

To: Distribution
From: David M. Jordan
Date: December 2, 1974
Subject: System Maintenance Status, November 2 - 29

1. Significant Events

After a variety of proposals and counter proposals, IPC and Honeywell have come to an agreement on the plans for adding cache memories to our processors. As it now stands, a third processor will arrive in the next week, to be added to our current configuration. Once it appears to work, we'll take one of the old processors offline and perform the field change. When that appears to work, we'll add it back online, and remove the second processor. With a little luck, this plan should result in only minor problems for service and should get us two fast processors by the end of January.

During the past month we finally got around to putting a new Salvager together. In addition to giving everyone some reassurance that it could be done, this also allowed us to install the new version of hash, thus permitting directory hash tables to be filled completely. Hopefully this interim step will hold us until the installation of variable size hash tables.

The listing books in the War Room have recently been cleaned up pretty completely. We're now in a checking mode, trying to determine which listings may be out of date, etc. Hopefully, we'll have complete and accurate listings sometime in the next couple of months.

A. Online System Installations

During the past four weeks there have been a total of 291 changes to the online libraries. Included in this total were a new basic, a new alm (which appears to have a couple of problems), and fixes to the ANSI standard tape dim, which now works for the first time since it was installed. In addition, new versions of lisp and debug were installed. At this point, most of the submissions we've received have been installed, although one change involving the moving of numerous segments from one library to another still remains to be done.

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B. Other Installations

During this reporting period we installed Hardcore systems 24.2 and 24.3 and Salvager system 2.28. These systems included the new printer software, the addition of part of the code required for running when the Operator's console is down, numerous salvager fixes, and several more conversions from Version 1 to Version 2 PL/1 thus allowing the placement of pl1_operators (version 1) in collection 3. In addition, these systems covered most of the changes which CISL had hoped to get into MR 2.0, although a couple of important changes remain.

C. Crash Analysis

Although the numbers below appear to indicate very reasonable reliability during the past month, a number of very serious problems occurred which, while not resulting in a large number of crashes, did result in several extended periods of down time. We lost one day until 10 PM when three disk drives went down at about the same time. Also, serious problems showed up after we were forced to power down due to an air conditioning failure. This problem is very worrisome as 1) the holiday's approach with planned periods of power down and 2) work on adding cache memories to our processors begins, requiring numerous power-down/power-up sequences.

	Nov 2-8	Nov 9-15	Nov 16-22	Nov 23-29	Total
Hardware	5	0	0	1	6
Hardware Suspected	0	0	0	0	0
Software	1	1	1	0	3
Software Suspected	0	0	2	0	2
Not Yet Analyzed	0	0	0	0	0
Not Analyzable	0	0	1	0	1
Other	3	1	5	1	10
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Total	9	2	9	2	22

2. Problem Areas

The upcoming addition of cache memories to our processors has been fairly carefully planned. However, with the scale of changes being installed and the probability that the processors will be powered down and up many times during the next few months, there's a good chance we'll run into problems. I'm not sure there's anything we can expect to do about this, except to hope the problems aren't too serious.

The recent changes to the system to allow the use of tapes through the I/O interface have resulted in several occasions when we were completely unable to use tapes. The only recourse has been to shutdown and reboot the system. Further, I'm coming to believe that this problem may be in Ring 4, not Ring 0, which leads to the even more serious question about whether this can ever be completely corrected. After all, if the system can break down in Ring 4, thus forcing a shutdown, what's to prevent a malicious user from doing the same thing? I hope I've misunderstood the situation, but so far, I don't think so.

We recently installed a new version of alm which has resulted in a rather serious problem. At this point, it appears that the new assembler tends to produce phase errors (fatal) even while assembling code which has been in the system for years. Hopefully this problem can be quickly corrected. In the meantime, the old assembler is being maintained for use in such situations.

3. Task Status

Although Gary has been away this month, his latest MTBs were published and work has begun on the last set of library tools which are required for general usefulness. Grace has started work on the library descriptor command and Arlene has begun work on the new library_fetch replacement for get_library_segment. In addition, Arlene's most recent updates to the submission testing package have been installed.

Grace's changes for the test_tape command, the notification to users of backup errors and a fix to star_ are nearing completion. The testing for each is nearly complete, but some work (auditing, etc.) is still required before installation.

4. Work Planned for the Coming Month

During the next four weeks we hope to get further into the final set of required procedures for the library tools. In addition, we expect to get relatively caught up on installations, with the installation of the library reorganization change and the installation of an important new BOS system.

In addition, we are expecting a visit from Al Berglund of Honeywell. He is soon to go to Phoenix to head up their support effort and will be here to learn about the various installation procedures we invoke.

Although we play no direct part in the changes being performed, we expect the processor changes required for cache to be started in the next few days.

TASK AREA Programming Support

TASK DESCRIPTION	PERSONNEL	START	FINISH	CHANGES/STATUS
Look into compare_source_statement as replacement for cpa				Compare p11 source statements ignoring differences in comments and formatting
Design and implement an online system for registering modules being worked on, etc.				Proposal submitted to Gintell. Hope he has man-power
Look into the possibility of maintaining a module change history log.				May be part of sign out log project
Look into the possibility of making the source libraries generally accessible to users				
Create a system for processing backup error files to allow notification to users of errors encountered	Ackerman-Lewis	5/1/74	6/15/74	MCR approved, being tested Now ready for auditing
Fix test-tape to work with MTS 500's, ioi, etc.	Ackerman-Lewis	5/1/74	12/31/74	
Fix bug in star_ (bug # 208)	Ackerman-Lewis	9/15/74	11/30/74	Code and testing complete, yet to be installed
		9/15/74	12/31/74	Coded and tested.
		11/15/74	12/31/74	

PROJECT Library Maintenance Tools Project AREA Installation tool enhancements

TASK DESCRIPTION	PERSONNEL	START	FINISH	M-N	CHANGES-SIAIUS
MIS: write Honeywell PLM - Library Maintenance Manual	Kelley				continuing
update_seg: modify documentation task to document unbundled library (MCR 732)	Kelley				Installed
update_seg: modify to set the default max length of segments to their current length; add option to set length if different from current length. (MCR 807)	Kelley	10/29/74	11/08/74		ready for submission
update_seg: fix bug in documentation program (MCR 819)	Kelley	10/21/74	10/25/74		ready for submission
cleanup: modify to use the library descriptor	Kelley	11/04/74	11/18/74		not started

PROJECT Library Maintenance Tools Project AREA Library descriptor tools

TASK DESCRIPTION	PERSONNEL	SIARI	FINISH	M-W	CHANGES-STATUS
lex_string: code a lexical analyzer to parse a character string into tokens which are processed by the compilers below	Dixon	12/15/73	01/10/74	.5	Done
reduction_compiler (rdc): code the reduction compiler (used to code the library descriptor compiler)	Dixon	01/01/74	02/11/74	2.0	Done
library_descriptor_compiler (ldc): code the library descriptor data base compiler	Dixon	12/15/73	01/10/74	2.0	Done
multics_libraries_.ld: code the library descriptor for Multics	Dixon	02/28/74	03/01/74	.2	Done
System Libraries					
multics_library_search: recode to use multics_libraries_.ld generated by library_descriptor_compiler	Dixon	03/01/74	10/20/74	.5	Done
library_info (li): code, document command which replaces msl_info (HIGH)	Dixon	10/05/73	10/30/73	1.5	Add options to command
library_map (lm): code, document command which replaces msl_global_format (HIGH)	Dixon	05/25/73	06/25/73	3	Done
library_print (lpr): code, document command which prints groups of library segments (HIGH)	Dixon	05/10/73	04/01/73	1	Done
li/lm: get and output ACLs, Initial ACLs, extra status (MEDIUM)	Dixon	12/15/73	12/30/73	1.5	
li/lm/lpr: add sorting options to commands (LOW)	Dixon	01/01/74	01/15/74	.5	
document the above procedures and subroutines	Dixon	03/01/74	05/30/74	3	MTB being written

PROJECT _____ Library Maintenance Tools Project _____ AREA _____ library descriptor tools _____

TASK DESCRIPTION	PERSONNEL	START	FINISH	M-H	CHANGES-STATUS
lm/lpr: gather and output statistics on Library segments (LOH)	Dixon			1.5	
library_descriptor (lds): code, document command which lists directories searched by ll/lm/lpr for a given library (LOH)	Ackerman-- Lewis	11/04/74 11/04/74	12/20/74	1	Command documentation complete
library_get (lgt): rewrite gls to use library descriptor	Scherer	10/21/74 10/21/74	12/30/74	2	
library_cleanup (lcln): clean up the code; use library descriptor	Kelley	11/04/74 11/04/74	12/30/74	1.5	
library_object_cref (loc): rewrite cross_reference to use library descriptor				2.5	
library_include_cref (llic): rewrite lcref to use library descriptor & source maps in standard obj segs				2	
library_check (lck): write program to check on consistency of libraries	Ackerman-- Lewis			3	

