Resolution: The example application now uses a four-digit year for data entry and for sorting.

DBKit date formatter example used two-digit year format

Apple Reference #2337035, 2337355

Problem: The date formatter example for DBKit only accepted dates of the form MM/DD/YY.

Resolution: The example now accepts dates of the form MM/DD/YYYY.

Section 6: Issues - Enterprise Objects Framework 1.1

All issues addressed in NeXTSTEP 3.3 Patch 2 that are specific to Enterprise Objects Framework Release 1.1 are detailed in this section.

Some EOF example scripts for Oracle used two-digit years in date values
Apple Reference #2333273

Problem: Two scripts which populate database tables for the People example use two-digit years in their date values.

Resolution: Customers can edit these scripts to use the four-digit year format which Oracle provides. The two problem scripts are "installPEOPLE.sqloracle6" and "installPEOPLE.sqloracle7" in /NextDeveloper/Examples/EnterpriseObjects/PeopleDBScripts.

In "installPEOPLE.sqloracle6", for all the insert statements into the EMPLOYEE table, change the two-digit year data to use a four-digit year.

For example:

```
insert into EMPLOYEE values ( 101, 101, 'Winston', 'James',
'415-323-7265', '6269 Washington Ave.', 'Woodside', 'CA',
'94160', 1, ' 14-JAN-89', 101, 5700.00 );
```

Should be changed to:

```
insert into EMPLOYEE values ( 101, 101, 'Winston',
'James', '415-323-7265', '6269 Washington Ave.',
'Woodside', 'CA', '94160', 1, ' 14-JAN-1989', 101,
5700.00 );
```

In “installPEOPLE.sqloracle7”, for all the insert statements into the EMPLOYEE table, change the two-digit year data to use a four-digit year and change the date format to a four-digit year specifier.

For example:

```
insert into EMPLOYEE values ( 101, 101, 'Winston',
'James', '415-323-7265', '6269 Washington Ave.',
'Woodside', 'CA', '94160', 1, TO_DATE(' 14-JAN-89', '
DD-MON-YY'),101, 5700.00 );
```

Should be changed to:

```
insert into EMPLOYEE values ( 101, 101, 'Winston',
'James', '415-323-7265', '6269 Washington Ave.',
'Woodside', 'CA', '94160', 1, TO_DATE(' 14-JAN-1989', '
DD-MON-YYYY'),101, 5700.00 );
```

The scripts may be modified using any text editor, or by the use of ‘sed’, as demonstrated below. You must have the proper permissions to edit these files.

installPEOPLE.sqloracle6:

```
mv installPEOPLE.sqloracle6 installPEOPLE.sqloracle6.bak
sed 's/[0-9][0-9]\-[A-Z][A-Z][A-Z]\-/&19/g'
installPEOPLE.sqloracle6 > installPEOPLE.sqloracle6
```

installPEOPLE.sqloracle7 :

```
mv installPEOPLE.sqloracle7 installPEOPLE.sqloracle7.bak
sed 's/[0-9][0-9]\-[A-Z][A-Z][A-Z]\-/&19/g'
installPEOPLE.sqloracle7.bak | sed 's/YY/YYYY/g' foo >
installPEOPLE.sqloracle7
```

NSCalendarDate issues

The Foundation library was included in both NeXTSTEP 3.3 and Enterprise Objects Framework Release 1.1. Issues in this library are detailed in the NeXTSTEP 3.3 issues list.