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NOTICE OF CHANGES TO THE SYSTEM

KRONOS Changes

The following changes become effective on Thursday, 13 July.

In order to allow the Cyber 74 to run KRONOS and NOS on the same permanent file devices, Bill Sackett installed a KRONOS mod, PRODAY, which makes dayfiles preserved files on KRONOS. Previously, dayfiles were preserved on NOS but not preserved on KRONOS. This prevented deadstarting NOS on KRONOS dayfile devices even when initializing dayfiles at deadstart time. (REC hangs up trying to drop tracks which have already been released because they weren't preserved.) Before deadstarting KRONOS with this change, the preserved bit for all dayfile tracks must be set. Otherwise a complete device initialize and reload is necessary in order to deadstart.

Bill also repaired a garbled error message in 6DJ which resulted from a missing display code conversion. Additionally, Bill installed modset KRA337 from NOS. This mod adds a new account file message whenever DFTERM is run:

        ABSY   YY/MM/DD.

This allows accounting programs to determine the date of accounting in case DFTERM is run after deadstart. This will allow MERITSS to run DFTERM at the beginning of operations so that problems are avoided which have been caused by systems time people forgetting to run DFTERM when done.

Jeff Drummond added sites 28 and 4P to the list of legal XMIT sites. Jeff also repaired an unspecified error in RETAIN and altered MAGNET error processing so that dumps arrive in his bin.

Don Mears repaired an error in 1TD processing of 63 to 64 character set conversion. In some situations, the percent character could be lost. Don also installed two new programs: LKT, a PDP-11 test program and COMPSAD, a common deck for sending dayfile messages to the BATCHIO decwriter. Additionally, the TELEX logoff messages now indicate SRU used rather than CP time.

Tim Hoffmann installed a new version of ALTER with unspecified changes.

NOS Changes

The following changes were installed Sunday, 9 July.

Kevin Matthews repaired MSM so that the values of the KRONOS PMFT and FAFT are correct. A new file type had been added to KRONOS for TRANSIT. Kevin also converted the program PDUMP, a utility used by operations to construct PFDUMP commands.

Don Mears installed the following changes.

1) Don repaired 1CD processing of 96 character set so that a 7600 will print as accent grave.

2) Front-end processing in 1TD was altered to allot a larger amount of time for answerback on the front-end.

3) Program MODIFY now has a new parameter CU which performs identically to the U option on the COMPASS command.

4) Don repaired an error in 1TD processing of 63 to 64 character set conversion. In some situations the percent character could be lost.

5) Program 1AJ was altered so that an exchange package dump is not provided for system abort and operator kill error flags. This was a local change originally which accidentally broke the mechanism which caused users to be logged off for specifying illegal USER commands. This feature is now restored.

6) Program ACCFAM was altered to always print a copy of the USER command whether or not the command was in error.

7) Don repaired an error in the way 1RI processes errror flags for TXOT jobs. This should fix the bug where a timesharing user types a bad command and only gets a READY or /(slash) in response.

8) Decwriter support for BATCHIO was installed.

9) A new link test program LKT was added to MPLNOS.

Tim Salo completed his installation of the DELAY queue.

Tim Hoffmann altered CPMEM to ensure that an exchange package dump remains within 72 columns. Tim also converted the secure entry of passwords feature and the SUBMIT /USER directive from KRONOS. Additionally, Tim installed a fix for DSDI which repairs the too many lines per page error.

Brian Hanson added a SSM= entry point to SUBMIT and converted the UNBUSY command from KRONOS.

Bill Sackett repaired an error in PFM processing of protected permanent files. Users can now PERMIT a protected permanent file.

Jeff Drummond installed the following changes.

1) A mod to ORP from PSR summary 467 which corrects a case where the return files event was not issued for a direct access file.

2) Jeff installed a space-saving mod into COMPFAT.

3) A mod to MTR from PSR summary 472. Previously MTR was only using half of the timed event table.

4) A mod to CPUMTR from PSR summary 472 which repairs an error in CPUMTR preset for MMF that can cause scope blanking during deadstart.

5) A mod to PFILES from PSR summary 472 which disallows constructs of the type:

        GET(A=B=C).

6) A mod to CPUMTR from PSR summary 472 which helps to prevent device interlocks from being lost.

7) A mod to SET from PSR summary 472 which keeps several words of central memory from being wrecked.

Brad Blaising finished converting the KRONOS mod COPT which adds a coded option to CATALOG and to TDUMP.

PROPOSED CHANGES TO THE SYSTEM

Default Job Card Time Limit - by T. J. Hoffmann

I would like to change the default time limit for batch jobs from the current value of 100B to 16D. This is prompted by several reasons. 1) Time is now job-step rather than for the entire job, and 100B is a rather large number for a single job-step; 2) 16 is a familiar number to users, it is the default for KRONOS; 3) It simplifies job cards to "NAME7". Using a CM value on the job card is not advisable, and by having a more reasonable default time limit, users should have less problems.

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Don't Log Me Off - by D. W. Mears

I propose to change CPM and 1AJ so that timesharing users do not get logged off when they mistype their user card.

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A New CATALOG Option - by B. Blaising

The system deadstart tape (and thus the system library file) contains many text records with installation parameters. They are known by deck names of "IPRDECK", "CMRDECK", "LIBDECK", AND "DDS". CATALOG prints the entire contents of a text

record if it has such a deck name. This is sometimes useful, sometimes not, but CATALOG always prints it. Not printing such records would save about 10 pages from a catalog of SYSTEM. I propose adding a "ST" parameter to CATALOG to suppress the printing of such text decks.

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System Security - by J. J. Drummond

With new copies of VALIDUX turning up every day, system security is at an all-time low. Several factors contribute to this despicable situation:

1) Validation files being saved on staff accounts.
2) Staff who do not change their passwords often enough.
3) Users who do not change their passwords often enough.
4) Inadequate reporting of breaches in security.

To minimize these problems, I propose the following:

1) Validation file security.

   a) Establish a policy of not saving validation files as permanent files and restricting copies to local files or tape files.

   b) Implement password hashing. This enhances validation file security and has already been approved in principle. The biggest barrier (room in 1TA) is no longer a big problem.

2) Staff passwords.

   a) I don't think it is unreasonable to <u>require</u> staff (with their higher validated accounts) to change their passwords at least once every couple of months (say, once a quarter) or after security breaches.

   b) An automatic mechanism to generate NOTICE/NOTIFY directives to staff to remind them to change their passwords if they have not done so for a long time.

3) User passwords.

   a) A similar procedure could be established to remind users to change their passwords if they have not done so for a long time.

   b) Security should be enhanced for card decks. Specifically, users should turn in their decks at Lauderdale and Exp. Eng. (and perhaps elsewhere) to operations so that people cannot look at other users' decks before they are read in. Additionally, operations should remove the (first) user/account card from the deck before returning it. These will prevent illegal users from rummaging through card decks to obtain passwords.

4) Reporting breaches in security.

   a) Despite all of the above problems, security breaches will continue to be a problem. To this effect, I propose implementing date and time of last login and last user statement. Thus, when a user logs

in (or issues a user/account card) (s)he is informed as to the last time the number was logged into (or the last user/account statement for that account). This gives users the ability to monitor usage of their own accounts.

b) When large numbers of passwords get out, a mechanism should exist to tell all users to change their passwords. (Above and beyond a 3-day sysnote.)

Specific proposals for the systems' group include the following:

1) Implement password hashing. (The merits of this proposal are discussed elsewhere/elsewhen.) ·

2) Implement date/time of last Telex login and last user/account card. Also, keep track of the number of Telex logins and user/account statements (modulus 2^{12}) to enable users to monitor usage of their accounts. The advantages of this are noted above and are readily apparent. The disadvantages include:

a) An extra call to OAV for each login or user/account stmt.
b) 5 free bits left in the Validux user block.
c) 1 byte left in OAV.

3) Implement programs to automatically generate notice/notify directives for those account numbers whose password should be changed.

Operations should consider methods to increase card deck security.

For reasons of security, the name of this proposal cannot be divulged.

SYSTEM MAINTENANCE: People and Procedures

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

1) Jeff Drummond's proposal to alter SUBMIT was discussed in three parts. The proposal to add a new directive /PACKNAM and to remove packname as an option on the /READ directive was accepted (see DSN 4,12 p. 93). The proposal to simplify transparent mode was rejected. The proposal to enhance error reporting was accepted.

2) Arnie Nelson presented a discussion of our impending plans to switch to all autobaud lines on the Cyber 74 and on the Cyber 172. This change is scheduled to take place on 17 July. The details of Arnie's discussion appear in this DSN in the article Telex Access.

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A Note About PSR Code - by W. T. Sackett

Due to a resent rash of duplicated effort in regards to installing PSR code, I suggest that we maintain a list of PSRs which have been installed. This will help to avoid duplicated effort and will help when we again move to a new level of NOS. The list will be maintained in a folder labeled PSR summaries in my file cabinet.

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CALLPRG and Library Tape News - by M. Riviere

On June 28, Steve Reisman modified the Callprg index in order to remove the BBTO6RM entry and introduce CONVBF. CONVBF is an FTN3 to FTN4 file conversion routine that replaces BBTO6RM. Steve also corrected the entries for C4C5 and C4C5L. This modification took place in the KRONOS and NOS indices.

On June 30, the NOS library tape was modified to include CB5TXT, a COBOL5 text that has to be included in the System. This modification was also requested by Steve Reisman.

On July 11 a new set of modifications was provided by Steve Reisman for the Callprg indices. These modifications are mainly adding FL parameters in several of his product's entries and a general clean-up of his section.

Steve was also changing the entries for C4C5 and C4C5L to avoid a Callprg problem of not reading more than 78 characters by line. (I will be fixing this problem soon.)

A new version of the COBOL5 compiler will soon be available for the NOS Library Tape. This new version contains some critical modifications from CDC that fix several problems, among them one that causes the compiler to get into an execution loop until reaching time limit. The new version of COBOL5 is now in the process of being tested.

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Telex Access - by A. Nelson

For the past two weeks a group of us have been wrestling with the problem of how to best distribute the interactive telephone lines between the two mainframes and when to do it. This group consists of Rich Franta, Tom Lanzatella, Don Mears, John Sell, and Arnie Nelson.

Present Time: There are 92 telephone lines on 10 rotors available for use. 86 of these are active on two multiplexers, a 6676 and a PDP11/34. 58 of the active lines are tied to the 6676 for Cyber 74 access. The other 28 are connected to the PDP11/34 and can be switched to either mainframe.

Management imperatives state that the Cyber 172 should be the primary timesharing computer with the Cyber 74 running predominantly batch.

We have come up with a proposed plan of reconnecting those lines to provide more access to the Cyber 172 while simplifying the number of telephone numbers necessary to access the machines. We obviously are not going to drop Cyber 74 Telex access but should try to reduce the number of ports.

The 6676 will be moved to ~~Duluth~~ MPRITS by the start of the fall quarter. This means that we will be left with the PDP11/34 and 2551 for multiplexers.

The PDP11 can handle up to ~~98~~ 48 lines in its present configuration. The 2551 has line adapters for 68 async. lines.

Since both front-ends can handle automatic baud rate recognition (autobaud for short), we think it is time to switch to one primary rotor per mainframe with one primary number for each.

With the proposed changes 48 lines would be connected to the PDP11/34 of which 35 would be Cyber 74 only with the other 13 being switchable between machines, and 44 lines would be connected to the 2551 for access to the Cyber 172.

The 35 dial-up lines for the Cyber 74 would be reached by 57xx numbers: 5730, 5710, or 5780. The 44 dial-up lines for the Cyber 172 would be reached by 59xx numbers: 5930, 5910.

The six direct lines from Duluth and Morris would be tied to the PDP11 as well as the six 1200 baud lines plus the UCC 1200 baud hard-wired line. These would be switchable between mainframes. The number of rotors would be reduced to 6 from 10.

On the weekend of July 15, 16, we could disconnect the 6676, change cables, and be ready to use the PDP11 and 2551 on the 16th. As soon as possible thereafter, we would have the telephone company change over the rotaries. Prior to the 17th of July, we would use the NOTIFY feature on login to inform people of the need to use carriage returns to activate the sign-on after the 16th of July. The only lines which pose a problem prior to the rotary changes are the 5710 and 5780 numbers. Don can set up the PDP-11 to issue a special message to anyone who dials 5710 or 5780. The other 9 57xx numbers will be busied out.

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Cyber Deadstart Dump Analysis from Friday, 16 June through Sunday, 9 July – by K. C. Matthews

Friday, 16 June

20:20   Cyber 172

The system would not pick up the label on removable pack 5. A level 0 deadstart was performed in an attempt to clear up what seemed to be a label error on the device. The system identifies the device as a DK (full tracked DI) when it cannot determine the real device type from the label. This was unexpected and caused some confusion. It finally turned out that the disk drive had problems.

21:06   Cyber 172

Another deadstart for the problems above.

Monday, 19 June

19:47   (DD-33)   Cyber 172

The scopes were flashing because some low central memory was clobbered. No resolution of this yet.

Wednesday, 21 June

21:25   Cyber 74
21:30   Cyber 74
21:39   Cyber 74

Disk errors occurred on several disks. They were Function Timeout errors which indicates that the disk controller was not responding to the PP. The channel eventually hung full. Several deadstarts were tried, and the system hung on the channel (channel 31) every time. Master clearing the controller by hand fixed the problem, and a level 0 deadstart was performed.

18:11   Cyber 172

The scopes went blank. This has not been examined.

Thursday, 22 June

01:58

A power failure brought down all the machines at Lauderdale.

Monday, 26 June

08:39 (DD-35)   Cyber 172

The scopes blanked. Again, this dump has not been analyzed. There are several such dumps which have not been checked out yet on the 172. I will try to improve the 172 crash analysis.

15:49 (DD-36)   Cyber 172

The scopes blanked when trying to switch from 026 to DIS on the console.

Saturday, 1 July

15:25   Cyber 74

The scopes blanked. This time the display console itself had failed and the engineers were called to fix it.

Friday, 7 July

12:00 (DD-32)   Cyber 172
13:24 (DD-33)   Cyber 172

1AJ hung trying to process some bad file used as a procedure file. This is a problem which we had fixed once in KRONOS and is fixed on NOS by now.

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6400 DEADSTART DUMP ANALYSIS (6/20 - 7/9) - by R. A. Williams

Date	Description	Tape
780623	A PP memory stack that went bad caused two system aborts.	Fixed
780627	Improper use of DIS caused the scopes to go blank. This happens when multiple copies are called up and asterisk is pressed along with an outstanding storage request by some other PP.	N.A.
780705	ITA hung when it was passed a pot of garbage to schedule. No clues have yet been uncovered as to the cause.	DDT-4