

UNIVERSITY OF MINNESOTA COMPUTER CENTER
Deadstart Systems Newsletter

12 January 1982

Vol. 8, No. 1

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

PROPOSED CHANGES TO THE SYSTEM

STAFF ON MERTISS AND CALLPRG/WRITEUP CHANGES - K. C. Matthews
SCHEDULING - A. B. Hastings
CALLPRG AND LIBRARY TAPE NEWS - M. Riviere
AUTOMATION OF TT LIBRARY MANAGEMENT - C. Boylan
CALLPRG - A. B. Hasints

Note: There is not a DSN published this week, instead the following six proposals are published and will be considered with the proposals of DSN Vol. 7, #23, at the System Group Meeting on 14 January.

PROPOSED CHANGES TO THE SYSTEM

STAFF ON MERITSS AND CALLPRG/WRITEUP CHANGES - by K. C. Matthews

The systems group is investigating making more staff ports available on the MERITSS machine. The goal is to relieve some of the congestion on the Cyber 730 system. We must be careful, however to preserve the excellent service that MERITSS has always provided its users. Staff movement to MERITSS will be voluntary (I hope). Better response time and no NAM interface are hopefully reasons people will willingly switch to MERITSS.

I hope that staff users on MERITSS will have access to as many as possible of the UCC features to which we are accustomed. It must be easy to use the CRAY, to ROUTE listings, to use CALLPRG and WRITEUP, and to submit jobs to other machines. This will probably be done as follows. Another permanent file family will be created. This family will contain staff user numbers for those who wish to use MERITSS in this fashion. To protect permanent file security, the user indexes of the staff user numbers created will be changed to some new value, higher than the index values that we use for users now. This will mean that users who want this feature will have to tell me when they want the user number created. On the day it is created, the following will happen:

- (1) The user number YZExxxx will be created on the new family.
- (2) The user index of YZExxxx will be changed to the value from (1) above.
- (3) The user number of UCCxxxx or YZExxxx on the existing MERITSS family will be changed to this common value.
- (4) The permanent files on the 3 existing machines will be dumped and reloaded to the existing machines under the new user index. This will happen for all families, and for packs SPL and SHA.

- (5) If you have permanent files on some removable pack, they will have to be dumped and reloaded from the old index to the new index. This will happen only if you tell me what removable packs to do.
- (6) Your user index on the system time systems will be changed. I don't plan to move files on the system time packs, though...

Because of all that is involved, I'll probably do this only on weekends. When it is all done, your permanent files will be on the same account number and user index on all named disk packs and on the following families:

- (1) C172
- (2) C74
- (3) UOFM (MERITSS)
- (4) The new family

The new family will be shared among all three Cyber mainframes. Using the newly enhanced FAMILY command (assuming Don Mears' proposal is approved) it should be easy to move around from family to family.

The first user numbers to be done will be CALLPRG and WRITEUP. On the MERITSS system now, these number have special user indices above 377700. User numbers with such special indices cannot be used to login or on a USER statement. This restriction increases the security of the files on these numbers, but makes the maintenance of these user numbers more difficult. Marisa Riviere has agreed to accept the extra work involved.

We will be unable to keep the CALLPRG and WRITEUP files on pack SPL, since SPL is an 885 disk and MERITSS has no controller for 885 disks. We will move the CALLPRG and WRITEUP files to a new 844 pack called LIB. This pack will be reserved for CALLPRG and WRITEUP files. The CALLPRG and WRITEUP programs as well as the index files will have to be updated to reflect the move from SPL to LIB. If anyone can think of other procedures or programs which will need changing, please let me know.

Finally, I plan to begin implementing these changes sometime during February. I'll publish an exact date in the next DSN if there are no insurmountable objections to this proposal.

//////////

SCHEDULING - by A. B. Hastings

Currently, the FL service limits on the Cybers are kept low during the day, and are raised via operator intervention at night. Unfortunately, these service limits are "soft" limits; that is, batch jobs exceeding the FL service limits will be scheduled if no other candidates are available. On the Cyber 730, this can result in thrashing, since there are often temporary lulls in activity while interactive users are receiving output or contemplating input. I would like to change the scheduling algorithm so that the FL service limits are "hard" limits; that is, a batch job exceeding the FL service limit for it's origin type will never be scheduled until the operator raises the FL service limits.

//////////

IPTEXT - by A. B. Hastings

Since many of the products now in the system are from PSR level 531, I would like to propose that the PSR 531 installation text be installed in the system. There are a few macros and symbols in the 531 IPTEXT that are not in our current IPTEXT, and that are needed for installation of 531 and later products. In addition, the IPTEXT in the system should include some local modifications:

1. Select the 63-character ASCII subset. Our current installation text selects the 64-character scientific subset.
2. Permit the loader to use ECS. Our current installation text has this modification.
3. Set the installation page size to 63 lines. Our current installation text sets the page size to 60 lines. This explains why UPDATE and SYMPL place no more than 60 lines on a page.

I would also like to propose that the 531 versions of UPDATE and ITEMIZE be placed on the system for compatibility with COMPASS.

//////////

CALLPRG AND LIBRARY TAPE NEWS - by M. Riviere

On January 19th Andy Mickel will be making extensive modifications to the Cybers 74, 730 and 172 Callprg indices. His modifications consists mainly in updating the indices to show the new UCC staff people now in charge of several of the language processors and compilers maintenance. In addition, Andy is also straightening up some entries, such as the one used to retrieve the future version of M77, in order to utilize more meaningful permanent file names on the catalog of CALLPRG than the ones currently in usage.

The next set of Callprg index and Library Tape modifications will be taking place February 2nd. Requests to be implemented at that time should be made before noon, January 21st.

As stated in Kevin Matthews article published in this issue of the DSN, the three Cybers CALLPRG and WRITEUP files will be merging in a disk pack common to all three machines. The pack name will presumably be LIB. The merging may be taking place in February. Please do start reviewing now your Callprg programs and procedures for the ones which need to be changed, and for entries which are applicable to only one or two machines due to licenses or memory restrictions. The transfer of the files to the LIB pack will be coordinated with a DSN announcement. At the time of the transfer I will resequence the Callprg Program Library, CPOPL, in order to edit it with the new pack name.

//////////

AUTOMATION OF TT LIBRARY MANAGEMENT - by C. Boylan

The Transient Tape (TT) library is for user owned tapes temporarily stored at UCC for up to two weeks (free). Operations has to manage this library almost entirely by hand; each time a transient tape is requested, stored or removed the operator has to consult a half page listing next to the console to determine or assign the tapes slot number.

Obviously this applications is a prime candidate for computerization...

Operations has requested that we provide an automated system functionally similar to the old manual one. Making it part of the EXPRESS library is impossible unfortunately, since EXPRESS cannot handle non-numeric VSN's. I propose to add a separate program called TTMGR to manage a fast-attach file that will be hashed into by RESEX to determine the TT library slot number. I intend to generalize the EXPRESS, PREVIEW and MTACCT mods to allow RESEX to display a request for a tape in the TT library as T999 in the EXP field of the E,P display. EXPRESS tape requests will be displayed as X999.

Aside from the reduction of manual intervention on the part of the operators, the only major implication of this mod is that we will not be able to support more than 1000 EXPRESS tapes. Currently the EXPRESS library contains about 125 seven-track tapes. The E,P display in DSD will also change a little bit.

The proposed changes will provide a system for TT library management exactly as requested in SMAF's 32 and 33.

//////////

THE UNIX SHELL GAME - by C. Boylan

Users interact with the UNIX system via a command interpreter called the 'shell'. The shell is responsible for picking apart the input and finding the appropriate commands to execute. It does this by searching a predetermined (user changable) path of directories until it locates the command or runs out of places to look. The current default search path is:

| | |
|----------|---|
| . | Current directory (anywhere). |
| /bin | Utilities. Mostly for file care. |
| /usr/bin | Less frequently used utilities. |
| /usr/ucb | U of California at Berkeley developed programs. |

I propose to add the directory /usr/local to this default search path to both shells (/bin/csh /bin/sh). Since the shell reads the contents of all these directories once, and stores the file names found in an internal hash table, there is negligible overhead in adding another search directory.

The shell documentation is deliberately vague on the names of the directories in the search path so it will not be necessary to change the documentation.

//////////

Several months ago, there was a discussion topic in the DSN entitled "MECC CALLPRG vs. UCC CALLPRG" (DSN 7,12 pp. 95-96). The next DSN summarized this discussion: "...MECC's version of CALLPRG should become the standard. To accommodate tape-resident packages, the MECC CALLPRG would simply call another program" (DSN 7,14 p. 94). Since then, I have re-written the MECC CALLPRG program to include some of the additional features available in UCC CALLPRG. In this proposal, I refer to the current UCC CALLPRG as "old CALLPRG," and my re-written version as "new CALLPRG." I have summarized below the parameter differences between old CALLPRG and new CALLPRG.

Name Old New Description

A* * Access word validation required.
 This parameter may be used to specify a particular access word bit that must be set in order to access the given package through CALLPRG. (Note, however, that inclusion of this parameter does not prevent access to the particular package outside of CALLPRG.) For example, an entry such as

WPL,P=FBIEM,A=CSYS, ... ,P=MPL/MPL985.

would allow staff members access to the system PL via FBIEM/WPL; yet this entry is invisible to users. This parameter could also be used for procedures and programs that are used only from the console. Since console-initiated jobs have all access word permissions, an access word bit such as CSYS could be defined and specified in all system procedure CALLPRG entries. This eliminates the need to keep such procedures on the system, and prevents users from inadvertently calling such procedures. (A notable example is the K procedure about which several users have complained to me.)

CC * * Argument cracking.
 The default value for old CALLPRG is SC (product set argument cracking); new CALLPRG defaults to KR (NOS format argument cracking) since this is the default for system programs. Since NOS does not support SCOPE 3.2 (OS) argument cracking, neither does new CALLPRG.

D * Magnetic tape density.
 New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.

DA * Direct access files to acquire.
 Since CALLPRG acquires permanent files, there is no need to distinguish between direct access and indirect access files in the CALLPRG index. The P4 parameter is used to specify permanent files.

- DR * Drop files after execution.
This is one of three flags associated with each permanent file CALLPRG is to obtain. If DR=ON is specified for a file, CALLPRG will set UPID (user privacy ID) on that file. This will cause the file to be unloaded by IAJ at the beginning of the next job step. Thus, files acquired by CALLPRG will not count against the user's local file limit after they have been executed.
- EX * * File to execute.
If no EX parameter is specified, old CALLPRG assumes the call name is the name of the file to be executed. This makes it very difficult to indicate that no file is to be executed. New CALLPRG assumes that the file to be executed is the last permanent file acquired. Thus, if no permanent files are acquired, nothing will be executed. This is useful for entries which only issue a message.
- F * Magnetic tape format.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- FA * Magnetic tape file accessibility.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- FC * Magnetic tape frame count.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- FI * Magnetic tape file identification.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- FL * Field length at which to load binary.
Now CALLPRG calls the loader, rather than LDR, to load binaries. Thus, all features supported by the loader are available to CALLPRG. Packages will be loaded identically whether they are current, FETCH, FUTURE, or PAST. Several potential security problems are eliminated by this approach. Since the field length is determined by the loader, all field length parameters in the CALLPRG index are obsolete.
- IA * Indirect access files to acquire.
Since CALLPRG acquires permanent files, there is no need to distinguish between direct access and indirect access files in the CALLPRG index. The PM parameter is used to specify permanent files.

- ID * magnetic tape identification.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- LB * magnetic tape label type.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- LD * Do not acquire files if already local.
This is another of three flags associated with each permanent file CALLPRG is to obtain. If LD=ON is specified for a file, CALLPRG will not acquire the file if it is already local.
- LA * * Permanent file access mode.
Since most CALLPRG accesses are to execute files, the default value in new CALLPRG is E (execute), rather than R (read). This parameter applies only to direct access files.
- LF * minimum field length at which to load binary.
See the description under the FL parameter.
- LI * * Machine id.
New CALLPRG allows the LI parameter on an OPTION* directive. Old CALLPRG does not allow the LI parameter on a DEFAULT directive.
- LS * * Message to issue.
Old CALLPRG allows messages of up to 3 words; new CALLPRG allows messages of up to 9 words. New CALLPRG always sends messages to the dayfile; messages are also sent to the terminal if the OUTPUT file is assigned to a terminal.
- LT * Magnetic tape VSN and file list.
New CALLPRG does not support tape-resident packages. Such packages are to be handled by another program.
- ND * Nodrop files after acquiring.
This is one of three flags associated with each permanent file CALLPRG is to obtain. If ND=ON is specified for a file, CALLPRG will nodrop it after acquiring it. It is illegal to select both DR=ON and ND=ON for the same file.
- NI * Ignore FL from loader tables.
See the description under the FL parameter. This parameter is used three times in the system CALLPRG index.

- SR * * Set no-reload flag.
 See the description under the FL parameter. This
 parameter is not in use in the system CALLPRG
 index.
- NS * * Magnetic tape noise size.
 New CALLPRG does not support tape-resident pack-
 ages. This parameter is not in use in the system
 CALLPRG index.
- NX * * No XMIT to other machine.
 New CALLPRG does not support intermachine trans-
 fers. Neither does old CALLPRG. This parameter is
 used once in the system CALLPRG index.
- PF * * Procedure file to execute.
 New CALLPRG acquires the procedure file so that it
 is not necessary to specify both PM and PF.
- PM * * Permanent files to acquire.
 This parameter takes the place of the IA and DA
 parameters.
- PN * * Permanent file pack name.
 There are no differences in how this parameter is
 supposed to behave.
- PO * * Magnetic tape processing options.
 New CALLPRG does not support tape-resident pack-
 ages. This parameter is not in use in the system
 CALLPRG index.
- PR * * Name of procedure to execute.
 New CALLPRG supports the multiple-procedure capa-
 bility of CCL. Several procedures may reside in
 one procedure file. Old CALLPRG allows only one
 procedure per procedure file.
- PT * * Procedure type.
 Old CALLPRG supports both KCL and CCL procedures.
 Since CDC is dropping support for KCL, new CALLPRG
 does not support KCL procedures. (KCL procedures
 may still be called by using the RS parameter,
 however.) There are only two procedures (KCL) in
 the system CALLPRG index.
- PN * * Permanent file password.
 There are no differences in how this parameter is
 supposed to behave.
- R * * Permanent file removable pack type.
 There are no differences in how this parameter is
 supposed to behave.

- RL * Use relocatable loader.
 Since new CALLPRG always uses the loader, this parameter is not necessary.
- RD * Name of random overlay file.
 New CALLPRG does not support random overlay files. This parameter is not in use in the system CALLPRG index.
- RS * Replacement string for call name.
 This parameter is used to specify a string to replace the call name on the control statement. For example, "D" may be defined as an abbreviation for "DAYFILE" via the entry:
- D,RS=DAYFILE.
- Limited KCL support may be provided as indicated in this example:
- S2KIND,PM=S2KIND,RS=\$\$\$CALL,S2KIND\$.
- SW * Name of next directive file to search.
 New CALLPRG does not support multiple directive files. Some of the features provided by this capability are available via the global match character for package names.
- TF * Name of permanent file by which to access tape file.
 New CALLPRG does not support tape-resident packages. Such packages are to be handled by another program.
- TT * Magnetic tape track type.
 New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.
- TY * * Type qualifier.
 Old CALLPRG allows any value to be specified; values of DO, FETCH, FUTURE, and PAST have special significance. New CALLPRG allows only FETCH, FUTURE, and PAST to be specified. Since new CALLPRG does not support KCL procedures, DO is not available. (There is only one DO entry in the system CALLPRG index and the file is not accessible.)
- UL * * Libraries to enter in global library set.
 There are no differences in how this parameter is supposed to behave.

UN * * Permanent file user number.
There are no differences in how this parameter is supposed to behave.

V * * Version qualifier.
Old CALLPRG allows multiple versions to be specified in one entry; e.g.

THING,TY=FETCH,V=APPLE+ORANGE+GRAPE..

All of the version names the user specifies must match the version names in the CALLPRG entry; so for the example above, the user must specify:

FETCH,THING/V=APPLE+ORANGE+GRAPE.

New CALLPRG allows only one version to be specified per entry. This multiple-version per entry feature is not in use in the system CALLPRG index.

VR * Magnetic tape VSN.
New CALLPRG does not support tape-resident packages. This parameter is not in use in the system CALLPRG index.

XM * X-MIT file from other machine.
New CALLPRG does not support intermachine transfers. Neither does old CALLPRG. This parameter is not in use in the system CALLPRG index.

Additional considerations

- 1) New CALLPRG has a different search order from old CALLPRG. Old CALLPRG searches the user's index file if the file CALLPRG is local. Next, it scans the system index file. If any packages are not found at this point, it issues a NOT IN SYSTEM message. New CALLPRG reverses this order, and does not search the user's index automatically. First, IAJ will search the system CALLPRG directory. If the requested control statement is not found there, IAJ will issue an ILLEGAL CONTROL CARD message unless user CALLPRG is turned on. If user CALLPRG is turned on, IAJ will load CALLPRG to search the user's index file. The user's index file must be the first record in PROCFIL; CALLPRG will acquire PROCFIL from the user's family device if it is not local. If the first record of PROCFIL is not a CALLPRG index, CALLPRG will turn off the user CALLPRG option. The user CALLPRG option may be turned on or off by the user at any time during the job via the USERPRG control statement. The initial setting of the user CALLPRG option is determined by the user's VALIDUZ entry (much as the initial setting of BRIEF mode or ASCII/NORMAL character set is determined for interactive users).

CALLPRG -, by A. B. Hastings.

- 2) The directive for setting default option values is OPTION*, rather than DEFAULT. This allows use of DEFAULT as a package name.
- 3) New CALLPRG permits asterisks in package names to match any character. Thus, *CALLPRG entry of

```
WPL****,TY=FETCH,...
```

will match FETCH,WPL and FETCH,WPL435. The main use of this feature will probably be the "*****" entry which will match anything. This allows the user to trap control statements that do not exist in the CALLPRG index and process them himself, rather than having CALLPRG abort with a NOT IN SYSTEM message.

- 4) Since new CALLPRG requires that the user CALLPRG index reside as the first record of PROCFIL, this is a good opportunity to correct NOTICE/NOTIFY to use CCL procedures (as MECC has done). Otherwise, NOTICE users who have a login procedure as the first record of their PROCFIL will be unable to use CALLPRG. With proper CCL support in NOTICE/NOTIFY, a procedure in PROCFIL that is not the first record may be selected as the login procedure.

Specific proposals

To provide an orderly transition to this new CALLPRG program, I would like to implement it in several steps.

- 1) Install the 24 parameter now in old CALLPRG and begin converting system CALLPRG entries to use this parameter rather than IA and DA. Correct packages that do not load at the correct field length when loaded by the loader. Design a new method for handling tape-resident packages (perhaps a removable pack).
- 2) Change NOTICE/NOTIFY to use CCL procedures during quarter break.
- 3) Install the new CALLPRG program, its directory generator CALLGEN, and a system modset to LAJ and other programs to provide the USERPRG validation and the PP directory search. This change should take place with the R5 conversion or at the end of spring quarter, whichever comes first.