FX30 and FX30S 3G 17.0.1.007 Release Notes

Compatibility

Release 17.0.1.007 is compatible with Sierra Wireless FX30 3G Programmable IoT Gateways (FX30 SKU 1104675 and FX30S SKU 1104674).

Note: When using AirVantage to upgrade from R14 to R17, an error message "Read operation failure [lwm2m.max.attempts.exceeded]" may be displayed. If this message is observed, confirm the upgrade was successful by performing a synchronize operation in AirVantage. If the synchronize operation completes successfully and displays the correct R17 version, the firmware update was successful.

Build Contents

Component	Version
Linux	3.14.29ltsi-yocto-standard #2 PREEMPT Mon May 4 20:19:23 UTC 2020
MCU	002.004
Legato	18.06.5.e4479a6a_4d846734b15dea928031af763d2d138c

Supported Images

To obtain firmware images, please go to the Source at: source.sierrawireless.com/resources/airlink/software_downloads/fx30-firmware/fx30-firmware/ and follow the link to the 3G firmware packages. Firmware for the carriers listed below is available on the 3G firmware page.

Carrier	Radio Module Firmware Version	Bootloader Version	Carrier PRI Version
Generic	SWI9X15Y_07.13.07.00 92cfd2c jenkins 2018/08/22 19:18:52	SWI9X15Y_07.13.07.00 92cfd2c jenkins 2018/08/22 19:18:39	GENERIC-001.040_000
Anatel	SWI9X15Y_07.14.01.00 595652d jenkins 2018/10/26 08:34:29	SWI9X15Y_07.14.01.00 595652d jenkins 2018/10/26 08:48:35	GENERIC-001.042_000

Source Code

To obtain the source code, use the Leaf Workspace Manager with the identifier **swi-fx30-3g_1.0.1**. The source code .tar file now includes Legato source code for **18.06.5**.

Note: The Legato source code for Release 17.0.1.007 includes the fix for LE-12952 in Legato 18.06.5.

The source code build generates the full FX30 image (CWE binary) at the location *build_bin/ images/public/FX30_WP8548_full_R17.0.1.007_e4479a6a-<CARRIER PRI>.cwe.*

Note: When building from Yocto source code, the FX30 version is always reported as R17.0.1.007_e4479a6a. The hash indicates the Yocto build is based off the corresponding Legato source contained with the R17.0.1.007 release. This new format replaces the old versioning scheme of R17.0.1.007_modified. The Yocto build yields its own FX30 Legato hash inserted to the Legato version.

Note: Ubuntu 16.04 is recommended to build the Yocto environment.

New Features

Radio Module
Integrated WP module Release 17 to FX30 3G (WP8548).

General
Force Legato version hash to be appended to LWM2M object.   The Legato version hash is recalculated every build, which is required to ensure uniqueness for each AV package.
Added firewall support for IPV6.
Added firewall rule mechanism to support AVC2.0.   The AVC1.0 to AVC2.0 migration requires firewall rules for LWM2M. The implementation accounts for manually updated firewall rules residing in the overlay.
Created additional certified image available for Anatel.
Removed debug package (iperf and tcpdump).   Debug tools must be added by the customer if required.
Added startup script to install columbiaAtService and factoryRecoveryService if missing (providing AT!FWD commands and FX30 factory reset) and Customer Legato applications stored in /etc/legato/apps/bin.
Updated Legato version 18.06.4 to 18.06.5.   Legato 18.06.5 is a point release that contains only 2 changes beyond 18.06.4: LE-12952 and LE-11071.
Removed patch files that fixed LE-11071 and LE-12952 as it is included in Legato 18.06.5.

Bug Fixes

General	
	Identified root cause of Talon Ethernet IOT card not detected upon reboot.
	The Talon card bi-directional transceiver reverse drives the RESET_OUT line, preventing the WP85 GPIO from asserting the signal. The transceiver must be replaced with a pin compatible part such as 74AVC1T45
	Fixed issue with FX30 not booting with RadioCraft RC1701HP IOT card inserted.
	Updated AV manifest for AVC2.0.
	Resolved issue in R14.0.4.002 source code that causes build to fail, due to the meta-columbia-x recipe performing a compile-prepend to the ColumbiaATService, which does not exist.
	Fixed meta-columbia-x yocto layering and priorities.
	Resolved build error with Columbia versions file caused by meta-columbia-x/rootfs.
	Disabled Legato framework from configuring the APN. A field issue reported the loss of the APN configuration (LE-11783). The fix is applied to Legato 19.05 and is backported to be included in this release.
	Resolved issue with the login nagger.
	Fixed UBIFS User Partition corruption due to power cuts.
	Patched Legato framework to support FX30 UART modes for 14 (RS485) and 15 (RS232 with hardware flow control). See also Known Issues, General on page 4.
	Fixed firewall to allow IPv6 data sessions.
	Resolved an issue where the device did not wake up from low power mode when configured to wake on either IO1 or IO2. **Limitations on I/O 2:** • I/O 2 (GPIO38) does not work for ULPM wakeup • I/O 2 MUST be connected to ground if ULPM wakeup on I/O 1 is to be used
	Added script to restore the Ethernet MAC address upon FX30 factory reset.
	Backported LE-11071 (LE-11828) to resolve an issue that can cause all application Secure storage data to be lost.
	Resolved Legato version reported for 18.06.5.
AVMS	
	Updated AV package capabilities for AVC2.0.
	Patched Legato framework to include LWM2M credential storage improvements. This fix ensures credentials cannot become corrupted leaving the FX30 unable to communicate with AirVantage. Enhancements to the LWM2M credential storage available in Legato 19.09 (LE-12952) have been backported.

Fixed User agreements (disabled) and AV polling (enabled) for AVC2.0.

AVC1.0 firmware enabled User Agreements and disables AV polling requiring user intervention for subsequent OTA updates.

Added additional version hash to Legato version to resolve FOTA issues from AVC1 to AVC2.

GPIO

Fixed default ADC range. As per the documentation, default is 0–10 V, previously 0–5 V.

Fixed low pulse on GPIO output when calling Legato API: le_gpioPin*_Activate.

Resolved GPIO24 always returning 0.

Workaround requires ON/OFF (Pin 3 on the external power connector) to be tied to ground. See the FX30 User Manual r5 or FX30S User Manual r4 for more information.

Security Enhancements

General

Removed pppd from baseline FX30 image.

Security and CVE Vulnerabilities

Added CVE-2016-7117 net: use after free in the recvmmsg exit path.

Added CVE-2016-9793 net: avoid signed overflows for SO_{SND|RCV}BUFFORCE.

Known Issues

General

The fix for ALPC-855 is contained in the pre-built full FX30 CWE images and the pre-built FX30 Legato Leaf image. However, the Leaf Legato source code included in legato-src and swi-linux for swi-fx30-3g_1.0.1 does not include the fix. The result is that UartMode cannot be set to 14 or 15 programmatically when building from Leaf Legato source.

Power Modes

Documented ULPM sleep time includes device shutdown time.
Short ULPM sleep times (<1 minute) appear as if the device does not sleep for the appropriate amount of time. However, the sleep time commences once the sleep command is executed and includes the time for the WP module to shutdown.

Resolved issue waking up from UPLM when configured to wake on I/O 1.
Limitations on I/O 2:
• I/O 2 (GPIO38) does not work for ULPM wakeup
• I/O 2 MUST be connected to ground if ULPM wakeup on I/O 1 is to be used

ULPM Wake Up Does Not Work on IO2. Do not enable ULPM for IO2 because the device could lock up if IO2 is held high when ULPM is entered.

Firmware Upgrade
When using AirVantage to upgrade from R14 to R17, an error message "Read operation failure [lwm2m.max.attempts.exceeded]" may be displayed. If this message is observed, confirm the upgrade was successful by performing a synchronize operation in AirVantage. If the synchronize operation completes successfully and displays the correct R17 version, the firmware update was successful.
FOTA instability with Legato 18. Once the FX30 is running R17, some FOTA instability may be experienced when executing future updates.

Upgrade Procedures

Local Upgrade

SSH on USB:

1. Copy **FX30_WP8548_full_R17.0.1.007_e4479a6a-<CARRIER PRI>.cwe** to the FX30 file system using scp.

   *Note: The filename is **FX30_WP8548_full_R17.0.1.007-<CARRIER PRI>.cwe** if the file has been downloaded from source.sierrawireless.com.*

2. Open an SSH session.

3. Execute **fwupdate download FX30_WP8548_full_R17.0.1.007_e4479a6a-<CARRIER PRI>.cwe**.

   *Note: The filename is **FX30_WP8548_full_R17.0.1.007-<CARRIER PRI>.cwe** if the file has been downloaded from source.sierrawireless.com.*

   *Note: Legacy firmware images will still have the filename format **mcu-rmfw-boot-yocto-legato_wp85.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?