

Send all comments, criticisms and contributions to the editor: T. W. Lanzatella  
University Computer Center, 2520 Broadway Drive, Lauderdale, MN 55113  
The University of Minnesota is an equal opportunity educator and employer.

TABLE OF CONTENTS

NOTICE OF CHANGES TO THE SYSTEM. . . . .84

PROPOSED CHANGES TO THE SYSTEM . . . . .86

    THE AROUTE AND ASEND COMMANDS - T. J. Hoffmann. . . . .86

    SUPPORT OF 607 TAPE TRANSPORTS ON RELEASE 4 NOS - B. Kaercher . . . . .86

SYSTEM MAINTENANCE . . . . .89

    LAST WEEK'S SYSTEMS GROUP MEETING - T. W. Lanzatella. . . . .89

    CALLPRG AND LIBRARY TAPE NEWS - M. Riviere. . . . .90

    PERMANENT FILE ARCHIVING - R. J. Hursh. . . . .90

    CYBER 74 DEADSTART DUMP ANALYSIS - K. C. Matthews . . . . .90

NOTICE OF CHANGES TO THE SYSTEM

KRONOS Changes

The following changes become effective on Thursday, 8 June.

Bill Sackett repaired a problem in PFM wherein the routine would drop out after error processing without releasing the disk channel. Bill also fixed an initialization error in STIMULA. Most notably, Bill repaired a longstanding error in SFM processing of the release fast attach file function. Previously, SFM released the FNT entry without checking if the file was busy. Subsequent attempts to manipulate the file resulted in I/O sequence error.

Tim Salo provided a new source version of SUPIO. Except for a few lines, this version is identical to the NOS version.

Jeff Drummond installed the final version of the TRANSIT subsystem: programs TRN, TRANSIT, COMPCMO and COMSTRN.

Tim Hoffmann contributed a source version of a new program, ALTER. This program has entry points ASEND and AROUTE which simulate the SEND and ROUTE commands through internal calls to the TRANSIT subsystem. A proposal to install this program appears in this DSN.

NOS Changes

The following changes become effective on Thursday, 8 June.

Tom Lanzatella added all routines from the CDC tools library to WPLNOS. In particular, this means that DSDI will be current on this system. Tom also repaired a lingering conversion error in RESEX which caused the disastrous error message, "Random Address not on file RESEXES", after some LABEL commands.

Kevin Matthews added the following changes.

1. Kevin installed a slick space-saving change to MTR wherein the MTR main loop is moved to a separate overlay LML. The MTR main loop is now preset in STL when MTR is loaded. The main loop is then written over the table initialization code at the start of MTR.
2. To effect permanent file accounting at our site, long ago we added a change to the permanent file define utility which insures that the user number is always written into the system sector of a direct access permanent file. The location of the user number in the system sector was altered to avoid clashing with the NOS usage of direct access file system sector. Additionally, the user number is now copied into the system sector during attach processing. This is necessary because the PFLOAD utility no longer recreates the user number field.
3. The NOS release 4 versions of the PFLOAD/PFDUMP utilities were installed into the system. This addition completes the installation of full-track disk access. The default family device on the production and on the system-time NOS system is now a full-track device.

Tim Salo installed the following changes.

1. Tim completed an initial (and temporary) version of the DELAY feature. A job with DELAY specified on the job card will now hang in the input queue until LOWRATE time begins.
2. Program lBA was altered so that auto page eject is disabled for all print jobs.
3. Deferred routing is now indicated in but 13 of the FNT entry. This is primarily a convenience to lCJ.
4. For submit jobs, the suppress output flag is set in the TIDW word of the control point. Upon job completion, all files--except those previously ROUTED--are dropped if the suppress output flag is set. The previous method of suppressing output for submit jobs by giving them a special ID(SOID) has been scrapped. This means that submit jobs wishing to get output must do an explicit ROUTE (either immediate or deferred).
5. Tim modified NOSTEXT to include symbolic names for all machine identifiers in our system. Much harder will be the problem of making use of these identifiers consistently.
6. Two spare file type symbols in NMFT in NOSTEXT, S2 and S3 were substituted with PL (Plot file type) and IM (intermachine file type) respectively.
7. Program lBA was altered to support high speed EXPORT.
8. Tim installed a first iteration toward plotter support under NOS.
9. Tim installed a version of the KRONOS program SEND. This program may or may not be needed.

Tim Hoffmann installed a change to program lMB which causes certain hardware failure messages to be displayed at double intensity. Tim supplied a version of ALTER for NOS. See the proposal in this DSN.

Bill Sackett installed the following changes.

1. Bill converted the mod from KRONOS to LCK which causes an extra copy of the device TRT to be written on the last track + 1 of the device. Bill changed the location of the spare TRT to last track + 2.
2. The mod which causes the system to hang if a bad TRT is found was converted to NOS.
3. Bill converted a mod to DSD which ensures that the control point number is checked before a K-display is granted (a mod suggested in PSR summary 456).

Jeff Drummond installed the following changes.

1. A final version of TRANSIT was installed.
2. The old access word bit CXMT used under KRONOS to validate XMIT usage was reinstalled under NOS. This was necessary because TRANSIT usage is validated via CXMT.
3. The ACQUIRE command was altered to disallow use of the M (mode) option as under KRONOS.
4. PFILES was altered so that the secure entry of a null password (no password) works.
5. Several lines worth of space was added to the DSD T-display.

#### PROPOSED CHANGES TO THE SYSTEM

The ASEND and AROUTE Commands - by T. J. Hoffmann

During the interim period between the Status Quo and Status MMF, I would like to enter the following two routines:

```
ASEND(LFN,UN=usernum,PW=passwor,MI=mi,PN=packnam)
AROUTE(LFN,UN=Usernum,PW=passwor,S=site,B=bin)
(The A is for alternate)
```

These two routines simulate the MMF ability to move permanent files and output files. To do this, a SUBMIT file is created and sent via TRN to the proper machine. For AROUTE, print files may only be sent to the Cyber 74, not to the Cyber 172 printer.

For ASEND, the default for MI= is the opposite Cyber (6400 origin has MI=74 as default). The PN= parameter is optional.

For AROUTE, the site code is mandatory, but the bin number is optional.

//////////

Support of 607 Tape Transports on Release 4 NOS - by B. Kaercher

Description of R4 changes.

With Release 4 (PSR Level 472) NOS there has been considerable reworking of the magnetic tape driver (LMT), phasing out support of both 60x tape transports and

the E, B, X, and SI-coded tape formats. (For documentation of this change, refer to NOS 452 Software Release Bulletin). This has resulted in the removal of two entire overlays and the removal/replacement of several thousand lines of code in the tape driver, coinciding with ATS (67x) support and Block-ID support for 66x tape units. Modifications to MAGNET, the CPU portion, have been far less severe, although all LMT related functions have been changed to accommodate the new version of the driver. The resource executive (RESEX), local file manager (LFM), and dynamic system display(DSD) routines have been modified to improve operator interface, and account for new tape scheduling considerations due to the variety of nine-track drives supported at the NOS R4 release level. Some user enhancements, such as tape error message options have also been added.

Possible approaches to 607 support at NOS R4.

The principal element of influence in choice of design approach is the tape driver itself, since this is by far (with the possible exception of resource scheduling in RESEX) the most difficult to change, while being the most hardware dependent. Two approaches are possible:

- 1) Use as a base the NOS R4 65x, 66x, 67x tape driver, supporting the ATS/Block-ID hardware and adding 60x tape support, or
- 2) Eliminate ATS/Block-ID support entirely, using as a basic driver the NOS R3/460 60x,65x,66x version of the magnetic tape driver.

The advantage of the first approach is primarily that of hardware flexibility. 60x tape units could conceivably be in use during installation of newer model tape units on the system. Future hardware upgrades might be performed with little or no system modification. However, the disadvantages of this approach will, for most installations, far outweigh the advantage of hardware flexibility. Since the tape driver has been considerably overhauled to support ATS/MTS Block-ID at NOS R4, it would take another considerable reworking of the tape driver to re-integrate in a non-destructive fashion the 60x support at the driver level. If past history is any indication, this effort alone would require at least 6 man-months of effort, for an analyst already experienced with the tape driver. The level of difficulty of this approach is compounded by the fact that fields formerly used in associated tables in central memory for 60x are now being used for ATS/Block-ID support. To support both types of hardware concurrently, considerable table restructuring would be necessary, complete with modifications to the ATS and Block-ID code in the driver. In short, the R4 implementation of the tape driver has come extremely close to making the ATS/Block-ID support and 60x support mutually exclusive.

The advantages of the second approach are numerous. By integrating the R3/460 tape driver into the R4 system, considerable time and effort can be saved in performing driver-level modifications. Rather than having the problem of an R4 driver which simply will not talk to a 60x tape unit, one now has the problem of an R3 driver which will talk to the 60x units, but will not communicate properly with R4 MAGNET. By comparison, this is a much easier problem to overcome, having the advantage of speed of implementation. Virtually all aspects of the problem now become identifiable in terms of the entire operating system. This implementation would allow NOS R4 to be run as soon as the LMT/MAGNET communication problem is corrected, with other affected routines, such as the resource executive, modified in later stages of the project. Thus system operations such as permanent file dumping and loading which require magnetic tape could be done following early stages of implementation. The changes to MAGNET would also be minimized,

making this approach quite feasible. Equally desirable might be an R3/460 version of MAGNET modified to support communication with R4 RESEX. These problems collectively are far less formidable than the overhaul of the tape driver alone. One clear disadvantage in this approach is that if the installation ever chooses to upgrade tape units, the driver will have to be overhauled or replaced at that time.

Once the tape driver is up and running and some basic problems of communication between MAGNET, RESEX, and LMT are solved, the system may be used for development, permanent file dumps and loads performed, and testing begun. Subsequent modification may then address itself to removal of support for specific tape formats, modification of deadstart dump interpretation, and operator and user interface. With this approach, one also has the option of continuing support of the R4 obsoleted E, B, X, and SI-coded tape formats.

#### Equipment Resources.

The physical equipment necessary for development on this project may be summarized as follows:

- CYBER 17x, 7x, or 6x00 mainframe
- 607 tape transport utilizing 3x2x controller in conjunction with a 6681 model B/C/D or 6684 model A communications controller
- 1 or 2 NOS-supported disk units (844 typically)

#### Material Resources.

Necessary for development in the project are the following software packages.

- NOS 1.2/460 OPL
- NOS 1.3/472 OPL
- NOS 1.3/472 Deadstart Tape
- UCC NOS or KRONOS OPL
- UCC Deadstart Tape

Interactive timesharing access to a production system during normal operating hours or systems time and a single dedicated disk pack for utilization during production and dedicated machine time are necessary, since loading permanent files on the R4 test system will be impossible until LMT/MAGNET are modified to support the 607's.

Dedicated machine time will be required for testing, and preferable for much of the development effort due to the large amounts of CPU time and I/O transfers in assembling large routines and manipulating system program libraries. It is estimated that the dedicated machine time required would not exceed 100 hours total for the project. Computer Consulting & Instruction will provide the NOS 460 and NOS 472 tapes required as listed above.

#### Obligations of the Vendor.

Computer Consulting & Instruction (hereafter referred to as "vendor") will provide the University of Minnesota Computer Center with the modifications to NOS R4/472 to enable the support of 60x, 65x, and 66x tape units at that operating system level. The major technical features of this set of modifications are outlined in the accompanying document entitled "Exhibit A".

Documentation will be provided to the University Computer Center at the General Internal Design (GID) level, and if desired, a seminar will be given at the conclusion of the project to provide the University Computer Center with adequate information to assume maintenance of the modifications. The vendor will also be available for consulting should any problems arise related to the modifications within 30 calendar days after the project is completed and the documentation delivered.

#### Terms.

The University Computer Center will provide, at no cost to the vendor, the required dedicated and interactive machine time and resources in performance of the project. The University Computer Center will also have the right to distribute the modifications to other public institutions without charge to them, in accordance with the regulations pertaining to public domain. The vendor reserves the right to develop similar modifications for private and commercial interests. There will be no additional financial obligation on the part of the University Computer Center, apart from the provision of the required machine time and resources required for the project.

#### SYSTEM MAINTENANCE: People and Procedures

#### Last Week's Systems Group Meeting - by T. W. Lanzatella

1. The following proposals were rejected or accepted.
  - a) Marisa Riviere's proposal to a new micro-film processor was approved (see DSN 4, 10 p. 79). We all agreed that MF501 should be phased out before the start of the next school year.
  - b) Earl Schleske's proposal to suffix all entry point names in CPL and in SYSLIB with an =(equal) sign was rejected (see DSN 4, 10 p. 81). We concluded that the amount of work to effect this change and to alter the documentation was too great. We did decide, however, that all IDENT names on SYSLIB routines would be altered to include a special character making it impossible for a user to accidentally pick a routine name identical to a SYSLIB routine name.
2. Larry Liddiard led a discussion of the current state of the NOS conversion. We observed the following deficiencies:
  - a) EXPORT not available
  - b) Common Queues not available.
  - c) Page limits are not yet enforced on EXPORT.
  - d) DIVERT not available.
  - e) Plotter not yet supported.
  - f) SWITCH not available.
  - g) Documentation is terrible.

After considering the above list, we all concluded that NOS should not be installed until August at the end of second summer session.
3. Larry Liddiard presented a discussion of instruction timing on the C172 as compared with the C74 and the 6400. A copy of the handouts provided by Larry can be obtained from T. W. Lanzatella.

//////////

Callprg and Library Tape News - by M. Riviere

On June 2, the 6400 section of the Callprg was modified to include Brian Hanson's debug package (Fetch type) as a local 6400 file.

On June 13, the current versions of MNF, TSF, MNFCLIB and ZZZZPP for the Cyber 172 and the Cyber 74 will be replaced by the future versions.

New future versions of MNF and TSF will be available by 13 June. The new versions are planned to become current on the future 172/74 NOS System. The main feature of this version is that Mantrap no longer needs to use file ZZZZPP for maps and uses a standard loader file instead. This version of MNF needs to use the Cyber loader.

Also after June 13, the up-to-then current versions of MNF and TSF will be available as past Callprg products but will use the new system's libraries.

Also on June 13, the up-to-then PAST, MNF, (no Record Manager version) will be accessed as FETCH, MNF.

//////////

Permanent File Archiving on the Cyber 172 - by R. J. Hursh

A regular schedule of monthly archiving will begin 1 July on the Cyber 172. Files on 844 equipment DN60 and SPL will initially be subject to the archive. Discussion as to what period of time a file can remain inactive before being archived may be desirable. I plan to set the time at 30 days for both types of files on both devices.

//////////

Cyber 74/ Cyber 172 Deadstart Dump Analysis from Friday, 19 May through Thursday, June 1 - by K. C. Matthews

Cyber 74 - Monday, 22 May

11:19 LMT hung dropping a tape channel which was not assigned to it. In this case, clearing the drop channel request from the PP output register started everything running again. It remains a mystery which LMT dropped the channel.

Cyber 172 - Monday, 22 May

09:00 The CALLPRG directory file was not correct when the 172 was deadstarted. KCM SYSEDTed a binary version of the LOADER control statement; unfortunately this causes relocatable loads to stop working. This caused 1AJ to hang several times before the problem was corrected.

19:42 Numerous disk error messages occurred during permanent file dumping. An attempt to change the equipment entry in memory caused the system to hang. The error messages turned out to be spurious, caused by an oversight in the latest disk driver.

Cyber 74 - Monday, 29 May

22:00 There were many errors on disk equipment 14. This causes several jobs to abort, and BATCHIO eventually hung. The equipment had to be loaded to a different pack several days later.

Cyber 74 - Tuesday, 30 May

12:07 System errors caused by disk equipment 14 again caused a level 3 deadstart.

Cyber 172 - Thursday, 1 June

11:36 (DD-37) Several copies of IDU were hung at the SYSTEM control point. It appears that the DSD TEMP command does not work and causes this behavior.