GE MDS *PRODUCT RELEASE NOTE*

RELEASE NOTE: TD220X Firmware Version 2.1.9
RELEASE DATE: December 13, 2021

FIRMWARE

MDS TD220X FIRMWARE – VERSION 2.1.9

Overview

This section describes Software/Firmware updates for the MDS TD220X product.

Product: MDS TD220X
Version: 2.1.9
Release Date: 13-DEC-2021

Package Element	Version
Bootloader	0.0.3
Kernel	0.0.5
RootFS	2.1.9* CM ACSES 4.15.0*
MCU	2.2.4*
DSP	0.1.8

* = updated

Important Notes:

- **This release note lists changes since the most recent production release, 2.1.6.**
- **Release file tdx-krmd-2_1_9.mpk SHA256 sum:
  b11ce5b1e444c63a58e22c22fd3b2e0dcc31ca96eefe2768c199c7ef654ac577**
- **Booting release 2.1.9 the first time will log 'Parameter Changed (Unexpected Reboots = 1)' in the event log. This occurs because the data indicating a user-initiated reboot is missing. See New Features #3.**

New Features

1. Wabtec ACSES CM release 4.15.0 integrated for use when authorized. To make enough flash space available for this CM release, the bash shell was replaced with ash.
2. Add Statistics, CPU Idle and Mem Free percent fields with SNMP support.
3. Add Statistics, Unexpected Reboots count to help identify units experiencing spontaneous reboots after running normally for some hours. The count is reset when a user initiates a reboot, selects the Statistics, Reset Reboots item, or sets SNMP OID td220xResetReboots. The count increments when the unit boots up without user interaction (such as a hard power cycle), logs 'Parameter Changed (Unexpected Reboots = <n>)' in the event log, and sends SNMP trap parmChanged.
4. Add SSH support and Security Configuration, SSH Access setting. This implementation is based on the security library available in the product and is not very recent. It may require adding key exchange and cipher algorithms to your client. For example, connecting from my Linux desktop computer requires a command like:

```
ssh -o KexAlgorithms=+diffie-hellman-group1-sha1 -o HostKeyAlgorithms=+ssh-dss
-o Ciphers=+aes256-cbc <radio IP address>
```

5. Add TFTP Server Port setting to menu, cfgscript, and SNMP. File transfers including CM files, cfgscript, event log, reprogramming, and support bundle will use the configured port. Integrator commands CFGSCRIPT,

REPROGRAM, and TFTP now support an optional port parameter which takes precedence over the configured port.

6. Add SNMP cmFile and cmFileAction OIDs to allow loading files to the CM flash partition.
7. Add SNMP cmFileTable query to report the contents of the CM flash partition.
8. Log 'LAN Link Lost' when an ethernet cable is not connected to the unit.
9. Add integrator command DF to determine the space available in the CM flash partition and CM log directory.

Changes to Existing Features

1. MCU upgraded from 2.2.2 to 2.2.4 (as with any MCU change, first power on will take a few minutes to initialize)
   a. Use correct part number for TD220X MCU, 06-4728A01 (metadata change)
2. Authcode login account removed. The Maintenance, Authorization Codes menu or integrator AUTH command may be used instead.
3. Add the parameter value to 'Parameter Changed' event log entries to complement unexpected reboots logging.
4. Log 'File' events for integrator commands LN, RM, and TOUCH. It is already logged when the TFTP command adds files. This parallels the cases where the CM menus log the event.
5. 'Configuration Script Generated' eventlog entries for support bundle now note 'for support bundle'.
6. Expose Support Bundle transfer errors to the UI, matching file transfers for CM files, cfgscript, eventlog, and reprogramming.
7. Reduce support bundle contents and append data as generated rather than append many temporary files.
8. List project-specific directories with full timestamps (including seconds) when support bundle is generated.

Defect Fixes

1. MCU upgraded from 2.2.2 to 2.2.4 (as with any MCU change, first power on will take a few minutes to initialize)
   a. Resolve factory chamber test failures by merging viterbi error normalization from TD220MAX MCU.
2. Prevent 'mkdir: cannot create directory '/mnt/userdata/xcm-keyfiles': Read-only file system' appearing on the serial console at first boot.
3. Prevent 'gen_ld_close: ENTER' appearing on the serial console during reboot.
4. Prevent doubled lines when updating Reprogramming menu status by reducing to one function call.
5. Prevent showing 'File Loading...' for Configuration Scripts, Send File status when the transfer starts or completes.
6. Clear the Support Bundle, Send Support Bundle status when displaying the prompt to remove any error from a previous attempt.
7. Add SNMP td220xEventInfo OID and update trap interface code to the correct OID. Now trap extra info will display as ASCII rather than hex bytes.
8. Add conformance/compliance statements to TD220X MIBs to resolve MIB parser warnings.
9. Change System Configuration, Free Run to always ignore other DSP flags, matching Radio Test behavior.

Known Errata

1. None

Operational Notes and Limitations

1. Compatibility with TD220, TD220PLUS, TD220MAX
   - This firmware is for use on TD220X units only.
   - TD220X is not over-the-air compatible with TD220 or TD220PLUS products.
   - TD220X releases 2.0.16 and higher are over-the-air compatible with TD220MAX releases 1.2.5 and above.
2. After upgrading, the Starting Information screen may show Device Status "Initializing" for up to five minutes.
3. The ethernet port operates in 10Mb half-duplex mode.