

MCR10108

Fix various issues with acct_start_up.ec

Revision 1.1

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1 Problem Description

1.1 Unbundled Directory Setup

The DPS8M simulator script used to cold boot a new Multics system includes several manual steps to properly initialize the various unbundled software system directories. This is due to the way the unbundled software is distributed. Some of the software is distributed on the EXEC tape, some on the LDD_STANDARD tape, and some on the UNBUNDLED tape. Because of this, no tape actually dumps these directories:

- >system_library_unbundled
- >ldd>system_library_unbundled>source
- >ldd>system_library_unbundled>object

Instead, individual subdirectories of these directories are dumped onto the various tapes. As a result, the additional names on these directories and the proper ACLs and initial ACLs are not present on the dump tapes. When a Multics system is cold-booted, and the system tapes have been loaded, the above-referenced directories are missing additional names and proper ACLs and initial ACLs.

The manual steps in the MRX.Y_coldboot.ini script are:

```
autoinput admin\n
; Fix unbundled directory names and ACLs
autoinput sa >unb sma *.SysMaint.*\n
autoinput an >ldd>system_library_unbundled unbundled unb UNB\n
autoinput sa >ldd>unb sma *.SysAdmin sma *.SysDaemon sma *.SysMaint.* s *.*.*\n
autoinput da >ldd>unb Initializer.SysDaemon.z\n
autoinput an >ldd>system_library_unbundled>source s S\n
autoinput an >ldd>system_library_unbundled>object o 0\n
autoinput sa >ldd>unb>(source object) sma *.SysAdmin sma *.SysDaemon sma *.SysMaint.* s *\n
autoinput da >ldd>unb>(source object) Initializer.SysDaemon.z\n
autoinput mq >dumps +5000\n
autoinput pause 120\n
autoinput ame\n
```

The addition of SysMaint project access is incorrect – this project is not installed on new Multics systems during cold boot and isn't required to be present. The addition of those ACLs should be removed from the cold boot script.

The addition of the short names on the unbundled directories should also be removed from the script and added to the `>tools>acct_start_up.ec`. Similarly, the setting of ACLs and initial ACLs on these directories should be done in `>tools>acct_start_up.ec`. (The initial ACLs are set up for all the other directories, but not for the unbundled directories at present. This, should be added to the accounting starting `exec.com` as well.)

The ticket for this issue is <https://multics-trac.swenson.org/ticket/33>

1.2 Quota on >dumps

Another issue is that when Multics is first started after a cold boot (and subsequently until fixed), the `monitor_quota` program reports errors when run by `Utility.SysDaemon`. The error message is:

```
0942 ut The quota of >dumps is 0, a record limit needs to be specified.
```

This is caused because the quota on `>dumps` is not properly set after a cold boot. Even though there is code in `>tools>acct_start_up.ec` to create the `>dumps` directory and set its quota, the helper function that performs this action ends up doing nothing because the directory already exists at the time this logic is executed. A prior step in initialization has already created this directory. As a result, the quota is never set on this directory.

The ticket for this issue is <https://multics-trac.swenson.org/ticket/119>

1.3 Crank Setup Produces Errors

A final issue covered by this MCR is that the initial crank setup fails on newly cold-booted systems due to two missing “values” in the `sys_admin.value` segment. These values are: `last_diskreport` and `last_log_time`. Other “date/time” values in this value segment are initialized to the current date/time, but these two aren't.

The ticket for this issue is <https://multics-trac.swenson.org/ticket/271>

2 Proposed Fix

2.1 Changes to acct_start_up.ec

The proposed fixes are found in the `compare_ascii` output comparing the installed `>tools>acct_start_up.ec` segment with the fixed `exec.com`:

```
A292      &print (asu.ec): Multics Accounting Startup (version of 87-08-28 for MR12.1)
Changed by B to:
B292      &print (asu.ec): Multics Accounting Startup (version of 2021-12-23 for MR12.8)

A502      ec &ec_dir>make_dir dumps "" 5000
```

Changed by B to:

```
B502      &- >dumps may already exist at this point, if so, set quota
B503      &if &[exists directory dumps] &then &do
B504          mq dumps 5000
B505      &end
B506      &else &do
B507          &- otherwise, create >dumps and set quota
B508          ec &ec_dir>make_dir dumps "" 5000
B509      &end
B510      &-
```

Inserted in B:

```
B524      &- Due to the way the unbundled tape is loaded, we need to add names and
B525      &- set access.
```

Preceding:

```
A516      ec &ec_dir>dir_addname system_library_unbundled unb UNB
```

Inserted in B:

```
B529      &- Due to the way the unbundled sources (>ldd>unb) are loaded, we need
B530      &- to add names and set access there too.
B531      ec &ec_dir>dir_addname ldd>system_library_unbundled unbundled unb UNB
B532      set_acl ldd>system_library_unbundled sma *.SysAdmin s *.*.* -rp
B533      ec &ec_dir>dir_addname ldd>unb>source s S
B534      set_acl ldd>unb>source sma *.SysAdmin s *.*.* -rp
B535      ec &ec_dir>dir_addname ldd>unb>object o 0
B536      set_acl ldd>unb>object sma *.SysAdmin s *.*.* -rp
B537      &-
```

Preceding:

```
A519      &- ***** also avoid trouble caused by >am not existing
```

Inserted in B:

```
B950      value_set -pn sys_admin last_diskreport [clock calendar_clock]
B951      value_set -pn sys_admin last_log_time [clock calendar_clock]
```

Preceding:

```
A931      &-
```

Comparison finished: 5 differences, 25 lines.

2.2 Changes to MRXY.Z_coldboot.ini

The following lines will be removed from the distributed cold boot DPS8M simulator script:

```
; Fix unbundled directory names and ACLs
autoinput sa >unb sma *.SysMaint.*\n
autoinput an >ldd>system_library_unbundled unbundled unb UNB\n
autoinput sa >ldd>unb sma *.SysAdmin sma *.SysDaemon sma *.SysMaint.* s *.*.*\n
autoinput da >ldd>unb Initializer.SysDaemon.z\n
autoinput an >ldd>system_library_unbundled>source s S\n
```

```
autoinput an >ldd>system_library_unbundled>object o 0\n
autoinput sa >ldd>unb>(source object) sma *.SysAdmin sma *.SysDaemon sma *.SysMaint.* s *\n
autoinput da >ldd>unb>(source object) Initializer.SysDaemon.z\n
autoinput mq >dumps +5000\n
```

3 Testing

Testing involves creating tapes including the updated `>tools>acct_start_up.ec`, and cold-booting Multics using those tapes and the updated DPS8M simulator script. After the system is cold-booted, the names, ACLs, and initial ACLs on the unbundled directories will be examined. The quota on `>dumps` will be checked, and the crank initialization will be performed. All should confirm the expected results.

4 Documentation

It turns out that while the cold boot simulator script included steps to properly set up the unbundled directories and fix the quota on the `>dumps` directory, the Software Installation Bulletin (SIB) didn't include the unbundled directory setup instructions – as prior versions of the SIB did. This was a mistake in the preparation of the SIB for MR12.7.

The SIB did instruct the system installer to check the quota on `>dumps` and to set it if it was unset. This should be removed in the section for first time installation (cold boot), but should remain for upgraded systems, as the quota may not have been correctly set up in prior releases.

Regarding the crank setup documentation, no changes are required. However, the Multics WIKI provides corrective steps to fix the crank, and these can be removed – or updated to reflect that these steps are no longer needed in the new release of Multics.

5 Version History

2021-12-24	1.0	Initial version of the MCR.
2021-12-28	1.1	Corrected some typos.