MULTICS TASK REPORT   MTR-133

To: MTR Distribution

From: Multics Systems Assurance Subgroup,
            Gary Dixon, Recorder

Date: October 8, 1976

Subject: Subgroup Status for August

I.   SUBGROUP MEETING OF AUGUST 3, 1976

A meeting of the Multics Systems Assurance Group was held on
August 3, 1976.   Attendees were: Grace Ackerman-Lewis,
Gary Dixon, Peter Kelley, and Roger Roach. The following
information was presented at the meeting.

A.   Significant Events

Honeywell has tentatively agreed to our proposal for a
briefer format for Supervisor Multics Installation Bulletins.
This brief format is easier to produce because it eliminates the
summary of changes at the beginning, the use of change numbers,
and the crossreference of bound segment changes. Instead, the
changes are summarized by MCR number at the beginning of the MIB,
and the segments changed are listed with a reference to their
containing bound segment. Comments on this new format are
invited. John Gintell has a sample of the new format, and the
MIB for 28-11 will be published using the new format.

To solve the problem of timely information about the
contents of new Supervisor systems, we will begin a new policy of
placing a copy of sys.info in the updating directory as the
system is created. This copy will contain a brief summary of the
modifications included in the new system. As soon as the new
system is running at MIT, the updating copy of sys.info will be
inserted at the top of >doc>ils>sys.info. Comments on the
usefulness of more timely information are solicited.

Honeywell has tentatively agreed to our proposal to stop
maintaining listings for the Unbundled and Languages Libraries.
We will accept distributed versions of the Unbundled Library from
Phoenix, but will continue to recompile the major compilers
maintained by CISL to insure prompt bug correction and continued
operation for our users.

Honeywell has informed us that MCR Board Meetings are now open to Multics Development Project members.

B.   Project Status

As described in the previous SMAG status report, the subgroup members have rotated their functions. Gary Dixon is now performing Supervisor Installations, Peter Kelley is doing Online Library Installations, and Grace Ackerman-Lewis is doing crash analysis, performance measurement and tuning, Supervisor Installation auditing, etc.

FCOS AND OTHER HARDWARE PROBLEMS

We are still awaiting installation of the FCOs required for 29-0. Gene Kleinow is consulting with Phoenix and with Noel Morris about these. Grace will interface with Kleinow to keep the group informed of 29-0 FCO status.

Gary is checking with Richard Barnes about the status of long outstanding hardware bug fixes, such as a fix for the MVT problem.

Grace is checking with the FE's about correction of the transfer timing errors we are getting with the new MPC A board, and with the disk format errors we are getting on DSKA-5.

Arrangements are being made by the FES to remove MPC-B, and to place the last DSS-191B disk drive on the MPC-A channels. This Model B disk will be used as a spare, and will eventually be replaced by the Model-A disk we have on order.

New Tasks

The following new tasks are being undertaken by the SMAG Subgroup.

VALIDATION OF INFO SEGMENTS

Steps are underway to begin standardizing the format of installed info segments. Gary is the liaison for the subgroup with Honeywell.

1. An improved info segment format was agreed to at a meeting of interested parties. This new format moves the Syntax line before the Function description, and provides for uniform separation of control arguments from their description and uniform indentation of

argument description overrun lines. This new format is being submitted to the MCR Board for approval.

2. Improvements to the help command will provide a summary of an info segment. An MCR will be submitted for these improvements.

3. Once the new formats are approved, the validate_info_seg command will be upgraded to more rigidly enforce the new format, and to provide better diagnose errors.

4. Once the new info segment format has been published, all info segment submissions will be validated for correct format. A submission will be help up until any format errors are corrected. (This policy is an extension of the existing policy regarding the technical content of info segs.)

AUTOMATING AND FOOL-PROOFING ONLINE INSTALLATIONS

As the first step in trying to speed up and simplify the Online Library Installation process, Grace and Peter are writing a short MTB describing the most frequent causes for installation delays. You will hear more about this task as it progresses.

THE INCLUDE DIRECTORIES

The >ldd>include directory is filling up (with names), so Honeywell and PDO are thinking about ways to subdivide and cleanup the contents of this directory. As a first step, include segments for programs in the Unbundled Library have been placed in a separate directory. Suggestions on ways to organize the include directories are now in order. Gary is liaison with Honeywell on this matter.

The SysLib people in Phoenix have identified several hundred obsolete include segments which may be moved to a separate directory. Gary is contacting them to checkout their list against MIT's crossreference output.

The splitting of the Include Directory has brought forth the question of translator search rules.

1. We probably won't include the new include directories in the default translator search rules. Most users won't need them, so why increase their search path.

2. This will increase the usage of the print_/set_translator_search_rules tools. These commands may have to be upgrade to the Standard Service System.

3. Once again, the problem of search rules brings to mind the need for a general-purpose search facility to set search rules for translators, for runoff, for exec_com, for

qedx-coms, for APL, for help, ... Isn't it about time we addressed this problem?

MAINTAINING RDMS

The RDMS subgroup has asked the SMAG group to take over the maintenance and modification of the RDMS Libraries (include source, object, bound segments, macros, info segments, listings, etc). A new RDMS Library subtree will be created, probably below >libraries. Installations in this library will then be funnelled through the SMAG group in much the same way as AML Library installations. Roger is the liaison with the SMAG group.

II. SUBGROUP MEETING OF AUGUST 19, 1976

A meeting of the Multics Systems Assurance Group was held on Thursday, August 3, 1976 (postponed from Tuesday). Attendees were: Grace Ackerman-Lewis,   Gary Dixon,   Peter Kelley,   and Roger Roach. The following information was presented at the meeting.

A. New Supervisor - MSS 29-0

MSS 29-0 has been submitted for installation. This system provides an easier-to-use, more reliable operator interface to the system, with such enhancements as switchless reconfiguration and better error diagnostics. MSS 29-0 is already running on System M in Phoenix with good reliability. The operators seem to like it, and learned the changes with an hour of coaching. We plan a similar coaching session for our Operations personnel.

Gary is busy generating MSS 29-0 for installation at MIT. The system is large, including over 100 segment changes, 2 new bound segments, and new versions of generate_mst and check_mst to handle storage and use of object segment entry definitions in a separate, non-wired definition segment. The definitions will be available for use by debugging programs (lfd, online_dump, etc).

The system replaces many ALM databases with CDS versions, changes the process interrupt mechanism to use connect faults, and provides a general cleanup of Supervisor internals. Refer to sys.info for detailed information.

B.___Hardware_Status

MSS 29-0 requires four FCOs to our processors. These are being installed and debugged at MIT slowly. Grace is tracking progress of their installation.

Gary checked with Gene Kleinow on the status of other, outstanding FCOs. The priority 1 MVT failure (bug 061) and priority 2 zero-length move failure (bug 082) are part of a 7-board, round-robin FCO in which replacement boards are prepared in Phoenix, shipped to one site for installation, that site's old boards are sent back to Phoenix for application of FCOs, and these modified boards are then sent to the next site. MIT is 2nd on list for this 7-board change after GM. (We're letting GM debug the change.) We should receive fix boards within 4 weeks.

Another priority 2 SC modifier failure (bug 087) requires a 3-board round-robin fix, which we should receive in about 4 weeks. The only other outstanding hardware bug for which a fix is known is a priority 2 IT modifier failure (bug 086); the FCO should be arriving in about 2 weeks.

Richard Barnes is checking out FCOs which were recently installed to insure that they corrected our original problem. He will update hardware_bugs.info to reflect the results of his testing.

The last DSU-191 Model-B drive was moved from MPC-B to MPC-A, and is now in use. Patches to the MPC firmware were required to support Model-A and -B disks on the same MPC. Grace is checking on the results of the move. In the mean time, MPC-B has been shipped away, so MIT has only MPC-A now.

On another front, we've found that our spurious CPU parity (cache?) and op-not-complete faults do not occur if we don't change the configuration. Operations is going to switch bootlaod CPUs and memories in order to trigger, track down, and finally fix these annoying problems. So far, the errors haven't reoccurred. Maybe the problems have been fixed.
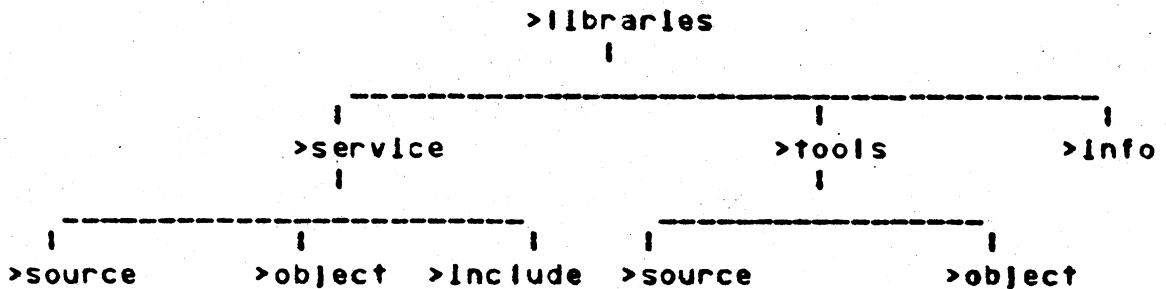
C.___Software_Status

New versions of dprint, add_search_rules, and send_message were installed with errors, and had to be pulled. The dprint and add_search_rules problems have been fixed and are now installed again. The major errors in send_message have been corrected, and the new version is now installed. However, some minor incompatibilities still exist, and Roger is acting as liaison to Tom VanVleck to get these fixed.

A new version of the PL/I quicker put edit support code was
installed, but had to be pulled from the Supervisor system
because of bugs. This module has been installed and pulled from
Supervisor system three times because of bugs. In order to
facilitate testing and correcting of bugs in this code, we have
agreed with Honeywell to install a temporary copy of this program
(of bound_sss_wired_) in >sss. Putting the segment in >sss
causes users to use and test out the new version but allows us to
pull it quickly when errors are found. This SSS installation
procedure will continue until the program has been installed for
10 working days without any reported bugs. The module will then
be installed in the next Supervisor system.

The long standing IMP DIM problem which crashed the system
if the IMP was brought up and shutdown too many times in a given
bootload (because it wired more core each time) has been
corrected in MSS 28-11c. We are investigating the more basic
problem: should iol_ crash the system when it caller requests
that core be wired and none is available. This philosophy is
probably a mistake.

D.   New Libraries

The SMAG group has entered into a maintenance agreement
withh the RDMS group to maintain the RDMS subsystem libraries.
The proposed library structure, which is shown below, will be
maintained in online library format.

```
                           >libraries
                               |
        _____
        |                                |                      |
     >service                         >tools                 >info
        |                                |
  _____      _____
  |              |          |      |                         |
>source      >object   >include  >source                 >object
```

Honeywell and the SMAG group have decided to move the
Experimental Library hierarchy to a tree immediately off the
root. The hierarchy below >ldd>exl is not visible enough to
users. Links will be created from the >ldd>exl hierarchy to >exl
as soon as segments have been moved into the hierarchy. The >exl
hierarchy has the same organization as the >ldd>exl hierarchy.

III. ASSURANCE SUMMARY

Among the important online installations were new versions
of the send_message commands and a new user_ftp interface to the
ARPANet. Supervisor systems MSS 28.11, 11a, 11b, and 11c were
installed during this reporting period. These systems provide
support for installation-settable system default search rules,
PL/I allocate and free operators, and more thorough maintenance
of directory fields used by salvager.

A total of 11 crashes occurred. Hardware: 2 MEM C Parity
errors, 1 CPU B op-not-complete, 1 IOM trouble fault, and 3 MPC A
board failures. Software: 3 IMP software failures, 1 crash
while adding CPU-B. The system was shutdown twice: once to pull
28.11a because of a bug in the new hcs_$initiate_search_rules,
once to move PUB_08 to a spare drive when DSKA_08 malfunctioned.