

UNIVERSITY OF MINNESOTA COMPUTER CENTER  
Deadstart Systems Newsletter

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NOTICE OF CHANGES TO THE SYSTEM

Andy Hastings installed a new form of DSD command, N=name. The command allows a program, name, to be brought up to the explicitly stated control point, n (see DSN 7,22 p. 132).

Chris Boylan changed MAGNET error exit processing so that dumps are routed to his bin. Chris also fixed EXAMINE so that the file count in salvage mode works as documented.

Marshall Midden changed the TIELINE program, TLF, to include an SSJ= entry point. Marshall also fixed QXEROX to properly process lines ending in zero bytes.

Steve Siirila repaired /USER directive processing in SUBMIT so that a family name can be included as one of the parameters. Steve also fixed minor errors in UNPAGE.

PROPOSED CHANGES TO THE SYSTEM

A ROSE BY ANY OTHER NAME - by L. Liddiard

Now that emotions have cooled and UCC has been running the following systems with illogical names, there comes a time in the affairs of UCC when naming conventions could be brought up one more time.

| Current State       | Actual Machine         | UCC ID | Proposed ID |
|---------------------|------------------------|--------|-------------|
| Instructional T.S.  | Dual CYBER 172         | 64     | ME          |
| Little Batch        | CYBER 74               | 74     | CB          |
| Research Other T.S. | Dual CYBER 170-730     | 72     | CA          |
| Big Batch           | CRAY-1B                | CR     | CR          |
| Virtual VMS Machine | VAX-11/780, Sheppard   | ?      | VA          |
| Unix Machine        | VAX-11/780, Lauderdale | ?      | UA          |

These names (2 letter ID's) would be announced and used as of a specific date, but the previous numbers (ids) would be carried along for at least a year and a half for 64 and 72 to allow currently running jobs to continue in that state. Note the ID 74 has a life of a half year only, due to its eminent disappearance on July 1, 1982 under either that or the CB id guise.

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CONVERT CYBER A9 FILES FOR CRAY - by M. M. Midden

My Understanding is that the CRAY STATION can do A6 or A9 translation, but not both.

Problems: 1) ASCII (6/12) characters are transmitted to the CRAY as normal (6 bit) CYBER characters. In other words, the 74b and the 76b escape (uncover) codes are transmitted as "@" and "^". As an example, it is very difficult to use any CRAY fortran subroutine that has a percent sign (%) in its name. 2) Lower case letters coming from the CRAY are converted to upper case. For example, the percent sign (%) can not be sent from the CRAY to the CYBER.

I propose two commands on the CRAY:

A6TOA9,I=AAA,O=BBB. Default AAA and BBB = \$IN.  
Copy data set \$IN to a temporary dataset (\$SCR), rewind \$SCR,  
get rid of \$IN, create a new \$IN, copy and translate back to \$IN,  
rewind \$IN.  
(If AAA is not equal to BBB, the copy to \$SCR is not done.)

A9TOA6,I=CCC,O=DDD. Default CCC and DDD = \$OUT.  
Rewind \$OUT, copy \$OUT to a temporary dataset (\$SCR),  
rewind \$SCR, copy and translate back to \$OUT.  
(If CCC is not equal to DDD, the copy to \$SCR is not done.)

Then a typical CYBER ASCII (6/12) job to the CRAY would be:

```
/JOB
/NOSEQ
JOB,T=8
/ACCOUNT
A6TOA9.
CFT.
LDR.
A9TOA6.
EXIT.
A9TOA6.
/EOR
...Fortran program with CYBER ASCII (6/12) characters.
/EOR
...Data for fortran program, also in CYBER ASCII (6/12).
```

NOTE: These commands copy to end of dataset.

One problem this proposal does not handle is the Job Control Stream. Specifically if the Job Control Statements are typed in ASCII (6/12) on the CYBER, the continuation character " " is 7402b, not 76b. The CRAY would not like the "@B". The solution to this problem is to tell our users that they should type CRAY Control Cards in normal mode on the Cyber before they submit to the CRAY.

This proposal allows the user to control use of ASCII (6/12) everywhere but the Job Control Statements.

//////////

FAMILY - by D. W. Mears

Currently the FAMILY control card can only be used by system origin jobs. I want to change FAMILY so it can be used by all users. For security reasons, users will only be able to do a FAMILY if their current user number, user index and password match their user number, user index and password on the new family. This will allow Help Line to switch families easily without having to tie up 2 phone lines. This will become more important if and when the Help Line terminal gets connected up at higher line speeds and connected up to other computers (VAX's and CRAY's).

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NAMIAF - by D. W. Mears

I want to add a new terminal type to 1TN mux ports. This terminal type, NAMSIM, would simulate the most annoying aspects of the NAM/CCP interface to IAF.

- 1) Line delete is CTRL-X (CR)
- 2) Interrupt is CTRL-P (CR)
- 3) Terminate is CTRL-T (CR)
- 4) Exit text mode is CTRL-C (CR)
- 5) BREAK suspends output and does nothing else.
- 6) ESCAPE does not delete the current line.

This new terminal type will simplify life on the Help Line where we are constantly switching between NAM on the 730/74 and mux ports on MERITTS.

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X-ON /X-OFF REVISITED - by D. W. Mears

As more micro computers, minicomputers, and intelligent terminals talk to us with asyne connections, it becomes increasingly important for us to X-ON and X-OFF in a standard and correct way. The way X-ON and X-OFF work on most systems is: when the terminal sends X-OFF characters output is suspended and when the terminal sends X-ON characters, output is resumed.

We have three problems with the way X-ON/X-OFF are handled now.

- 1) To avoid problems with paper tape systems which use X-OFF to stop the paper tape reader, lTN ignores X-OFF when no output is going on, and the PDP11 front end ignores X-OFF if it is not the first character of the input line. I propose to honor X-OFF at all times except when the user is in TAPE mode or then the user is doing binary input.
- 2) After an X-OFF we allow any character to restart output. This allows a user to use the same key to both start and stop output. Unfortunately, some terminals and mini systems put out many X-OFF's in an attempt to stop output. I propose to change lTN and the PDP11 to resume output only after an X-ON is received.
- 3) NAM/CCP does not honor X-ON/X-OFF. There is a QSS available for CCP which will provide X-ON/X-OFF support, also CDC has promised to provide X-ON/X-OFF support as a standard part of the system some time in the future. We should either try to get the QSS for X-ON/X-OFF or try to do the code ourselves.

SYSTEM MAINTENANCE: People and Procedures

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

The following proposals were discussed.

- 1) Rick Marcus' proposal to install the ASCII version of PASCAL, called PASCII, as a Fetch type product was approved. Andy agreed after some discussion to try and produce a minimal document describing the package.
- 2) Andy Hastings' proposal to install a new DSD command, N=name, was approved. Andy will produce some documentation for the ops bulletin.

The R5 upgrade was resurrected as a project. We decided that the project should be complete by the end of second summer session in 1982. TWL will be the project leader. The product set will be handled by SS, MR BEB and SFS. Mod conversion will be handled by DWM, WCW, ABH, MMM, CB, PMT and KCM. One concern is the availability of manuals.

We anticipate that manuals will be available for about 9 months. We decided to reevaluate the manual availability question at the time of the upgrade.

The sorry state of PL/1 was brought up. The compiler is being used by a Csci course with disparaging results. Sometimes the compiler modes out or produces compass which doesn't assemble. Andy pointed out that the writeup needed work. We didn't decide on any change in status for PL/1 except that Andy would formally take it over from TWL.

TWL announced that the Cyber Interactive Debug materials arrived from CDC. The CID project was established wherein coordination, support and consulting duties were delegated. TWL will be project leader and will take care of publicity. Marisa will handle installation. Mike Frish, Steve Reisman, Dave Bianchi and Dan Germann will learn the package well enough to field consulting questions.

Kevin Matthews brought up the problem of staff coverage of Saturday system time. He suggested three alternatives:

- 1) Ideally, an operator or a security guard would be present in the building during Saturday evening.
- 2) Some member of the system group would permanently take responsibility for the time.
- 3) Least acceptable, rotate responsibility for the time among system staff members.

Unfortunately we opted for 3 at least temporarily. The security guard is out. Operations coverage depends on our plans for 24 hour service and no system staff member wants to take responsibility for the time permanently.

Kevin requested that anyone who deadstarts the machines during system time should always perform a checkpoint before doing so. This would help to eliminate some queue file errors that have been showing up.

Finally, Kevin brought up the Cray. He lamented the fact that people were engaged in projects involving the Cray and not telling anyone. Bill Sackett was designated as the Cray project leader. Anyone who is doing anything with the Cray should tell Bill about it. He will then write a DSN article.

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CALLPRG AND LIBRARY TAPE NEWS - by M. Riviere

On December 29, the Library Tape on the Cybers 74, 730 and 172 will be updated with several end-of-the quarter scheduled modifications.

Michael Frisch will be changing the ALMPA, BSPLINE, IMSL and MINNLIB application libraries and the I/O libraries associated with the FTN, FTN5, M77 and MNF compilers.

Tony Gerber will be updating M77 and its libraries MSUIO and M77LIB with their future versions. According to Tony, this change is not major and therefore the past version of M77 will remain unchanged.

Bill Sackett will replace BASIC and BASLIB with the products which are now available as future Callprg packages.

The next set of Callprg index and Library Tape modifications will be taking place on January 19th. Requests for changes at that time should be made no later than January 7 by noon.

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THE PROJECT ORIENTED SYSTEM GROUP - by T. W. Lanzatella

In keeping with the spirit of the recent reorganization of UCC, I would like to present a series of articles which illustrate how we are organized in the systems group. Be forewarned that this is not matrix management. This is merely a tabulation of current projects and obligations for each of the system group members. The chart is handy because it tells how busy each person is and it tells how much manpower each project is using.

This week we highlight Don Mears' communications group.

|                                | DWM | MMM | TEK | WCW | ABH |
|--------------------------------|-----|-----|-----|-----|-----|
| NAM/CCP Development and Maint. |     | 10% | -5% |     |     |
| TIELINE Installation           |     | 75% |     |     |     |
| Cray Support                   |     | 5%  | 90% |     |     |
| SUPIO Maintenance              |     |     | 5%  |     |     |
| XEROX                          |     | 1%  |     |     |     |
| Cyber Queues                   | 5%  | 1%  |     |     |     |
| BATCHIO                        | 2%  |     |     |     |     |
| R5 BATCHIO                     | 2%  |     |     |     |     |
| IAF Maintenance and Bugs       |     |     |     |     | 40% |
| UNIX Front-end                 | 25% |     |     |     |     |
| Time Sharing Administration    | 10% |     |     |     |     |
| Repair X-OFF in FE             | 5%  |     |     |     |     |
| RJE Station Development        |     |     |     | 5%  |     |
| Import                         |     |     |     | 20% |     |
| Install New RJE Software       |     |     |     | 5%  |     |
| Cyber/UNIX NSC Link            |     |     |     | 65% |     |
| Management                     | 30% |     |     |     |     |
| Help Line                      | 10% |     |     | 5%  |     |
| Consulting                     |     | 5%  |     |     |     |

NAM/CCP Development and Maintenance consists mostly of learning how to install the package. Other activities include maintaining a Network Description File. This is a text file which tells the network products what kind of terminals are connected to each 2550 ports; Marshall is principally involved currently, Tom will take a larger role once the Cray support settles down.

TIELINE installation proceeds on schedule. Although there still seems to be bugs in some of the local code written to support TIELINE, these should be worked out by the end of the year.

Ironically, Tom Kovarik, a member of Don Mears group is a critical member of the support team for the Cray. Tom is the person who teaches all short courses on the Cray.

SUPIO maintenance is an ongoing effort which has evolved into a small effort.

QXEROX is a finished product which gets only an occasional bug fixed.

Cyber queues refers to the day-to-day maintenance and understanding of queue files on the Cyber. Queue files must sometime be purged or moved.

BATCHIO is an area of the system which we have changed quite a bit. Operations has many usability enhancements installed into BATCHIO including the BATCHIO Decwriter.

R5 BATCHIO refers to a project to back stitch the R5 version of BATCHIO into the R4 system.

IAF Maintenance and bugs refers to the continuous effort of fixing bugs and installing features into IAF. Andy Hastings is now the principal worker in this area.

The UNIX front-end is a project to make the TELEX timesharing front-end (PDP-11) talk to both IAF and UNIX. This project will save a considerable amount of money in front-end hardware for the UNIX VAX.

Time sharing administration is the task of making decisions about the capacity of the timesharing system. This includes worrying about cables and phone lines.

Repair X-OFF on the IAF PDP-11 is a small project to fix the way X-OFF and X-ON work.

RJE station development is a project begun long ago by A. G. Nelson. The goal, which has been met, is to fabricate our own RJE stations out of PDP-11, card reader, line printer and CRT. The project has evolved into a maintenance effort.

IMPORT is the locally developed package which runs on the high-speed stations. The package is done except for a few stubborn bugs.



Install new RJE software is a project to remove all versions of the DDCMP RJE software from the field and replace it with the AGN RJE software. Several sites are still running the old DDCMP software.

The Cyber/UNIX NSC link project is an effort to connect the UNIX VAX to the Cyber mainframes using Network Systems corporation adaptors. NSC is working on the Cyber side of the link. NSC is also working on the VMS side of the link.

Management refers to Don Mears' efforts to keep all of these projects straight.

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CRAY NOTES AND PROJECTS - by W. T. Sackett

We are currently running COS 1.10 Bugfix level 1. We have the Bugfix 2 tape from Cray and should, barring any unexpected problems, have that level running by January 15. We also have a set of mods from ECMWF (a Cray site in Great Britian), the most critical of which are already installed (a field length problem with the loader and an SBU calculation problem).

Susan Steffen has the CFT Bugfix 5 tape and has successfully assembled the level 5 version. It is currently being tested before placing it on the system. She also has some random I/O routines (openms, readms, writems) that will be installed in the near future. We have also made one correction to \$ftlib to allow print \* to work. D. Ellis of Cray has given us a tape with a number of software packages (some of which will sound familiar since they originated at the U of M). Among the programs are a version of Pascal from LASL, a Dartmouth BASIC, a Lawrence Livermore Lisp, a Pascal from LASL, a Dartmouth BASIC, a Lawrence Livermore Lisp, a Pascal written version of APL, ROFF, PROSE, TIDY, SPRUCE, and a Pascal COMPARE. Susan, Jim Miner, Dave Bianchi, and Dan Germann are working on getting these up on the Cray.

We should be getting a Christmas present from Cray of the header field for the station so that we can take the routing information out of the us parameter where it currently resides and begin processing the us and jn fields on the job statement correctly. Jeff Woolsey has fixed the transparent mode DISPOSE problem and has the station in as good a shape as possible without the header mods available to him. There are a few bugs fixed in COS regarding the station that we will be putting in along with bugfix 2 that should clear up the few remaining known problems with file transfers.

Mike Frisch's group has converted GRG2, YSMPLIB and the IMSL library for the Cray. They are working on MINNLIB and MINPACK. Their future plans include conversion of BESPAC, BSPLINE, EPISODE, FUNPACK, and the EISPACK and LINPACK routines that are not currently on Cray's SCILIB. Also planned are DAREP, FORSIM, MPOS, NSAP, and SSAP. Priorities for conversion depend in part on user requests and on anticipated usage. Cray is supposed to announce soon a package of application routines which they have gathered



together from their various sites and are making available to the rest. Included are SPICE and some improved Fast Fourier Transform routines.

There are currently no conversion efforts being made on the graphics packages, the VAX/VMS project is being completed first but, as much of our graphics routines are FORTRAN based, Cray conversion should not take too long. Gordon Miller, our Cray analyst, is procuring some software from Great Britian which will allow us to use our Calcomp printer that is attached to the Eclipse as a plotter but it is such an aggravating piece of equipment that there probably will be little if any production use of it.

The languages and libraries task force last March projected that SPSS would be available on the Cray in March of 1982.

The CRAY and SERVICE=CRAY WRITEUPS are ready to be turned over to the documentation group for maintenance. These writeups are the result of many hours of Tom Lanzatella's effort. The SERVICE writeup seems to be an appropriate place to list available software for the Cray and (if this is agreed upon) the above information should be placed there along with updates from staff as they finish conversions.

Marshall Midden has finished an a6 to a9 routine on the Cray that is being described elsewhere in this newsletter.

Tom Kovarik has taught an introductory Cray short course and has given promotional presentations about the Cray. Classes are also planned for Winter and Spring quarters. Tom spends much time consulting with Cray users, and has been maintaining the Cray writeups mentioned earlier.

John Larson is also working on understanding the Cray. He and Tom Kovarik have developed procedures which inform the Cyber operators if the Cray is down. John is also available for Cray telephone consulting.

Kevin Matthews has made a number of accounting and security modifications to COS which include having AUDIT list only those datasets which were saved by the account which is doing the AUDIT.

Bill Sackett is the project leader for the Cray service within the systems group. He created the operational procedures needed for the Cray. These Data General procedures allow deadstarts and accounting to be done easily. Bill has documented how to do things for the systems and operations groups. Bill usually gets and installs the latest code and bug fixes from Cray. He is usually the person most aware of who is doing what on the Cray. If a new project is started on the Cray, Bill should be informed so that we know who is doing what. If we have neglected to mention any ongoing projects here, please let us know.

The only datasets that are being backed up with PDSDUMP currently are the accounting data files. We have been selected as the test site for Cray's new PDSDUMP by device mods which we should have working soon. A routine that cleans the disk of all but a small list of files is being looked at and operations procedures are being developed to give us as much Cray up-time as we can get. Now if we can only get people to use it.

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UNIX SERVICE AND MAINTENANCE - by C. Boylan

Production UNIX service is scheduled to begin February 1, 1982. Initially we will have 24 autobaud dialup ports on the machine. We later expect to interface to the MERITSS front-end, which will allow us to talk to 64 ports in timesharing labs and some ports on the dial up rotaries. We have no way of printing at remote sites yet, but we plan to connect to the Cyber systems using Network System Adaptors. This will allow UNIX users to route files to any batch terminal site and do file transfers between their UNIX and Cyber accounts. We hope this will be working by spring quarter.

The UNIX system and it's associated software packages will be maintained similarly to the way Cyber software is maintained. We will use a package from PWB/UNIX called Source Code Control System (SCCS) which is an excellent system of programs for the maintenance of large software systems.

All mods to the system will be proposed in the DSN and voted on by the systems group. Persons proposing changes to the system will be responsible for providing updated documentation (which is stored on-line), if applicable. Thus, we intend that the on-line documentation will always be current and that manuals in the computer store will be reprinted from the on-line documentation as they need to be restocked.

All mods or bug fixes will be submitted to me and I will be responsible for having them reviewed and publishing a notice of changes to the UNIX system in the DSN. I will also publish a crash analysis in the DSN.

Three new, system level directories will be added to the system to handle locally developed programs or software not provided in the standard Berkeley UNIX distribution. They are:

/usr/local  
/usr/new  
/usr/old

/usr/local will be for programs or procedures which are fully supported and documented and to which reasonable claims to maintenance will be made. Anyone wishing to add or change things in /usr/local will have to propose it in the same way anyone wishing to change a control card on the Cyber would. Documentation will have to be provided for any program placed in this directory. At minimum it must instruct the user on how to invoke the program and where to obtain additional information if on-line documentation is available via fetch on the Cyber.

Programs put in /usr/local will normally remain there unless there use is significant enough to warrant they be moved to /usr/bin or /bin. This would then be done to coincide with reprinting of the appropriate manuals. Documentation will not be reprinted for things moved to /usr/old.