

3.2 Release Notes: Operating System

This file contains release notes for the 3.2, 3.1, and 3.0 releases of the operating system. Items specific to or introduced in Release 3.2 are listed first, followed by the 3.1 and 3.0 notes.

Notes Specific to Release 3.2

Bugs Fixed in Release 3.2

These bugs have been fixed in Release 3.2:

Reference:	36695, 36696
Problem:	The serial driver didn't work reliably on Intel systems

Description: There were several severe problems with the serial driver on the i386 architecture. They have been corrected.

Notes Specific to Release 3.1

Known Problems

The following bug has appeared since Release 3.0.

Reference: 34051

Problem: On Gateway PCs, leaving the NMI mini-monitor can cause the keyboard to hang.

Description: Entering the mini-monitor with Alt-Num Lock and hitting 'n' to continue will hang the keyboard on the second or third try.

Reference: 31114

Problem: The 3.0 serial driver doesn't handle the new baud rates properly

Description:

When some new baud rates were added for 3.0, all the related tables were not updated which causes problems at the new baud rates.

Notes Specific to Release 3.0

These notes were included with the Release 3.0 version of the operating system. Sections that are no longer relevant have been marked with an italicized comment.

This file contains information about the following topics:

- Support for having a console attached to the serial port
- Networking enhancements
- Better updating of **/usr/adm/messages** after a kernel panic
- New optimization in the swapping subsystem (compressed swapping)

Serial Consoles

New Features

Serial console support now works: If a system is powered up without a megapixel monitor attached, and the "serial port A is alternate console" option of the ROM **p** command is set, then all ROM and kernel messages will be sent to serial port A at 9600 baud. The NMI mini-monitor can be entered by generating a "break" sequence on the attached serial terminal. If the serial terminal is a UNIX machine running the 'tip' program then a break is generated with the key sequence '~#'.

Note: Unplugging a serial console while the computer is operating will sometimes cause a "break" sequence to be generated.

Networking Enhancements

New Features

The following are new features that have been added to the networking system since Release 2.

- Broadcast and multicast packets sent over the twisted pair Ethernet interface will now also be received by the sending host just as they are with the thin interface (they were previously not received by the sending host).
- The Ethernet driver now collects statistics on the number of collisions received. It reports

these statistics in the "coll" column when **netstat -i** is run.

Diagnostics for Memory Parity Errors

New Features

Memory parity errors are now reported with a kernel panic of the form:

parity error at address *0xhhhhhhhh*, SIMM memory sockets *n* - *n*
or
parity error at address *0xhhhhhhhh*, SIMM memory sockets *n* and *n*"

SIMM memory sockets are counted starting at zero.

Kernel Messages

New Features

Kernel messages from a system panic will now be saved to the log file **/usr/adm/messages** when the computer reboots (assuming power is not interrupted or the memory containing the messages is not disturbed before the reboot). This will allow much easier after-the-fact diagnosis of kernel crashes.

Compressed Swapping

New Features

In Software Release 3, NeXT has added an optimization to the swapping subsystem: the compressed swapfile. When this optimization is enabled, pages written to the swapfile (a temporary backing store) are compressed. This compression usually results in a smaller swapfile and less I/O.

Whether compressing the swapfile helps performance depends on the speed and workload of the CPU. The faster the CPU is, relative to the I/O subsystem, the higher the potential gain. System workload, such as whether the system is being used as a server, can also affect the gain. For example, a compile engine or server isn't likely to benefit from compressing the swapfile because the compression algorithm doesn't reduce the size of compiled programs by much. Scanned images also don't compress well. On the other hand, a single-user color workstation with many onscreen windows may achieve a higher compression ratio.

Compressed swapping is enabled automatically on monochrome machines that have up to 12 megabytes and on color machines that have up to 16 megabytes. This default was chosen with the assumption that servers would have more memory, and thus would automatically have compressed swapping disabled. The default setting of swapfile compression can be overridden by adding the **compress** or **nocompress** keyword to the **/etc/swaptab** file, as shown in the example below.

On a machine that has more than one swapfile, the first swapfile encountered in **/etc/swaptab** will be compressed if compressed swapping was enabled automatically. Otherwise, the first swapfile that has the **compress** option will be compressed.

Examples:

To force swapfile compression, add the **compress** keyword to **/etc/swaptab**:

```
/private/vm/swapfile    lowat=16777216,compress
```

To disable swapfile compression, add the **nocompress** keyword to **/etc/swaptab**:

```
/private/vm/swapfile    lowat=16777216,nocompress
```

The new setting takes effect the next time the computer is booted.