



## Customer Release Notes

### FX30 and FX30S 15.1

## Important Notice

Information relating to this product and the application or design described herein is believed to be reliable, however such information is provided as a guide only and Semtech assumes no liability for any errors in this document, or for the application or design described herein.

Semtech reserves the right to make changes to the product or this document at any time without notice. Buyers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. Semtech warrants performance of its products to the specifications applicable at the time of sale, and all sales are made in accordance with Semtech's standard terms and conditions of sale.

SEMTECH PRODUCTS ARE NOT DESIGNED, INTENDED, AUTHORIZED OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT APPLICATIONS, DEVICES OR SYSTEMS, OR IN NUCLEAR APPLICATIONS IN WHICH THE FAILURE COULD BE REASONABLY EXPECTED TO RESULT IN PERSONAL INJURY, LOSS OF LIFE OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. INCLUSION OF SEMTECH PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE UNDERTAKEN SOLELY AT THE CUSTOMER'S OWN RISK. Should a customer purchase or use Semtech products for any such unauthorized application, the customer shall indemnify and hold Semtech and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs damages and attorney fees which could arise.

The Semtech name and logo are registered trademarks of the Semtech Corporation. All other trademarks and trade names mentioned may be marks and names of Semtech or their respective companies. Semtech reserves the right to make changes to, or discontinue any products described in this document without further notice. Semtech makes no warranty, representation or guarantee, express or implied, regarding the suitability of its products for any particular purpose. All rights reserved.

## Wireless Communications

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. The Semtech product 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. Semtech accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Semtech product, or for failure of the Semtech product to transmit or receive such data.

## Safety

Do not operate the Semtech product in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or near any equipment which may be susceptible to any form of radio interference. In such areas, the Semtech product should be powered off.

## Qualcomm Licenses

Semtech's cellular modules are sold subject to certain notices and restrictions regarding patent licenses from Qualcomm Incorporated. These notices and restrictions are available at [www.sierrawireless.com/qualcomm-notices](http://www.sierrawireless.com/qualcomm-notices).

---

## Sierra Wireless

Semtech Corporation acquired Sierra Wireless in January 2023. The Sierra Wireless brand is gradually being phased out. During the phase-out period, references to both “Semtech” and “Sierra Wireless” may appear in product documentation.

## Contact Information

Sales information and technical support, including warranty and returns	Web: <a href="https://www.sierrawireless.com/company/contact-us/">sierrawireless.com/company/contact-us/</a> Global toll-free number: 1-877-687-7795 6:00 am to 5:00 pm PST
Corporate and product information	Web: <a href="https://www.sierrawireless.com">sierrawireless.com</a>

## Revision History

Revision number	Release date	Changes
1.0	April 2023	Document creation
2.0	November 2024	Updated leaf package under Source Code Updated to Semtech manual template

# Contents

- 1: Introduction .....5**
  - 1.1 Document Scope ..... 5
  - 1.2 Document Audience ..... 5
  
- 2: Compatibility .....6**
  - 2.1 Build Contents ..... 6
  
- 3: Supported Images .....7**
  - 3.1 Source Code ..... 7
  - 3.2 Notes ..... 8
  
- 4: New Features .....9**
  - 4.1 Bug Fixes ..... 9
  - 4.2 Known Issues ..... 10
  - 4.3 Upgrade Procedures ..... 10
    - 4.3.1 Local Upgrade ..... 10
    - 4.3.2 Remote Upgrade ..... 10

# 1: Introduction

## 1.1 Document Scope

This document describes FX30 and FX30S firmware releases.

## 1.2 Document Audience

These release notes may be distributed to customers.

## 2: Compatibility

Release 15.1 is compatible with Semtech FX30 and FX30S Cat M1/Cat NB1 Programmable IoT Gateway products.

---

*Note: AVMS Bundle Updates (FOTA) do not work over the LTE-NB1 network. due to download speed.*

---

### 2.1 Build Contents

<b>Modem Version</b>	SWI9X06Y_02.36.08.09 c094f4 jenkins 2022/06/24 03:14:28
<b>MCU</b>	002.015
<b>FX30 Version</b>	R15.1
<b>Linux Version</b>	SWI9X06Y_03.00.13.00
<b>Linux Kernel Version</b>	Linux version 4.14.253 (oe-user@oe-host) ( gcc version 9.3.0 (GCC), GNU ld (GNU Binutils) 2.34.0.20200220) #1 PREEMPT Wed Dec 28 07:40:21 UTC 2022
<b>Legato Version</b>	21.05.0

## 3: Supported Images

To obtain carrier-specific FX30 firmware images, please go to the FX30 CatM Firmware page on the Semtech 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_02.36.08.09	GENERIC-001.079_000
AT&T	SWI9X06Y_02.36.06.00	ATT-001.067_005
Verizon	SWI9X06Y_02.22.12.00	VERIZON-001.042_004
Telstra	SWI9X06Y_02.36.08.02	TELSTRA-001.061_001
Sierra	SWI9X06Y_02.36.08.09	SIERRA-001.049_000

### 3.1 Source Code

To obtain the source code, use the [Leaf Workspace Manager](#) with the identifier **swi-fx30-catm\_4.2.0**.

*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_R15.1.0.004-sierra-SWI9X06Y_02.36.08.09.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 Leaf workspace:
 

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

```
leaf setup fx30-catm-new -p swi-fx30-catm_4.2.0
```
4. Pull the source code:
 

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

```
make PROD=fx30
```

## 3.2 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.*

---

## 4: New Features

- **Radio Module FW**
  - Integrated WP77 R15.1 release into baseline
- **General**
  - Added IMA feature
  - Enabled Yocto/Legato DM verity

### 4.1 Bug Fixes

General		Impacted Domain
MOLFX30-75 (QT19X06-591)	When IMA is enabled, /etc becomes read-only.	Linux
LXSWIREF-2069	Due to concerns regarding backward compatibility, default firewall input policy was set to ACCEPT. While individual firewall rules protect static interfaces, such as eth0 and rmnet_data0, any interface created at run time would have all ports open hence and prone to attacks	Linux
QT19X06-556	ADC0 and ADC1 values read by AT!macd? are incorrect	Linux
QT19X06-639	TAU may be rejected by the network if the PSM T3412 timer is set to 80 minutes	PSM
QT19X06-514	Query GPIO_43 will return an error	Legato
QT19X06-515	FOTA package download process stops, manual resynchronization needed	Legato
MOLFX30-53 (QT19X06-554)	Redirect security and authentication logs to flash	Linux
QT19X06-529	IMA_Enable version cannot set logread	Linux
MOLFX30-30 (QT19X06-534)	Factory recovery enables unauthorized SSH root access to FX30 Octave and customer application	Linux
QT19X06-568	ERROR is returned when executing the AT!FWD?FTIOTADC command	Linux
QT19X06-697	[FX30] Update modem CatM radio module binaries for ATT carrier	Modem

## 4.2 Known Issues

- 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.
- When UIMAUTOSWITCH is enabled by AT!CUSTOM="UIMAUTOSWITCH",02, the module SIM slot will be changed from External (UIM1) to eSIM (UIM2).
- RS-485 terminator resistor can be enabled in RS232 mode.
- General Known Issues:
  - 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 updates to R15.1
  - 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 R15.1, 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.

## 4.3 Upgrade Procedures

### 4.3.1 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*
  - *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.*
- 

### 4.3.2 Remote Upgrade

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