

Plexus Sys3 3.12 Update Tape Release Notice

98-40074.1

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1. INTRODUCTION

1.1 Scope

This document is an update release notice that accompanies the update tape 3.12 for Plexus Sys3 3.1 for MC68000¹-based systems only.

This document is to be used with the *Plexus Sys3 3.1 Release Notice*, publication number 98-40054.4.

1.2 Overview

In addition to this introduction, this document has the following parts:

- The format of the update tape
- How to install the update tape
- A supplement to the section "Reloading Sys3" in the *Plexus Sys3 3.1 Release Notice*

1.3 Reasons for Update

This update fixes problems that surfaced both since the original release and after the 3.11 update. The installation of this update tape changes Sys3 3.1 or Sys3 3.11 to Sys3 3.12. The problem/fixes for update 3.11 are as follows:

- The kernel was not linked correctly on the original Sys3 3.1 release tape. Although the user could have relinked the kernel, this new update tape automatically links the kernel correctly.
- On systems with tape cartridge drive, the IMSP was writing incorrect data to the tape cartridge if the disk was simultaneously active.
- ICP stacks were overflowing, which corrupted CPU-generated addresses stored in the ICP's local memory. The resulting requests to illegal host addresses would either hang the system or generate a "panic" with a bus or DMA error.
- **ld -m** option did not work.
- Two hardware-interface kernel bugs have been fixed:
 - The kernel was not consistently checking addresses entered by the user. When a user entered a bad address on a system call, the system sometimes referenced that address and issued a "panic" implicating a system bus error.
 - The kernel was not correctly cleaning up from hardware-originated address traps. After SIGBUS or SIGSEGV error messages, the next address fault or bus error encountered by the system would use some of the un-cleaned-up information, which sometimes resulted in a "panic".
- The 3.11 update corrects kernel code involved in downloading the IMSP. The corrections allow the system to be used in single-user state before invoking **init** states 2 or 7, and also allows use of the **autoboot** mode.
- **/etc/inittab** had one more active state 2 (i.e., multi-user) entry than the licensed capacities of 16-, 32-, and 40- user systems. As a consequence, the system randomly excluded one terminal from receiving a **login** prompt. To correct this, the last state 2 **tty** entry in **/etc/inittab** has been deactivated with the "o" flag. If you have modified this file in any way, be sure to observe the "NOTE" in section 3 of this document.

1. MC68000 is a trademark of Motorola, Inc.

The problem/fixes for update 3.12 are as follows:

- A makefile has been changed to relink the kernel so it identifies itself as version 3.12 rather than 3.1.
- Certain swapping routines have been corrected. Processes were formerly getting "locked" into main memory if swapping occurred while invoking **exec1** to create new processes.
- The ICP portion of the kernel has been fixed to prevent random output bursts of characters formerly incited by high speed input of the DEL or QUIT characters. These character bursts sometimes echoed from other terminals onto the terminal originating the DEL or QUIT, or showed up as system bus errors, system hangs, and/or "hung" ports.
- The **cc(1)** command was incorrectly reading and executing the **-s** option.
- The **phys(2)** system call was not returning the previous physical page in the case of a "-1" being entered as the page count.
- On systems with more than 2Mb main memory, **/dev/mem** addresses greater than 2Mb sometimes returned error code, "ENXIO". For example, invoking **ps** did not display processes occurring in the >2Mb address range.
- Invoking certain reserved op codes beginning with F (Fxxx) were resulting in system crashes designated Sys Bus Error 10. Such occurrences now return SIG ILL, a trap for the particular user who invoked the reserved op code.
- **/etc/shutdown** was invoking **rumount**, a Network Operating System command. This erroneous call has been eliminated.
- On 40-user systems, **/etc/rc** was not downloading the fifth ICP, which required manual insertion of the download line in the **rc** file for the fifth ICP. This release ensures that this is done automatically during ICP download. If you have modified this file in any way, be sure to observe the "NOTE" in section 3 of this document.

1.4 Conventions

This document observes the following conventions for consistency and accuracy of communication.

- Sys3 commands, utilities, programs, etc. are identified by boldface type (e.g., **getty**).
- Operator entry instructions are set off from the rest of the text and are in bold face. The RETURN key is to be pressed after each command line unless instructed otherwise.
- Numbers in parentheses after a command name -- such as **dnld(1)** -- indicate the section of the *Plexus Sys3 UNIX Programmer's Manual* in which documentation for that command may be found.
- Frequently used abbreviations for various Plexus components (e.g., IMSP) are not redefined here if they are explained in a *Plexus Engineering Manual* or *User's Manual* pertinent to your installation.
- Procedures have sequential numerals enclosed in square brackets to distinguish them from other numbered lists and headings in the document (e.g., [1]).

1.5 Contents of Update

This update consists of a tape containing updated files (most of which replace various modules of the Sys3 3.1 release), and this document.

The table below lists the files on the update tape. Files introduced or modified for 3.12 are designated with an asterisk (*).

/bin/cc	- *enables the -s option
/usr/lib/dnld/imsc	- corrects autoboot & tape cartridge
/usr/lib/dnld/icp	- *functionally enlarges ICP stack <i>and</i> prevents random character burst from DEL or QUIT input
/usr/src/uts/m68/lib1	- *corrects swapping process
/usr/src/uts/m68/lib2	- *corrects falsely generated hardware errors
/usr/src/uts/m68/locore.o	- corrects falsely generated hardware errors
/bin/ld	- corrects link editor for -m option
/sys3	- *corrects kernel linking and swapping problem
/usr/src/:mkuts	- *makefile to identify kernel as 3.12
/etc/shutdown	- *eliminates rumount call
/etc/rc	- *(40-user only) downloads fifth ICP
/etc/inittab	- corrects state 2 gettys

2. FORMAT OF THE UPDATE TAPE

The update tape introduces file 22 which contains the replacement programs listed in the previous section. These files replace your old ones of the same names. The rest of the tape contains files 0 through 21 of the Sys3 3.1 release.

3. HOW TO INSTALL THE UPDATE TAPE

If you already have Plexus Sys3 3.1 running on your system, follow this procedure to install this update tape. Since this procedure involves shutting down your system, be sure to do this procedure at a convenient time.

NOTE: Two of the replacement files are `/etc/inittab` and (if you have a 40-user system) `/etc/rc`. If you have edited either of these files in any way, copy your present version(s) into a temporary file(s) to save your changes. After installing the new `inittab` and (if applicable) the new `rc`, re-enter your previous changes based on the temporary file(s).

- [1] Shutdown your system and bring it to init state 7 as directed in the *Plexus User's Manual*.
- [2] Login as `root`.
- [3] Mount the tape on drive 0.
- [4] Position the tape to the file containing the 3.12 files by typing:
`/usr/plx/tape srcheof 22`
- [5] Ensure that you are in the root directory by typing:
`cd /`
- [6] Copy the tape's contents into your system by typing:
`cpio -iBvdum < /dev/rmt0`
- [7] Ensure that the disk has received the 3.12 files by typing:
`sync ; sync`
- [8] Reboot your system by pressing the RESET button. Then bring your system back up according to the instructions in your *Plexus User's Manual*. When your system completes rebooting, your 3.12 kernel will be installed and running.

Loading the update tape should take less than 5 minutes.

4. NEW DISKS AND SYSTEM CRASHES: Using This Tape to Reload Sys3 3.1

If your system acquires a new disk, or experiences a catastrophic failure such that all software is lost, you will need to reload Sys3 3.1. The image of 3.1, file 20 of your release (or update) tape, must be **restored** according to the directions in the *Plexus Sys3 3.1 Release Notice*. In addition, to get the latest versions of all programs, you must reload file 22 of the 3.12 update tape via **cpio** as directed in the previous section of this document.

Patch E for Sys3 revision 3.12

1. INTRODUCTION

1.1 Scope

This document describes procedures for loading and applying patches for Sys3 3.12 (revision 3.1 update 2) for P/35's and P/60's. This document accompanies patch files to be applied to Sys3 3.12.

This patch may also be applied to 3.13 but the system manager must be aware that this patch does not contain a 3.13 patch which prevents disk hangs on systems with cartridge tape drives when the system is under heavy use.

1.2 Reasons for this Patch

This patch is provided to correct the following problems found with Sys3 3.12.

- . The cartridge tape was unable to read more than one file in revs 3.1, 3.11, and 3.12. This problem was most evident when accessing a tape file positioned after the first file on a tape with the "tape" command.
- . When the write system call was executed with a negative byte length it destroyed file systems (by modifying data buffered in the system cache).
- . The system would hang or slow down when a process requested more memory than was available for a user processes.
- . The system reported a 9-track tape drive error when the system was under moderate to heavy use.
- . The shell environment variables were being corrupted in a random manner.
- . Looping shells have been occurring. We believe this to be due to the corrupted environment, although this has not been thoroughly tested. We would appreciate any feedback you care to provide on the result.
- . The user ID was being reported as 0 in the accounting reports.
- . UUCP has been hanging during transmission sporadically.
- . ICP software to correct stack overflows which caused port failures and system bus errors. It also corrects the potential loss of input characters and the incorrect handling of characters with parity and framing errors. Flow control has been enhanced with interrupt time handling of CTS signals. Interrupts have been

turned off on a wakeup condition.

- . The system would fail with a 20/10 bus error or halt with a bus error.
- . Processes occasionally hung when a short sleep was requested in a heavy processing environment.
- . Processes received memory fault or segmentation errors after a segmentation error of an unrelated process occurred.

1.3 Contents of this Patch

This patch consists of a tape containing replacement files and modules which must be incorporated into the operating system.

The files are:

/3.12fE_README	This document
/sh.3.12fD	New bourne shell object file
/acctcon2.fD	Accounting module
/acctdisk.fD	Accounting module
/acctprc2.fD	Accounting module
/icpmisc.o	uucp fix
/install.3.12.E	installation script
/imsc	Corrects cartridge tape positioning problem.
/locore.o	Corrects write calls with negative numbers.
/machdep.o	Corrects memory sizing problem.
/rm.o	Corrects tape error under load.
/sleep.o	Corrects process hangs by short sleeps. This patch is applied to /lib/libc.a.
/trap.o	A portion of the 20/10 bus error problem.
/eccdaemon	A new ecc logging daemon
/icp_68K	New ICP code.
/ICP.INFO.INST	form for documenting the state of the icp whenever this module fails. Please send this document and the files requested

to the software support center
for processing.

`/gen.dump.proc`

procedure to dump system memory
and ICP memory. This procedure
should be followed when
documenting problems which can
not be attributed to known
hardware or software problems.

2. FORMAT OF THE PATCH TAPE

All patches and this document are provided on one file in tar
format. The program `install.3.12.E` will place files in the proper
directories and regenerate your operating system.

3. HOW TO INSTALL THIS PATCH TAPE

This patch must be applied to Sys3 3.12 in the following
manner.

- a. Shutdown to single user state (`init 1`).
- b. Check the system date to make sure it is correct. If
it is incorrect enter the correct date. Correction of
the date must not be done while the system is multiuser
mode (with `/etc/cron` running).
- c. Load the tape into the tape drive and place the drive on-line.
- d. Ensure that you are in the root directory by typing:

`cd /`
- e. Load the tape's contents with the command:

`tar xv`
- f. Ensure that the files have been flushed to disk by typing:

`sync ; sync`
- g. Install the patches by typing:

`./install.3.12.E`
- h. Reset and reboot the system. If you can not reboot, enter
`/sys3.keep` at the colon prompt to use your old operating system
and try the install process again.

4. IN CASE OF PROBLEMS

If you should have any problems with this procedure or the
operation of the system after installing these patches please

call the Software Support Center.

January 3, 1985