



RELEASE NOTES

FX30 and FX30S 14.1.1 Release Notes

Compatibility

Release 14.1.1 is compatible with Sierra Wireless FX30 and FX30S Cat M1/Cat NB1 Programmable IoT Gateway products (SKUs 1104736, 1104737, 1104738, 1104739).

Note: AVMS Bundle Updates (FOTA) do not work over the LTE-NB1 network.

Build Contents

Bootloader Version	SWI9X06Y_02.36.06.00 63d944 jenkins 2020/12/10 19:12:28
MCU	002.015
FX30 Version	R14.1.1
Linux Version	3.18.140 (oe-user@oe-host) () #1 PREEMPT Fri May 14 11:13:23 UTC 2021
Legato Version	19.11.5.a1621d58_27c4cd8552e17e79fdc3b0c91ff8bce9

Supported Images

To obtain carrier-specific FX30 firmware images, please go to the [FX30 CatM Firmware page](#) on the Sierra Wireless Source. Firmware is available for the carriers listed below.

Note: These are full firmware images, which include all components (Linux, radio module firmware, and Legato).

Carrier	Radio Module Firmware Version	Carrier PRI Version
Generic	SWI9X06Y_02.36.06.00	GENERIC-001.071_001
Generic GCF	SWI9X06Y_02.36.06.00	GENERIC-001.071_001
AT&T	SWI9X06Y_02.36.06.00	ATT-001.067_001
Verizon	SWI9X06Y_02.22.12.00	VERIZON-001.042_002
Sierra	SWI9X06Y_02.36.06.00	SIERRA-001.043_001

Source Code

To obtain the source code, use the [Leaf Workspace Manager](#) with the identifier **swi-fx30-catm_3.0.0**.

Note: The Legato source code included in the FX30 source code package includes modifications that do not appear in the corresponding Legato source code available from [legato.io](#) or other Leaf packages. For details, refer to item descriptions in the [New Features](#) and [Bug Fixes](#) sections, below.

The Source code build generates the full FX30 image (CWE binary) at the location:

```
build_bin/images/public/FX30_WP77xx_full_<FX30 VERSION>-<CARRIER>-<RMFW VERSION>.cwe
```

(e.g. build_bin/images/public/FX30_WP77xx_full_R14.1.1.002_a1621d58-sierra-SWI9X06Y_02.36.06.00.cwe)

To pull the full yocto environment, use the following command sequence:

1. Create a new folder:

```
mkdir my_workspace
cd my_workspace
```
2. Initialize the Leaf workspace:

```
leaf init
```
3. Set up the workspace:

```
leaf setup -p swi-fx30-catm_3.0.0
```
4. Pull the source code:

```
leaf getsrc swi-linux
```
5. Build:

```
make PROD=fx30
```

Notes

- `leaf getsrc swi-linux` pulls the entire FX30 yocto environment, allowing the full image to be built. Some additional Legato framework patches (customizations) are added to the legato-af recipe.
- `leaf getsrc legato` results in pre-patched Legato framework source code with FX30 customizations corresponding to the legato-af yocto recipe.

Important: Do not execute `repo sync` in `swi-linux` or `legato` workspaces. This can result in a corrupted workspace.

New Features

Radio Module FW

Integrated WP R14.1 release into baseline

General

Removed legatofwk.cp capabilities from AVMS packaging (no longer supported in AVC2.0)

Removed `enable_phy_clk` startup script (19.2MHz clock provided in hardware)

Removed pulling Legato source for external builds using Leaf
Legato source code is now packaged during when Leaf packages are generated

Included Legato 19.11.5 in Release 14.1

Added public layer to external build (generates full bundle to `build_bin/images/public`)

Added PPP support (kernel driver, pppd, CVE-2020-8597)

Updated `config_avms_at` script to check daily if AV poller is disabled, and restore to 15 minutes (ensure device check-in to AirVantage)

Added `config_at_avms` initscript to ensure the AV poller is enabled and User Agreements are disabled upon startup

New unified login nagger added to FX30

Resolved issue with FX30 factory reset to invoke the unified nagger

Resolved FX30 nagger issues migrating to new loginNagger

Install ColumbiaAtService and FactoryRecoveryService from `/usr/local/bin/legato/apps/bin` when building from external source

Removed the `lpwa.swir` APN patch

Added `restore_mac` initscript to restore the default MAC address

Removed kernel patching function since yocto 2.5 correctly patches kernel

Updated radio module binaries within the CatM build to their R14 BP2 TEST versions

The creation of the V2 system did not support backwards compatibility to manipulate or query GPIOs through `sysfs`. GPIOs can now be manipulated through `sysfs` in addition to the new V2 system.

Added Legato UART service 14 and 15 mode patch for RS485 and RS232 with flow control

Migrated FX30 recipes into R14.x baseline

Added swicwe-native to be included in build

Added support to generate DOTA packages for future releases

Updated build files with fixes for LXSWIREF-1769 and LXSWIREF-1772

Added read-only set of firewall rules

Currently allows time sync from NTP server

Bug Fixes

General

Resolved time offset issue that configured the date and time to the past

Updated FX30 loginNagger to run from /etc/profile.d

Fixed install_le_apps script to correctly check tool status at startup (external source code builds only)

Fixed issue in AT!FWD?GPIOCFG command for GPIO 33

Resolved AirVantage connectivity issues in Legato 19.11.5

Leaf packaging updates allow Legato source code to be pulled from manifest for FX30 Leaf swi-linux build

Enabled CONFIG_UDHCPD in busybox defconfig

Calls made through AT commands to query gpio pins were blocking calls and would prevent additional queries from being executed until previous calls were resolved. Fixed to allow the AT service to continue working even after querying unavailable pins.

Resolved missing MCU firmware from R13 and R14.x builds

Resolved race condition generating module firmware version numbers

Resolved minor buffer overflow issue in ColumbiaAtService

Resolved pulling Legato source code using GERRIT_USER

Resolved issue with AirVantage firmware sync by implementing 8-digit FX30 hash appended to Legato version

Resolved issue with ULPM wakeup from GPIO

AirVantage

Added RFS (Root File System) version to AVMS package bundle revision string

Backported LE-15972 fix for avcDaemon watchdog timeout (LE-13111)

Known Issues

AirVantage

Changing the AirVantage Lifetime value (also known as heartbeat or AV poller) using a template may report success. However, AirVantage disables the heartbeat instead.

This will cause the FX30 to no longer check-in with AirVantage.

The FX30 has a built-in mechanism checking once daily to re-enable the AV poller to 60 minutes, if found to be disabled.

AVC can fail to establish network connection for up to 6 hours due to Legato Wi-Fi services.

As a workaround, disable or uninstall all related Wi-Fi services.

General

Some devices are unable to access GPIO8 from sysfs

These devices require configuration using the AT command: AT+WIOCFG=8,16,1,0

configTree entries related to system settings that are modified, could be lost after a firmware update.

Please ensure to back up any system setting changes and then re-apply after the firmware update to R14.1

An issue in the Legato framework during migration of secure storage contents occurs after multiple upgrades and downgrades, causing secure storage keys to no longer be accessible.

Customers must avoid downgrading from R14.1 or newer to R11 or older.

An issue exists where GNSS fix is inaccurate. This issue will be faced by customers in marginal GNSS signal areas.

Upgrade Procedures

Local Upgrade

SSH on USB:

1. Copy **FX30_WP77xx_full_<FX30 VERSION>-<CARRIER>-<RMFW VERSION>.cwe** to the FX30 file system using scp.
2. Open an SSH session.
3. Execute **fwupdate download /<PATH>/FX30_WP77xx_full_<FX30 VERSION>-<CARRIER>-<RMFW VERSION>.cwe**.

Note: Ensure that you specify the full path to the file. For example:

```
fwupdate download /tmp/FX30_WP77xx_full_<FX30 VERSION>-<CARRIER>-<RMFW VERSION>.cwe
```

*Note: Legacy firmware images will still have the filename format **mcu-rmfw-boot-yocto-legato_wp77.cwe**. The contents of the old filename format and the new filename format are identical.*

Remote Upgrade

Using AirVantage. See [AirVantage FOTA Edition Getting Started](#) and [How to upgrade Firmware on my AirPrime module or AirLink programmable modem?](#)