



Release Notes

Release 16.10.0

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

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Do not operate the Sierra Wireless modem in areas where cellular modems are not advised without proper device certifications. These areas include environments where cellular radio can interfere such as explosive atmospheres, medical equipment, or any other equipment which may be susceptible to any form of radio interference. The Sierra Wireless modem can transmit signals that could interfere with this equipment. Do not operate the Sierra Wireless modem in any aircraft, whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless modem **MUST BE POWERED OFF**. When operating, the Sierra Wireless modem can transmit signals that could interfere with various onboard systems.

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THIS IS THE LAST RELEASE OF THE RELEASE NOTES IN PDF. THE RELEASE NOTES WILL BE MIGRATED TO GITHUB AND HTML IN THE NEXT RELEASE.

NEW SECURITY FEATURES

Login Authentication Changes

SSH IS NOW DISABLED BY DEFAULT ON ALL NETWORK INTERFACES EXCEPT USB0.

Starting with Legato 16.10.0 (and SWI9X15Y_07.11.18.00), when you access your module using a serial console or SSH shell connection, new login authentication menus will display providing these credential setup options:

It is strongly recommended to setup credentials for remote login.

Please select one of the following options:

- 1) Setup ssh keys and disable passwords-based authentication via ssh (the most secure)
- 2) Setup password (better than nothing)
- 3) Do nothing

It is strongly recommended to set up SSH keys and disable password-based authentication. This option will limit the risk of devices been accessed remotely on the internet.

For more information on setting up SSH keys and other Authentication Methods see:

<http://legato.io/legato-docs/latest/howToLoginAuthentication.html>

NOTE: WHEN SETTING YOUR SSH KEYS, KEEP YOUR CREDENTIALS IN A SAFE PLACE. YOU WILL NOT NEED YOUR PASSWORD TO LOG INTO THE DEVICE ANYMORE BUT IT IS NEEDED IF THE SSH KEYS EVER NEED TO BE UPDATED OR CHANGED.

TOOLS

New Tools

The following tools have been added:

Sandbox Helper - sbHelper Host Tool

The sbHelper tool supports sandboxed applications by building the reference section of an .adef. Running sbHelper on your host starts the app on the target and dynamically traces it to determine the files that the app is trying to access and builds the reference section in your .adef file.

See <http://legato.io/legato-docs/latest/howToSecuritySandboxHelper.html>

Firmware image tool - systocwe Host Tool

The systocwe tool provides a way to create a cwe image from a Legato system update file.

See http://legato.io/legato-docs/latest/toolsHost_systocwe.html

Removed Tools

The following tools have been removed:

Target

`execInApp` replaced by "`app runProc`"

Host

`lsapp` replaced by "`app list`"

`rmapp` replaced by "`app remove`"

`startapp` replaced by "`app start`"

`statapp` replaced by "`app status`"

`stopapp` replaced by "`app stop`"

`app install` replaced by "`update`"

NOTE: 16.07 RELEASE DOCS STATED THAT UPDATE WAS BEING REPLACED. THIS IS AN ERROR; UPDATE IS THE SUPPORTED TOOL TO UPDATE APPS.

FEATURES

New Features

The following new features are introduced in this release of Legato:

Atomic File Access API

The Atomic file access API creates an atomic file access mechanism that can be used to perform file operations (especially file writes) in atomic fashion.

See: http://legato.io/legato-docs/latest/c_atomFile.html

Developer Mode

A new Developer Mode is available in Legato AF, it is enabled by the app devMode.

devMode is installed on the target and starts automatically after the upgrade.

devMode provides features that make the target development friendly:

- Sets the target system as “good” if apps successfully start and stay stable for 10s. This is to prevent the system from rolling back unnecessarily.
- Starts the discovery agent for Dev Studio so that the device is discoverable by the software.
- Holds the wake lock so that the device does not go into sleep when not connected via USB.

Stopping devMode

To stop developer mode temporarily (until next reboot or framework restart), stop the app:

```
app stop devMode
```

To disable developer mode even after you rebuild your system and install an update, modify the devMode app's .adef file:

```
start: manual
```

See: <http://legato.io/legato-docs/latest/howToDevMode.html>

WiFi Connection Support

The Data Connection Service API has now been extended to support WiFi Connections.

See http://legato.io/legato-docs/latest/c_le_data.html

UART API

A new TTY API has been created to configure serial ports.

See http://legato.io/legato-docs/latest/c_tty.html

Alpha Release Features

The following Features are in Alpha Release and are still undergoing refinement. Please try out and provide feedback on the following features:

AirVantage Time Series API (Alpha Release)

The AirVantage Time Series API enables apps to collect sensor data when the device is offline. The AV Time Series is enabled by default on all WP products.

See: <http://legato.io/legato-docs/latest/howToAVTimeSeries.html>

IoT Card Detection at Boot (Alpha Release)

IoT cards are now detected at boot on the mangOH device.

SPI API (Alpha Release)

The Serial Peripheral Interface API provides options to control apps via the SPI protocol.

See http://legato.io/legato-docs/latest/c_spi.html

Fixes

All development work is tagged in git-hub as “16.10.0” and the list of changes can be found here:

<https://github.com/legatoproject/legato-af/commits/16.10.0>

For the list of Yocto-based Linux Distro fixes see the release notes on Source:

<http://source.sierrawireless.com/resources/legato/wpfirmwarerelease/>

KNOWN ISSUES

Constraints and Limitations

ECM-USB/ModemManager issue on Ubuntu 16.04+

Ubuntu 16.04 and newer is default installed with modemManager version 1.4.12-1ubuntu1 which conflicts with the ECM-USB driver when connecting a target. ModemManager may cause the Ubuntu NetworkManager to crash on your host and/or your target device to become unavailable over USB.

Symptoms:

- NetworkManager crashing when plugging into your device over USB, or
- The target device becomes inaccessible after 30 seconds.

Recommended Work Around:

- Uninstall modemManager from Ubuntu or
- Downgrade modemManager to version 1.0.0-2ubuntu1

Version 1.0.0-2ubuntu1 of modemManager can be found here:

<http://packages.ubuntu.com/trusty/modemmanager>

Docs Limitations

The new search engine has a limitation for partial words. Searching for APIs using previous conventions (e.g., "le_audio") currently fails (considered a partial word). To work around this, you can use a wildcard after (le_*) or a fuzzy match (le_~1)

The Legato Reference manual has limitation with some links to online documentation. Use the legato.io version if a link is unavailable in the PDF.

Open Issues

The following is the list of known issues that still exist in Legato 16.10.0 and are currently under investigation:

Legato AF

- Apps can't share writeable files with each other unless both apps are "un-sandboxed".
- Real time scheduling policies are not able to promote themselves if needed.

mangOH

- Not able to hot swap or hot plug SD IoT add-on cards

Tools

- "app runProc" does not work for apps running outside of a Sandbox. If you wish to run app runProc your app must be running in a Sandbox.
- "app status" doesn't have a "waiting" status if an app is waiting it gets reported as "running".
- "configEcm" will give a confusing error message about IP's not being on the same subnet when other errors are present.

Yocto-based Linux Distro

- Hard-float support is not provided for WP8548-G
- Communication with the MCU is lost if device enters ULPM with ADC selected.
- usb0 does not have a fixed mac address and changes after each reboot.

Audio API

- No sound recorded when using an Analog interface.
- Not able to resume a playback after a recording has been paused.
- "Pop" noise on usb audio at the end of a play or when stopping an ongoing file

Config Tree

- Removing an app may remove another apps tree if the first apps requires section lists the second app.

Data Connection API

- "wifi client disconnect" does not release current Wifi connection

eCall API

- First tone in DTMF is often missed or has a shorter duration.
- LE_ECALL_STATE_TIMEOUT_T6 is not handled when T6 expires. The timeout event is not generated in the eCall handler.
- MSD transmissions fail over SMS when the FDN is locked
- The fallback SMS is not received during an Era-Glonass eCall session

GPIO API

Only one service is able to access a GPIO pin at a time

SPI API

Driver does not support speeds lower than 960000 baud

UART API

Modem does not support serial baud rate of 1000000