

MCR10127

Update `system_start_up.ec` with Various Fixes and Features

Revision 1.0

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1 Problem Description

Over the years, various fixes have been made and various features added to the `system_start_up.ec` on GHM. As that is a production system, it makes sense to consider adding some of those fixes and features to the `system_start_up.ec` included in the next Multics release. Included in the proposed changes are adding:

- Message coordinator virtual consoles, log sinks, and routes for the data management daemon.
- Message coordinator log syncs for the incremental and complete hierarchy and volume backup daemons.
- Message coordinator support for the `puna` punch I/O driver.
- Missing message coordinator route for the `cd` message coordinator source, used by the complete hierarchy backup daemon.
- Adding commented out IMFT message coordinator routing.
- Adding commented out logging in of the `puna` daemon.
- Adding access for the HFED project to the `rcp_sys_` gate, which is required for successful use of TOLTS.

Ticket <https://multics-trac.swenson.org/ticket/274> proposes updating the `system_start_up.ec`.

2 Proposed Fix

The proposed fix is this best illustrated by taking the output of `compare_ascii` and embedding commentary:

The following defines `dmc` as a message coordinator virtual console.

Inserted in B:

B73 `sc_command` define dmc tty otw_

B74

Preceding:

A73 & EXAMPLE OF REMOTE I/O TERMINAL

The section below defines log syncs for, respectively, incremental hierarchy, incremental volume, volume complete, and hierarchy complete backup daemons. The last line defines the log sync for the Data Management daemon.

Inserted in B:

B79 sc_command define bklog log bklog
B80 sc_command define vinclog log vinclog
B81 sc_command define vcomplog log vcomplog
B82 sc_command define cdlog log cdlog
B83 sc_command define dmlog log dmlog
Preceding:
A77 sc_command reroute as severity1 default_vcons asc

This adds a message coordinator route for the puna punch daemon for user input/output.

A81 sc_command route (io1 io2 cord prta prtb) user_i/o ioc
Changed by B to:
B88 sc_command route (io1 io2 cord prta prtb puna) user_i/o ioc

This adds a message coordinator route for the puna punch daemon for error input/output.

A84 sc_command route (io1 io2 cord prta prtb) error_i/o *ioc
Changed by B to:
B91 sc_command route (io1 io2 cord prta prtb puna) error_i/o *ioc

This adds message coordinator routes for the puna punch daemon for log input/output (to both the log and the console).

A87 sc_command route (prta prtb reader io1) log_i/o iolog
A88 sc_command route (prta prtb reader io1) log_i/o ioc
Changed by B to:
B94 sc_command route (prta prtb reader io1 puna) log_i/o iolog
B95 sc_command route (prta prtb reader io1 puna) log_i/o ioc

The section below adds a route for the cd message coordinator source. It turns out that the `admin.ec` uses `cd` rather than `cd1` or `cd2`. For compatibility, the `cd1` and `cd2` sources are maintained.

It also routes messages for the `bk`, `vinc`, `vcomp` message coordinator sources to corresponding logs. Without this fix, messages from these sources are lost when the system is shut down or when paper console logs are no longer available.

This section also defines routes for the `dm` message coordinator source, which corresponds to that used when logging in the Data Management Daemon.

Finally, it adds commented out routes for a pair of IMFT daemons. This serves as an example for

customers wishing to set up IMFT.

```
A91      sc_command route (bk cd1 cd2 rt vinc vcons vcomp) user_i/o bkc
A92      sc_command route (bk cd1 cd2 rt vinc vcons vcomp) error_i/o *bkc
A93      &
Changed by B to:
B98      sc_command route (bk cd cd1 cd2 rt vinc vcons vcomp) user_i/o bkc
B99      sc_command route (bk cd cd1 cd2 rt vinc vcons vcomp) error_i/o *bkc
B100     sc_command route bk (user_i/o error_i/o) bklog
B101     sc_command route vinc (user_i/o error_i/o) vinclog
B102     sc_command route vcomp (user_i/o error_i/o) vcomplog
B103     sc_command route (cd cd1 cd2) user_i/o cdlog
B104     sc_command route (cd cd1 cd2) error_i/o cdlog
B105     &
B106     & Data Management Daemon
B107     &
B108     sc_command route dm user_i/o dmc
B109     sc_command route dm error_i/o *dmc
B110     sc_command route dm (user_i/o error_i/o) dmlog
B111     &
B112     & IMFT
B113     &
B114     & sc_command route ghmttestfti user_i/o (ioc iolog)
B115     & sc_command route ghmttestfti error_i/o (*ioc iolog)
B116     & sc_command route ghmttestfti log_i/o iolog
B117     &
B118     & sc_command route ghmttestfto user_i/o (ioc iolog)
B119     & sc_command route ghmttestfto error_i/o (*ioc iolog)
B120     & sc_command route ghmttestfto log_i/o iolog
```

This fragments includes an example command for logging in the puna punch IO daemon.

```
Inserted in B:
B132     & Uncomment if you want to start the punch daemon for puna
B133     & sc_command login IO SysDaemon puna
B134     &
Preceding:
A103     & if system rebooted itself after a crash, while unattended (flagbox 5 is
        "unattended")
```

The fragment below adds the required access to the rcp_sys_ gate needed for the HFED project to run TOLTS.

```
Inserted in B:
B150     hpsa >system_library_1>rcp_sys_ re *.HFED.*
Preceding:
A118     hpsa >system_library_1>rcp_priv_ re *.HFED.*
```

A full comparison of the existing and proposed system.start.up.ec is found below.

cpa >t>ssu.ec ==

Inserted in B:

B73 sc_command define dmc tty otw_

B74

Preceding:

A73 & EXAMPLE OF REMOTE I/O TERMINAL

Inserted in B:

B79 sc_command define bklog log bklog

B80 sc_command define vinclog log vinclog

B81 sc_command define vcomplog log vcomplog

B82 sc_command define cdlog log cdlog

B83 sc_command define dmlog log dmlog

Preceding:

A77 sc_command reroute as severity1 default_vcons asc

A81 sc_command route (io1 io2 cord prta prtb) user_i/o ioc

Changed by B to:

B88 sc_command route (io1 io2 cord prta prtb puna) user_i/o ioc

A84 sc_command route (io1 io2 cord prta prtb) error_i/o *ioc

Changed by B to:

B91 sc_command route (io1 io2 cord prta prtb puna) error_i/o *ioc

A87 sc_command route (prta prtb reader io1) log_i/o iolog

A88 sc_command route (prta prtb reader io1) log_i/o ioc

Changed by B to:

B94 sc_command route (prta prtb reader io1 puna) log_i/o iolog

B95 sc_command route (prta prtb reader io1 puna) log_i/o ioc

A91 sc_command route (bk cd1 cd2 rt vinc vcons vcomp) user_i/o bkc

A92 sc_command route (bk cd1 cd2 rt vinc vcons vcomp) error_i/o *bkc

A93 &

Changed by B to:

B98 sc_command route (bk cd cd1 cd2 rt vinc vcons vcomp) user_i/o bkc

B99 sc_command route (bk cd cd1 cd2 rt vinc vcons vcomp) error_i/o *bkc

B100 sc_command route bk (user_i/o error_i/o) bklog

B101 sc_command route vinc (user_i/o error_i/o) vinclog

B102 sc_command route vcomp (user_i/o error_i/o) vcomplog

B103 sc_command route (cd cd1 cd2) user_i/o cdlog

B104 sc_command route (cd cd1 cd2) error_i/o cdlog

B105 &

B106 & Data Management Daemon

B107 &

B108 sc_command route dm user_i/o dmc

B109 sc_command route dm error_i/o *dmc

```

B110      sc_command route dm (user_i/o error_i/o) dmlog
B111      &
B112      & IMFT
B113      &
B114      & sc_command route ghmttestfti user_i/o (ioc iolog)
B115      & sc_command route ghmttestfti error_i/o (*ioc iolog)
B116      & sc_command route ghmttestfti log_i/o iolog
B117      &
B118      & sc_command route ghmttestfto user_i/o (ioc iolog)
B119      & sc_command route ghmttestfto error_i/o (*ioc iolog)
B120      & sc_command route ghmttestfto log_i/o iolog

```

Inserted in B:

```

B125      &
Preceding:
A97       sc_command login IO SysDaemon cord

```

Inserted in B:

```

B132      & Uncomment if you want to start the punch daemon for puna
B133      & sc_command login IO SysDaemon puna
B134      &
Preceding:
A103      & if system rebooted itself after a crash, while unattended (flagbox 5 is
          "unattended")

```

Inserted in B:

```

B150      hpsa >system_library_1>rcp_sys_ re *.HFED.*
Preceding:
A118      hpsa >system_library_1>rcp_priv_ re *.HFED.*

```

Comparison finished: 9 differences, 47 lines.

3 Documentation

No changes to documentation are necessary – as the contents of this `exec.com` have never been documented.

4 Test

A virtually identical version of this `system_start_up.ec` has been running for many months on the GHM Multics system. In addition, a set of install tapes will be used to cold boot a system to make sure there are no errors in the resulting system, and that the expected changes work correctly.

5 Version History

2022-10-28	1.0	Initial version of the MCR.
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