

MCR10122

Increase Default Process Directory Segment Quota

Revision 1.0

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1 Problem Description

Ticket #281 describes a problem whereby invoking `help hcs_` causes a `record_quota_overflow` condition to be raised, and the process to be terminated. The `record_quota_overflow` occurs on the process directory. The `help hcs_.info` segment is very large, and recent changes to the help system have resulted in using more temporary storage in the process directory.

The URL to the ticket is: <https://multics-trac.swenson.org/ticket/281>

2 Proposed Fix

Changing the help system to reduce temporary process directory storage was considered and rejected, as it would require much effort. Since disk space is no longer an issue with simulated Multics systems, and any hardware Multics systems that might arise in the future (unlikely) would most probably leverage virtual disks (as are being used for various hybrid hardware systems today (ITS, TOPS-20, TOPS-10, etc.)), it is reasonable to increase the default process directory segment quota from 1000 records to 2000 records.

The default process directory segment and directory quota is stored in the `>sc1>installation_parms` segment. For existing systems, the value of this configuration parameter can easily be changed with the following commands:

```
cwd >sc1

ed_installation_parms
type p default_pdir_seg_quota
default_pdir_seg_quota:    1000
type c default_pdir_seg_quota 2000
type p default_pdir_seg_quota
default_pdir_seg_quota:    2000
type w
type q
```

The `>sc1>installation_parms` segment is created during a cold boot of Multics. The invocation of the `ed_installation_parms` command is done in the `>tools>acct_start_up.ec exec.com`, which is invoked during a cold boot. The current default value of the `default_pdir_seg_quota` parameter is hardcoded in the source code for this program. So to make this change on newly cold-booted systems, the `ed_installation_parms` must be updated.

A comparison of the current version of this program and the proposed version looks like this:

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

A838             installation_parms.default_pdir_dir_quota,
A839             installation_parms.default_pdir_seg_quota = 1000;
Changed by B to:
B838             installation_parms.default_pdir_dir_quota = 1000;
B839             installation_parms.default_pdir_seg_quota = 2000;

Comparison finished: 1 difference, 4 lines.
```

As can be seen, this MCR proposes to only change the segment quota from 1000 to 2000, but leave the directory quota at 1000.

3 Testing

This fix will be tested by creating a set of installation tapes and cold-booting a new system. Then, the `help hcs_` command will be executed to make sure it works.

4 Documentation

The *Multics Administration, Maintenance, and Operator Commands* manual, GB64-00 describes the `ed_installation_parms` command, and contains the following documentation on the two process directory quota parameters:

```
default_pdir_seg_quota, df_pdsq
    process directory segment quota. The default is the value used at system startup.
default_pdir_dir_quota, df_pddq
    process directory directory quota. The default value is 1000.
```

It isn't clear what the sentence regarding the default value for `default_pdir_seg_quota` is trying to say. The code very clearly, sets this value to 1000. This MCR proposes to add a change to the errata info segment, `gb64.errata.info` replacing the sentence (see above):

"The default is the value used at system startup."

with the sentence:

"The default value is 2000."

5 Version History

2022-08-30	1.0	Initial version of the MCR.
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