

Subject: MCR-10091 Fix Problems with GTSS library segments

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Problem Description

The GTSS subsystem provides an interface to run GCOS time sharing programs. It leverages the GCOS simulator to achieve this goal, but adds interactive use to the otherwise batch processing. The `gtss` command, however, is broken in MR12.6 due to incorrectly installed GTSS data files.

The problem manifests itself in the inability to save programs entered into GTSS and an error message similar to the following one when attempting to do so:

```
gtss
GTSS 4JS3 (4.0)
*system basic
*10 print "foo"
*run

foo

ready
*save foo

Error: conversion condition by any_to_any_$formline_|6213
(>system_library_1>bound_library_wired_)
onsource = "chain", onchar = "c"
Invalid character follows a numeric field.
system handler for error returns to command level
r 13:38 0.898 143 level 2
```

The immediate cause of the conversion condition is a bug in the parameters to a call to `com_err_`, but the error that the program is trying to convey is that there is no write permission on the `>unb>GTSS*. **` segments. MCR10090 addresses the incorrect parameters to `com_err_`, and once that MCR is addressed, the underlying problem will manifest itself.

The GTSS segments in question are these:

- GTSS.MCFC.NAMES
- GTSS.MCFC.FILES
- GTSS.MCFC.CALLERS_4
- GTSS.MCFC.CALLERS_3
- GTSS.MCFC.CALLERS_2
- GTSS.MCFC.CALLERS_1

System library segments typically have ring brackets of 1,5,5 and access of r or re for *.*.*. These values prevent normal processes from altering these segments, as desired. However, GTSS expects to be able to write to these segments. The Multics mechanism to address this is to set the so-called **copy switch** on these segments. Setting this switch allows processes lacking write access to modify a copy of the segment in the process directory. The copying and initiating of the copies happens automatically when these segments are first written to.

When the GTSS data segments were installed into the system libraries the requirement that the copy switch be set was not known. The segments came from a tape that was not part of the official Honeywell release tapes for MR12.3 and MR12.5 (from which MR12.6 was derived).

Ticket <https://multics-trac.swenson.org/ticket/124> describes this issue.

Proposed Changes

This MCR proposes to fix the GTSS data segments (referenced above) in the following ways:

- Set the copy switch on
- Set the ACL to re *.*.*
- Set the ring brackets to 1,5,5

The following commands can be used to achieve the desired results:

```
lsrb >unb>GTSS*.* 4 4 4
switch_on copy_switch >unb>GTSS*.*
sa >unb>GTSS*.* re *.*.*
lsrb >unb>GTSS*.* 1 5 5
```

Documentation

This is the documentation.

Testing

The above fix has already been tested on GHM_Test, running a pre-release of MR12.7. The GTSS test case that previously failed now doesn't fail (even without the MCR10090 changes to fix com_err_ and to pre-snap the external static reference that the dps8 simulator fails to properly handle).

Version History

2021-05-27	1.0	Eric Swenson	Initial revision of the MCR.
2021-06-03	1.1	Eric Swenson	Fix typo in “rw” versus “re” ACL for *.*.* in first paragraph of page 2.