



WP8548 and WP750x

Customer Release Notes

Release 15

| | |
|-----------------|------------|
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Document History

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| 01.01 | 2015/10/06 | Release 6 | RK |
| 01.02 | 2015/10/22 | Release 6 upgrade instructions | RK |
| 01.03 | 2015/11/13 | Release 7 | RK |
| 01.04 | 2015/12/15 | Release 8 | KW |
| 01.05 | 2016/02/16 | Release 9 | RK |
| 01.06 | 2016/02/29 | Release 9 upgrade instructions URL change | RK |
| 01.07 | 2016/04/12 | Release 10 | RK |
| 01.08 | 2016/05/06 | Release 10.1 | RK |
| 01.09 | 2016/06/07 | Release 11 | RK |
| 01.10 | 2016/08/22 | Release 12 | SA |
| 01.11 | 2016/09/23 | Release 12.2 | SA |
| 01.12 | 2016/12/16 | Release 13 | SA/KW |
| 01.13 | 2017/01/31 | Release 13.1 | SA |
| 01.14 | 2017/05/03 | Release 14 | SA |
| 01.15 | 2017/12/11 | Release 15 | SA |

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1 Introduction

1.1 Scope of this document

This document describes changes in the SWI9X15Y 7.0 line of firmware.

1.2 Audience of this document

These release notes may be distributed to all direct and indirect customers.

2 Abbreviations and definitions

| Abbreviation/Acronym | Definitions |
|----------------------|--|
| AT | Access Terminal, Attention |
| LK | Little Kernel Linux bootloader |
| FDT | Firmware Download Tool |
| QMI | Qualcomm MSM Interface, Qualcomm Modem Interface |

3 Related documentation

| Ref. # | Doc. # | Document title |
|--------|---------|--|
| [R-1] | 4117452 | SWI9X15Y 6.0 Customer Release Notes |
| [R-2] | 4116440 | AirPrime WP75xx/WP8548 - Product Technical Specification |
| [R-3] | 4118047 | AirPrime WPx5xx/WP76xx/WP77xx - AT Command Reference |

4 Compatibility

Hardware compatibility

| Product compatibility list |
|----------------------------|
| WP8548 |
| WP7504 |
| WP7502 |



5 SWI9X15Y 7.0 Release 15

WPx5xx release 15 is a minor maintenance release to address some critical issues.

5.1 Software Release Description

5.1.1 Release identification

| Component | Revision |
|------------------------------|---|
| Modem Firmware / Carrier PRI | 9999999_9904559_SWI9X15Y_07.12.14.00_00_GENERIC_001.034_000 |
| Yocto | SWI9X15Y_07.12.14.00 2017-11-29_20:54:53 |
| Kernel | 3.14.29ltsi-961ca71325_ed9f616cc8 |
| Legato AF | 16.10.4_544dbbbb32195d877e35a6648db67c1b |
| MCU | 002.004 |
| Binary Size | 56MB (compressed binaries) |
| IMEI SV | 46 |
| Qualcomm Stack Version | M9615ACETWMLZD551351026.1.118659.1 |
| Supported HW | WP8548, WP7504, WP7502 |

5.1.2 Software Tools Versions

| S/W Tools Name | Version |
|------------------------|-------------------------------|
| Windows Driver Package | B4773 |
| Skylight | 4670 (not for commercial use) |
| Linux Drivers | S2.30N2.48 |
| Linux SDK | 04.00.11 |

5.1.3 Released Files

| Function | Files | carrier | Modem Firmware | MCU Firmware | Linux Distribution | Base Legato System |
|---|-------------------------------|-----------------|----------------------|--------------|----------------------|--------------------|
| Windows one click firmware upgrade tool | WPx5xx_Release-15_GENERIC.exe | GENERIC (GCF) | SWI9X15Y_07.12.14.00 | 002.004 | SWI9X15Y_07.12.14.00 | 16.10.4 |
| | WPx5xx_Release-15_PTCRB.exe | GENERIC (PTCRB) | SWI9X15Y_07.12.09.00 | 002.004 | SWI9X15Y_07.12.14.00 | 16.10.4 |
| | WPx5xx_Release-15_ATT.exe | ATT | SWI9X15Y_07.12.09.00 | 002.004 | SWI9X15Y_07.12.14.00 | 16.10.4 |
| | WPx5xx_Release-15_SPRINT.exe | SPRINT | SWI9X15Y_07.12.09.00 | 002.004 | SWI9X15Y_07.12.14.00 | 16.10.4 |

from <https://source.sierrawireless.com/resources/legato/wpfirmwarerelease15/>

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| Function | Files |
|---------------------|--|
| Firmware components | <p>Firmware- Generic: 9999999_9904559_SWI9X15Y_07.12.14.00_00_GENERIC_001.034_000.spk TA from Release 14: PTCRB: 9999999_9904559_SWI9X15Y_07.12.09.00_00_GENERIC_001.033_000 ATT: 9999999_9904367_SWI9X15Y_07.12.09.00_00_ATT_001.028_000 Sprint: 9999999_9905133_SWI9X15Y_07.12.09.00_00_SPRINT_001.020_000</p> <p>Note that due to incompatibilities introduced in Release 14, Legato 16.10.3+ must NOT be combined with SWI9X15Y_07.11.xx (Release 13.1) or older modem component. See section Legato AF / modem incompatibility for details.</p> <p>MCU: mcufw_002.004.cwe Yocto: boot-yocto_wp85.cwe Legato AF: legatoz-16.10.4.cwe (from https://source.sierrawireless.com/resources/legato/wpfirmwarerelease15/)</p> |
| Windows Drivers | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from https://source.sierrawireless.com/resources/legato/drivers-for-wp75xx_wp76xx_wp8548-series-modules---build-4653/ |
| Documentation | <p>AirPrime WP75XX WP8548 Product Technical Specification Rev13 AirPrime WPx5xx AT Command Reference r4 http://source.sierrawireless.com/devices/wp-series/wp8548/</p> |

5.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 14.

5.2.1 Corrections / Improvements

The following defects have been addressed in Release 15.

| ID | Title | Description | Component |
|----------------|--|--|----------------|
| Legato | | | |
| 16.10.4 | Upgrade from LE 16.10.3 | <p>2 issues are fixed in this release:</p> <ul style="list-style-type: none"> - Unable to read IMSI in Legato on some units - Legacy app won't compile in 16.10.3 framework | Legato |
| QT19X1555-1124 | Unable to register new AT commands on client restart | Multiple clients may register for AT command forwarding, but if one client restarted it was not able to re-register and the system needed to be reset to recover. A client may now re-register upon restart. | Modem Firmware |
| QMI Interface | | | |
| QT19X1555-1141 | Carrier PRI TLV (0x17 and 0x18) for QMI_DMS_SWI_GET_CW E_PKS_INFO cannot be accessed by Legato | QMI_DMS_SWI_GET_CWE_PKS_INFO internally supported carrier PRI name and version (TLV 0x17 and 0x18), but this needed to be added to the interface definition for legato to access them. | QMI |
| QT19X1555-1163 | QMI_NAS_GET_SERVING_SYSTEM_MSG NetworkDesc Corrupt for ATT/Generic FW | If the data for network name was encoded, extra handling was required to properly populate this field to be presented correctly. | Modem Firmware |

| ID | Title | Description | Component |
|--------------------|---|--|----------------|
| LWM2M / AirVantage | | | |
| QT19X1555-1166 | Crash when reading particular IMEI by AirVantage client | IMEI's containing the numeric sequence 2553 or 2573 were being incorrectly parsed resulting in access to memory out of bounds having unpredictable consequences including modem crash. | Modem Firmware |
| Network | | | |
| IMEI SVN | Increment IMEI SVN | The IMEI SVN is incremented to 46 after Release 14 TA at 45. | Modem Firmware |
| GPS | | | |
| QT19X1555-1154 | Modem crash after 1 day with active GPS tracking session on | There was an apparent memory leak observed under certain conditions with GPS tracking on, eventually causing an assert. Upgrade to Qualcomm service branch r551351026.1.118659.1 to address this. Qualcomm CRs: 833912, 971372 | Modem Firmware |
| IO | | | |
| QT19X1555-1201 | cannot set CUSTOM value: BANDSELEN - Antenna Select feature failing | The antenna select feature AT!ANTSEL is available if enabled via AT!CUSTOM="BANDSELEN",1, however this was disabled by default and protected at lock level 3. It has been relaxed to lock level 2. | Modem Firmware |
| SAR | | | |
| QT19X1555-1199 | Add AT!SARBACKOFF offset from max tx power | Make AT!SARBACKOFF command compatible with EM/MC74xx. Return offset from max tx power set through AT!MAXPWR | Modem Firmware |
| SIM / eUICC | | | |
| QT19X1555-1118 | VCC and Reset line 'pulsing' on UIM2 disrupting eUICC. | Due to interactions between UIM1 and UIM2 clocks, UIM2 was unstable when UIM1 was disabled. UIM2 power is now stable. UIM1 and UIM2 interfaces now perform similarly. | Modem Firmware |
| QT19X1555-1152 | Incorrect UICC Terminal Profile sent on power-up | Byte 17 bit 7 and 8 to indicate E-UTRAN and HSDPA support were not being reported immediately after powerup. Only after UICC was hotswapped. Applicable to WP75xx only. | Modem Firmware |
| QT19X1555-1095 | In dual SIM operation, insertion/removal of the inactive SIM causes instability | With the fix to QT19X1555-1216 dual SIM now operates as expected. | Modem Firmware |
| Manufacturing test | | | |
| QT19X1555-713 | Add support for TX power configuration in LTE under FTM | Add LTE support for: AT!DALSTXMOD AT!DALSNSVAL AT!DALSTXPWR | Modem Firmware |
| Boot | | | |
| QT19X1555-1193 | Unplanned response on I2C 0x52 on boot causes boot fail. | External hardware (e.g. IoT card) responding on I2C address 0x52 was interacting with a Qualcomm boot configuration function intended for their reference platform. This feature was removed. | Boot loader |

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| ID | Title | Description | Component |
|----------------|--|--|----------------|
| QT19X1555-1205 | Can't boot after configuring NMEA service mapped to UART2 interface. | Setting AT!MAPUART=4,2 was found to prevent booting. This command is now disabled so the feature cannot be enabled from the AT command interface. Will investigate root cause to restore this feature in a future release. | Modem Firmware |

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5.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Component |
|-----------------|---|--|--------------------|
| AirVantage | | | |
| QT19X1555-830 | LWM2M node 4.0.4 defects | <p>1. Only one address is returned per context. If it is an IPV4V6 context, it chooses the IPv6 address. Therefore, the IPv4 address isn't being reported to the server.</p> <p>2. If you query the instances fast enough, it is returning the wrong data. at+wds=3,0,"/4/0/4/0" 10.96.187.172 OK at+wds=3,0,"/4/0/4/1" 10.96.187.172 OK at+wds=3,0,"/4/0/4/1" øE OK</p> <p>3. Right now, the AirVantage server will show the contents of node 4.0.4.0 as the "IP Address" to the user. This may or may not be the address that provides data connectivity to AirVantage.</p> | Modem Firmware |
| Stability | | | |
| LXSWI9X1517-238 | Kernel starving for data on network loss | When the device loses its connection to the network while sending uplink data, the kernel may freeze for ~40secs before starting to process user space again | Linux Distribution |
| LXSWI9X1517-252 | UBIFS: User partition corruption after number of power cuts | After repeated power cuts without orderly shutdown it is possible to lose the UBIFS partition mounted @ /mnt/flash A linux patch is available upon request. | Linux |
| QT19X1555-1207 | Can't boot with NMEA service mapped to UART2 | See QT19X1555-1205 above. A workaround was added to prevent the AT command from being executed, but the underlying issue is still in place. | Modem Firmware |
| Power | | | |
| QT19X1555-1216 | Idle current too high with UIM2 active | UIM2 functionality was corrected (QT19X1555-1118), however idle current consumption is ~10mA higher when UIM2 is active compared to UIM1. | Modem Firmware |
| QT19X1555-1202 | UART1 Tx held high prevents sleep mode | When using UART1 as the primary AT interface, holding Tx high prevents the module from entering sleep resulting in current consumption in the ~40mA range. mangOH holds UART1 Tx low, but other platforms may hold it high. | Linux |

| ID | Title | Description | Component |
|----------------|---|---|--------------------|
| I/O | | | |
| QT19X1555-466 | USB Audio interfaces do not load correctly on Windows when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release. | Linux Distribution |
| LXSWI9X1517-81 | External PCM configuration needs reset to take effect | If after using PCM master mode on a particular audio profile, then using a different configuration, then returning to PCM master mode, a reset is required for PCM master mode to generate a clock again. | Linux Distribution |



6 SWI9X15Y 7.0 Release 14

WPx5xx release 14 includes Qualcomm security updates and improvements in preparation for AT&T and Sprint Maintenance Releases as well as forward compatibility for future AirVantage feature development. Many defects found in Release 13.1 are also addressed. Note that some fundamental issues with Sierra QMI definitions were corrected in this release making it incompatible with Release 13.1 and prior releases. Further details are provided in section [Legato AF / modem incompatibility](#).

6.1 Software Release Description

6.1.1 Release identification

| Component | Revision |
|------------------------------|---|
| Modem Firmware / Carrier PRI | 9999999_9904559_SWI9X15Y_07.12.09.00_00_GENERIC_001.033_000 |
| Yocto | SWI9X15Y_07.12.09.00 2017-04-27_02:18:19 |
| Kernel | 3.14.29tsi-961ca71325_ab5094eade |
| Legato AF | 16.10.3_7776bb75a488e0db67b0d24975b46dd0 |
| MCU | 001.011 |
| Binary Size | 56MB (compressed binaries) |
| IMEI SV | 45 |
| Qualcomm Stack Version | M9615ACETWMLZD551351026.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

6.1.2 Software Tools Versions

| S/W Tools Name | Version |
|------------------------|-------------------------------|
| Windows Driver Package | B4653 |
| Skylight | 4670 (not for commercial use) |
| Linux Drivers | S2.28N2.42 |
| Linux SDK | 04.00.06 |

6.1.3 Released Files

| Function | Files |
|---|--|
| Windows one-click firmware upgrade tool | WPx5xx_Release-14_GENERIC.exe (from https://source.sierrawireless.com/resources/legato/wpfirmwarerelease14/) ** ATT and Sprint packages will be posted once certification is received. ** |



| Function | Files |
|---------------------|--|
| Firmware components | Firmware-Generic: 9999999_9904559_SWI9X15Y_07.12.09.00_00_GENERIC_001.033_000.spk ** ATT and Sprint modem firmware will be posted once certification is received. ** Note that due to incompatibilities introduced in this release, Legato 16.10.3 must NOT be combined with SWI9X15Y_07.11.xx (Release 13.1) or older modem component. See section Legato AF / modem incompatibility for details. MCU: mcufw_001.011.cwe Yocto: boot-yocto_wp85.cwe Legato AF: legatoz.cwe (from http://source.sierrawireless.com/resources/legato/wpfirmwarerelease14/) |
| Windows Drivers | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from https://source.sierrawireless.com/resources/legato/drivers-for-wp75xx_wp76xx_wp8548-series-modules---build-4653/ |
| Documentation | AirPrime WP75XX WP8548 Product Technical Specification Rev13 (when available) AirPrime WPx5xx AT Command Reference r3 (when available) http://source.sierrawireless.com/devices/wp-series/wp8548/ |

6.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 13.

6.2.1 New Features

| Title | Description | Component |
|----------------------------------|---|--------------------------------------|
| Certification | | |
| Qualcomm upgrade | Upgrade to Qualcomm stack M9615ACETWMLZD551351026.1. - multiple improvements and security fixes since the previous update | Modem Firmware |
| WP7504/WP8548 AT&T certification | WP7504 and WP8548 AT&T Maintenance release certification is in progress on this release. Results are still pending. Certification was previously received on Release 12.2 (SWI9X15Y_07.11.11.00) | Modem Firmware |
| WP7504 Sprint certification | WP7504 Sprint Maintenance release certification is in progress on this release. Results are still pending. Certification was previously received on Release 12 (SWI9X15Y_07.11.09.00). | Modem Firmware |
| TS.25 list update | Update hard coded TS.25 list to 20-Feb-2017 | Modem Firmware |
| AirVantage Ready | The generic release is certified as AirVantage Ready. | Firmware + Platform Software Package |
| IMEI SVN | Increment IMEI SVN to 45 | Modem Firmware |
| AirVantage | | |
| AVC2 upgradability | A new, Legato based AirVantage client (AVC2) is currently under development. As development is not yet complete, this release will continue to support AirVantage through the legacy client AVC1 that includes all functionality from WPx5xx Release 13.1. Hooks have been added to allow for AVC2 to assume control with a future Legato AF upgrade when available. - AirVantage credentials support for AVC2 - Method to enable/disable AVC1 over QMI | Modem Firmware |

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| | - AVC1 -> AVC2 FOTA support - AVC2 -> AVC1 FOTA support - AVC2 SOTA support - forward AT+WDS configuration commands to AVC2 | |
| GPS | | |
| QMI to configure NMEA port auto-tracking GNSS session values | Port from EM/MC74xx: <ul style="list-style-type: none"> ▪ QMI_SWILOC_GET_AUTO_START_SETTINGS ▪ QMI_SWILOC_SET_AUTO_START_SETTINGS | Modem Firmware |
| Power / MCU | | |
| ULPM AT command support | Add AT command support to set wakeup triggers and enable ULPM. See AT command spec for details on usage. | Modem Firmware, Linux Distribution |
| MCU upgradability | Add support for future upgradability to MCU 2.xx for better feature compatibility with WP76xx. | Linux Distribution |
| eUICC | | |
| AT+CCID | Add support for AT+CCID Reads Integrated Circuit Card ID and eUICC Card ID (if applicable) of the SIM card. See AT command spec for details on usage. | Modem Firmware |
| Security | | |
| Firewall | Close network access to all interfaces except PING, SSH and DHCP over usb0 (ECM interface). | Linux Distribution |
| Remove security keys from QXDM Logs | Remove printing of PSK and PSKID in QXDM logs | Modem Firmware |
| Remove external host access to internal SWI QMI Services (SFS) | SFS now only accessible to internal hosts. | Modem Firmware |
| Remove gdbserver | For licensing and security reasons, gdb server has been removed from rootfs in the default build configuration and moved to the toolchain | Linux Distribution |
| QCT: Critical security bulletin - CVE-2017-6211 | Critical security bulletin addressing supplementary service buffer overflow released after M9615ACETWMLZD551351026.1 was incorporated into the stack. | Modem Firmware |
| Legato AF | | |
| 16.10.3 | devMode removed from default build | Legato AF |

6.2.2 Corrections / Improvements

The following defects have been addressed in Release 14.

| ID | Title | Description | Component |
|----------------|---|--|--------------------------------|
| QMI Interface | | | |
| QT19X1555-1057 | Sierra QMI response result code uses wrong field id of 0x01 instead of 0x02 | Many of the Sierra QMIs returned the result code in field id 0x01 instead of 0x02 which didn't match the specification. This has been fixed aligning with EM/MC74xx. As a consequence of this change, previous Legato AF versions are incompatible with this modem release and all that follow. See section Legato AF / modem incompatibility for details. | Modem Firmware, Legato AF, SDK |

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| ID | Title | Description | Component |
|--------------------|---|--|--------------------|
| LWM2M / AirVantage | | | |
| QTI9X1555-971 | LWM2M AVC DM session fails if DM credentials are shorter than Bootstrap credentials | Certain (non AirVantage) LWM2M servers with shorter credentials than the Bootstrap server could not be used due to this issue. | Modem Firmware |
| QTI9X1555-908 | Modem crashes after issuing an incomplete AT+WDSW command | e.g. AT+WDSW=3 caused the module to crash | Modem Firmware |
| QTI9X1555-939 | Fix LWM2M UTC Offset (3.0.14) when in western hemisphere | UTC offset shows value: "-248:00" , i.e: at+wds=3,0,"/3/0/14" -248:00 | Modem Firmware |
| Network | | | |
| QTI9X1555-1009 | TLS fails if network does not provide NITZ | When the NITZ information is not provided by the attached network, the installation FW /Bundle fails as the TLS certificate requires a valid date. Now, if not provided by NITZ, a timer server is queried on the network. | Linux Distribution |
| QTI9X1555-980 | Network Operator name truncated or blank | The QMI object QMI_NAS_GET_PLMN_NAME to query network operator (e.g. via Skylight) was returning incorrect information. This has been corrected. | Modem Firmware |
| QTI9X1555-762 | AT notification for NI only occurs if valid network matched | A network that is not listed in the hard-coded TS.25 list would not generate a !NI ARUSL notification. | Modem Firmware |
| LXSWI9X1517-123 | Cannot establish IPV6 connection while SMACK is enabled | If a global IPV6 address is added to eth0/bridge0, Linux kernel crashed when a TCP IPV6 packet was received. | Linux Distribution |
| QTI9X1555-1073 | Inaccurate radio protocol capability returned | WP7504 was returning FALSE to HSUPA and WCDMA support. WP7502 was returning TRUE to CDMA support. This resulted in some minor command and capability inaccuracies. | Modem Firmware |
| QTI9X1555-1080 | Read IMEISV via QMI | IMEISV added to QMI_DMS_GET_DEVICE_SERIAL_NUMBERS response | Modem Firmware |
| GPS | | | |
| QTI9X1555-1026 | GPSCLRASSIST does not clear Galileo assistance data | Fixed ability to clear Galileo assistance data, e.g. at!gpsclrassist=1,0,0,0 | Modem Firmware |
| QTI9X1555-1074 | GPSCOLDSTART/ GPSCLRASSIST clears gpsloc and TTFB when gps tracking | The GPS TTFB and location data were cleared on AT!GPSCOLDSTART even if it failed: e.g. at!gpscoldstart ErrCode = 18 OK at!gpsstatus? Current time: 2017 03 27 0 19:47:36 2017 03 27 0 19:47:36 Last Fix Status = NONE 2017 03 27 0 19:47:36 Fix Session Status = NONE No TTFB available | Modem Firmware |
| IO | | | |
| QTI9X1555-161 | 19.2MHz System Clock fails to remain on after call is ended | Previously if the system clock was active (e.g. AT+WEXTCLK=1,1) when a voice call was started, the end of the voice call would disable the clock. The clock will now remain on until both the voice call has ended and the clock is disabled by the application. | Modem Firmware |

| ID | Title | Description | Component |
|-----------------|---|---|-------------------------------|
| QTI9X1555-974 | AT+KSLEEP requires reboot to take effect | Release 13 added a compatibility feature from HL to control sleep via DTR. As originally implemented, a reset was required for changes to this configuration for take effect. It may now be updated at runtime. | Modem Firmware |
| QTI9X1555-994 | Local audio record not working out of call | Previously, recording of audio to a local file (e.g. with AT!AVAUDIO) was supported while in call, but would only recorded silence if no call was active. Recording of audio out of call is now supported. | Linux Distribution, Legato AF |
| Firmware Update | | | |
| QTI9X1555-1016 | fwupdate does not work with mcufw.cwe or .spk package alone | Fixed an issue preventing fwupdate from loading a file containing only a mcu image. | Modem Firmware |
| QTI9X1555-1007 | Image Switching QMI IDL fixes from 9x07 | Corrected/added some image switching QMI DMS Commands incorrect/missing (ex. QMI_DMS_SWI_GET_FIRMWARE_CURR). | Modem Firmware |
| QTI9X1555-931 | QMI_DMS_SWI_GET_CWE_PKS_INFO to be updated to match latest spec to provide carrier PRI name and version | Added support for QMI object QMI_DMS_SWI_GET_CWE_PKS_INFO TLVs 0x17 and 0x18. | Modem Firmware |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

6.3 Known Issues

This section presents all known issues in this release.

6.3.1 Legato AF / modem firmware incompatibility

As part of QTI9X1555-1057, some corrections were made to long standing issues with the QMI interface. This aligns the Sierra QMI response result codes with EM/MC74xx, WP76xx, and newer members of these product families. Our policy is generally to maintain backward compatibility with older modem images, but as a consequence of the fundamental nature of this change, Legato AF version 16.10.2 and older may not be combined with modem firmware version SWI9X15Y_07.12.xx or newer and Legato AF version 16.10.3 and newer may not be combined with modem firmware version SWI9X15Y_07.11.xx or older. Any Legato – Modem interaction such as fwupdate (and FOTA), AirVantage features, GPIO/ADC access and secure file system access, among others, would be impacted. There may also be other unforeseen functional or stability consequences and therefore such combinations are not supported.

6.3.2 Other known issues

| ID | Title | Description | Component |
|-----------------|--|--|--------------------|
| AirVantage | | | |
| QTI9X1555-830 | LWM2M node 4.0.4 defects | <p>1. Only one address is returned per context. If it is an IPV4V6 context, it chooses the IPv6 address. Therefore, the IPv4 address isn't being reported to the server.</p> <p>2. If you query the instances fast enough, it is returning the wrong data. at+wds=3,0,"/4/0/4/0" 10.96.187.172 OK at+wds=3,0,"/4/0/4/1" 10.96.187.172 OK at+wds=3,0,"/4/0/4/1" øE OK</p> <p>3. Right now, the AirVantage server will show the contents of node 4.0.4.0 as the "IP Address" to the user. This may or may not be the address that provides data connectivity to AirVantage.</p> | Modem Firmware |
| Stability | | | |
| QTI9X1555-1077 | WP8548 attached to specific network via UMTS 900 chronically crashes on data connection. | Under investigation. So far only observed on one module on one particular commercial network. | Modem Firmware |
| LXSWI9X1517-238 | Kernel starving for data on network loss | When the device loses its connection to the network while sending uplink data, the kernel freeze for ~40secs before starting to process user space again | Linux Distribution |
| Power | | | |

| ID | Title | Description | Component |
|----------------|---|---|----------------------------------|
| QT19X1555-1079 | Safe power down sequence for a legato application | AT!RESET executes an orderly shutdown of apps whereas AT!POWERDOWN does an emergency shutdown. An orderly shutdown is preferred in both cases. | Linux Distribution, MCU Firmware |
| I/O | | | |
| QT19X1555-466 | USB Audio interfaces do not load correctly on Windows when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release. | Linux Distribution |
| LXSWI9X1517-81 | External PCM configuration needs reset to take effect | If after using PCM master mode on a particular audio profile, then using a different configuration, then returning to PCM master mode, a reset is required for PCM master mode to generate a clock again. | Linux Distribution |
| SIM | | | |
| QT19X1555-1118 | VCC and Reset line 'pulsing' on UIM2 disrupting eUICC | When the modem is active, the control lines to SIM slot 2 are as expected, but in low power mode, the VCC and Reset lines start pulsing unexpectedly at ~1 second intervals. This behavior is suspected to affect eUICC when in SIM slot 2, the full extent of which is still under investigation. | Modem Firmware |
| QT19X1555-1095 | In dual SIM operation, insertion/removal of the inactive SIM causes instability | If while actively using SIM1 (in UIM1) and SIM2 (in UIM2) is removed, SIM1 stops working. Upon re-insertion of SIM2, the modem becomes unstable with AT+CIMI and AT+CCID commands causing a crash. | Modem Firmware |



7 SWI9X15Y 7.0 Release 13.1

WPx5xx release 13.1 addresses a few major AVMS issues found since release 13. It also includes a PRI update for configuration enhancement.

7.1 Software Release Description

7.1.1 Release identification

| Component | Revision |
|------------------------------|---|
| Modem Firmware / Carrier PRI | 9999999_9904559_SWI9X15Y_07.11.22.00_00_GENERIC_001.032_000 |
| Yocto | SWI9X15Y_07.11.21.00 2016-12-07_20:57:53 |
| Kernel | 3.14.29ltsi-a00e464379_b0ce579abb |
| Legato AF | 16.10.1_a6a25fbda05738774857dccb9fd76a99 |
| MCU | 001.011 |
| Binary Size | 56MB (compressed binaries) |
| IMEI SV | 43 |
| Qualcomm Stack Version | M9615ACETWMLZD551351013.1.63410.1.65027.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

7.1.2 Software Tools Versions

| S/W Tools Name | Version |
|------------------------|------------|
| Windows Driver Package | B4581 |
| Windows SDK | None |
| Skylight | 4567 |
| Linux Drivers | S2.26N2.39 |
| Linux SDK | 04.00.03 |

7.1.3 Released Files

| Function | Files |
|---|---|
| Windows one-click firmware upgrade tool | WPx5xx_Release-13.1_GENERIC.exe (from https://source.sierrawireless.com/resources/legato/wpfirmwarerelease13_1/) |
| Firmware components | Firmware-Generic: 9999999_9904559_SWI9X15Y_07.11.22.00_00_GENERIC_001.032_000.spk MCU: mcufw_001.011.cwe Yocto: boot-yocto_wp85.cwe Legato AF: legatoz.cwe (from http://source.sierrawireless.com/resources/legato/wpfirmwarerelease13_1/) |
| Windows Drivers | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from http://source.sierrawireless.com/resources/legato/drivers-for-wp-series-modules---build-4581/ |



| Function | Files |
|---------------|---|
| Documentation | AirPrime WP75XX WP8548 Product Technical Specification Rev12 AirPrime WPx5xx AT Command Reference r3 (when available) http://source.sierrawireless.com/devices/wp-series/wp8548/ |

7.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 13. Only the Legato AF and modem / carrier PRI components are impacted.

7.2.1 New Features

None.

7.2.2 Corrections / Improvements

The following defects have been addressed in Release 13.1.

| ID | Title | Description | Component |
|--------------------------------|---|---|-----------|
| Legato 16.10.1 | | | |
| LE-5981 | Sync Status in Warning state | On AirVantage, the sync status warns of unknown applications. This issue does not affect device operation. This is resolved in Legato AF 16.10.1 | Legato AF |
| AirVantage | | | |
| QT19X1555-983 QT19X1555-966 | FOTA reliability | During secure socket transactions such as FOTA / SOTA downloads, data was sometimes not delivered to the device, causing the download to fail. | Modem |
| QT19X1555-915 | LWM2M: Set default pmax in firmware to disable. | The value of pmax (default max Notification interval) will be set to 0 (disabled) when firmware containing this change is installed on the device, regardless of previous pmax setting. | Modem |
| PRI support | | | |
| QT19X1555-989 | IPCHANNELRATEEN customization lost on upgrade | The IPCHANNELRATEEN customization was not properly backed up, causing it to be lost on an upgrade or image switch | Modem |
| QT19X1555-985 | WWAN LED displays incorrect pattern in LPM | WWAN LED patterns for each power state are set in the PRI. The actual pattern observed for LPM regardless of the PRI setting was always on. | Modem |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

7.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Component |
|----------------|--|--|-----------|
| AirVantage | | | |
| QT19X1555-1009 | FOTA/SOTA fails if the attached network doesn't authorize the update of the local time | When the NITZ information is not provided by the attached network, the installation FW /Bundle fails as the TLS certificate requires a valid date. As a workaround, the current date may be manually set via AT!TIME, e.g. <code>at!time=2017,01,31,00,00,00</code> OR via the kernel console: <code>echo -e "at!time=2017,01,31,00,00,00\r" microcom -t500 /dev/ttyAT</code> | Modem |
| QT19X1555-939 | AVMS LWM2M device object UTC offset has an incorrect value | UTC offset shows value: "-248:00", e.g.: <code>at+wds=3,0,"/3/0/14"</code> <code>-248:00</code> OK | Modem |
| QT19X1555-830 | LWM2M node 4.0.4 defects | 1. Only one address is returned per context. If it is an IPV4V6 context, it chooses the IPv6 address. Therefore, the IPv4 address isn't being reported to the server. 2. If you query the instances fast enough, it is returning the wrong data. <code>at+wds=3,0,"/4/0/4/0"</code> <code>10.96.187.172</code> OK <code>at+wds=3,0,"/4/0/4/1"</code> <code>10.96.187.172</code> OK <code>at+wds=3,0,"/4/0/4/1"</code> <code>øE</code> OK 3. Right now, the AirVantage server will show 4.0.4.0 as the "IP Address" to the user. This may or may not be the address that provides data connectivity to AirVantage. | Modem |
| LE-6113 | Synchronize warning in AirVantage due to the application model LEGATO _modified | When an application is loaded onto a Legato installation, a subsequent sync operation returns the warning in Sync Status due to "_modified" appended to the version: "Application read in the system is not available or unknown [WP8548_LE,16.10.1_a6a25fbda05738774857dccb9fd76a99_modified]" | Legato AF |
| I/O | | | |

| ID | Title | Description | Component |
|---------------|---|--|-----------|
| QT19X1555-161 | System Clock conflict with audio | <p>If the system clock is configured to be permanently on, i.e. <code>AT+WEXTCLK=1,1</code>, the clock is disabled at the termination of audio activity. Conversely, if audio is active and the system clock is disabled, audio will stop until reinitiated.</p> <p>This issue limits the use of the external clock to non-audio platforms.</p> | Modem |
| QT19X1555-466 | USB Audio interfaces do not load correctly on Windows when ECM is enabled | <p>In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release.</p> | Yocto |
| MOLWP9X15-25 | 4-wire UART2 | <p>RTS/CTS not supported on UART2. Workaround: Use UART1 if hardware flow control is required.</p> | Modem |

8 SWI9X15Y 7.0 Release 13

WPx5xx release 13 generic carrier package combined with Legato 16.10.0 brings several feature enhancements and bug fixes, particularly for the AirVantage client, SLQS 4.x Lite QMI support, and I/O support extensions as noted in section 5.2.

Legato 16.10.0 adds a new Developer Mode, to assist customers in configuring module and developing applications. This mode is enabled by default, and should be disabled prior to commercial deployment. See the following URL for further details:

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

8.1 Software Release Description

8.1.1 Release identification

| Component | Revision |
|------------------------------|---|
| Modem Firmware / Carrier PRI | 9999999_9904559_SWI9X15Y_07.11.21.00_00_GENERIC_001.031_000 |
| Yocto | SWI9X15Y_07.11.21.00 2016-12-07_20:57:53 |
| Kernel | 3.14.29ltsi-a00e464379_b0ce579abb |
| Legato | 16.10.0_30575dab549eed507d413088125ae08c |
| MCU | 001.011 |
| Binary Size | 56MB (compressed binaries) |
| IMEI SV | 43 |
| Qualcomm Stack Version | M9615ACETWMLZD551351013.1.63410.1.65027.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

8.1.2 Software Tools Versions

| S/W Tools Name | Version |
|------------------------|------------|
| Windows Driver Package | B4581 |
| Windows SDK | None |
| Skylight | 4567 |
| Linux Drivers | S2.26N2.39 |
| Linux SDK | 04.00.03 |

8.1.3 Released Files

| Function | Files |
|---|---|
| Windows one-click firmware upgrade tool | WPx5xx_Release-13_GENERIC.exe (Release 13 was retracted, see http://source.sierrawireless.com/resources/legato/wpfirmwarerelease13_1/) |



| Function | Files |
|---------------------|---|
| Firmware components | Firmware-Generic: SWI9X15Y_07.11.21.00 / 001.030_760 MCU: mcufw_001.011.cwe Yocto: boot-yocto_wp85.cwe Legato: legato.cwe (Release 13 was retracted, see http://source.sierrawireless.com/resources/legato/wpfirmwarerelease13_1/) Note that while most components may be upgraded to the current release, for carrier certified images (as noted above), the modem version must be fixed to the certified version. Therefore most of the features/fixes described in these release notes are not available. Those that are modem independent are highlighted in the change description. |
| Windows Drivers | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from http://source.sierrawireless.com/resources/legato/drivers-for-wp-series-modules--build-4581/ |
| Documentation | AirPrime WP75XX WP8548 Product Technical Specification Rev12 AirPrime WPx5xx AT Command Reference r3 http://source.sierrawireless.com/devices/wp-series/wp8548/ (when available) |

8.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 12.2. As described above, the release consists of multiple components. This serves 2 purposes:

- Allows customers to modify the yocto/legato components (distributed at <http://legato.io>) to package with the other components for their specific needs
- Allows customers to upgrade yocto / legato / MCU components while keeping modem component at a version certified by a specific carrier, as noted in [Released Files](#).

The software changes refer to the product features when all components have been upgraded to Release 13 / Legato 16.10. To better understand the feature set when only upgrading a subset of components a column showing the component(s) in which the feature / fix is contained is provided. As a consequence, Sprint and AT&T certified firmware (on modem releases 07.11.09.00 and 07.11.11.00 respectively) will not benefit from any features or fixes with a modem component when upgrading yocto/legato/mcu components.

8.2.1 New Features

| Title | Description | Component |
|--------------------------|---|----------------|
| Certification | | |
| WP7502 GCF certification | All issues with WP7502 GCF certification (including voice) resolved in SWI9X15Y_07.11.12.00 (incremental modem changes from Release 12.2) | Modem |
| IMEI SVN | Increment IMEI SVN to 43 | Modem |
| AirVantage | | |
| Time Series, part #1 | - User app can create a time series on a resource of an asset instance, offline. [le_avData_StartTimeSeries] - Data points (string, integer, float, boolean) can then be cumulated into the time series, offline, using 2 methods: a) [le_avdata_SetString, le_avdata_SetInt, le_avdata_SetFloat or le_avdata_SetBool] Periodical time series, interval between each sample is predefined in step 1 : user app does not have the ability to assign a particular timestamp to a sample. cumulated data point's timestamp is automatically assigned by Legato. | Modem / Legato |

| | | | |
|-------------|---------|-----------|-------|
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| | | |
|--|--|-------|
| | <p>b) [le_avdata_RecordString, le_avdata_RecordInt, le_avdata_RecordFloat or le_avdata_RecordBool] user app can assign a particular timestamp to a data point (so not necessary periodic series)</p> <p>The above API calls may notify the user app of memory overflow situation, in this event, sample can no longer be cumulated into the serie</p> <ul style="list-style-type: none"> - User app can push the time series to AV, only online (AVC connection). [le_avdata_PushTimeSeries] <p>error is returned if no AVC connection</p> <p>Limitations:</p> <ul style="list-style-type: none"> - Cumulated series are not stored in flash, possible loss of data if app crashes/stops/restarts, module reboot - One time series per resource. - Can only push series (step 3) when online, possible loss of data when pushing series offline - No ACK, although step 3 succeeds, the user app does not have confirmation that the series has been received by AV. Possible loss of data if network/server issue. - 1K block size | |
| LWM2M: Change default pmax in firmware from 60 seconds | Unless otherwise specified by the network, Observe data was sent every 60 seconds. This was increased to 12 hours. | Modem |
| SLQS 4.x Lite QMI support | | |
| Reset Cause QMI objects | QMI_DMS_SWI_INDICATION_REGISTER_REQ /RESP QMI_DMS_SWI_GET_RESET_INFO_REQ /RESP QMI_DMS_SWI_GET_RESET_INFO_IND | Modem |
| Channel rates per PDN/QMI Control Point | QMI_WDS_SWI_GET_CURRENT_IP_CHANNEL_RATE | Modem |
| LOC Auto Start QMI objects | QMI_SWILOC_GET/SET_AUTO_START_SETTINGS | Modem |
| Get/set customizations by name string | TLV 0x20 in QMI_DMS_SWI_GET_CUST_FEATURES | Modem |
| Good / Dropped Rx/Tx Bytes and Packets | QMI_WDS_SWI_RM_TRANSFER_STATISTICS | Modem |
| EPS dedicated bearers-related fixes | QMI_QOS_SWI_READ_DATA_STATISTICS | Modem |
| Suppress QoS flow notifications | AT!CUSTOM: FLOWNOTIDISABLE | Modem |
| I/O | | |
| GPIO 28-31 Support | <p>The 4 I/O lines that support Antenna Control functionality now have the alternate function to be used as standard GPIOs in a manner similar to other GPIOs (configurable for modem or embedded host) E.g. AT+WIOCFG?</p> <p>...</p> <p>+WIOCFG: 28,16,0,0,1,0,0 +WIOCFG: 29,16,0,0,1,0,0 +WIOCFG: 30,16,0,0,1,0,0 +WIOCFG: 31,16,0,0,1,0,0</p> <p>...</p> <p>When configured for embedded host, these GPIO are accessible via standard sysfs: sys/class/gpio. E.g.</p> | Modem |

| | | |
|---|--|------------------------|
| | echo 28 > /sys/class/gpio/export | |
| GPIO 36, 38, 39 IRQ support | In addition to the GPIOs that already support IRQ, 36, 38, and 39 may be used. These are also the 3 possible GPIO ULPM boot sources. E.g. echo rising > /sys/class/gpio/gpio36/edge | Yocto |
| Add GPIO 39 boot source to sysfs for ULPM | In addition to GPIO 36 and 38, GPIO 39 may be used as a GPIO ULPM boot source, adding: /sys/module/swimcu_pm/boot_source/gpio39 | Yocto / Legato |
| add ADC boot source to sysfs for ULPM | In addition to timer and GPIO, ADC 2 or 3 may now be configured as a ULPM boot source (only one at a time). /sys/module/swimcu_pm/adc/interval /sys/module/swimcu_pm/boot_source/adc/adc2/above /sys/module/swimcu_pm/boot_source/adc/adc2/below /sys/module/swimcu_pm/boot_source/adc/adc2/select /sys/module/swimcu_pm/boot_source/adc/adc2/triggered | Yocto / Legato / MCU |
| UART1 power control | AT+KSLEEP has been added to control how UART1 DTR affects low power mode of the module. By default it behaves the same as before with low power mode determined internally. | Modem |
| UART1 control lines from sysfs | UART1 control lines may now be accessed as aliased GPIO lines from sysfs similar to how RI is already supported, e.g. echo DTR > /sys/class/gpio/export cat /sys/class/gpio/gpioDTR/value Note that AT!RIOWNER=1 is required to allocate UART1 control lines to embedded host. | Modem / Yocto / Legato |
| SIM | | |
| External SIM selection support | AT+KSIMSEL is added to support external UIM multiplexer compatible with HL. | Modem |

8.2.2 Corrections / Improvements

The following defects have been addressed in Release 13.

| ID | Title | Description | Component |
|---------------|---|---|-----------|
| Cert | | | |
| QT19X1555-783 | Fix AT+COPN handling of extended-ASCII char input | Address issue with handling "Türkiye" | Modem |
| QT19X1555-784 | QMI_NAS_GET_PLMN_NAME not using Sierra TS25 dynamic list | QMI adapted to reflect correct dynamic TS25 list aligned with AT+COPN. | Modem |
| QT19X1555-759 | [WP7502][GCF] UE Crashes during reselection to 2G | Crashing on TS 34.121-1 TC 8.2.3.1/8.2.3.2/8.2.3.3 | Modem |
| QT19X1555-858 | OMA-DM unable to process out of sequence concatenated WAP Bootstrap SMS | Bootstrap failures were observed in poor coverage due to out-of-order WAP messages. These are now correctly re-ordered. | Modem |

| | | | |
|-------------|---------|-----------|-------|
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|-------------|---------|-----------|-------|

| ID | Title | Description | Component |
|---|---|--|----------------|
| AirVantage | | | |
| QT19X1555-806 QT19X1555-824 QT19X1555-825 QT19X1555-837 QT19X1555-918 | Server Connectivity | Automatically perform DTLS resume if connectivity to the server is lost to ease burden on application for managing connection. Issues with SOTA failures, Observe cancelled on restart, and no LE_AVC_SESSION_STOPPED event on lost session also resolved with this fix. | Modem / Legato |
| QT19X1555-860 | Reboot recovery | Observe does not work upon module reboot | Modem |
| QT19X1555-826 QT19X1555-855 QT19X1555-869 QT19X1555-886 | Stability | Various, infrequently observed crash occurrences have been fixed: calling AT+WDSG, in al_event_set, when registering device to AVMS, during long interval Observe testing | Modem / Legato |
| QT19X1555-833 | LWM2M profile array indexing | at+wdss indexing errors corrected | Modem |
| QT19X1555-885 | LWM2M: Increase default pmax in firmware | Unless otherwise specified by the network, Observe data was sent every 60 seconds, which is generally too frequent. The default was increased to 12 hours. Note, however, that this default does not take effect with firmware download, only on newly manufactured modules. | Modem |
| AT / QMI | | | |
| QT19X1555-875 | Carrier name truncated for QMI_NAS_GET_HOME_NETWORK_MSG | Account for longer network name as it may expand through decoding, depending on encoding scheme. | Modem |
| QT19X1555-817 | QMI_DMS_SWI_GET_CWE_PKGS_INFO_REQ_V01 returns error | Some strings needed to be increased to accommodate version lengths | Modem |
| QT19X1555-847 | Second QMI interface does not work over USB | Sync AT!USBCOMP with QMI configuration when multiple RMNET interfaces are enabled in the USB composition | Modem |
| QT19X1555-853 | QMI_QOS_SWI_READ_DATA_STATS TX packet and TX packet drop counters are incorrect | TX dropped packet and byte counters are always reset to 0 on the default data bearer when switching uplink throughput from default to dedicated data bearers in LTE | Modem |
| QT19X1555-218 | ATICUSTOM support alignment | Only list features in AT!CUSTOM? that can be set with the current access level | Modem |
| I/O | | | |
| LXSWI9X1517-127 | sierra_spidev.h is missing certain macros | Replace sierra_spi with linux spidev. SPI now supported under: /dev/spidev0.0 | Yocto |
| (QT19X1555-753) LXSWI9X1517-144 | GPIO strange behaviour | Inconsistent behavior was observed on GPIO2, 13, 33 during functional test of supported GPIOs. In particular, GPIO2 was found to only be able to operate properly as an output if it was first configured as input with pull up. The resolution was to explicitly initialize all GPIO as input / no pull on boot up. | Yocto |
| Stability | | | |
| MCU-47 | I2C bus lock up | I2C bus locks up and MCU communication is lost after multiple ULPM or ADC accesses. The I2C driver on the MCU was reworked to address this issue. | MCU |

| ID | Title | Description | Component |
|--------------------|---------------------------------------|---|-----------|
| MCU-66 | Extra WP reset on MCU firmware update | On first boot up after an MCU firmware update the WP was resetting unnecessarily. This reset has been removed. | MCU |
| Power optimization | | | |
| QT19X1555-944 | Idle current too high | <p>Changes introduced after Release 12 prevented the module from achieving the lowest current consumption while idle. Values ~15mA were measured when ~3mA was expected. See PTS section Power Consumption.</p> <p>Note that Legato 16.10 by default prevents LPM operation with app: devMode. To test power consumption, you must stop this app, e.g. from kernel console: app stop devMode</p> <p>To prevent it from restarting on reset you must disable devMode auto-start from your build.</p> | Modem |

8.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Component |
|--------------------------------|---|---|-----------|
| AirVantage | | | |
| LE-5981 | Sync Status in Warning state | On AirVantage, the sync status warns of unknown applications. This issue does not affect device operation. This is resolved in Legato 16.10.1 | Legato |
| QT19X1555-965 | Stop/Start application failed with error | On rare occasions, a read failure (lwm2m.max.attempts.exceeded) is seen when starting or stopping an application from the AirVantage server. Workaround is to attempt the operation again. | TBD |
| QT19X1555-966 | Install application failed with error | On rare occasions, a read failure (lwm2m.9: request failed) is seen when installing an application. Workaround is to attempt the operation again. | TBD |
| I/O | | | |
| QT19X1555-161 QT19X1555-630 | System Clock conflict with audio | If the system clock is configured to be permanently on, i.e. AT+WEXTCLK=1,1, the clock is disabled at the termination of audio activity. Conversely, if audio is active and the system clock is disabled, audio will stop until reinitiated. This issue limits the use of the external clock to non-audio platforms. | Modem |
| QT19X1555-466 | USB Audio interfaces do not load correctly on Windows when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release. | Yocto |
| MOLWP9X15-25 | 4-wire UART2 | RTS/CTS not supported on UART2. Workaround: Use UART1 if hardware flow control is required. | Modem |



9 SWI9X15Y 7.0 Release 12.2

Release 12.2 is a modem-only update from Release 12 primarily to address remaining AT&T certification issues. Note that a preliminary Release 12.1 was available for a limited time, but has now been replaced with Release 12.2. Release 12.1 will not be supported going forward.

9.1 Software Release Description

9.1.1 Release identification

| Component | Revision |
|---|---|
| Boot loader | SWI9X15Y_07.11.11.00 2016/09/20 16:36:44 |
| Modem | SWI9X15Y_07.11.11.00 2016/09/20 16:36:44 |
| No change from Release 12 for components below: | |
| Yocto | SWI9X15Y_07.11.09.00 2016-08-11_20:51:24 |
| Kernel | 3.14.29ltsi-c14b887744_0c284d02b3 |
| Legato | 16.07.0_cd4985660a55cc9a6f9a2ed28bcc757e |
| MCU | 001.005 |
| Binary Size | 55MB (compressed binaries) |
| IMEI SV | 42 |
| Qualcomm Stack Version | M9615ACETWMLZD551351013.1.63410.1.65027.1 |
| Supported HW | WP8548, WP7504, WP7502 |

9.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4484 | |
| Windows SDK | None | |
| Skylight | 4567 | |
| Linux Drivers | S2.25N2.37 | |
| Linux SDK | 04.0.01 | |

9.1.3 Released Files and Download Processes

| Download Option | Files |
|--|---|
| Windows | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from: http://source.sierrawireless.com/ |
| CWE/NVU files | Various PRI Packages |
| Windows Firmware and Configuration upgrade tools | Firmware and configuration download instructions are available at https://source.sierrawireless.com/resources/legato/wpfirmwarerelease12_2/ |



9.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 12.

9.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|--|---|---|---------------------|
| WP8548/7504 AT&T Certification – no known issues remaining. | | | |
| QT19X1555-813 | SSL handshake failing with Mformation OMA-DM Server on AT&T WCDMA | Resolved SSL issue on AT&T for ODIS. | AT&T Certification |
| QT19X1555-254 | +CSVM not returning voicemail number | Return voicemail number from SIM on AT+CSVM? | AT&T Certification |
| QT19X1555-718 | [31.121][8.4] - 8.4 UICC presence detection - failed on 2nd slot | TC 8.4 fails on second SIM slot. | PTCRB Certification |
| WP7502 GCF Certification – Still open issues. See Known Issues section | | | |
| QT19X1555-786 | [WP7502][WP8548][51.010-4][27.22.2] SAT Terminal Profile : Enable item 3.5 and 8.8 if Voice enabled | UICC Terminal Profile for 2G corrected when voice enabled. | GCF Certification |
| Data connectivity | | | |
| QT19X1555-764 | Fails to make a data connection if a username and password is included in startdatasession2 | If user modifies the APN or profile authentication info with SINGLEAPNSWITCH feature enabled, a data connection will fail. Windows customers are impacted by this if they change the APN using Windows VANUI and find that they are unable to connect to the new APN. | Data |
| AirVantage | | | |
| QT19X1555-696 | LWM2M Observe: Implement sequence number for Observe notifications | Previously sequence number of 0 was always used cause observe feature to end unexpectedly in some situations. | AirVantage |
| QT19X1555-645 | Time Series (AirVantage - application data) | Allow external host to specify content-format in QMI Notification message. Note that further development is required in other components for this feature to be complete at a system level. | AirVantage |
| QT19X1555-795 | AVC interpret server's WRITE (using COAP_POST) as CREATE command | Interpretation of COAP POST messages from the server was incorrect causing CoAP POST on the Legato object instance to trigger a LWM2M CREATE which is rejected. | AirVantage |
| QT19X1555-780 | [LWM2M] When the device connects to the server, the supported object list is not correct for object 9 (software management) | Remove prefix "lwm2m" from FW version in object 9. | AirVantage |
| QT19X1555-818 | [LWM2M] Application uninstall could need to stop and start the session | Stop and start the session on AirVantage uninstall. | AirVantage |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

9.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|--------------------------------|---|---|-----------------|
| WP7502 - GCF cert | | | |
| QT19X1555-759 | [WP7502][GCF] UE Crashes during reselection to 2G | Crashing on TS 34.121-1 TC 8.2.3.1/8.2.3.2/8.2.3.3 This issue has been fixed and will be available in a later release. | RF |
| Various | [WP7502] RF and protocol issues | Under investigation with chip vendor | RF |
| Stability | | | |
| QT19X1555-690 | I2C stops working during stress test for MCU ULPM / ADC2,3 | After ~100+ iterations of ULPM execution or ADC2,3 read, the I2C bus locks up and MCU communication is lost until reset. This issue has been resolved and the fix may be applied with an updated MCU image (MCU version 001.007) if required. This fix will be included in Release 13. | I2C |
| I/O | | | |
| QT19X1555-161 QT19X1555-630 | System Clock conflict with audio | If the system clock is configured to be permanently on, i.e. AT+WEXTCLK=1,1, the clock is disabled at the termination of audio activity. Conversely, if audio is active and the system clock is disabled, audio will stop until reinitiated. | System clock |
| QT19X1555-466 | USB Audio interfaces do not load correctly on Windows when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release. | USB |
| LE-4624 | TI wl18xx WiFi IoT module support consumes external GPIO42 | The WiFi module driver configures GPIO42 and prevents it from being used for other purposes, even if the WiFi module is not present. | GPIO |
| QT19X1555-753 | GPIO strange behaviour | Inconsistent behavior was observed on GPIO2, 13, 33 during functional test of supported GPIOs. In particular, GPIO2 was found to only be able to operate properly as an output if it was first configured as input with pull up. | GPIO |



10 SWI9X15Y 7.0 Release 12

This section describes the changes since the previous release.

10.1 Software Release Description

10.1.1 Release identification

| Component | Revision |
|------------------------|--|
| Boot loader | SWI9X15Y_07.11.09.00 2016/08/11 18:03:20 |
| Modem | SWI9X15Y_07.11.09.00 2016/08/11 18:03:20 |
| Yocto | SWI9X15Y_07.11.09.00 2016-08-11_20:51:24 |
| Kernel | 3.14.29ltsi-c14b887744_0c284d02b |
| Legato | 16.07.0_cd4985660a55cc9a6f9a2ed28bcc757e |
| MCU | 001.005 |
| Binary Size | 55MB (compressed binaries) |
| IMEI SV | 42 |
| Qualcomm Stack Version | M9615ACETWMLZD551351013.1.63410.1.65027.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

10.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4484 | |
| Windows SDK | None | |
| Skylight | 4567 | |
| Linux Drivers | S2.25N2.36 | |
| Linux SDK | 03.3.16 | |

10.1.3 Released Files and Download Processes

| Download Option | Files |
|--|---|
| Windows | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from: http://source.sierrawireless.com/ |
| CWE/NVU files | Various PRI Packages |
| Windows Firmware and Configuration upgrade tools | Firmware and configuration download instructions are available at https://source.sierrawireless.com/resources/legato/wpfirmwarerelease12/ |

10.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 11.

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

10.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|--------------------------------|-----------------------------------|--|-----------------------|
| Various | Legato 16.07.0 | This release package includes and was validated with Legato 16.07.0. Legato release notes are available at http://www.legato.io . | Legato AF |
| Certification | | | |
| MOLWP9X15-7 | WP7504 GCF Certification | GCF Certification Received | GCF Certification |
| MOLWP9X15-2 | WP7504 Sprint Certification | All known WP7504 Sprint certification issues have been addressed in preparation for Sprint Lab entry. | Carrier Certification |
| MOLWP9X15-4 | WP8548/WP7504 PTCRB Certification | Various items identified during lab and field testing for WP8548/WP7504 PTCRB certification. See section on known issues for outstanding issues. | PTCRB Certification |
| MOLWP9X15-3 MOLWP9X15-5 | WP8548/WP7504 AT&T Certification | Various carrier-specific certification items identified during lab and field testing for WP8548 and WP7504 AT&T certification. See section on known issues for outstanding issues. | Carrier Certification |
| MOLWP9X15-67 | WP7502 GCF Certification | Various items identified during lab and field testing for WP7502 GCF certification. See section on known issues for outstanding issues. | GCF Certification |
| Various | Voice improvements | Busy tone generation. Various voice call improvements identified during audio stress testing. See section on known issues for outstanding issues. | Audio Certification |
| AirVantage | | | |
| QT19X1555-101 QT19X1555-125 | Server connection reliability | Failure to register under certain circumstances corrected. | AirVantage |
| QT19X1555-653 QT19X1555-695 | Observe feature improvements | LWM2M TLV length 255 handling fixed. MCU firmware version added to AV rev string | AirVantage |
| Various | FOTA reliability | Several FOTA failure scenarios addressed. | AirVantage |
| QT19X1555-714 QT19X1555-731 | AVMS Stability | AVMS client crashes under certain corner cases fixed. | AirVantage |
| Image switch | | | |
| QT19X1555-697 QT19X1555-669 | Image switch support | Added support for image switch on customer built images | Image switch |
| I/O Interfaces | | | |
| LXSWI9X1517-45 | uSD card support | A conflict between uSD card and WiFi card added in Release 11 is corrected allowing boot time detection of uSD card. | uSD |
| QT19X1555-69 | UART2 disable | Disable UART2 when AT!MAPUART is 0 to conform to AT command spec | UART |
| QT19X1555-673 QT19X1555-668 | ADC support | ADC0 – 3 are now all fully supported via AT!MADC, QMI, or Legato. Value returned in mV (decimal). | ADC |
| QT19X1555-337 | External antenna control | External antenna control lines are now supported when enabled with AT!CUSTOM="BANDSELEN" and AT!ANTSEL | RF |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

| ID | Title | Description | Impacted Domain |
|---------------------|--|--|----------------------|
| QT19X1555-676 | GPIO6 modem support | When configured for modem control via AT+WIOCFG=6,4, GPIO6 is now available as a GPIO to the modem and not used by the apps kernel for RESET_OUT_N (e.g. for mangOH). The default configuration will continue to be under apps kernel control. | GPIO |
| QT19X1555-757 | Fix modem RI functionality on modem side | Fix persistence of AT!RIOWNER=0 so that it doesn't have to be executed after every boot to take effect. | Modem Ring Indicator |
| QT19X1555-536 | RF sensitivity improvements | APT/internal GPIO64 was inadvertently programmed to generate a PWM signal which degraded diversity and GLONASS sensitivity. This has been corrected. | RF |
| AT / QMI Interfaces | | | |
| QT19X1555-512 | W_DISABLE pin notification | The state of the W_DISABLE pin is now accurately represented in QMI. | QMI |
| QT19X1555-412 | Get MSISDN | Fixed a bug with DMS_GET_MSISDN that incorrect length is returned for ISMI field. | QMI |
| QT19X1555-553 | QMI on USB | Fix an issue where device cannot send and respond to USB traffic through EP0 that has packet size of n*64 bytes | QMI |
| QT19X1555-155 | AT!GSTATUS? | Fix an issue that causes AT!GSTATUS to show incorrect band and channel in a 1xRTT only network when !SELRAT is not set to 09 (CDMA only) | AT |
| MOLWP9X15-33 | AT!POWERDOWN | Add support for AT!POWERDOWN to power off MDM (lowest power state of WP module). To power the module back on, assert reset or toggle power switch from off to on. Also, asserting RESET with power switch off performs emergency power off. | AT / Power control |
| GPS | | | |
| QT19X1555-67 | DR_SYNC | Fix GPS DR_SYNC signal generation | GPS |
| QT19X1555-411 | GNSS Assistance Data | Clear TTFF on AT!GPSCLRASSIST=0,0,0,0 to assist in testing warm/hot start scenarios | GPS |
| QT19X1555-641 | GNSS performance | Update some GPS NV default settings for WP7504 to pass 3GPP2 CS0036 | GPS |

10.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|--------------------------------|---|---|---------------------|
| WP8548/WP7504 - PTCRB | | | |
| QT19X1555-718 | [31.121][8.4] - 8.4 UICC presence detection - failed on 2nd slot | TC 8.4 fails on second SIM slot. A resolution has been verified and will be available in the next release. | SIM |
| WP8548/WP7504 – AT&T Cert | | | |
| QT19X1555-266 | [WP7504][AT&T][LTE-BTR-1-9062] - PS Start Value was missing from WCDMA UE Capability Info | Test case applicability being debated. | RF |
| QT19X1555-742 | [WP7504][WP8548][AT&T] - Some AMR tests are failing due to low MOS score | Uplink MOS score below that required in some test cases. Audio calibration optimization being reviewed. | Audio Certification |
| WP7502 - GCF cert | | | |
| QT19X1555-725 | [51.010-1][20.7] UE connects to wrong cell in 2G | May be a test procedure issue. Retest pending. | RF |
| QT19X1555-759 | [WP7502][GCF] UE Crashes during reselection to 2G | Crashing on TS 34.121-1 TC 8.2.3.1/8.2.3.2/8.2.3.3 | RF |
| I/O | | | |
| QT19X1555-161 QT19X1555-630 | System Clock conflict with audio | If the system clock is configured to be permanently on, i.e. AT+WEXTCLK=1, 1, the clock is disabled at the termination of audio activity. Conversely, if audio is active and the system clock is disabled, audio will stop until reinitiated. | System clock |
| QT19X1555-466 | USB Audio interfaces do not load correctly on Windows when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release. | USB |
| QT19X1555-690 | I2C stops working during stress test for MCU ULPM / ADC2,3 | After ~100+ iterations of ULPM execution or ADC2,3 read, the I2C bus locks up and MCU communication is lost until reset. Some progress is being made on this issue, but a complete solution is not yet available. | I2C |
| LE-4624 | T1 w18xx WiFi IoT module support consumes external GPIO42 | The WiFi module driver configures GPIO42 and prevents it from being used for other purposes, even if the WiFi module is not present. | GPIO |
| QT19X1555-753 | GPIO2, 13 and 33 strange behaviour | Inconsistent behavior was observed on GPIO2, 13, 33 during functional test of supported GPIOs. In particular, GPIO2 was found to only be able to operate properly as an output if it was first configured as input with pull up. | GPIO |



11 SWI9X15Y 7.0 Release 11

This section describes the changes since the previous release.

11.1 Software Release Description

11.1.1 Release identification

| Component | Revision |
|------------------------|--|
| Boot loader | SWI9X15Y_07.10.04.00 2016/06/01 20:30:40 |
| Modem | SWI9X15Y_07.10.04.00 2016/06/01 20:30:40 |
| Yocto | SWI9X15Y_07.10.04.00 2016/06/02 06:32:28 |
| Kernel | 3.14.29ltsi-c14b887744_39dcf2256d |
| Legato | 16.04.0_63633d9200de787b7c2a6dca03d2cff3 |
| Binary Size | 55MB (compressed binaries) |
| IMEI SV | 41 |
| Qualcomm Stack Version | M9615ACETWMLZD551351010.1 |
| Supported HW | WP8548, WP7504, WP7502 |

11.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4484 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.25N2.36 | |
| Linux SDK | 03.03.16 | |

11.1.3 Released Files and Download Processes

| Download Option | Files |
|--|---|
| Windows | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from: http://source.sierrawireless.com/ |
| CWE/NVU files | Various PRI Packages |
| Windows Firmware and Configuration upgrade tools | Firmware and configuration download instructions are available at https://source.sierrawireless.com/resources/legato/wpfirmwarerelease11/ |

11.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 10.1.

11.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|-------------------------|---|--|-----------------------|
| Various | Legato 16.04.0 | This release package includes and was validated with Legato 16.04.0. Legato release notes are available at http://www.legato.io . | Legato AF |
| 90537 | Legato AF Secure Filesystem APIs | Fixed firmware support of Legato Secure Filesystem APIs. | Legato AF |
| 91342 91526 91622 | Legato AF QMI compatibility improvements | Improved Legato AF QMI compatibility with Linux and Modem images by statically linking QMI libraries in Legato AF This improves the independence of Legato AF from the Linux and Modem images. | Legato AF |
| Various | UBIFS support for USERRW partition | UBIFS support is added for the user read/write partition, mtd4. The mtd4 partition now defaults to UBIFS on next boot if erased entirely. The partition is unaffected if not erased. | Linux FS |
| Various | Sprint Certification improvements | Various carrier-specific certification items identified during lab and field testing | Carrier Certification |
| Various | AT&T Certification improvements | Various carrier-specific certification items identified during lab and field testing | Carrier Certification |
| Various | Audio certification improvements | Various voice call improvements identified during lab and field testing | Audio Certification |
| 91943 92288 | Fastboot Support in Linux LK | Fastboot support in the Linux bootloader can be configured with AT commands via the "FASTBOOTEN" customization: <i>Level 2 Unlock command:</i> AT!ENTERCND="A710" <i>Enable:</i> AT!CUSTOM="FASTBOOTEN",01 <i>Disable:</i> AT!CUSTOM="FASTBOOTEN",00 | Linux LK |
| Various | UART1 4-wire Operation | Added HS serial driver to support 4-wire operation on UART1 | Linux, UART |
| 90263 91943 | USB Composition improvements | USB composition configuration is now more flexible, configured by bitmask for supported interfaces. Refer to AT!USBCOMP=? for details. | USB |
| 89334 | LWM2M Observe Feature | Added support for LWM2M Observe functionality | AVMS |
| 91307 | LWM2M Block Transfer Mode | Added support for LWM2M Block Transfer Mode | AVMS |
| 90678 | Improved FOTA component management | Improved FOTA model to support the independent upgrade of system components | AVMS |
| 88831 | ADC Support | Added AT and QMI support for all four WP external ADC interfaces. | Linux, AT, QMI |
| 91122 | Optimized sleep mode power consumption | Optimized sleep mode power consumption by configuring internal GPIO correctly in the sleep state. | BSP |
| 89766 | Add support to handle LK compression in CWE | LK Compression is now supported when downloading a CWE packaged by the SWICWE tool | CWE |
| 91829 | Fix modem RI functionality on modem side | Add support for Modem Ring Indicator functionality on UART1 RI when AT!RIOWNER=0 | Modem Ring Indicator |

| ID | Title | Description | Impacted Domain |
|---------|---|---|-----------------|
| 92231 | Fix intermittent external 19.2MHz System Clock when configured to be on by AT+WEXTCLK | System clock was being disabled during Modem sleep mode. This solution overrides a failure in the voting mechanism by forcing the clock and XO core on during sleep mode. <i>Limitation: The clock is shared with the external PCM interface, and will be disabled at the termination of a voice call as the PCM interface is disabled. This issue remains under investigation (4729).</i> | System Clock |
| 90622 | Galileo Support is enabled by default | Galileo support is enabled on new devices starting from this release. | GPS |
| 4508 | Fixed support of mounting a peripheral USB drive | Mounting a peripheral USB drive was inadvertently disabled in the previous release. | Peripheral USB |
| Various | Audio is enabled in applicable Carrier configurations for this release | AT&T and Generic carrier configurations support the Audio feature | Audio |
| 90400 | I2C Reliability during repetitive ULPM stress testing | Fixed an intermittent I2C failure which caused a failure to re-enter ULPM mode until the next power cycle or software reset. | ULPM |
| 4592 | Fixed a crash observed while attempting to mount from an absent microSD | A crash was resolved when attempting to mount an unplugged microSD card. <i>Note: See known issues below – microSD support is not supported in this release.</i> | SD |
| 86131 | Fix support of Antenna Control pins | External Antenna Control functionality is restored by isolating these pins from the Sound driver for the WP platform. <i>Note: This fix is pending validation</i> | ANT_CNTL |

11.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|-------|---|---|-----------------|
| 88818 | Remove POWER_ON_N signal requirement from power-on conditions when ULPM mode is supported | The assertion of the POWER_ON_N signal consumes 0.828mA due to internal circuitry of WP8548/WP7502/WP7504. To achieve minimal ULPM power consumption, the requirement for this signal at power-up must be removed. In this release, the customer may implement the POWER_ON_N signal as a pulse in order to satisfy the power-on condition, then restore the minimal power consumption mode by de-asserting the signal once the device has powered up. | ULPM |
| 4729 | System Clock disabled at completion of voice call | If the system clock is configured to be permanently on, i.e. AT+WEXTCLK=1, 1, the clock is disabled at the termination of a voice call. | System clock |
| 86145 | TX_ON not configured with valid thresholds | TX_ON configuration needs to be updated in order to assert the signal on presence of transmit power. | TX_ON |



| ID | Title | Description | Impacted Domain |
|---------|---|---|-------------------|
| 88878 | DR_SYNC default configuration is not valid | Commands to enable/disable DR_SYNC operation do not adequately configure the feature, and the DR_SYNC pin is not generating a pulse. | DR_SYNC |
| 92410 | Busy tone generation not supported in voice calls | The busy tone is not generated | Audio, GCF, PTCRB |
| 4595 | USB Audio interfaces do not load correctly when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. This is caused by conflicting USB compliance versions between the ECM and Audio drivers. This issue prevents the Windows host from entering Selective Suspend on the USB bus. This issue is being avoided by removing Audio from the USB composition in this release. | USB |
| 5072 | TI wl18xx WiFi IoT module support conflicts with microSD interface | The WiFi module driver uses resources required by the SDIO interface and prevents the mangOH microSD slot from functioning even if the WiFi module is not present. | SDIO |
| 4815 | TI wl18xx WiFi IoT module support consumes external GPIO42 | The WiFi module driver configures GPIO42 and prevents it from being used for other purposes, even if the WiFi module is not present. | GPIO |
| Various | WiFi applications are not built when Legato is built within the Yocto environment | Legato AF WiFi applications are not included when the Yocto legato-af recipe is used. The applications are included when the Legato AF is built separately from the Yocto environment. Future releases of the Legato AF will not compile within this version of the Yocto environment, but will be supported in corresponding new Yocto releases. | Legato AF, WiFi |

12 SWI9X15Y 7.0 Release 10.1

This section describes the changes since the previous release.

12.1 Software Release Description

12.1.1 Release identification

| Component | Revision |
|------------------------|--|
| Boot loader | SWI9X15Y_07.09.02.00 2016/03/31 20:05:28 |
| Modem | SWI9X15Y_07.09.02.00 2016/03/31 20:05:28 |
| Yocto | SWI9X15Y_07.09.02.02 2016/04/15 02:39:24 |
| Kernel | 3.14.29ltsi-13c67b16ff_922830eb31 |
| Legato | 16.01.2_9e91388c2b14980a4d419259910a4d65 |
| Binary Size | 53MB (compressed binaries) |
| IMEI SV | 41 |
| Qualcomm Stack Version | M9615ACETWMLZD551351007.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

12.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4484 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.25N2.36 | |
| Linux SDK | 03.03.15 | |

12.1.3 Released Files and Download Processes

| Download Option | Files |
|--|--|
| Windows | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from: http://source.sierrawireless.com/ |
| CWE/NVU files | Various PRI Packages |
| Windows Firmware and Configuration upgrade tools | Firmware and configuration download instructions are available directly through your Sierra Wireless FAE. |

12.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 10.

12.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|---------|--|---|-----------------|
| Various | Added Linux support for MangOH WiFi reference design | Linux support is added for MangOH reference design with TI wl18xx WiFi IoT module | MangOH / WiFi |

12.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|--|---|-----------------|
| Various | Audio is not supported | Audio is not supported in this release. Voice call control functionality is disabled. The USB audio interface is exposed by default. | Audio |
| 86131 | Antenna Control pins not working | External Antenna Control functionality is broken | ANT_CNTL |
| 86145 | TX_ON not configured with valid thresholds | TX_ON configuration needs to be updated in order to assert the signal on presence of transmit power. | TX_ON |
| 81378 | ADC Support | External ADC interfaces are supported in sysfs only. | ADC |



| ID | Title | Description | Impacted Domain |
|-------|---|--|-----------------|
| 88818 | Remove POWER_ON_N signal requirement from power-on conditions when ULPM mode is supported | <p>The assertion of the POWER_ON_N signal consumes 0.828mA due to internal circuitry of WP8548/WP7502/WP7504. To achieve minimal ULPM power consumption, the requirement for this signal at power-up must be removed.</p> <p>In this release, the customer may implement the POWER_ON_N signal as a pulse in order to satisfy the power-on condition, then restore the minimal power consumption mode by de-asserting the signal once the device has powered up.</p> | ULPM |
| 90400 | I2C Failure observed during repetitive ULPM stress testing | An intermittent I2C failure causes a failure to re-enter ULPM mode until the next power cycle or software reset. | ULPM |
| 90537 | Legato secure file system backup not supported | A storage location for the secure file system backup routines is not yet implemented for the WP, causing Legato backup routines to fail. | Legato / SFS |
| 4595 | USB Audio interfaces do not load correctly when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. | USB |
| 4508 | Mounting a peripheral USB drive is not supported | Mounting a peripheral USB drive was inadvertently disabled. | Peripheral USB |
| 4173 | 4-Wire UART on UART1 is not supported | An HS 4-wire UART driver is not yet included in this release. | UART |
| TBD | Fastboot is disabled | Fastboot is disabled due to an inflexible USB configuration limiting the ability to enable Fastboot independently. Fastboot is to be supported in future releases. | Fastboot |
| 4592 | Crash while mounting from an absent microSD | A crash occurs when attempting to mount an unplugged microSD card. | SD |
| 90622 | Galileo Support is not enabled by default | Galileo support is not enabled in this release. | GPS |

13 SWI9X15Y 7.0 Release 10

This section describes the changes since the previous release.

13.1 Software Release Description

13.1.1 Release identification

| Component | Revision |
|-------------|--|
| Boot loader | SWI9X15Y_07.09.02.00 2016/03/31 20:05:28 |
| Modem | SWI9X15Y_07.09.02.00 2016/03/31 20:05:28 |
| Yocto | SWI9X15Y_07.09.02.00 2016/03/31 22:35:29 |
| Kernel | 3.14.29ltsi-13c67b16ff_922830eb31 |
| Legato | 16.01.2_9e91388c2b14980a4d419259910a4d65 |
| Binary Size | 45MB (compressed binaries) |
| IMEI SV | 41 |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



| Component | Revision |
|------------------------|---------------------------|
| Qualcomm Stack Version | M9615ACETWMLZD551351007.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

13.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4484 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.25N2.36 | |
| Linux SDK | 03.03.15 | |

13.1.3 Released Files and Download Processes

| Download Option | Files |
|--|---|
| Windows | The Windows Driver package is available directly through your Sierra Wireless FAE or can be downloaded from: http://source.sierrawireless.com/ |
| CWE/NVU files | Various PRI Packages |
| Windows Firmware and Configuration upgrade tools | Firmware and configuration download instructions are available at https://source.sierrawireless.com/resources/legato/wpfirmwarerelease10/ |

13.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 9.

13.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|-------------------------------|---------------------------------------|---|-----------------|
| Various | Legato 16.01.2 | This release package includes and was validated with Legato 16.01.2. Legato release notes are available at http://www.legato.io . | Legato |
| 90183 | Qualcomm M9615ACETWMLZD551351007.1 | Notable fix for stability issue observed in Release 9: CR 764733: Fix intermittent crash observed on WP7504 during operation with CDMA and UMTS/GSM enabled simultaneously | Modem |
| 80393 2865 4075 4491 | Add support for USB Selective Suspend | USB Selective Suspend is supported, additionally adding handling of /dev/usb_link wakelock, allowing the system to enter the power collapse state (sleep mode) and reach minimal power consumption. | USB |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

| ID | Title | Description | Impacted Domain |
|---------|--|--|-----------------|
| 4370 | Clean up USB audio gadget on restart | Sound PCM devices were not properly closed when the audio gadget was disabled, causing the kernel to busy-loop while trying to open a previously unclosed PCM device. | USB |
| 89234 | GCF TC 27.22.4.29.1/1 - PDP not open when the SIM requires | Fix STK Terminal Profile to adapt to whether voice call support is enabled or disabled | GCF |
| 90234 | WP7504 - Add RF driver support for LTE Band 17 | Added LTE Band 17 support for WP7504 | RF |
| 88837 | WP7502 - ILPC, Open Loop Power and PRACH power on WCDMA B1, B8 and LTE B7 | Default calibration updates for WP7502 to improve ILPC, Open loop power, and PRACH power on WCDMA B1, B8, and LTE B7 | RF |
| 88838 | Fix Power Control state machine to prevent device from remaining in Low Power Mode after returning from critical low temperature | The modem enters Low Power Mode when the temperature falls below a critical threshold. This fixes a bug in the state machine where the modem was incorrectly stuck in Low Power Mode after the temperature rose back to within the normal range. | Power Control |
| Various | Update AirVantage Agent | Various stability and performance updates to the AirVantage agent | AirVantage |
| 89693 | Wakeup from ULPM on timer fails intermittently | When timer-based ULPM wakeup was enabled, an intermittent timer configuration issue resulted in the device remaining in ULPM until the next power cycle. | ULPM |
| None | User updates of GPIO configuration are lost when updating to latest release | The GPIO configuration was previously forced to predefined values in every release. The accompanying configuration files with this release will maintain the customer's GPIO configuration. | GPIO |

13.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|--|---|-----------------|
| Various | Audio is not supported | Audio is not supported in this release. Voice call control functionality is disabled. The USB audio interface is exposed by default. | Audio |
| 86131 | Antenna Control pins not working | External Antenna Control functionality is broken | ANT_CNTL |
| 86145 | TX_ON not configured with valid thresholds | TX_ON configuration needs to be updated in order to assert the signal on presence of transmit power. | TX_ON |
| 81378 | ADC Support | External ADC interfaces are supported in sysfs only. | ADC |



| ID | Title | Description | Impacted Domain |
|-------|---|---|-----------------|
| 88818 | Remove POWER_ON_N signal requirement from power-on conditions when ULPM mode is supported | The assertion of the POWER_ON_N signal consumes 0.828mA due to internal circuitry of WP8548/WP7502/WP7504. To achieve minimal ULPM power consumption, the requirement for this signal at power-up must be removed. In this release, the customer may implement the POWER_ON_N signal as a pulse in order to satisfy the power-on condition, then restore the minimal power consumption mode by de-asserting the signal once the device has powered up. | ULPM |
| 90400 | I2C Failure observed during repetitive ULPM stress testing | An intermittent I2C failure causes a failure to re-enter ULPM mode until the next power cycle or software reset. | ULPM |
| 90537 | Legato secure file system backup not supported | A storage location for the secure file system backup routines is not yet implemented for the WP, causing Legato backup routines to fail. | Legato / SFS |
| 4595 | USB Audio interfaces do not load correctly when ECM is enabled | In Windows a Yellow Bang is observed on the USB Audio interfaces when ECM is enabled. | USB |
| 4508 | Mounting a peripheral USB drive is not supported | Mounting a peripheral USB drive was inadvertently disabled. | Peripheral USB |
| 4173 | 4-Wire UART on UART1 is not supported | An HS 4-wire UART driver is not yet included in this release. | UART |
| TBD | Fastboot is disabled | Fastboot is disabled due to an inflexible USB configuration limiting the ability to enable Fastboot independently. Fastboot is to be supported in future releases. | Fastboot |
| 4592 | Crash while mounting from an absent microSD | A crash occurs when attempting to mount an unplugged microSD card. | SD |
| 90622 | Galileo Support is not enabled by default | Galileo support is not enabled in this release. | GPS |

14 SWI9X15Y 7.0 Release 9

This section describes the changes since the previous release.

14.1 Software Release Description

14.1.1 Release identification

| Component | Revision |
|-------------|---|
| Boot loader | SWI9X15Y_07.08.02.00 2016/02/05 23:29:29 |
| Modem | SWI9X15Y_07.08.02.00 2016/02/05 23:29:29 |
| Yocto | SWI9X15Y_07.08.02.00 2016/02/06 02:38:29 |
| Kernel | 3.14.29ltsi-5d7a6bf7c6_ed88cc68b5 |
| Legato | 16.01.0.Beta_aa0684bddf31f5ea2d457b53d2218972 |
| Binary Size | 45MB (compressed binaries) |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



| Component | Revision |
|------------------------|---------------------------------|
| IMEI SV | 41 |
| Qualcomm Stack Version | M9615ACETWMLZD5513404.1.42262.1 |
| Supported H/W | WP8548, WP7504, WP7502 |

14.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4431 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.25N2.36 | |
| Linux SDK | 03.03.14 | |

14.1.3 Released Files and Download Processes

| Download Option | Files |
|--|---|
| Windows | Install Driver B4431 |
| CWE/NVU files | Various PRI Packages |
| Windows Firmware and Configuration upgrade tools | Firmware and configuration download instructions are available at https://source.sierrawireless.com/resources/legato/wpfirmwarerelease9/ |

14.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 8.

14.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|---------|--|---|-------------------------------------|
| Various | Legato 16.01.0.Beta | This release package includes and was validated with Legato 16.01.0.Beta. Legato release notes are available at http://www.legato.io . | Legato |
| Various | Legato Installation Improvements | Legato installation is significantly faster. An installation failure observed while testing unexpected power removals during installation is also resolved. | Legato/ Installation |
| 3466 | Improve decoupling of Legato QMI PA and Modem firmware | Legato no longer must be compiled with the identical QMI libraries as the modem firmware | Legato/ QMI PA/ Compatibility |
| Various | Added support for Ultra Low Power Modes (ULPM) | Legato APIs are provided in this release to control the ULPM behaviour, including support for timer- and GPIO-based wakeup triggers. | ULPM |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

| ID | Title | Description | Impacted Domain |
|---------|--|---|-----------------|
| Various | Added Device Tree support | Enabled Device Tree to ease the effort to add new drivers for external customers/developers. | Yocto |
| 3543 | Do not provide unsupported image types for WP75/WP85 | Removed 2k.yaffs2 from Yocto rootFS image generation. These images were not supported by the release, but were made available for download. | Yocto |
| 87729 | Yocto support on WP7502/WP7504 | A bug in a Release 8 user application was attempting to mount the root FS partition with a new format shortly after the first power up, causing the partition to be erased. | Yocto |
| 85089 | CWE/SPK files can be loaded by directly using Legato fwupdate tool | A previous limitation requiring a FOTA package for the fwupdate tool has been removed, and CWE/SPK files can be loaded directly. | fwupdate |
| 3927 | ECM interface is enabled and routed by default | The ECM interface was previously enumerated but required further steps to enable the connection. This change provides an IP address to the host by default on the ECM interface, when enumerated. | ECM |
| 88405 | Qualcomm stack baseline | Update Qualcomm stack baseline to M9615ACETWMLZD5513404.1.42262.1 <ul style="list-style-type: none"> Significant improvement for GSM sensitivity. Multiple stability and security fixes identified by Qualcomm. | Modem |
| 88639 | Stability with Sprint configuration | Heap exhaustion was observed frequently with a Sprint carrier configuration. Extra allocation is expected and the heap was increased to accommodate the requirement. | Modem Stability |
| Various | AirVantage | Various LWM2M updates for AirVantage | AirVantage |
| 85796 | On-board Image Switching | Added initial on-board image switching capability | Image Switching |
| Various | RF Drivers for WP75xx | Updated RF drivers and default configuration for WP7502/WP7504. | RF |

14.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|-------------------------------------|---|-----------------|
| 80393 | USB Selective Suspend not supported | USB Selective Suspend is not supported yet. Additional side effect of this asserts /dev/usb_link wakelock, preventing the system from entering power collapse state and reaching minimal power consumption. | USB |
| Various | Audio is not supported | Audio is not supported in this release. Voice call control functionality is disabled. The USB audio interface is exposed by default. | Audio |
| Various | FOTA | FOTA support is added in this release, but due to limitations of previous releases, FOTA cannot be used to upgrade a device to this release. | FOTA |

| ID | Title | Description | Impacted Domain |
|-------|---|--|----------------------|
| 88767 | Crash observed during multimode operation on WP7504. | An intermittent crash has been observed when testing on lab test equipment with multimode enabled. The issue can be avoided by disabling CDMA, but is rarely observed even with CDMA enabled | Stability/ WP7504 |
| 86131 | Antenna Control pins not working | External Antenna Control functionality is broken | ANT_CNTL |
| 86145 | TX_ON not configured with valid thresholds | TX_ON configuration needs to be updated in order to assert the signal on presence of transmit power. | TX_ON |
| 81378 | ADC Support | External ADC interfaces are supported in sysfs only. | ADC |
| 88035 | GCF TC 27.22.4.29.1/1 - PDP not open when the SIM requires | SIM Toolkit related test case failure blocking GCF certification on this release | GCF |
| 88818 | Remove POWER_ON_N signal requirement from power-on conditions when ULPM mode is supported | <p>The assertion of the POWER_ON_N signal consumes 0.828mA due to internal circuitry of WP8548/WP7502/WP7504. To achieve minimal ULPM power consumption, the requirement for this signal at power-up must be removed.</p> <p>In this release, the customer may implement the POWER_ON_N signal as a pulse in order to satisfy the power-on condition, then restore the minimal power consumption mode by de-asserting the signal once the device has powered up.</p> | ULPM |

In Addition to the listed known issue, the following features have not been tested.
 Firmware download over UART
 Internal RTC
 VGPIO pin



15 SWI9X15Y 7.0 Release 8

This section describes the changes since the previous release.

15.1 Software Release Description

15.1.1 Release identification

| Component | Revision |
|------------------------|---|
| Boot loader | SWI9X15Y_07.05.01.00 2015/12/08 01:28:58 |
| Modem | SWI9X15Y_07.05.01.00 2015/12/08 01:28:58 |
| Yocto | SWI9X15Y_07.05.01.00 2015/12/08 01:28:58 |
| Kernel | 3.14.29ltsi-bfda7d39c8_b6c4f16553 |
| Legato | 15.10.1.Beta_6b0f919f6d57fc5af6930499ec253a0b |
| Binary Size | 45MB (compressed binaries) |
| IMEI SV | 40 |
| Qualcomm Stack Version | M9615ACETWMLZD5513303 |
| Supported HW | WP8548, WP7504 |

15.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4382 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.25N2.36 | |
| Linux SDK | 03.03.13 | |

15.1.3 Released Files and Download Processes

| Download Option | Files |
|-----------------|----------------------|
| Windows | Install Driver B4382 |
| CWE/NVU files | Various PRI Packages |



| Download Option | Files |
|--|--|
| Windows Firmware and Configuration upgrade tools | <p>Instructions:</p> <ol style="list-style-type: none"> 1) This procedure assumes the module is starting from Release 7. If the module is running something older than Release 7, please follow the upgrade instructions from that release first. 2) This procedure involves simple executables run on a Windows operating system. The module must enumerate a "DM" serial port over USB to execute this procedure. If the module is enumerating as an ECM device only (i.e. Ethernet over USB), please use the command "configEcm off" on the Linux shell to allow DM to enumerate in the USB composition. 3) Download the Carrier configuration packages from the link below. 4) Run the Carrier configuration tool: 9999999_9904559_SWI9X15Y_07.05.01.00_00_GENERIC_001.013_000-field.exe NOTE: This tool includes the modem and application processor firmware and carrier specific configuration. The modem will boot in Online mode following the application of this configuration. 5) Run the Legato upgrade tool: legato-15.10.1.exe 6) Optional: If ECM-only enumeration is desired, access the A5 console via UART, Ethernet, or USB (ADB), and issue command "configEcm on". Alternatively use "configEcm" to list optional parameters for the ECM configuration. <p>Links:</p> <ol style="list-style-type: none"> 1) Carrier Configurations: Generic Carrier http://downloads.sierrawireless.com/legato/1510/wp85/9999999_9904559_SWI9X15Y_07.05.01.00_00_GENERIC_001.013_000-field.exe 2) Legato: http://downloads.sierrawireless.com/legato/1510/wp85/legato-15.10.1.exe |

15.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 7.

15.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|----------------------|-----------------------|---|-----------------|
| 85659 / 86259 / 3633 | Product Name update | Remove -G from product name | System |
| 3572 | Remove WP71 target | Remove wp71 build target | System |
| Various | WP750x | Add initial support for WP750x hardware variants | System |
| Various | Legato 15.10.1.Beta | This release package includes and was validated with Legato 15.10.1.Beta. | Legato |
| 86447 | Legato version string | Updated file location to retrieve Legato version | Legato |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



| ID | Title | Description | Impacted Domain |
|--------------|-------------------------|--|-----------------|
| 86312 | Qualcomm stack baseline | Update Qualcomm stack baseline to M9615ACETWMLZD5513303 | Modem |
| Various | AirVantage | Various LWM2M updates for AirVantage | AirVantage |
| 85609 / 3588 | GSM high band desense | Fix issues with desense during voice call in high band GSM Rx path | RF |
| 86096 | UART2 | Service map to UART2 should return ERROR | AT |
| 85575 | AT!LTEINFO | Add support for AT!LTEINFO | AT |

15.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|--|---|------------------|
| 80393 | USB Selective Suspend not supported | USB Selective Suspend is not supported yet. Additional side effect of this asserts <code>/dev/usb_link</code> wakelock, preventing the system from entering power collapse state and reaching minimal power consumption. | USB |
| Various | ADC Support | Some ADC interfaces (2-3) are not implemented | ADC |
| Various | On-board Image Switching | On-board Image Switching is not supported in this release. Host-based Image Switching is supported. A Generic carrier configuration will be provided. | Image Switching |
| Various | Audio is not supported | Audio is not supported in this release. The USB audio interface is exposed by default, and call control functionality is supported, but sound is not functional. | Audio |
| Various | Firmware upgrade via Developer Studio is not supported in this release | Customer cannot use Developer Studio to upgrade to this release. | Developer Studio |
| Various | YAFFS2 Not supported for rootfs | YAFFS2 is not supported for rootfs image, but is available when building the WP85 release from source. If loading rootfs directly, use the squashfs "2k.ubi" image, example: <code>mdm9x15-image-minimal-swi-mdm9x15.2k.ubi</code> The CWE files generated by the build process contain the squashfs image. | rootfs format |
| None | FOTA | FOTA is not yet officially supported | FOTA |

In Addition to the listed known issue, the following features have not been tested.

Firmware download over UART
Internal RTC
VGPIO pin

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



16 SWI9X15Y 7.0 Release 7

This section describes the changes since the previous release.

16.1 Software Release Description

16.1.1 Release identification

| Component | Revision |
|------------------------|--|
| Boot loader | SWI9X15Y_07.04.06.00 2015/10/30 10:49:23 |
| Modem | SWI9X15Y_07.04.06.00 2015/10/30 10:49:23 |
| Application | SWI9X15Y_07.04.06.00 2015/10/30 13:25:12 |
| Legato | 15.10.0.Beta |
| Binary Size | 45MB (compressed binaries) |
| IMEI SV | 40 |
| Qualcomm Stack Version | AMSS 9x15 5.5.1.32 Post CS (M9615ACETWMLZD55132) |
| Supported H/W | WP8548-G – DV2 and above |

16.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4368 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.25N2.35 | |
| Linux SDK | 03.03.12 | |

16.1.3 Released Files and Download Processes

| Download Option | Files |
|-----------------|----------------------|
| Windows | Install Driver B4368 |
| CWE/NVU files | Various PRI Packages |

| Download Option | Files |
|--|--|
| Windows Firmware and Configuration upgrade tools | <p>Instructions:</p> <ol style="list-style-type: none"> 7) This procedure involves simple executables run on a Windows operating system. The module must enumerate a "DM" serial port over USB to execute this procedure. If the module is enumerating as an ECM device only (i.e. Ethernet over USB), please use the command "configEcm off" on the Linux shell to allow DM to enumerate in the USB composition. 8) Download the Customer and Carrier configuration packages from the links below. 9) Run the applicable Customer configuration tool (see Links below for instructions): 1102621_9904889_WP8548-G_07.04.06.00_00_Generic_001.000_000-field.exe Or 9101011_5501011_WP8548-G_07.04.06.00_00_DevKit_001.013_000-field.exe NOTE: This tool includes the full Release 7 firmware, including Legato 15.10.0.Beta, and several important platform related configuration. The modem will boot in Airplane mode if this is the first application of this configuration. 10) Run the Carrier configuration tool: 9999999_9904559_SWI9X15Y_07.04.06.00_00_GENERIC_001.010_000-field.exe NOTE: This tool includes the modem and application processor firmware and carrier specific configuration. The modem will boot in Online mode following the application of this configuration. 11) Optional: If ECM-only enumeration is desired, access the A5 console via UART, Ethernet, or USB (ADB), and issue command "configEcm on". Alternatively use "configEcm" to list optional parameters for the ECM configuration. <p>Links:</p> <ol style="list-style-type: none"> 3) Customer Configurations: Select the appropriate customer configuration to upgrade your device. Execute AT command AT!PRIID? to determine the correct upgrade path. <ol style="list-style-type: none"> i. "PRI Part Number: 9904889" - Beta release generic configuration http://downloads.sierrawireless.com/legato/1510/wp85/1102621_9904889_WP8548-G_07.04.06.00_00_Generic_001.000_000-field.exe ii. "PRI Part Number: 5501011" - Early sample configuration http://downloads.sierrawireless.com/legato/1510/wp85/9101011_WP8548-G_07.04.06.00_00_DevKit_001.013_000-field.exe 4) Carrier Configurations: Generic Carrier http://downloads.sierrawireless.com/legato/1510/wp85/9999999_9904559_SWI9X15Y_07.04.06.00_00_GENERIC_001.010_000-field.exe |

16.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 6.

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|

16.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|---------|--|--|-----------------------|
| Various | Legato 15.10.0.Beta | This release package includes and was validated with Legato 15.10.0.Beta. | Legato |
| 84306 | Fixed GPIO configuration preventing system from entering LPM | An incorrect GPIO configuration caused a Wake lock to be held indefinitely on the application processor, preventing the processor from entering low power mode | Sleep |
| Various | Fixed Data connectivity failures observed with Linux SDK 03.03.11 | Data Connectivity is resolved in Linux SDK release 03.03.12. SWI9X15Y Release 7 was validated with SDK 03.03.12. | Linux SDK |
| 85171 | Added default support for ECM Interface | ECM Interface may be enumerated by default, depending on customer preference. | USB |
| 85410 | Fixed modem instability when LWM2M Observe feature is enabled on the AVMS server | When a specific AVMS feature is enabled on the server, devices without this fix will reset upon connecting to the AVMS server. The AVMS feature is not enabled on the server at the time of this release, but will be enabled in the future. Devices with AVMS connectivity in the field must have this fix when the feature becomes active. | AVMS/ Stability |
| 3423 | Fixed device selection for YAFFS2 at mount time | Fixed assumption that the device passed to mount command is always mtd device. This issue led to file system erasure if the device passed to mount command was not mtd device. | Storage/ Stability |

16.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|--|--|------------------|
| 80393 | USB Selective Suspend not supported | USB Selective Suspend is not supported yet. Additional side effect of this asserts <code>/dev/usb_link</code> wakelock, preventing the system from entering power collapse state and reaching minimal power consumption. | USB |
| Various | ADC Support | Some ADC interfaces (2-3) are not implemented | ADC |
| Various | On-board Image Switching | On-board Image Switching is not supported in this release. Host-based Image Switching is supported. A Generic carrier configuration will be provided. | Image Switching |
| Various | Audio is not supported | Audio is not supported in this release. The USB audio interface is exposed by default, and call control functionality is supported, but sound is not functional. | Audio |
| Various | Firmware upgrade via Developer Studio is not supported in this release | Customer cannot use Developer Studio to upgrade to this release. | Developer Studio |

| ID | Title | Description | Impacted Domain |
|---------|--|---|-----------------|
| 3234 | Module does not fully boot if no UART is available to the A5 | <p>Default configuration assigns UART2 to the A5 console. If the UART mapping is modified to assign neither UART to the A5, the boot process does not complete, and the device cannot be re-configured to remove the faulty configuration.</p> <p>Recovery from this issue requires a firmware image to be downloaded containing a solution for the root cause, which is not available yet.</p> <p>UART allocation is modified using AT!MAPUART. Please do not modify the UART allocation via AT commands with this release due to this issue.</p> | Stability |
| Various | YAFFS2 Not supported for rootfs | <p>YAFFS2 is not supported for rootfs image, but is available when building the WP85 release from source. If loading rootfs directly, use the squashfs "2k.ubi" image, example: mdm9x15-image-minimal-swi-mdm9x15.2k.ubi</p> <p>The CWE files generated by the build process contain the squashfs image.</p> | rootfs format |
| None | MangOH Ethernet and USB type A in GSM mode | <p>During GSM transmit bursts an LDO on MangOH DV2 may signal poor power quality, which triggers a short (1.5msec) pulse on the RESET_IN and System_Reset signals.</p> <p>The System_Reset pulse triggers a reset of the USB3503 and LAN9514 devices on MangOH, putting them out of sync with the WP8548-G, and connectivity of the Ethernet port and USB Type A connector is lost.</p> <p>MangOH DV3 resolves this issue by removing R402 based on findings that the LDO's power quality assessment is not valid for this use. Users of MangOH DV2 may intermittently experience loss of Ethernet/USB Type A connection during and after GSM transmit.</p> | MangOH/ HSIC |

In Addition to the listed known issue, the following features have not been tested.
 Firmware download over UART
 Internal RTC
 VGPIO pin

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



17 SWI9X15Y 7.0 Release 6

This section describes the changes since the previous release.

17.1 Software Release Description

17.1.1 Release identification

| Component | Revision |
|------------------------|--|
| Boot loader | SWI9X15Y_07.04.01.01 2015/10/01 17:45:03 |
| Modem | SWI9X15Y_07.04.01.01 2015/10/01 17:45:03 |
| Application | SWI9X15Y_07.04.01.01 2015/10/01 20:53:40 |
| Legato | 15.09.0.Beta |
| Binary Size | 45MB (compressed binaries) |
| IMEI SV | 40 |
| Qualcomm Stack Version | AMSS 9x15 5.5.1.32 Post CS (M9615ACETWMLZD55132) |
| Supported H/W | WP8548-G – DV2 |

17.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4368 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.24N2.34 | |
| Linux SDK | 03.03.10 | |

17.1.3 Released Files and Download Processes

| Download Option | Files |
|-----------------|----------------------|
| Windows | Install Driver B4368 |
| CWE/NVU files | Various PRI Packages |



| Download Option | Files |
|--|--|
| Windows Firmware and Configuration upgrade tools | <p>Instructions:</p> <p>12) Download the Customer and Carrier configuration packages from the links below.</p> <p>13) Run the Customer configuration tool: 9101011_5501011_WP8548-G_07.04.01.01_00_DevKit_001.012_000-field.exe NOTE: This tool includes the full Release 6 firmware, including Legato 15.09.0.Beta, and several important platform related configuration changes. The modem will boot in Airplane mode following the application of this configuration.</p> <p>14) Run the Carrier configuration tool: 9999999_9904559_SWI9X15Y_07.04.01.01_00_GENERIC_001.009_000-field.exe NOTE: This tool includes the modem and application processor firmware and carrier specific configuration. The modem will boot in Online mode following the application of this configuration.</p> <p>Links:</p> <p>5) Generic Customer Configuration http://downloads.sierrawireless.com/legato/1509/wp85/9101011_5501011_WP8548-G_07.04.01.01_00_DevKit_001.012_000-field.exe</p> <p>6) Generic Carrier Configuration http://downloads.sierrawireless.com/legato/1509/wp85/9999999_9904559_SWI9X15Y_07.04.01_01_00_GENERIC_001.009_000-field.exe</p> |

17.2 Software Changes Description

This section describes significant changes since SWI9X15Y 7.0 Release 5.

17.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|---------|---|--|-----------------|
| 83943 | Add Qualcomm M9615ACETWMLZD55132 | Add Qualcomm M9615ACETWMLZD55132 | Modem |
| Various | Legato 15.09.0.Beta | This release package includes and was validated with Legato 15.09.0.Beta. | Legato |
| 2739 | Ring Indicator (RI) APIs | Ring Indicator GPIO is provided in sysfs with alias "gpioRI" for all supported product types, to provide a single interface to Legato RI APIs. | BSP |
| 82928 | Safe Power Remove pin | Added support for the Safe Power Remove pin (SAFE_PWR_REMOVE) | BSP |
| 83726 | Wake on WWAN pin | Added support for Wake on Wireless WAN feature (WAKE_ON_WWAN pin) | BSP |
| 80448 | TX_ON pin | Added support for TX_ON feature, disabled by default. Currently configurable per SKU – no customer configurability available yet. | BSP |
| 83414 | Fixed intermittent crash observed during Application-Over-the-Air (AOTA) download from AVMS | Resolved unreleased resources leading to possibility of insufficient flash client availability during AOTA | Stability |
| 83465 | Add customization to control kernel boot messages on console | Kernel boot time can be reduced by disabling debug messages on console. Default configuration for samples enables boot messages for debugging support. | Kernel |

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



| ID | Title | Description | Impacted Domain |
|---------|-------------------------|--|-----------------|
| Various | Firmware Over the Air | FOTA will be supported when upgrading from this release to a newer release. Upgrading to this release from a previous release may fail to complete due to multiple known issues with previous releases, and will result in the AVMS job being stuck in progress. | AVMS FOTA |
| None | Validated Clock outputs | Validated System and Sleep clock outputs | External Clocks |

17.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|--|---|------------------|
| 80393 | USB Selective Suspend not supported | USB Selective Suspend is not supported yet. Additional side effect of this prevents the system from entering power collapse state and reaching minimal power consumption. | USB |
| Various | ADC Support | Some ADC interfaces (2-3) are not implemented | ADC |
| Various | On-board Image Switching | On-board Image Switching is not supported in this release. Host-based Image Switching is supported. A Generic carrier configuration will be provided. | Image Switching |
| Various | Audio is not supported | Audio is not supported in this release. The USB audio interface is exposed by default, and call control functionality is supported, but sound is not functional. | Audio |
| 84306 | Incorrect GPIO configuration preventing system from entering LPM | An incorrect GPIO configuration causes a Wake lock to be held indefinitely on the application processor, preventing the processor from entering low power mode | Sleep |
| Various | Data connectivity failures with Linux SDK 03.03.11 | Data Connectivity failures observed with Linux SDK release 03.03.11. SWI9X15Y Release 6 was validated successfully with SDK 03.03.10. | Linux SDK |
| Various | Firmware upgrade via Developer Studio is not supported in this release | Customer cannot use Developer Studio to upgrade to this release. | Developer Studio |
| 85171 | ECM Interface | ECM Interface is not enumerated by default | USB |

In Addition to the listed known issue, the following features have not been tested.

- Firmware download over UART
- Internal RTC
- VGPIO pin

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



18 SWI9X15Y 7.0 Release 5

This section describes the initial external SWI9X15Y 7.0 release.

18.1 Software Release Description

18.1.1 Release identification

| Component | Revision |
|------------------------|--|
| Boot loader | SWI9X15Y_07.03.03.00 2015/08/19 14:47:45 |
| Modem | SWI9X15Y_07.03.03.00 2015/08/19 14:47:45 |
| Application | SWI9X15Y_07.03.03.00 2015/08/19 19:05:12 |
| Legato | 15.08.0.Beta.rc2 |
| Binary Size | 45MB (compressed binaries) |
| IMEI SV | 40 |
| Qualcomm Stack Version | AMSS 9x15 5.5.1.31 Post CS (M9615ACETWMLZD55131) |
| Supported H/W | WP8548-G – DV2 |

18.1.2 Software Tools Versions

| S/W Tools Name | Version | Resource file |
|------------------------|------------|---------------|
| Windows Driver Package | B4323 | |
| Windows SDK | None | |
| Skylight | None | |
| Linux Drivers | S2.24N2.33 | |
| Linux SDK | 03.03.10 | |

18.1.3 Released Files and Download Processes

| Download Option | Files |
|-----------------|----------------------|
| Windows | Install Driver B4323 |
| CWE/NVU files | Various PRI Packages |

18.2 Software Changes Description

This section describes significant changes since SWI9X15Y 6.0 Release 4.1 [R-1].

18.2.1 Validated Corrections / Improvements

| ID | Title | Description | Impacted Domain |
|---------|----------------------|--|-----------------|
| Various | Linux kernel 3.14.29 | Upgrade kernel to Linux swi-mdm9x15 3.14.29ltsi-yocto-standard | OS |



| ID | Title | Description | Impacted Domain |
|-------|--|---|-----------------|
| 80974 | Partition table allocates 256MB flash for Linux (previously) | Partition table update applies to new samples only. Field upgrade devices retain the original Linux flash partition sizes. | Storage |
| 81984 | W_DISABLE polarity is inversed | W_DISABLE switch polarity was implemented incorrectly in SWI9X15Y 6.0. After upgrading devices, the switch will need to be inverted in order for the modem to enable the radio (i.e. disable Airplane Mode) | W_DISABLE |
| 3108 | WP8548-G GPIO support in sysfs | Add support for external GPIO in GPIO class driver, allowing for a sysfs entry in /sys/class/gpio/ for external GPIO pins accessible by the application processor | GPIO |
| 81833 | DR_SYNC Support | Add support for GPS Dead Reckoning | DR_SYNC |
| 81376 | Update Reset Pin debounce time to match PTS documentation | Reset Pin debounce time is 32msec as per PTS | RESET_IN |
| 81640 | Enable modem voice call control | Modem call control is supported in this release. See Known Issues for limitations. | Voice |
| 81379 | Disable unsolicited notifications on the AT port | Sierra unsolicited notifications on the AT interface are disabled by default. | AT |

18.3 Known Issues

This section presents all known issues in this release.

| ID | Title | Description | Impacted Domain |
|---------|---|---|-----------------|
| 80393 | USB Selective Suspend not supported | USB Selective Suspend is not supported yet. Additional side effect of this prevents the system from entering power collapse state and reaching minimal power consumption. | USB |
| 80448 | TX_ON Indicator is not supported | TX_ON Indicator is not supported | TX_ON |
| Various | ADC Support | Some ADC interfaces (2-3) are not implemented | ADC |
| Various | On-board Image Switching | On-board Image Switching is not supported in this release. Host-based Image Switching is supported. A Generic carrier configuration will be provided with initial samples. | Image Switching |
| 2739 | Ring Indicator Legato APIs not supported | Ring Indicator pin is not exposed to Legato for use with Legato APIs. | Legato PA |
| 82928 | Safe Power Remove pin | Safe Power Remove pin is not implemented | BSP |
| Various | Audio is not supported | Audio is not supported in this release. The USB audio interface is exposed by default, and call control functionality is supported, but sound is not functional. | Audio |
| 83414 | Intermittent crash observed during Application-Over-the-Air (AOTA) download from AVMS | Intermittent crash observed during AOTA download from AVMS. | Stability |

In Addition to the listed known issue, the following features have not been tested.
 Field upgrade support from SWI9X15Y 6.0 Releases
 Firmware download over UART
 Internal RTC

| | | | |
|-------------|---------|-----------|-------|
| Template #: | 4117965 | Revision: | 01.15 |
|-------------|---------|-----------|-------|



VGPIO pin
Clock output pins
External antenna control
WAKE pin

19 Troubleshooting

Please contact customer service for support and debug

20 Certification Description

The last AT&T and Sprint carrier certifications were received on Release 14.

21 Restrictions and Additional Information

This section presents additional information or restrictions that must be taken into account.

| ID | Description (What/When) | Impacted Domain |
|----|-------------------------|-----------------|
| | | |
| | | |