

UNIVERSITY OF MINNESOTA COMPUTER CENTER
Deadstart Systems Newsletter

2 December 1976

Vol. 2, No. 22

Send all comments, criticisms and contributions to the editor: T. W. Lanzatella
University Computer Center, 2520 Broadway Drive, Lauderdale, MN 55113

TABLE OF CONTENTS

NOTICE OF CHANGES TO THE SYSTEM.	1
PROPOSED CHANGES TO THE SYSTEM	2
NO ABORT Option for the SECOND Command - J. J. Drummond.	2
SYSTEM MAINTENANCE	
LAST WEEK'S SYSTEMS GROUP MEETING - T. W. Lanzatella.	3
DAYFILE MESSAGE ANALYSIS - A. B. Mickel	3
CALLPRG AND LIBRARY TAPE NEWS	4
CYBER 74 DUMP ANALYSIS - K. C. Matthews	5
6400 DUMP ANALYSIS - R. A. Williams	6

NOTICE OF CHANGES TO THE SYSTEM

Marisa Riviere corrected some documentation problems in MODIFY and COPYC.

Tim Hoffmann repaired a bug in CATLIST which was not alphabetizing the brief list if an alternate user number was requested on the CATLIST command.

Tim Salo added sites 2R and 4L to SUPIO. Tim also repaired a bug in program PDP which is used to load the PDP-11's. If a short program (1 buffer full) was loaded, LOADPDP would mistakenly detect VERIFY errors.

We recently discovered that despite the fact that the file name P9 is documented in the KRONOS manual as an abbreviation for the file name PUNCH9, P9 is never released to the punch queue. Brian Hanson discovered that CDC simply forgot to include the file name in a table of special file names in 1CJ. Brian also modified SET to recognize a CMRDECK entry with a period in column one as a comment directive.

Bill Wells modified BIN, ACCFAM and CHARGE to support the NOTICE/NOTIFY installation taking place with this tape. Program BIN was changed to no longer output SYSNOTES. Programs CHARGE and ACCFAM were modified to call NOTICE.

Jim Mundstock made a significant improvement to CALLPRG security. Program CALLPRG now disables its SSJ privileges after setting up for tape resident files. This action avoids the necessity of maintaining a list of special file names assembled into CALLPRG. Another benefit of this change is that the command WRITEUP(CALLPRG) will work again. Jim also changed CALLPRG to output a message to the waiting user if a file must be obtained with XMIT. Additionally, several unnecessary WRITERS were removed thus speeding up CALLPRG response time to timesharing users when a program cannot be found in the index.

Jeff Drummond repaired a bug in QFM function 40 (submit file to input queue). If the submitted file had a bad job card, QFM would hang. This bug was aggravated by the recent installation of the SUBMIT S option (submit system origin job).

Tom Lanzatella repaired a problem in the PRINT control card which would occasionally mode out (mode 1). The problem was caused because PRINT erroneously assumed a string buffer to be zero filled. Tom also fixed COMCSNP to correctly check for a TELEX origin call.

Bob Zalusky installed the following modifications.

1. Bob installed the DIAL,ALL DSD command (see DSN 2, 17 p. 4 and DSN 2, 18 p. 7).
2. The DSD command MESSAGE. now causes the system name specified in the CMRDECK to be restored to the TELEX message buffer (see DSN 2, 17 p. 5 and DSN 2, 18 p. 7).
3. Program ACCFAM was modified as that XMIT jobs from the 6400 require CXMT in the access word. This repairs a slight disparity in that previously it was not permissible to XMIT output files without having CXMT (see DSN 2, 20 p. 7).
4. Bob installed Steve Nachtsheim's proposed access word bit which validates "being ACCOUNTed to." A user must have this bit set in the access word in order to be accounted to (see DSN 2, 20 p. 5 and DSN 2, 21 p. 5). The bit is named CAC2.

Bill Elliott supplied the following assortment of changes.

1. Several bugs in EXAMINE processing of 9-track tapes were fixed. Tape formats are correctly detected and data salvage should work.
2. Bill added a LO parameter to EXPLIB which selects the sort order when OP=V is specified.
3. MAGNET now processes EOT conditions properly when no EOVS label is present.
4. Several code conversion problems in LMT were repaired.
5. Program LMT now correctly disables 9-track controlware noise recovery.
6. Bill repaired a problem in CPUMTR which refused to schedule RESEX when processing a EOT condition. This is the bug which caused all the turmoil when the last system was installed.

Kevin Matthews installed a new UFM function which allows the PMS table in low core to be altered without manually entering the changes from the console (see DSN 2, 19 p. 6 and DSN 2, 20 p. 6). Kevin also reinstalled the SID option in SET using a different location in the system control point area to store the SYSPROC suffix. The previous installation unfortunately used a location which was also used to store LIBDECK number (undocumented of course).

PROPOSED CHANGES TO THE SYSTEM

A NO ABORT Option for the SECOND Command - by J. J. Drummond

I propose the addition of a *NA* (No Abort) parameter to the SECOND control card. The effect would be that if the parameter was specified, UFM would not abort the program if there was no primary file.

The need arises when a user has a procedure file that contains multiple records. If the procedure file is a primary file when it is called it becomes difficult to access any record except the first because the file is rewound between each job step. The SECOND control card resolves this problem, but introduces another since it aborts if no primary file is found. This, in turn, forces the use of constructs like:

\$IF(FILE(name,PT))\$SECOND.

A more reasonable alternative, it would seem, would be to allow a *NA* type parameter on the SECOND control card.

Other control cards also use a NA type parameter so there would seem to be sufficient precedence.

SYSTEM MAINTENANCE: People and Procedures

Last Weeks Systems Group Meeting - by T. W. Lanzatella

1. Kevin Matthews discussed a study he performed on the size distribution of direct access permanent files. The discussion resulted in the following limits to be used in conjunction with Kevin's proposal to enforce direct access file size limits (see DSN 2, 20 p. 3).

<u>INDEX</u>	<u>SIZE LIMIT</u> (KPRUs)
0	.5
1	1
2	2
3	5
4	10
5	20
6	50
7	INFINITE

2. N. L. Reddy announced that testing of the new timesharing front end will proceed this week during system time. Staff members should refer to the memo and questionnaire distributed by N. L. Reddy (dated 15 November).
3. The following proposals were accepted or rejected:
 - a) D. LaLiberte's WRITEUP proposal (see DSN 2, 21 p. 2) was accepted with the following stipulations. WRITEUP file line widths will be 70 columns for timesharing writeups and 132 columns for line printer writeups. Brian Hanson will write an interactive PASCAL program for maintaining the WRITEUP index.
 - b) Brian Hanson's proposal for execute only file security was rejected as non-upward compatible.

//////////

Dayfile Statistics - by T. W. Lanzatella and A. B. Mickel

On Tuesday, 23 November, Bob Williams, Andy Mickel, Quentin Roggenbuck and Tom Lanzatella met to discuss the current state of affairs surrounding control card usage statistics gathering from the account dayfile. Andy identified three areas

where statistics gathering and statistical data are deficient.

1. The ZLSY message output by LAJ to identify a system load is frequently repeated several times in the account dayfile rendering system load data inaccurate.
2. CALLPRG outputs a ZLCP message for all control statements it processes - including illegal ones.
3. We have no local file load statistics.

Regarding point 1 above, Bob surmised that LAJ is probably reissuing the ZLSY message each time the job which entered the control statement is rolled in. This is probably hard to fix. We will look into it.

Regarding point 2 the solution is clear. CALLPRG should be changed so as not to issue the ZLCP message if the requested program is not found. We will ask EJM about this.

Regarding the lack of local file load statistics, all that is desired are ABS and 0,0 overlay loads; no higher order overlays. We discussed modifying both LDR= and Cyber loader to issue something like a ZLLO message for these loads. This would obviate the need for all ZLCP messages except for FUTURE, FETCH and PAST.

A point of concern was raised for increased size of the account dayfile in counting all those local file loads; after all there are presumably a lot of LGOs. We decided to count the ZL messages for a given period and examine the SYSTEM DAYFILE for all control statement calls in the same period as an experiment to see what the difference was.

So, later that day QR and ABM performed the experiment. For the period October 19, 20, 21 (Friday, Saturday and Sunday), 1976 the number of ZL messages (including extraneous repeated ZLSY messages, illegal control statement generated ZLCP messages, but not including the missing local file loads) was 72867.

The count of overlay loads not including higher order overlays (non 0,0) from the system dayfile was 74099. The number of LGOs in that total was only 1145. This showed that the amount of work done by the statics program will not be of a different order of magnitude. By implementing the correct changes to the loaders and eliminating the invalid control statement messages, less work would probably be done by the statistics program while at the same time ascertaining statistics of much greater (not perfect) accuracy.

Subsequent discussion was held to determine what 6400 statistics are useful to the Cyber and what use the accurate Cyber control statement statistics would be to the 6400. This consideration need not wait for the joint accounting system because the methods of gathering the data are in question, not of processing them. More on this in a subsequent DSN article.

//////////

CALLPRG and Library Tape News - M. Riviere

On December 7, the following changes will be taking place among CALLPRG packages:

Mike Frisch will be changing the index entries for the libraries EISPACK, SIMPLX, SSP, ALMAP, FUNPACK, GPM, PLOTPAC, TECKLIB and IMSL to make them defined as user

libraries when they are retrieved by the CALLPRG program. Mike will also be changing entries for FUNPACK, PLOTPAC and UMRPG to use a new CALLPRG Library Tape. The current tape is not very reliable.

Dennis Lienke will be replacing the past Cyber version and the current 6400 version of IMSL with a new one where the FFT routines are recompiled using FTN3.

Betty Hinkley will be changing the 6400 index entry of ISIS so that this package is retrieved from the LIBRARY account number instead of from YZE6008.

H. Kurs will be modifying the index entry for S2000 in the Cyber section to reflect a change that already took place on November 21. This change is an update of S2000 to level 2.40P and was implemented in both machines.

T. Hoffman will be introducing the DTIME utility. DTIME is control card callable and its function is to print the day of the week, month, day of the month, year and time in the user's dayfile.

I will be changing several index entries for packages that were maintained by programmers that are no longer working at UCC to reflect their assignment to new owners. These packages are LOADER, MEXPLOR, MNF(FETCH), BASIC(FETCH and FUTURE), MIMIC(FETCH and FUTURE), SIMS, SIMLIB, SIMULA, SIMULIB and DMPECS.

There are no modifications scheduled to be implemented on December 7 for the Library Tape.

The next CALLPRG index and Library Tape modifications will take place on December 21. Modifications submitted up to December 9, by noon, will be implemented on December 21.

//////////

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

Friday, November 12 to Thursday, November 15

Saturday, 13 November

Four odd deadstart recoveries occurred. 09:27 (DD-11) Several PPU's were hung. PP4, which had 1SJ in the input register, was complete junk inside. PP20 (CIO) was trying to operate disk equipment 12 on channel 7, which isn't connected.

10:18 (DD-12) Another PP hung. CIO was in the input register, but the code inside was 1TA. It looks like an old copy of 1TA began executing before CIO was really assigned.

11:20 (DD-13) The scopes blanked. Several PP's were executing central read instructions. No resolution.

15:56 (DD-14) Scopes Blanked; Has not yet been examined.

Thursday, 18 November (New Deadstart Tape)

09:20 There was a CPU monitor error exit. A memory test revealed a solid hardware failure which was quickly repaired.

There were many subsequent deadstarts this day. Jobs were not advancing when reaching end of tape, and some of the problems stemmed from attempts to fix this problem.

Friday, 19 November

There was a TRT linkage error on pack STF and many PPs were hung on track requests on STF. The device had to be reloaded from the permanent file dump tapes.

The end of tape problem continued and the previous deadstart tape was finally put back into service.

The end of tape problem eventually was found to be an error in some CPU monitor mods, and was corrected over the weekend. The system ran well with the old deadstart tape.

Saturday, 20 November

ECS went down at around 10:20. There were lots of bad roll-in files left on ECS. A level 0 deadstart was performed to run the system without ECS, and another when the hardware problem was repaired.

Tuesday, 23 November

21:12 A PPU hung when there were errors on pack STF. The drive went solidly bad on Thanksgiving day. A level 3 recovery was performed.

Thursday, 25 November

02:25 (DD-10) The system hung up on some errors on the drive for pack STF (drive 4, channel 31). The drive was repaired on Friday.

//////////

6400 Dump Analysis - by R. A. Williams

<u>Date</u>	<u>Description</u>	<u>Tape</u>
761118	Scopes went blank while using 026. This was caused by an error in IDU. If the system is busy enough so IDU cannot be executed to change the hour within .1 second and DIS or 026 has the display, DSD loses track of the channel assignment as a result of jumping to an improper subroutine. Until this is corrected, DIS and 026 should not be used any time the big hand is near the 12 (i.e. on the hour).	Solved
761118	Same as above plus TELEX did not recover. This was because code has been added to TELEX to dispose its dump to the queue. A machine ID check in LFM did not allow any 6400 job to release to the queue.	Solved
761119	IT0, the TELEX I/O helper was in a PP with channel 6 assigned but not active. A check of the dump indicated a bit had been dropped in an unconditional jump, causing the PP to hang in a loop. This is clearly a hardware problem.	Solved
761122	TELEX got a program stop error by jumping to some data words. This and abnormal DPT errors continue to occur.	On Paper
761123	IT0 hung with channel 6 connected. Later this day, a PP memory stack went out, so this dump was recycled.	Recycled
761123	TELEX aborted, probably because it was running under an extreme N.A. load. ECS had gone down so the system was very slow.	

<u>Date</u>	<u>Description</u>	<u>Tape</u>
761123	1SJ hung on a drop tracks monitor request. On the deadstart attempt, the tape channel hung and PP memory was found to be bad.	Recycled
761126	The scopes went blank. Preliminary analysis indicates nothing out of the ordinary.	DDT-5

PROBLEM UPDATE:

1. The dump from 11/12 dealing with a submit using the system origin option uncovered bad code in QFM which has existed for months. The code deals with illegal job cards and never was executed in the past as it was only used by CALLPRG.
2. We continue to have rollout files assigned to equipment 'TT' at times but do not go down because of LRI code to trap it. The problem should have fairly high priority, nevertheless.