

CAPTIS DEVICE FIRMWARE - RELEASE NOTES

DATE: 2022-08-18

CELLULAR MODULE

- Telit ME910G1-WW, 37.00.444-POC.440001

SUPPORTED PRODUCTS

- Captis Multi 1.2
- Captis Power+ 1.2
- Captis Pulse 1.2

CAPTIS DEVICE FIRMWARE 1.20.5 TO 1.20.6

ADDED

- New config item “tamper_one_shot” under “device” **PD-163**

CHANGED

- Config schema version now 1.3.0

DEPRECATED

- None

REMOVED

- None

FIXED

- Tamper software debounce logic **PD-163**
- Back-to-back tamper double trigger **PD-184**

SECURITY

- None

DESCRIPTION OF ITEMS 1.20.5 TO 1.20.6

1. PD-163 ADDED CONFIG ITEM “TAMPER_ONE_SHOT”

A new config item is added to modify the tamper one shot behaviour. The default setting is “true” which is the same behaviour as 1.19.00 to 1.20.5, that is once the tamper has tripped it will not re-trip until it has been re-armed. When set to “false” it will behave in a manner consistent with 1.18.X, recording tamper trip and reset events for ever tamper state change and initiating a connection for every tamper trip event if the “tamper_action” field is set to “SEND”,

2. PD-163 FIXED TAMPER SOFTWARE DEBOUNCE LOGIC

Conditions to trigger: Tamper switch state change going from reset to tripped and back to reset within 3 seconds

Behaviour: A “Tamper reset” event will be erroneously created

Workarounds Available: None

Affected versions: FWs 1.20.0 through to 1.20.5

3. PD-184 FIXED BACK-TO-BACK TAMPER DOUBLE TRIGGER

Conditions to trigger: Multiple fast tamper switch transitions

Behaviour: A tamper trip or tamper reset will have 2 events of the same type 3 seconds apart

Workarounds Available: None

Affected versions: FWs 1.20.0 through to 1.20.5

CAPTIS DEVICE FIRMWARE 1.20.4 TO 1.20.5

ADDED

- None

CHANGED

- None

DEPRECATED

- None

REMOVED

- None

FIXED

- Increased RTCC crystal boot timeout for low temperature startup **PD-241**

SECURITY

- None

DESCRIPTION OF ISSUES FIXED 1.20.4 TO 1.20.5

4. PD-241 – RTC CRYSTAL BOOT TIMEOUT IN COLD TEMPERATURES

Conditions to trigger: Device undergoes a reboot (from magnet reboot, device FOTA, or watchdog timer) and the temperature is below 0 degC

Behaviour: The RTC oscillator will not startup and stabilise before the timeout, and the firmware will failover to the internal oscillator which is up to 20% inaccurate. This will cause timestamps to drift between connections.

Workarounds Available: For device FOTA change the device connection schedule to a warmer part of the day if overnight temperatures are expected to be below zero. Avoid magnet reboots if temperatures are below zero.

Affected versions: HW v1.2 on FWs 1.20.2, 1.20.3, and 1.20.4

CAPTIS DEVICE FIRMWARE 1.20.3 TO 1.20.4

ADDED

- None

CHANGED

- None

DEPRECATED

- None

REMOVED

- None

FIXED

- Increased RTCC crystal boot timeout for alternate part compatibility **CAP-1359**
- ADC lockup
- WDT occurring when device goes to sleep **CAP-1360**

SECURITY

- None

DESCRIPTION OF ISSUES FIXED 1.20.3 TO 1.20.4**1. CAP-1359 – RTC CRYSTAL BOOT TIMEOUT FOR ALTERNATE PARTS**

Conditions to trigger: Device undergoes a reboot (from magnet reboot, device FOTA, or watchdog timer) and the PCB has a specific manufacturers crystal populated

Behaviour: The RTC oscillator will not startup and stabilise before the timeout, and the firmware will failover to the internal oscillator which is up to 20% inaccurate. This will cause timestamps to drift between connections.

Workarounds Available: None.

Affected versions: HW v1.2 on FWs 1.20.2 and 1.20.3

2. ADC LOCKUP

Conditions to trigger: Will happen for any setup/use case but will be exacerbated by enabling the analog channels on a Multi

Behaviour: The device will occasionally lockup for 2min then reboot. The event “BL Msg – WDT” will be reported

Workarounds Available: None.

Affected versions: HW v1.2 on FWs 1.20.2 and 1.20.3

3. CAP-1360 - WDT OCCURRING WHEN DEVICE GOES TO SLEEP

Conditions to trigger: A measurement needs to trigger in a 1 second window immediately prior to sleep. This is much more likely when the measurement interval is less than 2 minutes or switch triggered logging is enabled.

Behaviour: The device will lockup for 2min then reboot. The event “BL Msg – WDT” will be reported

Workarounds Available: Use longer measurement intervals and don't use switch triggered logging.

Affected versions: HW v1.2 on FWs 1.20.2 and 1.20.3

CAPTIS DEVICE FIRMWARE 1.20.2 TO 1.20.3

ADDED

- Tamper action config item to initiate connection on tamper trip **CAP-1357**
- FTP download resume for module FOTA **CAP-1340**

CHANGED

- Config schema version changed to 1.2.0

DEPRECATED

- None

REMOVED

- None

FIXED

- Bootloader version not being reported
- Antenna switching not enabled for Pulse v1.2
- FOTA verification failure for certain images **PD-161**
- Increase module FOTA retries from 3 to 6 and improved dropped connection recovery **CAP-1349**

SECURITY

- None

DESCRIPTION OF ISSUES FIXED 1.20.2 TO 1.20.3

1. BOOTLOADER VERSION NOT BEING REPORTED

Conditions to trigger: Any data connection occurs

Behaviour: The bootloader version should be present in the Cumulocity device software tab or the Azure device twin but it is missing

Workarounds Available: None.

Affected versions: HW v1.2 on FW 1.20.2

2. ANTENNA SWITCHING NOT ENABLED FOR PULSE V1.2

Conditions to trigger: Always present on Pulse v1.2 variant

Behaviour: The RF switch is not driven and will result in very poor LTE signal

Workarounds Available: None.

Affected versions: Pulse v1.2 on FW 1.20.2

3. FOTA VERIFICATION FAILURE FOR CERTAIN IMAGES

Conditions to trigger: Device FOTA images of a certain length will fail the download verification

Behaviour: The FOTA download will complete but wont apply. The event “HTTP Device FOTA File Validation Fail” will be reported.

Workarounds Available: Use a different image.

Affected versions: All variants on FW 1.20.0, and 1.20.2

4. INCREASED MODULE FOTA RETRIES AND IMPROVED DROPPED CONNECTION RECOVERY

Conditions to trigger: Module FOTA in poor signal conditions.

Behaviour: The FOTA download will be incomplete. The device will report event “Module FOTA Download Failure”.

Workarounds Available:

- Try switching network RAT (NB or CatM).
- Hold off on module FW upgrades

Affected versions: All variants on FWs prior to 1.20.3, excluding 1.19.2

CAPTIS DEVICE FIRMWARE 1.20.0 TO 1.20.2 (1.20.1 IS SKIPPED)

ADDED

- Support for common HW v1.2:
 - Antenna switching **JJ-344**
 - Isolated battery measurement **JJ-345**
- Support for Captis Multi 1.2, Captis Power+ 1.2:
 - Support for 2 analog channels **JJ-341**
 - Support for 12V out **JJ-346**
- Antenna switching shell command for HW 1.2 **CAP-1322**

CHANGED

- MQTT Keepalive timeout changed from 1 min to 5 min
- get_power_out shell command now returns voltage measurements of 5V and 12V supplies for HW 1.2
- Cellular registration check exits faster for rejected registration condition **CAP-1315**

DEPRECATED

- None

REMOVED

- None

FIXED

- None

SECURITY

- None