



Captis Firmware Update 1.18 to 1.19

Version 1.0

26/08/2021

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Associated Documents

Date	Revision	Document Name
26/08/2021	V1.0	Captis Shell Commands
26/08/2021	V1.0	Captis Firmware Entry Creation

1 Scope

The purpose of this document is to detail the most important updates from version 1.18 to 1.19 of the Captis firmware. Key changes have been detailed below in the following section.

2 Updates

The following key updates have been made from version 1.18 to 1.19 of the Captis Firmware:

-  Configuration Restructure
-  Cumulocity Shell Command Support
-  Cumulocity FOTA Support
-  Data Transfer Efficiencies
-  Battery Life Efficiencies
-  Change to Tamper Recording Removal of mlot Server Support

The items listed above will be explained in more detail in the following subsections.

2.1 Configuration Restructure

In firmware 1.18 and prior, the configuration allowed for 1 MQTT server, 1 NTP server, 1 FOTA server and so on regardless of if they were being used or not. In 1.19, rather than having dedicated slots, servers are defined in a server list. This adds some flexibility in that, the configuration is no longer restricted to 1 of each server.

Additional flexibility is achieved by the new addition of server roles. Roles define what a server is capable of and how it should be treated.

For example, you might have 3 MQTT servers defined:

-  1 for bootstrap
-  1 for configuration and operations
-  1 for measurement data and events.

Perhaps you would prefer the roles from above in the one server. The configuration in 1.19 now allows for that.

2.2 Cumulocity Shell Command Support

The Captis Firmware now supports the native Cumulocity feature of **shell commands**. This allows you to direct the device to perform an action (such as bootstrap or sleep), or to interrogate the state of the device or sensors. For a full list of the shell commands that are available, please refer to the dedicated Captis shell command document, detailed in the Associated Documents table.

2.3 Cumulocity FOTA Support

The Captis firmware now supports 'Firmware Over The Air' (FOTA) operations in Cumulocity. Device FOTA uses entries in the 'Firmware Repository' and Module FOTA uses the 'Software Repository'. These are both accessible from the Captis application within the platform. The firmware files are still hosted externally but the choice of what devices to upgrade, which version to upgrade to, and when to upgrade are now in the hands of the Cumulocity user. Please refer to the "Captis Firmware Entry Creation" document for details on how to add these firmware entries to Cumulocity.

2.4 Data Transfer Efficiencies

The Captis FW is now more efficient in its network traffic packetization, both in the application and transport layers. The size of the benefit will depend on the use case. Most use cases will see a slight improvement, but the more aggressive use cases (multiple sensors and small measurement intervals) will see a significant improvement.

An example of typical Captis applications and their average percentage reduction in packet size can be found below:

-  Metering: ≈33%
-  Analog sewer: ≈33%
-  Float switch sewer: ≈31%
-  6 x Modbus Registers + Pulse Interval and Total: ≈69%

2.5 Battery Life Efficiencies

Radio module time on air will be reduced due to the data transfer efficiencies described in section 2.4. This will result in a modest energy saving and slightly longer battery life. For measurement intervals less than 15 minutes (and for 1 wire sensors in general) there have been improvements to reduce the wake time, translating into additional battery life improvements.

2.6 Tamper Recording

The operation of the tamper switch has been changed due to experiences with devices in the field. Prior to 1.19 the tamper switch opening, or closing would result in an event, which would be pushed to the platform and then forgotten about. The behaviour now is that the tamper is armed in the factory and the trip event and time is recorded and the state remains tripped from that point on. The tamper state is sent to the platform every connection.

2.7 Removal of Mlot Server Support

The addition of Cumulocity FOTA and shell command support makes the Mlot Configuration and FOTA servers redundant and as such, support has been removed from the firmware.

3 Conclusion

Changes to the firmware have been made to improve the performance of the Captis fleet and are not limited to the key improvements listed within this document.