



## Failure to Connect on Boot Application Note

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### Products: MTCDT-LEU1-2xxL and MTCAP-LEU1

When configured for cellular backhaul, the MTCDT or the MTCAP may fail to connect on power up. This can happen if the cellular radio is not ready when pppd tries to establish a connection and then the packet forwarder launches and immediately closes since the cellular connection was not established.

Manually starting both processes allows for a connection.

There are a few things you can do to overcome this issue:

- To monitor and restart pppd and the packet forwarder, if they exit for any reason, use a process monitoring app (monit) to restart the processes.
- Add a delay before starting the pppd process.

### Recommended Patches or Changes

#### 1. Add monit to monitor processes and connections.

<http://www.multitech.net/developer/software/mlinux/using-mlinux/configure-monit-for-pppd-and-lora-packet-forwarder/>

<http://www.multitech.net/developer/software/mlinux/using-mlinux/>

#### 2. Update to mlinux 3.3.12, then add monit.

Note: This mlinux update is also needed with MTAC-H-LORA Rev C cards using FPGA release .31. Refer to S000667, [mLinux and Packet Forwarder Application Note](#). Changes to mLinux in 3.3.12 delays pppd until after the radio registers to the network. This resolves most cases, but there may still be an issue (un-activated SIM, busy tower, etc.) that delays the cell connection.

mLinux 3.3.12 is available at: <http://git.multitech.net/cgi-bin/cgit.cgi/meta-mlinux.git/tag/?id=3.3.12>

#### 3. Add a delay to pppd startup script.

Modify the file /etc/ppp/ppp\_on\_boot as follows.

```
#!/bin/sh
#
# Rename this file to ppp_on_boot and pppd will be fired up as
# soon as the system comes up, connecting to `provider'.
#
# If you also make this file executable, and replace the first line
# with just "#!/bin/sh", the commands below will be executed instead.
#
```

```
# The location of the ppp daemon itself (shouldn't need to be changed)
PPPD=/usr/sbin/pppd

# The default provider to connect to
sleep 45s      #add this delay to allow time for Cell radio to register.
$PPPD call gsm
```

## Other Notes

### Start Cell Connection on Boot

<http://www.multitech.net/developer/software/mlinux/using-mlinux/start-cell-connection-on-boot/>

### Configure PPP init script Addendum (All radios as of 3.3.12)

The file `/etc/default/ppp` configures the ppp start on boot. There are two parameters:

- Use CHECKREGISTRATION to decide whether or not to verify cellular network registration before attempting ppp. If the SIM is not yet registered with the carrier, ppp will fail.
- Use PPPTIMEOUT to set the maximum accumulated amount of time allowed from the start of `/etc/init.d/ppp` to the time of cellular modem registration with cellular carrier. If the registration does not occur in the allotted time, boot time increases by the PPPTIMEOUT amount. If the SIM is pulled out or replaced, the PPPTIMEOUT must elapse before the firmware and chat script switch will occur.