

TO: MSPM Distribution
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SUBJECT: BQ.1.03
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The attached BQ.1.03 supersedes the old BQ.1.03, which discusses a now obsolete subject. So throw away "interim system control". A much-simplified system control will appear soon.

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Identification

Ring_1_error for interim Multics
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Purpose

When a ring 1 procedure, such as those in user control or in the I/O system, encounters an "impossible" condition it calls ring_1_error to bring this condition to the attention of system programmers.

This mechanism exists in addition to the standard user ring error handling (BY.11.00) and hard core error handling.

Usage

When an administrative ring procedure which may be executing in a system process detects an error condition it responds by making a call to one of the entries of ring_1_error.

- 1) call ring_1_error\$non_fatal (status,char_info);
 dcl status bit (*);
 dcl char_info char(*); /*this argument is optional*/

Ring_1_error makes known the segment name and number of its caller, the location of the call, its process id, process-group-id, the status bits provided by its caller, and the character information (char_info) if any. After depositing this information in a trouble log (see below) in a "non-fatal" error entry, ring_1_error returns to its caller.

- 2) If a procedure cannot continue because of some error, it executes

Call ring_1_error\$fatal (status,char_info);

or Call ring_1_error (status,char_info);

These entries to ring_1_error deposit in the trouble log in a "fatal" entry the same information as that provided by their non-fatal cousin. However they do not return to their caller, since the caller does not expect them to return. Instead they call hcs_\$terminate_proc to abort the process in which they execute.

Trouble Log

To record trouble, ring_1_error deposits the pertinent information in the segment ">system_log_dir>trouble_log".

A possible refinement is for ring_1_error\$fatal, if it executes in the initializer process, to call the listener, placing the trouble log console at command level. A system programmer who is babysitting for the system can now try to debug the process. This refinement might be installed later if it seems desirable and only after its consequences have been carefully thought out. It offers an alternative to a system crash. However, ring_1_error will normally be called only in case of programming error or of something impossible happening (which usually indicates crash is imminent anyway).

Handling of errors within ring-1-error

As soon as ring_1_error is entered it sets a switch in internal static to on, and resets the switch before it returns. If ring_1_error is called recursively it detects this by a check of the switch and immediately calls terminate_proc.

If ring_1_error discovers any error conditions in its attempt to report trouble, it calls terminate_proc.