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NOTICE OF CHANGES TO THE SYSTEM

Tim Salo modified the PAGES PRINTED message output by SUPIO to include the time of day.

Marisa Riviere changed CALLPRG to allow the user numbers CALLPRG and WRITEUP to be processed as YZE6008 and YZE6000 respectively. See Marisa's article appearing later in this newsletter.

Bob Williams modified a misleading error message in PFILES in response to user complaints. Previously, whenever a time-sharing user encountered a track limit, the message SYSTEM ERROR was issued to the user's output file. This message was changed to SYSTEM ERROR - TRACK LIMIT.

Bob Zalusky corrected a bug installed with the last system which caused some garbage characters to appear in the CPMEM DMP report.

Kevin Matthews added the following changes.

1. Kevin added a new common deck COMCCSO, check system origin. The purpose of this routine is to facilitate easy checking of system origin in such packages as TELEX, MAGNET and FLAW. These packages, along with many others, currently allow users to call them but abort with mysterious error messages or simply hang at a control point requiring operator intervention. We will now be singling out all such packages and installing calls to COMCCSO. The first three system routines to use COMCCSO are TELEX, PFDUMP and MSI.

2. Program DUMPPF will now allow a system origin user to load protected permanent files.

3. In preparation for the new disk drives arriving soon, the allowable number of disk equipment in the system was raised from 20B to 24B.

4. A new program, COPYVAL, was added to MPL. This program will not be on the deadstart tape but will be used to copy and edit the VALIDUZ file whenever new access word bits are added.

Jeff Drummond added the following modifications.

1. Jeff added a new common deck, COMCDTM, convert date and time. The routine converts packed date and time to ordinary language date and time as in DTIME.

2. The TSTATUS macro will now return the number of rubout characters associated with a terminal.

3. Several problems in ECSXFER and XMT were cleared up. Program ECSXFER should no longer hang at a control point and incoming (to the 6400) files which are somehow lost will be flagged in the system dayfile. Several extra calls to PFM were also removed.

Bill Sackett added code to MODVAL which utilizes the new function of the DISSJ macro to solve a troublesome problem on MERITSS in which users used MODVAL to exceed PRU limits and fill up disks (see DSN 3, 5 p. 6).

Tim Hoffmann changed COMCBKP to convert all 66B, 67B,... display codes to blanks on output to a TTY user.

Bill Elliott added the following modifications.

1. The mass storage transfers accumulator overflow message prefix was changed from UEMS to UCMS. Accounting personnel have already been notified.

2. Program UFM was modified to correct an annoying I/O sequence error which sometimes occurred during End-of-Tape processing.

3. Program EXAMINE received a documentation cleanup.

4. The EXAMINE Q parameter was enhanced.

5. A new parameter R was added to the EXAMINE command which limits the number of records to be processed.

6. A brief EXAMINE summary will now appear in the user's dayfile.

7. Memory requirements for EXAMINE execution were reduced from 30K to 10K (the BL parameter was removed).

8. The EXAMINE N=0 option will now proceed to a triple tape mark to avoid problems with empty multi-file sections.

9. The TAPES utility will now support secure password entry.

10. Program PASSWOR will now allow a null old password to be entered securely.

Don Mears added the following changes.

1. A port should no longer hang if a user types the S-key during log-out processing (a CDC bug).

2. Programs TELEX and 1TD can now service a PDP-11 front end emulating a 6676.

3. Don repaired an annoying Buffer Argument Error in AFD and DFD by rediscovering a forgotten level 7 modification.

4. Don repaired a problem which appeared on the last new system in which a null line encountered during tape input from a terminal resulted in a zero word on the user's primary file.

PROPOSED CHANGES TO THE SYSTEM

A Dumb Proposal - by Don Mears

60% of all calls to PFILES are of the form   *command,fname.*   on MERITSS. Therefore, it should be possible to write a dumb (small) version of PFILES which handles this common simple case. I tried writing a program called TSPFILE with the following entry points: TSOLD, TSNEW, TSGET, TSREP, TSDEF, TSSAV, TSPUR. Then, I changed TELEX to call the dumb pfiles if the pfile command had exactly one parameter. Also, Jeff Drummond wrote a CLEAR LFM function to drop all non-nodrop files assigned to the control point. This eliminates the need for a GETFNT buffer and separate CIO requests to drop each file in TSPFILES. The resulting TSPFILES runs in 300_8 words as opposed to the 2400 words required by PFILES. (Note that stock CDC PFILES requires 1400 words.) In theory, response time should be improved for the following reasons:

1. The 300 words required by TSPFILES is virtually always available so that it will be scheduled immediately if a control point is available.

2. It takes less time to load the 2 pru TSPFILES, than the 23 PRU PFILES.

3. It is much less likely that TSPFILES will require a storage move to fit into core.

The arguments against dumb proposal are:

1. There is little improvement in system performance.

2. Users will be confused by strange control cards in their dayfile unless TSPFILES is "SDM=" and issues a dayfile message with the corresponding pfiles command.

3. We will have code which does essentially the same thing in two different programs.

4. There will be no overall performance improvement on the Cyber since MIRGE makes up so little of the total system usage.

/////////

Loading Absolute Overlays (Again) - by K.C. Matthews

This proposal is a simplified version of part F of the Field Length Study. We hope it is a good enough compromise to be understandable and to work.

We propose to enable the field length control features in the Cyber loader and to add the same features to the LINK loader. This means that by default a job FL will increase up to or decrease down to the ends/hha address. A REDUCE(-) card will get around this. This change should be made at the end of the second summer session, to allow plenty of time to make changes to CALLPRG packages.

At the end of spring quarter we would like to install a new feature in each loader. The overlay table will be examined for an RFL= or MFL= entry point. If one exists, it will be honored. We will not provide any alternative ways of setting these values. (We did in the last proposal.) But we should probably publish before fall a writeup which will explain to the fairly sophisticated user how meaningful RFL= and MFL= entry points can be implemented in the binaries of higher level languages. These procedures will have to be working during the summer so that CALLPRG program changes can be made. Also, remember that the FL and MF CALLPRG directive parameters should be in CALLPRG by summer. They are required to make efficient and consistent use of the FL control features.

I think that most users should benefit from the changes. The automatic field length control should help get memory reduced when an excess amount would not be used. Remember too that some absolute binaries may not work correctly. Those people who use more blank common than is declared can be warned starting in the June newsletter.

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ECS Access - by K.C. Matthews

In DSN 3, No. 5, we proposed a bit which would tell system programs whether CPU access to ECS existed or not. In the subsequent system group meeting, I promised to look at the various ways in which ECS could be turned "off" by the system. Most ECS functions in the CDC system seem to be tied to the presence of an ECS equipment type. I now slightly generalize the previous proposal by suggesting that each ECS function be assigned to an enable/disable option bit in the ECS control word. This allows the system to turn on and off each ECS function individually.

The following options already exist and are being assigned bits in the ECS control word.

1. ECS Monitor Functions

   Enable/disable the use of the ECSM function. This is useful mainly to system programmers, but we suggest it to include all ECS functions. If disabled, we will hang the PPU attempting an ECSM function.

2. Storage move through ECS.

3. CPU program loads directly from ECS. There is a special monitor function which handles this lead. When disabled, the load will be from the system disk.

4. PPU program loads from ECS. When disabled, all programs will be loaded from the disk.

5. User ECS. When disabled, user ECS requests will be treated as if the memory requested is not available because it is in use by another job. This allows user ECS requests to be turned off for a while, perhaps while the problem is being fixed.

If an ECS error occurs during processing on request of type 2, 3 or 4, all options 2-5 are disabled. (We don't want to disable 1 so that we can still use the M display to read ECS.) We show in the B display which error occurred. Then the option can be later enabled.

Users must still detect ECS errors in previously assigned user ECS. We don't want to turn off option 1, even when the function gets an ECS read error. The function reads parts of ECS and returns the addresses of the words in error.

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The Costs and Benefits of DROP/NODROP - by T.W. Lanzatella

Over the past year, a new set of commands, DROP and NODROP has arduously crept into the operating system. The implementation of DROP/NODROP has been an administrative snafu. The commands were first proposed to the systems group, then sent to the systems strategy committee, off to user services, back to systems strategy, on to the systems group, back to systems strategy and finally installed. Without embarking on any discussion of sensible system maintenance procedures, let us examine the costs and benefits of DROP and NODROP.

To the best of my knowledge, DROP/NODROP was installed at the whim of a single extremely vocal user who employs local CALLPRG indices. The problem was one of inconvenience. Whenever the user executed a CLEAR, OLD, NEW or LIB command, the local CALLPRG index was returned and had to be reacquired. UCC is an accommodating organization with an eager systems staff. User requests are one of the prime motivations for changing the system. What's more, the idea of a permanently local file has merit. Hence, we invented NODROP, the chief benefit of which is added convenience for local CALLPRG index users. I maintain that any other benefits derived from this command are contrived and of no real value.

Now for the costs.

1. Assuming that the NODROP proposal was considered for one hour at each of the way stations mentioned above, and assuming eight hours of programming and installation time, about 55 manhours were spent installing 90 lines of code.

2. Because good system programming practice demands complete, logical implementation of a feature, we require a way of rescinding the effects of NODROP. Thus we are forced to offer the nondescript command DROP.

3. Despite the tremendous effort spent in producing local documentation of KRONOS, the KRONOS reference manual supplied by CDC is still the definitive and most widely used source of user documentation. Although billed as an innocuous and handy control statement, installation of DROP/NODROP renders KRONOS manual documentation of the following control statements incomplete and misleading:

OLD	OUT
NEW	RENAME
LIB	ATTACH

```
RETURN          GET
UNLOAD          PACK
ENQUIRE         SORT
DISPOSE         RESEQ
```

The DROP/NODROP installation also affects the local commands ACQUIRE, RETAIN, FETCH and XEDIT. Nowhere is it presently mentioned in user documentation that these and the above commands are affected by DROP/NODROP.

Due to the wrenching effect on user documentation and because the costs of DROP/ NODROP so far exceed the benefits, I propose that DROP/NODROP be judiciously removed from the system. The DROP/NODROP commands have not yet been announced to users. I do not have an alternative to DROP/NODROP except to endure the minor inconvenience. If DROP/NODROP is not removed, perhaps the time has come to consider committing the entire KRONOS reference manual to machine retrievable form so that changes of this nature can be appropriately documented.

SYSTEM MAINTENANCE: People and Procedures

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

1. The following proposals were considered by the systems group.

    a. John Larsen's proposal to move COPYM from FETCH type to control card callable (see DSN 3, 7 p. 4) was rejected pending a study of the currently available copy utilities.

    b. Don Mears' proposal to install the PDP-11 time-sharing front-end mods into TELEX was approved. We decided to wait, however, on allowing actual use of the front-end during production hours until an installation and checkout schedule is established (see DSN 3, 7 p. 4).

    c. Bill Sackett's proposal concerning DVTVAL was divided into two sections.

        1. We all agreed that the current features of DIVERT(ON/OFF,...) should be added to DVTVAL and that the name of DVTVAL be changed to DIVERT.

        2. We all agreed in principle that a limits reporting scheme ought to be added to DIVERT but nobody liked the proposed report format or the statement parameters. Bill was not present to entertain or suggest alternatives. This feature will be reproposed in the future (see DSN 3, 7 p. 4).

    d. Bill Sackett's proposal to move the DSD enabled/disabled functions list out of the E,P display was approved in principle but we did not like the idea of putting this information into the S-display. We decided that a new DSD display should be invented (see DSN 3, 7 p. 4).

    e. Tim Hoffmann's and Jeff Drummond's proposal to modify the dump utility DMD to accommodate time-sharing origin users was approved (see DSN 3, 7 p. 5).

    f. Tim Hoffmann's and Jeff Drummond's proposal to make CPMEM interactive (see DSN 3, 7 p. 5) was rejected pending a study of user impact and system security impact.

2. Brief descriptions of important information gleaned from the VIM conference were presented. See LAL, EJM, WJE, TWL, NLR, ABM or KCM for details.

3. Larry Liddiard remarked that staff is slowly consuming the Cyber 74. Permanent file usage is up and staff CP time is increasing. We all should pay more attention to heavy use of the machine during production hours.

4. Larry Liddiard noted that the engineering group could not find any correlation between external power fluctuations and system crashes.

5. Regarding summer projects - Larry Liddiard stressed that the bug list should decrease. Kevin Matthews said that some recommended changes from the field length study ought to be installed over the summer and that since we are no longer receiving code from CDC, all of our home grown system features should be documented.

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Change on CALLPRG and WRITEUP User Numbers - by M. Riviere

Two new user numbers, CALLPRG and WRITEUP, are now active on the Cyber 74 and on the 6400 computers. These two new accounts are sharing permanent files with the already existing YZE6008 and YZE6000 user numbers. The YZE6008 and YZE6000 user numbers will be deactivated on June 1. During the month of May the UN parameter used on the Callprg and Writeup index cards and on permanent file commands can be YZE6008 and CALLPRG or YZE6000 and WRITEUP respectively. Anyone who has procedure files, programmed permanent file commands, etc., referencing the YZE6008 or the YZE6000 account numbers should convert them before the first of June. I will take care of converting the actual Callprg and Writeup indices. However, anyone making modifications to them should be using only the new user numbers from now on. I do not think that user notification is needed for this change since the usage of these two accounts is only for internal UCC arrangements. This change is taking place as a result of a Systems Group proposal described in DSN Vol. 3, No. 4 and DSN Vol. 3, No. 5.

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UN=LIBRARY Policy - by M. Frisch

Mike Skow and I have recently set down some guidelines for files residing under UN=LIBRARY.

1. Only source language should be there. Binary should be under CALLPRG.

2. Source language includes: BASIC programs, example programs for other languages, data files used as examples (e.g. SAMDAT1 for ISIS), information files not appropriate for WRITEUP. Games should reside under UN=GAME.

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Callprg Library Tape Changes - by M. Riviere

On May 3, the following changes will be taking place among Callprg packages:

R. Hotchkiss will be introducing a new Callprg package, GENCORD. GENCORD is a text processing program to be used for general concording, indexes and several other

kinds of applications in text analysis. GENCORD will be introduced as control card callable. A GENCORD manual will be available from the UCC library.

M. Frisch will be removing the Callprg index entry for EISINFO (FETCH,EISINFO). The documentation for EISINFO is now available in the indexed writeup EISPACK.

H. Kurs will be introducing level 13 CDC releases of COBOL, COPYCL, COPY8P, ESTMATE, FILE, IXGEN, SISTAT, SORTMRG, CB4LIB, SRTLIB and SMTEXT. Since there is already a set of Future products with identical names (level 12) and they have to remain as such until the end of the quarter when they will become current, Howard will be setting up all the new products as Fetch type. To solve the name conflicts with the already existing Fetch type products of CB4LIB, SORTLIB and SMTEXT (level 10, current) Howard will be inserting the index entries for FETCH,FCB4LIB, FETCH,SORTLIB and FETCH,FSMTEXT. These three entries will retrieve level 13 text and libraries without changing their original names.

I will be removing the NBASIC entry from the Callprg index. NBASIC was used temporarily to retrieve CDC BASIC level 12. Now CDC BASIC is retrieved when the FUTURE,BASIC control card is used. I will also be removing the FETCH,CPLFMDS entry that is no longer used.

I will be replacing Future FTN, Future FTNMAC, Future FORTRAN and Future SYSIO with their level 13 versions. This new version of SYSIO is all level 13 with the exception of the SYMPL library section that still remains level 12. Also as part of CDC level 13 installation I will be updating the Fetch type installation texts PFMTEXT, IPTEXT, CPCTEXT, CPUTEXT and SCPTEXT.

The next changes to the Callprg index and the Library Tape will be taking place on May 17. Requests for modifications should be made by noon, May 5.

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Cyber 74 Deadstart Dump Analysis - by K.C. Matthews

11 April 1977 - 24 April 1977

Wednesday, 20 April

14:00   (DD-1)
         The system appeared to be hung up. A deadstart recovery got things going.
         But the dump revealed that a tape channel (12) was assigned to EXPORT.
         1MT hung trying to request the channel, which was not going to be re-
         leased by EXPORT. N.L.R. analyzed the dump of the EXPORT PPU program
         1HS, and found that it was still running fine. There appears to be no
         way that it could have requested channel 12.

14:32   (DD-2)
         The first 10000 or so words of memory filled with junk. The junk was
         found in part of 1BA. But there were also 2 other PPU's whose memories
         were pretty well destroyed. It's hard to tell what was the cause and
         what was the effect.

Thursday, 21 April

11:42   (DD-3)
         The system stopped again. Most PPU's were hung on the driver seek wait
         (DSWM) monitor function. This function is part of the seek overlap fea-
         ture for the 844 disks. I haven't as yet discovered the reason, but we
         should be able to discover something. No. PP or CM memory areas seem
         damaged.

Sunday, 25 April

18:46   (DD-4)
         The scopes blanked. On the dump, there was lots of junk written in
         central memory. The junk was identified as the contents of 1HS
         (EXPORT). Dump given to N.L. Reddy.

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6400 Deadstart Dump Analysis - by R.A. Williams

Date	Description	Tape
770413	The 808 disk broke in that bit 2 of each byte of data was lost on the read operation. This caused many bad roll-in files and led to a TELEX abort. While ideally TELEX should be able to handle the situation, repair of this problem ranks low in priority as the bad disk is considered the basic cause and an abnormal condition.	Fixed

We have been having, and continue to have, problems with TELEX
DPT (Drop Pot) errors. These abnormal messages do not seem to
be having any ill effects on users and occur at the rate of one
or two a week. Nevertheless, some investigation into their
cause will be made as they could signal deeper problems.