

To: Distribution  
From: David M. Jordan  
Date: August 12, 1974  
Subject: System Maintenance Status, June 15 - August 9

## 1. Significant Events

The various hardware components which were required for the support of a development system were finally moved to 575 Tech. Square, after several delays. We now have the development system available during the day, thus making system testing much easier.

After many months of save/restor testing the MTS-500 tape subsystem replaced the older controller and handlers on the service system. Thus far problems have been relatively few.

The various preparations required for the addition of the Network library have been completed and the first installations have taken place. However, recent plans call for the addition of a new "Unbundled" library, so many of the same sorts of changes are once again going to be required.

Another recent decision was to cease having microfiche copies of the online listings made. In addition to reducing the difficulty of handling listings, this should allow us to react more quickly to system problems as our copies of listings should be much more up to date. We have also decided to begin recompiling all system changes, rather than just hardcore. This will give us additional assurance that our listings correspond with the installed object code.

### A. Online System Installations

During the period from June 17 - August 9 there were a total of 413 changes to the online libraries. The largest change was the movement of the gcoss subsystem from the tools library to the standard service system; the most significant change was the installation of the "do" command. In addition, a new binder was installed and the first installation in the new network library was performed.

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B. Other Installations

During this reporting period we installed hardcore systems MSS 23.12, 23.12a, 23.13, 23.13a, 23.13b, 23.14, 23.14a, 23.14b, 23.14c, and 23.15. Although we experienced some problems with the installation of the cache software (MSS 23.14) in general the installations went quite smoothly. In addition to the cache software we installed fixes for and/or new versions of system\_control\_, the tty dim, tape\_ (for MTS-500's), formline\_, user ring I/O (with EIS), the printer dcm, and the PRPH card format. In addition, BOS 1.39 was installed with a number of fixes, primarily for SAVE and RESTOR with the MTS-500's.

C. Crash Analysis

During the past 8 weeks system reliability has remained at a fairly constant level of 1 crash per day, in spite of many system installations, the removal of development system hardware, and hot weather. We seem to be gradually finding and fixing a significant number of both hardware and software problems, so the outlook for future system stability remains good.

	6/15	6/22	6/29	7/6	7/13	7/20	7/27	8/3	Tot
	6/21	6/28	7/5	7/12	7/19	7/26	8/2	8/9	
Hardware	5	2	3	4	3	2	3	3	25
Hardware Suspected	0	0	0	0	0	0	0	0	1
Software	2	0	0	0	3	6	0	2	13
Software Suspected	1	0	0	2	2	0	0	0	5
Not Yet Analyzed	0	0	0	0	0	0	1	1	2
Not Available	0	0	0	1	0	1	0	0	2
Other	4	2	2	0	0	0	0	0	8
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Total	12	4	5	7	8	9	4	7	56

2. Problem Areas

Two months ago we reported that the directory hash table overflow problem had become quite serious. In response to this, Peter Kelley modified the way the installation tools handle names on segments being deleted, giving us some breathing room for the moment.

The work required by the creation of the Unbundled library and the conversion to recompiling all submissions may prove to be a bit much over the next couple of months. We hope to have these modifications completed by October 1, but that date may have to slip some.

One problem which sounds like it isn't is giving us a bit of trouble. For the past few months Peter has been

attempting to get some crash analysis experience. Unfortunately, there have been relatively few system crashes, and those that have occurred have resulted in dumps which are more odd than instructive. Hopefully this problem can be solved with more straightforward dumps rather than more numerous crashes.

### 3. Task Status

Arlene has completed the changes required for the creation of the new "Network" library and has made the first installation in it. In addition, she has set up procedures for maintaining directories containing all online information used during a week of installations. This directory can then be sent to external sites and easily processed as submissions there. In the next few weeks she will be primarily concerned with the addition of the unbundled library and the change to installation procedures required to handle recompilations.

Grace has completed most of the work necessary for the addition of user notification to our Backup system. She has published an MTB and is now waiting for approval of her MCR. In addition, she has been working with Peter to learn about hardcore installations. In this area, both she and Peter have gotten some hands on experience with the Development System in Tech. Square as they have tested several systems there. Peter has completed a number of changes and revisions to the installation tools and continues to make minor modifications as necessary. His work on crash analysis continues to progress, but slowly due to the lack of dumps to work on.

Gary's work on the reduction compiler and the library descriptor compiler is nearly completed, as they are now just being updated to current standards. He is still hopeful of a completion date of September 30 for the current set of tasks and documentation.

### 4. Work Planned for the Coming Month

During the next few weeks we expect to begin work on the unbundled library and recompilations. In addition, I'm hoping that one or more people in the group will get a chance to work on the new page control being proposed by Steve Webber. I'm not certain at this point when work will begin on this, but I think it could be valuable experience. Also, we expect that Grace's changes to Backup to allow user notification of errors encountered will be approved and installed.







TASK AREA Library Maintenance Programming Support

TASK DESCRIPTION	PERSONNEL	START	FINISH	CHANGES/STATUS
Maintain and improve library submission tests.	Scherer	continuing	task	
Modify submission testing software for the "network" library and to use get-library-segment	Scherer	11/15/74	3/1/74	Installed
convert cross references to v2,	Scherer	1/15/74	7/20/74	
Upgrade all online installation tool exec coms for the 6180 and install in the libraries and document them.	Scherer	4/15/73		Version of include cross ref which works on any archives installed
Make changes to installation and testing systems to support the "network" library	Scherer	3/26/73		Work beginning with study of current ec's.
Add ec's, etc. for the "unbundled" library	All	1/15/74	3/15/74	Done
Modify submission/installation procedures to accommodate recompilation of all submissions	Scherer (All)	1/15/74	7/20/74	Should be easier after having done similar things for "network" library
	Scherer (All)	8/8/74	10/1/74	Should provide improved assurance of online libraries
		8/8/74	10/1/74	
		8/8-84	10/1/74	





TASK AREA Programming Support

TASK DESCRIPTION	PERSONNEL	START	FINISH	CHANGES/STATUS
Update development reload.ec and system test exec_coms	Jordan			Done! Development System no longer our responsibility.
Look into compare_source_statement as replacement for cpa.				Compare all 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	Lewis	5/1/74	6/15/74	Code complete, MTB published
		5/1/74	8/31/74	

PROJECT Library Maintenance Tools Project AREA Installation tool enhancements

TASK DESCRIPTION	PERSONNEL	START	FINISH	M-W	CHANGES-STATUS
MIS: write Honeywell PLM - Library Maintenance Manual	Kelley				continuing
msa_manager: modify to not store segno as bit count of MSA components. (MCR 242)	Kelley	06/03/74	06/07/74		Installed
update_seg: increase size of online installations (MCR 188)	Kelley	07/08/74	07/10/74		Production testing
update_seg: modify to limit the number of names retained on replaced segments.	Kelley	06/07/74	06/07/74		Installed
update_seg: modify documentation task to report bindfile changes.	Kelley	07/15/74	07/19/74		submitted for installation
msa_manager: improve consistency of msa_manager_ (MCR 660)	Kelley	07/29/74	08/02/74		Installation
msa_manager: improve consistency of msa_manager_ (MCR 660)	Kelley	07/10/74	07/11/74		submitted for installation

PROJECT Library Maintenance Tools Project AREA Library descriptor tools

TASK DESCRIPTION	PERSONNEL	SIARI	FINISH	M-W	CHANGES-SIARI
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	01/08/74	.5	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		03/05/74	03/18/74		
library_search_.ld: recode to use multics_libraries_.ld generated by library_descriptor_compiler	Dixon	01/10/74	01/12/74	.5	Underway
library_info (li): code, document command which replaces msl_info (HIGH)	Dixon	03/01/74	07/19/74		
library_map (lm): code, document command which replaces msl_global_format (HIGH)	Dixon	10/05/73	10/30/73	1.5	Add options to command
library_print (lpr): code, document command which prints groups of library segments (HIGH)	Dixon	10/05/73	08/30/74		
		05/25/73	06/25/73	3	Add options to command
		06/30/73	08/30/74		
		05/10/73	04/01/73	1	prints segments now;
		10/02/73	08/30/74	2	make it print archive components, pt segs, chase links, print MSFs, etc
library_brief_map (lbm): code, document replacement for Roach's segment_list (MEDIUM)	Dixon	12/07/73	12/30/73	.5	
li/lm: get and output ACLs, initial ACLs, extra status (MEDIUM)	Dixon		08/30/74		
li/lm/lpr: add sorting options to commands (LOW)	Dixon	12/15/73	12/30/73	1.5	
			09/15/74		
		01/01/74	01/15/74	.5	
			09/15/74		

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PROJECT Library Maintenance Tools Project AREA \_\_\_\_\_ library descriptor tools

TASK DESCRIPTION

TASK DESCRIPTION	PERSONNEL	START	FINISH	M-H	CHANGES-STATUS
document the above procedures and subroutines	Dixon	03/01/74	05/30/74	3	documentation on reduction_compiler, lex_string_, lex_error_ done; MTE published
lm/lpr: gather and output statistics on Library segments (LOW)	Dixon			1.5	
library_search_rules (lstr): code, document command which lists directories searched by ll/lm/lpr for a given library (LOW)	Dixon			1.5	
library_get (lgt): rewrite gls to use library descriptor				2	
library_cleanup (lcln): clean up the code; use library descriptor				1.5	
library_object_cref (loc): rewrite cross_reference to use library descriptor				2.5	
library_include_cref (lic): rewrite icref to use library descriptor & source maps in standard obj segs				2	