

# MCR10158

## Fix Issues Preventing GCOS Daemon from Working

### Revision 1.0

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## 1 Problem Description

Multics ticket <https://multics-trac.swenson.org/ticket/380> describes an issue the GCOS daemon no longer runs successfully. A couples changes made to the Multics system many years ago apparently broke this daemon. This MCR proposes to fix those issues.

The first problem is that the GCOS daemon submits absentee jobs using the “proxy” facility for absntees. This allows it to run as GCOS.SysDaemon, but to submit absentee jobs as Anonymous.GCOS. Such use of absentee proxies is done for security reasons, so that jobs run with least privileges. A change made many years ago changed the “tag” assigned to processes to be hard-coded as “p” rather than settable by processes that entered absentee jobs. The GCOS daemon set the process tag for its absentee processes to “g”, but this no longer works. The absentee tag must be “p” (for “proxy”). An example interactive process tag would be **Swenson.Multics.a**. One for a non-proxy absentee process would be **Swenson.Multics.m**. And one for a daemon might be **IO.SysDaemon.z**. The GCOS daemon launch its absentee jobs under the process group ID of **Anonymous.GCOS.p**.

The second problem stems from changes to the `adjust_bit_count_` (made years ago). The bit count on the absentee job input segment (the `.absin` segment, is not getting set properly. The fix is simple, since the length of the segment emitted is known, and the proper bit count can be set.

There is actually a third problem, a simulator problem, that prevents jobs submitted to the GCOS daemon from working. This has to do with the simulator’s mapping of characters in card decks to Hollerith punch codes. This will be addressed with a fix to the simulator. Without this simulator fix, many GCOS card decks cannot run properly with the GCOS daemon.

## 2 Proposed Fix

The proposed fix for the first problem is shown below:

---

```
cpa [lpn gcos_daemon_stat_.alm] ==  
  
A26      anonymous_user:   aci      "Anonymous.GCOS.g"  
Changed by B to:
```

```
B26      anonymous_user:   aci      "Anonymous.GCOS.p"
```

Comparison finished: 1 difference, 2 lines.

---

This simply changes the process group ID used for the Anonymous.GCOS absentee process submitted by GCOS.SysDaemon to use the proper tag, "p".

The proposed fix for the second problem is shown below:

---

```
cpa [lpn gcos_queue_job.pl1] ==
```

```
A248      call adjust_bit_count_ (abs_data.absentee_dir, absin_name, "1"b,  
      bit_count, code); /* set its bit count */
```

Changed by B to:

```
B248      bit_count = absin_char_count * BITS_PER_CHAR; /* set correct bit count  
      on absin segment */
```

```
B249
```

```
B250      call hcs_$set_bc_seg (absin_ptr, bit_count, code);
```

```
A494
```

Changed by B to:

```
B496      % include system_constants;
```

```
B497
```

```
B498      %page;
```

Inserted in B:

```
B504      dcl hcs_$set_bc_seg entry (ptr, fixed bin(24), fixed bin(35));
```

```
B505
```

Preceding:

```
A500      dcl com_err_ext entry
```

Comparison finished: 3 differences, 10 lines.

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### 3 Documentation

No documentation changes are necessary.

### 4 Test

Testing will involve setting up the GCOS daemon and submitting various card decks to it and ensuring they run properly (or as well running GCOS programs interactively with the `gcos` command).

## 5 Version History

|            |     |                                                                                                             |
|------------|-----|-------------------------------------------------------------------------------------------------------------|
| 2025-08-02 | 1.0 | Initial version of the MCR.                                                                                 |
| 2025-08-04 | 1.1 | Updated proposed change to <code>gcos_queue_job_.pl1</code> to use <code>system_constants.incl.pl1</code> . |