



WP76xx

Customer Release Notes

Release 6

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Document History

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01.00	2016/12/20	Creation - Release 1	RK
01.01	2017/03/03	Release 2	RK
01.02	2017/03/15	Release 2 update to reflect limited DV3 sample availability	RK
01.03	2017/04/24	Release 2.1	RK
01.04	2017/05/23	Release 3	RK
01.05	2017/07/03	Release 4	RK
01.06	2017/07/10	Release 4.1 Updated Release 4 Known Issues	RK
01.07	2017/08/08	Release 5	RK
01.08	2017/10/27	Release 6	SA

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1 Introduction

1.1 Scope of this document

This document describes WP76xx firmware releases.

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
MCU	Microcontroller Unit – An onboard MCU enables Ultra Low Power modes of operation
QMI	Qualcomm MSM Interface, Qualcomm Modem Interface
ULPM	Ultra Low Power Mode

3 Related documentation

Ref. #	Doc. #	Document title
[1]	4119652	AirPrime WP76xx - Product Technical Specification
[2]	4118047	AirPrime WPx5xx/WP76xx - AT Command Reference
[3]	41110380	AirPrime WP Series – Preparing Your Devices For Deployment
[4]	41110866	AirPrime WPx5xx/WP76xx - Scalability Guide
[5]	41111319	AirPrime WP7607/WP7609 - Product Technical Specification



4 Compatibility

Hardware compatibility

Product compatibility list
WP7601 - LTE Cat-4, LTE bands 4/13
WP7601-1 - LTE Cat-1, LTE bands 4/13
WP7603 - LTE Cat-4, LTE bands 2/4/5/12, WCDMA bands 2/4/5
WP7603-1 - LTE Cat-1, LTE bands 2/4/5/12, WCDMA bands 2/4/5
WP7607 - LTE Cat-4, LTE bands 1/3/7/8/20/28, WCDMA bands 1/8, GSM900/1800
WP7607-1 - LTE Cat-1, LTE bands 1/3/7/8/20/28, WCDMA bands 1/8, GSM900/1800
WP7607-2 - LTE Cat-1, LTE bands 1/3/7/8/20/28, WCDMA bands 1/8, GSM900/1800
WP7608 - LTE Cat-4, LTE bands 1/3/5/8/40/41(partial) WCDMA bands 1/3/8, GSM900/1800
WP7608-1 - LTE Cat-1, LTE bands 1/3/5/8/40/41(partial) WCDMA bands 1/3/8, GSM900/1800
WP7609 - LTE Cat-4, LTE bands 1/3/5/7/8/28, WCDMA bands 1/3/5/8
WP7609-1 - LTE Cat-1, LTE bands 1/3/5/7/8/28, WCDMA bands 1/3/5/8



5 SWI9X07Y Release 6

Release 6 is provided for customer samples and for ongoing carrier and industrial certification testing.

5.1 Software Release Description

5.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.09.02.00 000000 jenkins 2017/10/17 22:59:59
Linux Firmware	SWI9X07Y_02.09.02.00 2017-10-17_23:00:11
MCU Firmware	002.004
Legato Application Framework	17.08.1_79ea64be7e2ee55dfe7d561a41e1a08a
Binary Size	58MB (compressed binaries)
IMEI SV	1
Qualcomm Stack Version	MDM9607.LE.2.0-00075-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Tue Oct 17 23:17:35 UTC 2017
Supported H/W	WP7601 DV5.2+, WP7603 DV5.2+, WP7607 DV2.1+, WP7608 DV1.1+, WP7609 DV2.1+

5.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4762	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.29N2.44 (no QMAP) / S2.29N2.47 (QMAP)	
Linux SDK	SLQS04.00.10.1	

5.1.3 Released Files and Download Processes

Download Option	Files
Windows EXE	WP76xx_Release6_GENERIC_test.exe
SPK files	WP76xx_Release6_GENERIC_test.spk
Component files	9999999_9907152_SWI9X07Y_02.09.02.00_00_GENERIC_002.009_000.spk linux-SWI9X07Y_02.09.02.00_00.cwe legato-17.08.1.cwe mcufw_002.004_wp76_f1.cwe

5.2 Software Changes Description

The following are changes in Release 6, based on modem version SWI9X07Y_02.09.02.00 since the last major release, Release 5.0, based on modem version SWI9X07Y_02.06.02.00. Content of minor releases 5.1 and 5.2 of limited scope and distribution primarily for certification labs are included in this description.

ID	Title	Description	Impacted Domain
Legato			
Various	Legato 17.08.1	Legato 17.08.1 http://legato.io/legato-docs/latest/releaseNotes17081.html http://legato.io/legato-docs/latest/releaseNotes17072.html Upgrade from 17.06 in Release 5.	Legato AF
Various	AirVantage FOTA	Of particular note in the Legato updates, AirVantage FOTA now has basic functionality.	AirVantage
Linux			
QT19X07-787 LXSWIREF-38	ECM related fixups	Previously ECM was not reachable. Some work is still ongoing. See known deficiencies.	ECM
QT19X07-129	Enable UBI scrub for WP	Mitigate potential for file system corruption	UBI
QT19X07-438	Safe power down sequence for a legato application	Previously, the powerdown/ULPM sequence would issue an emergency shutdown to linux. This has been changed to an orderly shutdown to allow apps to clean up.	Shutdown
QT19X07-389	move COWORK and MODE regions to SSMEM	Modified the implementation to use the new Sierra shared memory architecture.	SSMEM
QT19X07-755	'bsinfo -l' returns incorrect information	e.g. for WP7603: root@swi-mdm9x28:~# /usr/bin/bsinfo -c Hw Config (08X): 00180D05 root@swi-mdm9x28:~# /usr/bin/bsinfo -f Feature Flag (016X): 0000000000000004 root@swi-mdm9x28:~# /usr/bin/bsinfo -t Hw Type (02X): 0D root@swi-mdm9x28:~# /usr/bin/bsinfo -r Hw Rev (02X): 18 root@swi-mdm9x28:~# /usr/bin/bsinfo -l WP7603 - 00	info
QT19X07-950	Cannot 'fastboot boot' kernel	A change in SDRAM location was causing fastboot to fail	fastboot
LXSWIREF-146	SMACK	Various SMACK fixes and improvements	SMACK
Modem			
Core			

ID	Title	Description	Impacted Domain
QT19X07-735	Add Qualcomm MDM9607.LE.2.0-00065-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00065-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline (Release 5.1)
QT19X07-843	Add Qualcomm MDM9607.LE.2.0-00070-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00070-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline (Release 5.2)
QT19X07-642	Add Qualcomm MDM9607.LE.2.0-00075-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00075-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline (Release 6)
Certification			
QT19X07-759	WCDMA Rx level dips upon Tx activation	Broadly impacting issue affecting basic RF connectivity	PTCRB
QT19X07-718	Unable to provision EFS file ims_hybrid_enable causing failure to IMS register	Conflicting PRI processes were reverting IMS configuration causing IMS registration to fail on boot.	Verizon
QT19X07-790	[VZW] Support 3GPP2 SMS, AT SMS enhancements	Initial implementation of Verizon had 3GPP SMS format instead of 3GPP2. This has been corrected.	Verizon
Various	Verizon Certification	Most, but not all Verizon issues resolved in this release.	Verizon
Various	AT&T Certification	Most, but not all AVL/AT&T issues resolved in this release.	AT&T
HW variants			
Various	WP7607 support added		RF/BSP
Various	WP7608 support added		RF/BSP
Various	WP7609 support added		RF/BSP
AT Commands			
QT19X07-710	AT!CFUNPERSISTEN added	Added feature AT!CFUNPERSISTEN to enable persistence of AT+CFUN state	AT function
QT19X07-725 QT19X07-727 QT19X07-840	Unsolicited notifications added	AT!MUSLEN=1 must be set to enable notifications (was not required on WPx5). This is now enabled by default. Added: RING (AT+WUSLMSK=20000000, 0) +CSQ (AT+WUSLMSK= 00000004 ,0) +PACSP disabled if the ENS flag is not enabled (AT&T requirement)	AT function
QT19X07-454	Support AT+KMCLASS command	Set GPRS and EGPRS multislots class	AT function
QT19X07-795	Support AT!IDSDEBUGPRINT command	Used in Verizon testing to confirm Motive session connectivity	AT function
QT19X07-455	Support AT+KRFMUTE command	Adjust max tx power	AT function
QT19X07-449	Support AT+KCELL command	Display cell information	AT function
QT19X07-451	Support AT+KSIMSEL command	Control external SIM multiplexer	AT function

ID	Title	Description	Impacted Domain
QT19X07-648	AT!MADC?X doesn't work < 0C	Due to mishandling of negative temperature values, ADC could not be read.	AT function
QT19X07-733	Add AT!DA commands for FTM TX tests in LTE and WCDMA	Ported from EM74xx Command sequence for WCDMA FTM TX test: AT!DAFTMACT AT!DASBAND=<band_id> AT!DASCHAN=<channel> AT!DASTXON AT!DAWSTXPWR=1,<pwr> AT!DAWSTXPWR=0,<pwr> AT!DASTXOFF Command sequence for LTE FTM TX test: AT!DAFTMACT AT!DASBAND=<band_id> AT!DALSTXBW=<bandwidth> AT!DALSRXBW=<bandwidth> AT!DASCHAN=<channel> AT!DALSTXMOD=0 AT!DALSWAVEFORM=1,12,0,19 AT!DALSNSVAL=1 AT!DASTXON AT!DALSTXPWR=1,<pwr> AT!DALSTXPWR=0,<pwr> AT!DASTXOFF	AT function
QT19X07-888	AT!NETNUM? lock level	AT!NETNUM was originally added at lock level 2, but changed to lock level 1 (no lock) for ease of use.	AT function
QT19X07-602	Hardware ID incorrect	AT!HWID? added. AT!BSINFO Revision corrected	AT function
QT19X07-645	Network status not reported	After reset, the USB port had to be closed and re-opened to resume network status updates due to mishandling of flow control.	AT function
QT19X07-782	+CGSN does not return OK	The value was returned correctly, but no OK followed.	AT format
QT19X07-374	AT+CRSM=242 without SIM, returns "+CME ERROR: memory failure"	Corrected to return "SIM is not inserted"	AT format
QMI			
QT19X07-881	QMI_DMS_SWI_GET/SET_CUST_FEATURES length misalignment	QMI access to CUSTOM feature configuration was not handled correctly causing a corrupt response.	QMI
GNSS			
QT19X07-511	AT!GPSEND returns error when there is no active GPS session	Improved to handle this case without error	GNSS
QT19X07-544	AT!GPSFIX doesn't update after getting TTF	GPS task received notification from QMI that the session had finished, but did not update the session state for SINGLESHOT	GNSS
QT19X07-643	Add AT!GPSXTRAINITDNLD	Qualcomm XTRA support	GNSS
Voice / Audio			
QT19X07-562	Valid Assignment of AT!AVCFG Produces ERROR	Setting of valid TTY and HF parameters in AT!AVCFG were failing	Audio

ID	Title	Description	Impacted Domain
Various	VoLTE removal	While VoLTE testing did progress significantly through Verizon and GCF certification it was decided to disable VoLTE from Carrier PRIs to expedite final TA. As of this release Generic PRI still has VoLTE enabled, but will be removed in future.	VoLTE
Various	Sync AR758x audio functionality	Various voice/audio enhancements were ported from AR758x for call feature certification, both CS and VoLTE	Voice
QT19X07-562	PCM / I2S digital audio interface	The audio physical interface can now be configured for external PCM or I2S operation; physical interface 0 and 1, respectively.	Voice
QT19X07-662	Cannot enumerate USB ports in Linux after setting USB Composition with Audio Interface	Audio initialization aborted in the absence of a wm8944 codec. It now registers a stub codec to enable initialization to complete for other audio interfaces.	Audio
IO			
QT19X07-717	+WIOCFG configuration is not persistent after resetting except GPIO2	All available GPIOs could be configured with AT+WIOCFG, but except for GPIO2 they would all revert to defaults (func=0) on reboot. Consequently they were never accessible via sysfs or Legato.	GPIO (Release 5.1)
LXSWIREF-126	GPIO linux export	AT+WIOCFG func 16 (embedded host) now required to allow export from linux sysfs	GPIO
QT19X07-479	Resolve LED notification issues - part 2	When the device is powered up, gstatus reports Online (No Service) but does not blink the correct pattern.	LED
QT19X07-127 QT19X07-815	GPIO6 configurability	GPIO6, used as Reset_Out for mangOH, was made configurable as it is also used for AT+KSIMSEL. Setting func=0 allows it to be used for Reset_Out if SIMSEL is not enabled. It is only visible in AT+WIOCFG list on newly manufactured units, however.	GPIO
QT19X07-884	Unable to access GPIOs 36,37,38 and 40 via Legato	MCU GPIOs were not accessible from linux sysfs due to exclusion from AT+WIOCFG list. They are now automatically accessible from sysfs.	GPIO
QT19X07-443	Ring GPIO signal not asserted	The RING signal was not being asserted when configured to do so on incoming events.	RING
QT19X07-382	SAFE_PWR_REMOVE	The SAFE_PWR_REMOVE signal is now being asserted when the power down sequence is complete.	SAFE_PWR_REMOVE
LXSWIREF-173	Remove some forced paths to have TI WiFi wl18xx driver working over SDIO	Was restricted to SDIO in 1-bit mode. Removing these changes allows SDIO to work in 4-bits mode.	SDIO
Security			

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ID	Title	Description	Impacted Domain
QT19X07-303 QT19X07-520	Linux side image authentication	Use open source Android kernel signature format which is available in public domain support both: a) single cert embedded in Android signature; b) cert chain: signing cert in Android signature + CA certs right after the signature	Secure boot
QT19X07-383	Jamming Detection	Jamming detection support ported from WPx5xx, including: AT!CUSTOM="JAMENABLE",1 AT+WUSLSK=10,1 AT+WJAMTHRESH / +WJAM and QMI_SWI_M2M_SET_EVENT_JAMMING_REPORT / QMI_SWI_M2M_JAMMING_IND	Modem
QT19X07-938	Buffer overflow on IPv6 profile creation	Add Qualcomm CR 2074769 to avoid buffer overflow when an invalid IPv6 address of size greater than 16 bytes is processed.	Modem
Power consumption			
QT19X07-749	debug wakeup source preventing modem to enter power collapse	Selective Suspend was not working while connected via USB. A Qualcomm debug wake up source was interfering with the ability of the modem to enter power collapse when the USB is connected until a subsequent disconnect/reinsertion of the USB cable. It was removed.	Selective suspend
QT19X07-900	eDRX configuration added	NV files added to support eDRX configuration in the PRI.	AT&T
Temperature protection			
QT19X07-110	High temperature/voltage protection	Temperature ADCs are statically calibrated.	Voltage, temperature limits
QT19X07-676	Extend operating voltage/temperature range on WP7607 / 09	Extend operating voltage/temperature range to fit VBAT=3.2V min and Class B Op. Temp., including 2G maxTX setting	Voltage, temperature limits
QT19X07-657	!PATEMP - The temp state is not changed when the PATEMPLIMITS is changed.	Added functionality to track temperature state.	Temp. limits
QT19X07-766	Update PCTEMP and PCVOLT Limits.	PCTEMP and PCVOLT monitoring limits are too tight and causing call drops at high temperatures. These were adjusted to match PTS.	Voltage, temperature limits
QT19X07-768	!PCINFO the State is not changed to LowPowerMode	State change event was disabled internally. Now enabled.	Voltage, temperature limits
QT19X07-994	Device stops enumerating at ~85 degrees C	Thermal mitigation algorithm was acting contrary to configured thresholds. It is now disabled until it can be properly fixed.	Thermal mitigation
Stability			
QT19X07-783	Reading ADC3 with Legato crashes SWIAPP	An incorrect mapping of ADC index caused an invalid pointer reference	Legato
QT19X07-752	Module hangs after 50 loops running AT+CREG stress test	Due to race condition, at!reset and resource check happen at the same time. Unlikely under normal circumstances.	AT



ID	Title	Description	Impacted Domain
QT19X07-224	Add support for FOTA image switching	Previously, FOTA would leave modem in LPM due to improper image preference configuration after the update.	FOTA
QT19X07-553	Improve USB startup failure mechanism	Previously, if any USB function enabled in AT!USBCOMP fails, then USB would fail to enumerate. Now impact is isolated to only the failing function.	USB
QT19X07-934	AT18 crashes modem on development yocto build	As the AT18 string content depends on the build environment, in some cases the string length exceeded the max, triggering an ABORT. Now in such cases, the result will just be truncated.	AT
QT19X07-128	EFS recovery – boot loader	Optimized EFS recovery mechanism equivalent to EM74xx.	AT
MCU			
MCU-84	Added ULPM support for WP7607 and WP77xx	Differences in power control circuitry in early DV units required additional logic in MCU to support ULPM wakeup.	ULPM

5.3 Feature Notes

5.3.1 AirVantage

AirVantage connectivity is available in this release in uncertified form for application development and demonstration via Legato and AT commands only. Full production support will follow in a future release. In particular, AirVantage FOTA/SOTA are available for basic use cases, but not of production quality. Notable deficiencies are provided below.

5.3.2 Multi RMNET and QMAP

In previous generation devices, multiple RmNet interfaces were supported through dedicated BAM channel interfaces, configured via USB composition. This approach imposed a limit on the number of interfaces that could be simultaneously supported. To remove that limitation, QMAP was introduced to multiplex multiple virtual channels over a single interface. To make use of this feature, the number of interfaces must be set (AT!NETNUM) and new host drivers are required (S2.29N2.47 or later). Note, however, that in moving to multiple RmNet with QMAP only a single dedicated channel is supported. If only a single RmNet is required, operation in non QMAP mode (AT!NETNUM=0) is still supported with older drivers (S2.29N2.44).

See SLQS04.00.10.1 release package for more details. QMAP is not supported by the Windows driver, and only one RmNet interface will be exposed regardless of AT!NETNUM setting.

5.3.3 Voice/VoLTE

VoLTE is enabled in the Generic carrier PRI, however this has not received industry certification (GCF or PTCRB). It may be used for lab testing if desired. As VoLTE will not be included in initial certification it will be disabled in future releases. CS voice will continue to be supported.

5.4 Known Issues

This section presents all known issues in this release.

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ID	Title	Description	Impacted Domain
Features			
Various	Certification	There are known carrier certification failures in this release, and ongoing testing in progress.	Certification
Various	AirVantage Connectivity	Some AT+WDS indications for AirVantage client control are not supported in this release. AirVantage is not accessible via QMI. AirVantage is not accessible via Legato with a tethered data connection on the same APN. FOTA completion is not automatically reported to the server. SOTA operations will not resume if interrupted.	AirVantage
Various	Partial AT support	This release does not support all planned AT commands.	AT
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
Bugs			
LXSWIREF-211	Legato ECM Interface	ECM MAC address on the host doesn't match the WP for linux kernel 4.4.x hosts (e.g. Ubuntu 14.04 / 16.04) Note: This will be fixed in the next release.	USB / ECM
QT19X07-599	Sierra SIM Connectivity	AT+COPS=2 shall NOT be used with this module to trigger any network steering	Connectivity
QT19X07-310	Data from the UE to the DHCP server failed	When customization DHCPRELAYENABLE is enabled, allow only UDP packets for port 67 with target IP address 0xFFFFFFFF to be filtered to the internal DHCP server on modem. All others are sent to the air interface. Note: This will be fixed in the next release.	DHCP
QT19X07-780	Current consumption	The module will not enter sleep mode if: 1) HSIC is enabled, but host platform does not have ethernet controller connected. 2) Module is booted without USB connected, unless USB is subsequently connected. Minimum power consumption while not in sleep mode is ~40mA. PSM is not yet supported, however ULPM is.	Power
QT19X07-959	GPIO24 defaults to high after exporting	Upon initial export of GPIO24 from sysfs it is initially high rather than input, no pull	GPIO

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ID	Title	Description	Impacted Domain
QT19X07-995	Unable to get MS-Assisted GPS fix in some cases.	Device rejecting server SSL certificate because the key length is smaller than the minimum value. Pending Qualcomm CR 978483	GNSS



6 SWI9X07Y Release 5

Release 5 is provided for customer samples and for ongoing carrier and industrial certification testing.

6.1 Software Release Description

6.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.06.02.00 000000 jenkins 2017/08/05 01:02:55
Linux Firmware	SWI9X07Y_02.06.02.00 2017-08-05_02:18:27
MCU Firmware	002.003
Legato Application Framework	17.06.0_8d46c3b13c39af3bb1fa97556821e0ad
Binary Size	58MB (compressed binaries)
IMEI SV	1
Qualcomm Stack Version	MDM9607.LE.2.0-00061-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Sat Aug 5 02:27:29 UTC 2017
Supported H/W	WP7601 DV3+, WP7603 DV3+

6.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4653	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.28N2.44	
Linux SDK	04.00.08	

6.1.3 Released Files and Download Processes

Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

6.2 Software Changes Description

ID	Title	Description	Impacted Domain
Legato			

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ID	Title	Description	Impacted Domain
Various	Legato 17.06.0	Legato 17.06.0 http://legato.io/legato-docs/latest/releaseNotes17060.html	Legato AF
Linux			
QT19X07-514	Add ADC3 support	ADC3 is routed externally in DV6 hardware, and accessible via AT, QMI, and Legato interfaces in this release.	ADC
QT19X07-536	HSIC device driver prevents sleep mode	Various issues in the HSIC device drivers are resolved to allow the WP to enter sleep mode when HSIC is enabled.	Sleep
QT19X07-590	GPIO 25 mapping	External GPIO 25 is remapped internally in DV6 and newer hardware. Update GPIO mapping in Linux software accordingly	GPIO
QT19X07-121	Multiple RmNet support	Added support for multiple RmNet network interfaces over USB	USB
LXSWIREF-116	Provide correct LK source in Linux distribution	Previous releases contained incorrect source code for the LK Linux bootloader	LK / Linux distribution
Modem			
QT19X07-642	Add Qualcomm MDM9607.LE.2.0-00061-STD.PROD-1	Add Qualcomm MDM9607.LE.2.0-00061-STD.PROD-1 Includes key fixes identified during carrier certification testing.	Qualcomm baseline
QT19X07-121	Multiple RmNet support	Added configuration option and control interface for multiple RmNet support	USB
QT19X07-487	USB Composition inconsistency between Download and Application modes	Made USB enumeration values in Firmware Download mode and Application modes consistent. Changes were made to Download mode to use Sierra Wireless product information. Previous releases used default Qualcomm device info.	USB
QT19X07-396	DR_SYNC	Added support for PPS DR_SYNC signal	GNSS
QT19X07-539	AT+CNUM / AT+CSIM	Resolved deficiencies in these commands identified during carrier certification.	AT
QT19X07-534 / QT19X07-554 / QT19X07-559	VoLTE enablement for carrier and industrial certification testing	Configuration packages created to support VoLTE for AT&T, Verizon, and Generic carriers	VoLTE
QT19X07-577	QMI divergence between AR and WP product lines for RF_STATUS	Fixed QMI divergence in variable naming for QMI_DMS_SWI_RF_STATUS_READ_REQ. This allows for a common Legato platform adaptation for Sierra products lines.	QMI
QT19X07-604	Crash with IPv6 disabled	Fixed continuous device reset if IPv6 were disabled by device customization "IPV6ENABLE".	Stability

6.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			

Template #:	4124005	Revision:	01.08
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ID	Title	Description	Impacted Domain
Various	Certification Testing	There are known carrier certification failures in this release, and ongoing testing in progress.	Certification
Various	AirVantage Connectivity	AT+WDS Commands for AirVantage client control are not supported in this release. AirVantage connectivity is not supported in this release.	AirVantage
Various	Partial AT support	This release does not support all planned AT commands.	AT
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
Limitation	EXT_GPIO8	The customer should not connect an external pull-up resistor to this pin unless Secure Boot is enabled. The boot configuration for this pin is to enable Modem Secure Boot. If signed images have not been used (not available in older samples), the modem will fail to boot.	Boot / Stability / BSP
Limitation	EXT_GPIO35	On samples prior to Release 3 availability, the customer should not have an external pull-up resistor connected to this pin. The boot configuration for this pin is to boot from the USB interface if this pin is high, which is not supported. This is resolved in Release 3 OEM configuration by writing to fuses to force the device to boot from NAND memory.	Boot / Stability / BSP
Bugs			
LXSWIREF-88	Legato ECM Interface	The Legato ECM interface DHCP configuration is as a default gateway, and the host is assigned a bridge0 IP address of 192.168.225.2. This causes a host (Linux or Windows) to use the ECM interface as the default gateway and will break the host's internet connectivity while ECM is enabled. In Windows, the Legato ECM interface can be disabled in the Device Manager as a temporary workaround. In Linux, the ECM interface (usb0) can be disabled, or the eth1 interface can be added as the default routing option, e.g.: <code>sudo route add default eth1</code> <code>sudo dhclient eth1</code>	USB / ECM
QT19X07-544	AT Commands to check GPS fix status fail during NMEA tracking session	AT!GPSLOC? and AT!GPSSTATUS? fail to return accurate result, though position is known and reported correctly in NMEA stream	AT / GPS

ID	Title	Description	Impacted Domain
DAYTONA-366	GPIO Configuration Persistence	GPIO Configuration is not persistent across power cycles	GPIO
DAYTONA-467	CFUN Persistence	AT+CFUN Power mode persistence is not supported in this release. Customization "CFUNPERSISTEN" is implemented but	GPIO
QT19X07-440	Sleep Mode power consumption	System has not been configured for entering Sleep Mode by default. Power Consumption does not reach the level expected in Sleep mode.	Power Consumption



8 SWI9X07Y Release 4.1

Release 4.1 is a repackaging of components delivered in Release 4, with a downgraded Legato Application Framework (AF). The Legato AF is downgraded from the official Legato 17.05.0 to the snapshot release provided in the Release 3 package, to avoid a concurrent data connection issue where the avcControl Legato application automatically connects with the default APN, and prevents a user/host data connection with the same profile.

8.1 Software Release Description

8.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.04.04.00 000000 jenkins 2017/07/01 01:17:25
Linux Firmware	SWI9X07Y_02.04.04.00 2017-07-01_02:14:09
MCU Firmware	002.001
Legato Application Framework	17.05.0.rc5_6346074e23ec18579a6d0124c7425d0f
Binary Size	58MB (compressed binaries)
IMEI SV	1
Qualcomm Stack Version	MDM9607.LE.2.0-00055-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Sat Jul 1 02:24:10 UTC 2017
Supported H/W	WP7601 DV3+, WP7603 DV3+

8.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4653	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.28N2.43	
Linux SDK	04.00.07	

8.1.3 Released Files and Download Processes

Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

8.2 Software Changes Description

ID	Title	Description	Impacted Domain
Features			
Various	Legato 17.05 pre-release snapshot	<p>This release includes an unreleased snapshot of the Legato 17.05 Application Framework. The final release for 17.05 will be released externally in the next few weeks, and may contain significant improvements.</p> <p>Note: This is a downgrade from Release 4, to avoid a known issue with Legato 17.05.0, where the avcControl Legato application automatically connects with the default APN, and prevents a user/host data connection with the same profile.</p>	Legato AF

8.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
LXSWIREF-38	Legato ECM Interface	<p>The Legato ECM interface DHCP configuration is as a default gateway, and the host is assigned an autoconfiguration IP address in the 169.254.xx.xx range.</p> <p>This causes a host (Linux or Windows) to use the ECM interface as the default gateway and will break the host's internet connectivity while ECM is enabled.</p> <p>In Windows, the Legato ECM interface can be disabled in the Device Manager as a temporary workaround.</p> <p>In Linux, the ECM interface (usb0) can be disabled, or the eth1 interface can be added as the default routing option, e.g.:</p> <pre>sudo route add default eth1 sudo dhclient eth1</pre> <p>On target, the issue can be worked around by adding firewall rules to allow ECM to use the bridge0 interface. Refer to Section 9.4 for details.</p>	USB / ECM
LE-7295	fwupdate fails with Legato 17.05	Legato fwupdate tool fails to download CWE file to device over SSH.	Legato / fwupdate
QT19X07-544	AT Commands to check GPS fix status fail during NMEA tracking session	AT!GPSLOC? and AT!GPSSTATUS? fail to return accurate result, though position is known and reported correctly in NMEA stream	AT / GPS
LXQMISDK-916	SLQS Firmware download application does not support 9x07 device type	SLQS version 04.00.08, not yet released, introduces the "-d 9x07" device type support to perform firmware download with this product family.	SLQS



ID	Title	Description	Impacted Domain
Various	AirVantage Connectivity	The AirVantage device client is supported in this release but not fully validated. AT Commands for AirVantage client control are not supported in this release.	AirVantage
Various	Partial AT support	This release does not support all planned AT commands.	AT
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
QT19X07-121	Multiple-RMNET support over USB is not supported	Multiple RMNET support over USB is not available in this release.	USB
Various	Secure Boot	Secure Boot is supported in firmware but not enabled during sample preparation for this release.	Security
Limitation	EXT_GPIO8	The customer should not connect an external pull-up resistor to this pin unless Secure Boot is enabled. The boot configuration for this pin is to enable Modem Secure Boot. If signed images have not been used (not available in Release 3), the modem will fail to boot.	Boot / Stability / BSP
Limitation	EXT_GPIO35	On samples prior to Release 3 availability, the customer should not have an external pull-up resistor connected to this pin. The boot configuration for this pin is to boot from the USB interface if this pin is high, which is not supported. This is resolved in Release 3 OEM configuration by writing to fuses to force the device to boot from NAND memory.	Boot / Stability / BSP
Bugs			
QT19X07-440	Sleep Mode power consumption	System has not been configured for entering Sleep Mode by default. Power Consumption does not reach the level expected in Sleep mode.	Power Consumption

8.4 ECM Interface Configuration

Known issue LXSWIREF-38 is a temporary regression caused by an optimization in progress to the ECM interface configuration on target. In Release 4.1, the ECM interface enumerates over USB, but is unreachable. The following changes can be applied as a workaround to make the ECM interface reachable. Another Linux console interface (UART, ADB, or Ethernet) must be used to execute this workaround. Alternatively, the change can be executed in source code and compiled from the Sierra Wireless source code release.

Add firewall rules to enable routing over bridge0, by adding the following entries to /etc/iptables/rules.v4

Template #:	4124005	Revision:	01.08
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```
-A INPUT -i bridge0 -p tcp -m tcp --dport 22 -j ACCEPT  
-A INPUT -i bridge0 -p icmp -m icmp --icmp-type 8 -j ACCEPT  
-A INPUT -i bridge0 -p udp --dport 67:68 --sport 67:68 -j ACCEPT
```

This change can be added to */meta-swi/meta-swi-mdm9xxx/recipes-core/init-ifupdown/files/rules.v4* as a compile time change.

Template #:	4124005	Revision:	01.08
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9 SWI9X07Y Release 4

Release 4 is provided to support intermediate product milestones including:

- Updated certification candidate, including continued testing at Verizon Wireless, AT&T, and GCF/PTCRB.
- New customer samples and sample upgrades

9.1 Software Release Description

9.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.04.04.00 000000 jenkins 2017/07/01 01:17:25
Linux Firmware	SWI9X07Y_02.04.04.00 2017-07-01_02:14:09
MCU Firmware	002.001
Legato Application Framework	17.05.0_25871ae2b862a7caeb1ec09fc1770333
Binary Size	58MB (compressed binaries)
IMEI SV	1
Qualcomm Stack Version	MDM9607.LE.2.0-00055-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Sat Jul 1 02:24:10 UTC 2017
Supported H/W	WP7601 DV3+, WP7603 DV3+

9.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4653	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.28N2.43	
Linux SDK	04.00.07	

9.1.3 Released Files and Download Processes

Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

9.2 Software Changes Description

ID	Title	Description	Impacted Domain
Features			
QT19X07-493	Qualcomm LE.2.0 Baseline	Integrated Qualcomm Post CS MDM9607.LE.2.0-00055-STD.PROD-1 release.	Modem / Certification
Various	Legato 17.05	Legato 17.05 http://legato.io/legato-docs/latest/releaseNotes17050.html	Legato AF
QT19X07-504 QT19X07-424 QT19X07-481 QT19X07-502	Audio Calibration	Audio calibration and related configuration commands are updated in this release. Quality tested on Sierra Wireless mangOh Green platform is demonstrably improved. 3GPP Certification testing of audio quality is in progress.	Audio
QT19X07-312	EXT_GPS_LNA_EN	Added support for EXT_GPS_LNA_EN pin as per PTS description.	GNSS
Bug Fixes			
QT19X07-125	Disable adbd when ADB is disabled	The adbd (Android Debug Bridge Daemon) is disabled when the external ADB interface is disabled, improving startup and shutdown time, and disabling unnecessary daemon.	Linux / adbd
DAYTONA-324	GNSS Autostart configuration is not supported	Fixed GPS Autostart configuration.	GNSS / AT
DAYTONA-329	All NMEA sentence are duplicated	Fixed duplication of NMEA sentences in NMEA stream	GNSS / NMEA
QT19X07-469	AT Command read of ADC0 does not respond	Fixed unresponsive terminal after reading ADC0 via AT+MADC?10 command.	ADC / AT
QT19X07-480	QMI not working after Carrier package update	QMI Interface did not come up successfully on first boot following a full carrier configuration update with modem firmware. This change resolved firmware upgrade but causes a regression in ECM configuration, described in Known Issues, LXSWIREF-38.	Firmware Upgrade
QT19X07-525	AT&T Test case: GSM-BTR-1-2506	Device failed to send IMEI SV in TERMINAL RESPONSE message. IMEI SV was updated to a certifiable value (01). The value was previously a non-valid 00, for initial certification submission.	ATT Certification
QT19X07-538	AT&T Test case: GSM-BTR-1-5714	Fixed MEP Locking logic to allow SIM locking by carrier requirement.	ATT Certification
QT19X07-342	WWAN LED blink pattern	The WWAN LED blink state is initialized correctly at device startup.	WWAN LED

9.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			

ID	Title	Description	Impacted Domain
LXSWIREF-38	Legato ECM Interface	<p>The Legato ECM interface DHCP configuration is as a default gateway, and the host is assigned an autoconfiguration IP address in the 169.254.xx.xx range.</p> <p>This causes a host (Linux or Windows) to use the ECM interface as the default gateway and will break the host's internet connectivity while ECM is enabled.</p> <p>In Windows, the Legato ECM interface can be disabled in the Device Manager as a temporary workaround.</p> <p>In Linux, the ECM interface (usb0) can be disabled, or the eth1 interface can be added as the default routing option, e.g.:</p> <pre>sudo route add default eth1 sudo dhclient eth1</pre> <p>On target, the issue can be worked around by adding firewall rules to allow ECM to use the bridge0 interface. Refer to Section 9.4 for details.</p>	USB / ECM
LE-7295	fwupdate fails with Legato 17.05	Legato fwupdate tool fails to download CWE file to device over SSH.	Legato / fwupdate
QT19X07-544	AT Commands to check GPS fix status fail during NMEA tracking session	AT!GPSLOC? and AT!GPSSTATUS? fail to return accurate result, though position is known and reported correctly in NMEA stream	AT / GPS
LXQMISDK-916	SLQS Firmware download application does not support 9x07 device type	SLQS version 04.00.08, not yet released, introduces the "-d 9x07" device type support to perform firmware download with this product family.	SLQS
Various	AirVantage Connectivity	<p>The AirVantage device client is supported in this release but not fully validated.</p> <p>AT Commands for AirVantage client control are not supported in this release.</p>	AirVantage
Various	Partial AT support	This release does not support all planned AT commands.	AT
Various	Linux Boot time is not optimized	<p>Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time.</p> <p>Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.</p>	Linux / Boot
QT19X07-121	Multiple-RMNET support over USB is not supported	Multiple RMNET support over USB is not available in this release.	USB
Various	Secure Boot	Secure Boot is supported in firmware but not enabled during sample preparation for this release.	Security

ID	Title	Description	Impacted Domain
Limitation	EXT_GPIO8	The customer should not connect an external pull-up resistor to this pin unless Secure Boot is enabled. The boot configuration for this pin is to enable Modem Secure Boot. If signed images have not been used (not available in Release 3), the modem will fail to boot.	Boot / Stability / BSP
Limitation	EXT_GPIO35	On samples prior to Release 3 availability, the customer should not have an external pull-up resistor connected to this pin. The boot configuration for this pin is to boot from the USB interface if this pin is high, which is not supported. This is resolved in Release 3 OEM configuration by writing to fuses to force the device to boot from NAND memory.	Boot / Stability / BSP
Bugs			
QT19X07-440	Sleep Mode power consumption	System has not been configured for entering Sleep Mode by default. Power Consumption does not reach the level expected in Sleep mode.	Power Consumption
LE-7418	Legato avcControl application consumes the default PDN	<p>The Legato avcControl application initiates a data connection on startup, using the modem default APN. A USB client (i.e. bit-pipe device) is not able to initiate a data connection on the same APN.</p> <p>Solutions: Release 4.1 reverts the Legato release and temporarily avoids this issue until it can be resolved in a formal Legato update.</p> <p>A Legato developer may wish to continue using the official Legato 17.05.0 release, in which case they may choose to disable avcControl from starting automatically to prevent this issue. This can be done by issuing the following command in the Linux console:</p> <pre>config set /apps/avcControl/startManual true bool</pre> <p>They may also rebuild Legato AF from source, with avcControl disabled or removed. Add the following to the .adefs source file for avcControl (/apps/platformServices/airVantage/avcControl.a def)</p> <pre>start: manual</pre>	Connectivity

9.4 ECM Interface Configuration

Known issue LXSWIREF-38 is a temporary regression caused by an optimization in progress to the ECM interface configuration on target. In Release 4, the ECM interface enumerates over USB, but is unreachable. The following changes can be applied as a workaround to make the ECM interface reachable. Another Linux console interface (UART, ADB, or Ethernet) must be used to execute this



workaround. Alternatively, the change can be executed in source code and compiled from the Sierra Wireless source code release.

Add firewall rules to enable routing over bridge0, by adding the following entries to /etc/iptables/rules.v4

```
-A INPUT -i bridge0 -p tcp -m tcp --dport 22 -j ACCEPT
-A INPUT -i bridge0 -p icmp -m icmp --icmp-type 8 -j ACCEPT
-A INPUT -i bridge0 -p udp --dport 67:68 --sport 67:68 -j ACCEPT
```

This change can be added to /meta-swi/meta-swi-mdm9xxx/recipes-core/init-ifupdown/files/rules.v4 as a compile time change.

Template #:	4124005	Revision:	01.08
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10 SWI9X07Y Release 3

Release 3 is provided to support intermediate product milestones including:

- Verizon Wireless Safe-For-Network (SFN) candidate
- GCF/PTCRB Certification candidate
- Initial AT&T AVL Certification candidate
- Customer samples, including pre-release snapshot of Legato 17.05 Application Framework

10.1 Software Release Description

10.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.03.03.00 000000 jenkins 2017/05/22 15:11:01
Linux Firmware	SWI9X07Y_02.03.03.00 2017-05-22_15:44:17
MCU Firmware	002.001
Legato Application Framework	17.05.0.rc5_6346074e23ec18579a6d0124c7425d0f
Binary Size	58MB (compressed binaries)
IMEI SV	0
Qualcomm Stack Version	MDM9607.LE.2.0-00050-STD.PROD-1
Linux Kernel Version	Linux version 3.18.44 (jenkins-slave@jenkins) (gcc version 4.9.1 (GCC)) #2 PREEMPT Mon May 22 15:44:20 UTC 2017
Supported H/W	WP7601 DV3+, WP7603 DV3+

10.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4653	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.27N2.40	
Linux SDK	04.00.04	

10.1.3 Released Files and Download Processes

Release 3 is provided as programmed hardware samples only. Software update packages are not provided for this release, and upgrades from previous releases are not supported.

Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

10.2 Software Changes Description

ID	Title	Description	Impacted Domain
Features			
QT19X07-412	Qualcomm LE.2.0 Baseline	Integrated Qualcomm Post CS MDM9607.LE.2.0-00050-STD.PROD-1 release.	Modem / Certification
Various	Legato 17.05 pre-release snapshot	This release includes an unreleased snapshot of the Legato 17.05 Application Framework. The final release for 17.05 will be released externally in the next few weeks, and may contain significant improvements.	Legato AF
QT19X07-332	32KHz and 20MHz Digital clock outputs	External clock outputs are supported, including AT/QMI interfaces for control of the 20MHz clock.	BSP
QT19X07-422	Linux support for WP77xx variants	Added support for upcoming MDM9x06 based WP77xx variants to the common Linux image.	Linux BSP
LXSWIREF-55	ECM and Ethernet support	ECM and Ethernet interfaces are now fully supported, including standard ECM configuration with 192.168.2.2 address to match the previous WP generation.	Linux / Networking
QT19X07-311	Legato AF fwupdate support	Legato fwupdate utility is enabled and supported for FW and Application updates over networking interfaces.	Legato AF / fwupdate
QT19X07-264	Ring Indicator	Ring Indicator feature enabled, including AT, QMI, and Legato interfaces	RI
QT19X07-281	QMI interfaces for GPIO	Added QMI support for GPIO control	GPIO
QT19X07-405	Wolfson WM8944 Codec	Added support for WM8944 codec, available on the mangOh Green platform	Audio
QT19X07-404	Carrier Provisioning	Added internal interface to support carrier provisioning for OMA credentials	Carrier / OMA
QT19X07-339	USB Selective Suspend	USB Selective Suspend is supported in this release.	USB
Bug Fixes			
QT19X07-276	Consecutive SLQS data connections fail to provide routable interface	A DHCP failure with a Linux host was resolved, allowing consecutive connections to be routable as expected. Prior to this update, an initial connection was routable, but subsequent connections did not establish a successful data interface with the Linux host	DHCP / SLQS
QT19X07-319	Sierra QMI responses use wrong Type in result TLV	Legato AF is updated to use corrected Sierra QMI response formats.	Legato
QT19X28-910	Crash during software reset	A system synchronization failure during software reset caused an intermittent crash. This most notably caused an attempt to enter Firmware Download mode to fail if the device crashed instead of completing the reset procedure.	System / Stability
LXSWIREF-13	Build standalone kernel	Resolved compiler warnings to allow the kernel to be built outside of the Yocto environment.	Kernel

10.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
Various	MCU Features	MCU ADC wake-up support is not available in this release. MCU-related AT commands are not supported in this release.	MCU / ULPM
QT19X07-355	Audio / Voice	Audio/Voice is enabled in this release, but calibration and quality testing is incomplete.	Audio
Various	AirVantage Connectivity	The AirVantage device client is supported in this release but not fully validated. AT Commands for AirVantage client control are not supported in this release.	AirVantage
Various	Partial AT and QMI SDK support	This release does not support all planned AT commands or QMI messages used by Sierra SDK. This release contains numerous improvements since Release 2.1, but does reach full planned support.	AT / QMI / SDK
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
QT19X07-121	Multiple-RMNET support over USB is not supported	Multiple RMNET support over USB is not available in this release.	USB
Various	Secure Boot	Secure Boot is supported in firmware but not enabled during sample preparation for this release.	Security
Limitation	EXT_GPIO8	The customer should not connect an external pull-up resistor to this pin unless Secure Boot is enabled. The boot configuration for this pin is to enable Modem Secure Boot. If signed images have not been used (not available in Release 3), the modem will fail to boot.	Boot / Stability / BSP
Limitation	EXT_GPIO35	On samples prior to Release 3 availability, the customer should not have an external pull-up resistor connected to this pin. The boot configuration for this pin is to boot from the USB interface if this pin is high, which is not supported. This is resolved in Release 3 OEM configuration by writing to fuses to force the device to boot from NAND memory.	Boot / Stability / BSP
Bugs			

ID	Title	Description	Impacted Domain
QT19X07-125	Disable adbd when ADB is disabled	The adbd (Android Debug Bridge Daemon) is running even when the external ADB interface is disabled. This is inefficient and also results in periodic info level log messages from the USB gadget driver, e.g.: [33.774614] read descriptors [33.774697] read strings	Linux / adbd
QT19X07-342	WWAN LED blink pattern	The WWAN LED blink state is not initialized correctly at power up, and will exhibit the behaviour for LPM mode at startup regardless of the operating state.	WWAN LED
QT19X07-440	Sleep Mode power consumption	System has not been configured for entering Sleep Mode by default. Power Consumption does not reach the level expected in Sleep mode.	Power Consumption
DAYTONA-324	GNSS Autostart configuration is not supported	AT!GPSAUTOSTART=2 configuration is not yet supported in this release.	GNSS / AT
DAYTONA-329	All NMEA sentence are duplicated	NMEA sentences are duplicated in the NMEA stream.	GNSS / NMEA
QT19X07-469	AT Command read of ADC0 does not respond	Using AT!MADC?10 to read from ADC0 does not return on the terminal, and subsequent terminal input is blocked until a device reset is performed. Other ADC reads are working as expected.	ADC / AT

11 SWI9X07Y Release 2.1

Release 2.1 is provided in limited quantities to support intermediate product milestones including:

- Initial Verizon Wireless Safe-For-Network (SFN) candidate
- GCF/PTCRB Certification candidate
- Feature complete support for improved factory processes including Secure Boot provisioning and Pre-Programmed Flash

This release is not intended for customer samples due to the following limitations:

- Minimal internal validation, with exception of key improvements included in this release.
- No formal Legato Application Framework release to support critical Modem interface changes
- No formal Linux SDK/driver validation performed with this release
- No formal GCF, PTCRB or Carrier certification testing has been completed
- Linux Firmware source code will not be published to Source

11.1 Software Release Description

11.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.01.03.00 000000 jenkins 2017/04/18 20:15:32
Linux Firmware	SWI9X07Y_02.01.03.00 2017-04-18_21:11:27
MCU Firmware	002.001
Legato Application Framework	17.03.0.rc6_23c3d736d247f0c4af79942eb30c59ba
Binary Size	58MB (compressed binaries)
IMEI SV	0
Qualcomm Stack Version	MDM9607.LE.2.0-00035-STD.PROD-1
Linux Kernel Version	Linux swi-mdm9x28 3.18.31 #2 PREEMPT Tue Apr 18 21:24:29 UTC 2017 armv7l GNU/Linux
Supported H/W	WP7601 DV3+, WP7603 DV3+

11.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4653	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.27N2.40	
Linux SDK	04.00.04	

11.1.3 Released Files and Download Processes

Release 2.1 is provided as programmed hardware samples only. Software update packages are not provided for this release, and upgrades from previous releases are not supported.



Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

11.2 Software Changes Description

ID	Title	Description	Impacted Domain
Features			
QT19X07-314	Qualcomm LE.2.0 Baseline	Integrated Qualcomm MDM9607.LE.2.0-00035-STD.PROD-1. Baseline includes planned support for key modem features PSM and eDRX. These features are not yet supported in this release.	Modem / Certification
QT19X07-253	Add FASTBOOTEN Customization	FASTBOOTEN customization allows the Linux bootloader Fastboot interface to be enabled independently from the Linux ADB shell.	Linux LK
QT19X07-263	Initial new variant support	Preliminary (non-RF) support of new hardware variants WP7605 and WP7607	Hardware Support
QT19X07-37	Configurable UART services	Added support for configurable UART services via AT!MAPUART command.	UART
QT19X07-239	AT+CCID Support for Sierra eUICC	+CCID response enhanced to provide eUICC ID field when available	Sierra eUICC
QT19X07-44 / QT19X07-279	External GPIO support	External GPIO support via AT, QMI, and sysfs. GPIO 38-41 are not yet supported.	GPIO
MCU-71	ULPM Support	Implement MDM control logic to allow system to enter ULPM. Customer interfaces to support this mode are not yet fully supported.	MCU / ULPM
MCU-44	USB Detection	Detect USB_VBUS and relay signal to MDM as to provide USB detection mechanism. MDM handling of this signal is not fully implemented.	MCU / USB
QT19X07-222	Sierra Monitor utility	Sierra Monitor utility added to detect malfunctioning modem image, and recover from Image Switching slots if possible.	Stability
QT19X07-91	Enhanced Shared Memory Framework	A more robust Shared Memory framework is developed for long term independent development of Modem and Linux subsystems.	Stability
QT19X07-260 / QT19X07-262	Factory Pre-calibration Restore Point	A pre-calibration restore point is created to facilitate factory processes involving Secure Boot.	Factory
Bug Fixes			



ID	Title	Description	Impacted Domain
QT19X07-162	Fix interface order in USB composition to conform to legacy Sierra Wireless port mapping for Linux OS host	The updated default port mapping conforms to Sierra Wireless convention: /dev/ttyUSB0 - DM Port /dev/ttyUSB1 - NMEA Port /dev/ttyUSB2 - AT Command Port	USB
QT19X07-319	Sierra QMI responses use wrong Type in result TLV	Several custom Sierra QMI objects were implemented with a specification violation, where the result TLV used the incorrect Type. This was observed in Linux SDK interactions, and is resolved in this release. Note that the affected QMI objects were M2M-centric and not observed in Windows applications. This change causes a temporary incompatibility with the Legato image included in this release, listed below.	QMI

11.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
Various	MCU Features	MCU ULPM Mode and GPIO/ADC external API support (Legato, AT) is not available in this release.	MCU / ULPM
QT19X07-339	USB Selective Suspend	USB Selective Suspend is not supported in this release. This prevents a Linux wake lock from being released, preventing Sleep mode power consumption levels from being reached.	USB
QT19X07-355	Audio / Voice	Audio / Voice is not supported in this release	Audio
Various	AirVantage Connectivity is not supported	The AirVantage device client is unavailable for this platform in this release.	AirVantage
Various	Partial AT and QMI SDK support	This release does not support all planned AT commands or QMI messages used by Sierra SDK. This release contains numerous improvements since Release 2, but does reach full support.	AT / QMI / SDK
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
Bugs			

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ID	Title	Description	Impacted Domain
LE-6265	Legato ECM Interface	<p>The Legato ECM interface DHCP configuration is as a default gateway.</p> <p>This causes a host (Linux or Windows) to use the ECM interface as the default gateway and will break the host's internet connectivity while ECM is enabled.</p> <p>In Windows, the Legato ECM interface can be disabled in the Device Manager as a temporary workaround.</p> <p>In Linux, the ECM interface (usb0) can be disabled, or the eth1 interface can be added as the default routing option, e.g.:</p> <pre>sudo route add default eth1 sudo dhclient eth1</pre>	USB / ECM
QT19X07-319	Sierra QMI responses use wrong Type in result TLV	<p>Several QMI messages were implemented incorrectly in both Modem and Legato. Due to the issue being identical on both systems, no performance issue was previously observed on target. QT19X07-319 resolved the Modem side issues, and the Legato Application Framework has not yet been updated with the corresponding change, leading to a regression in QMI compatibility.</p>	Legato



12 SWI9X07Y Release 2

Release 2 is provided for sample recipients of WP7601 and WP7603 DV2 and DV3 hardware.

- a. Software validation:
 - No formal GCF, PTCRB or Carrier certification testing has been performed. This release will be submitted for GCF and PTCRB certification, but it is not expected to be certified without further changes.
- b. Source code availability:
 - Linux Firmware source code will not be published to Source
- c. Future firmware upgrade support:
 - Samples are not provisioned with AirVantage credentials, and therefore will not be able to connect to the Sierra Wireless AirVantage server in the future.
 - Samples are not provisioned with carrier-specific parameters related to OMADM, and therefore will not be able to connect to Carrier OMADM servers in the future.
 - DV3 Samples are available in very limited quantity. Due to flash memory incompatibility between DV2 and DV3 (and above), DV2 samples provided with this release will not be upgradeable to future firmware releases.
- d. Feature support:
 - This release does not include full WP76xx feature support.

12.1 Software Release Description

12.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_02.00.03.00 000000 jenkins 2017/02/27 06:17:46
Linux Firmware	SWI9X07Y_02.00.03.00 2017-02-27_06:49:24
MCU Firmware	002.000
Legato Application Framework	16.10.0.wp76xx_5545c7d3120e7a0971a4a11d2226ad19
Binary Size	58MB (compressed binaries)
IMEI SV	0
Qualcomm Stack Version	MDM9607.LE.2.0-00025-STD.PROD-2
Linux Kernel Version	3.18.31 #2 PREEMPT Mon Feb 27 07:07:04 UTC 2017 armv7l GNU/Linux
Supported H/W	WP7601 DV2 and DV3, WP7603 DV2 and DV3

12.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4653	
Windows SDK	None	
Skylight	None	



S/W Tools Name	Version	Resource file
Linux Drivers	S2.27N2.40	
Linux SDK	04.00.04	

12.1.3 Released Files and Download Processes

Release 2 is provided as programmed hardware samples only. Software update packages are not provided for this release, and upgrades from Release 1 are not supported.

Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

12.2 Software Changes Description

ID	Title	Description	Impacted Domain
Features			
QT19X07-246	Qualcomm LE.2.0 Baseline	Integrated Qualcomm MDM9607.LE.2.0-00025-STD.PROD-2. Baseline includes planned support for key modem features PSM and eDRX. These features are not yet supported in this release.	Modem / Certification
QT19X07-182	MCU programming interface	MCU firmware is included in this release, but is not feature complete. ULPM and MCU-managed GPIO and ADCs are not supported.	MCU / ULPM
QT19X07-47	Partial External GPIO control	External GPIO control is supported in this release via AT commands +WIOW/+WIOR/+WIOCFG. Legato APIs for GPIO control are not supported.	GPIO
QT19X07-150	Micro SD	Resolved an internal GPIO conflict to fix support of the external SDIO interface and allow Micro SD memory to be mounted on mangOH	uSD
QT19X07-163	RAM / Flash partitioning optimization	RAM and Flash partitioning has been optimized to provide 256MB flash and 150MB RAM to the Linux system.	Memory
QT19X07-220	Memory with 2K page size	Added support for generating and loading firmware images using 2K page size flash. This memory is used on DV3 hardware and above.	Memory
QT19X07-207	Legato ECM Interface	The Legato ECM interface is enabled and supports SSH with default static IP address 192.168.225.1.	USB / ECM
QT19X07-240	Dual SIM interface	Resolve stability issues with dual SIM support, and enable interfaces for selecting second SIM	SIM
QT19X07-179	Carrier Image Switching	Carrier Image Switching is supported in this release.	Certification
Bug Fixes			

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ID	Title	Description	Impacted Domain
QT19X07-273	Fix cellular data connectivity via Legato applications	Added modem support for APIs required by Legato Modem Service prior to establishing cellular data connectivity.	Legato / Connectivity

12.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Features			
Various	MCU Features	MCU ULPM Mode and GPIO/ADC support is not available in this release.	MCU / ULPM
QT19X07-126	External GPIO control	External GPIO control via Linux sysfs and Legato is not supported in this release.	GPIO
MCU-44	USB Selective Suspend	USB Selective Suspend is not supported in this release. This prevents a Linux wake lock from being released, preventing Sleep mode power consumption levels from being reached.	USB
Various	Audio / Voice	Audio / Voice is not supported in this release	Audio
Various	AirVantage Connectivity is not supported	The AirVantage device client is unavailable for this platform in this release.	AirVantage
Various	Partial AT and QMI SDK support	This release does not support all planned AT commands or QMI messages used by Sierra SDK.	AT / QMI / SDK
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time. Modem communication interfaces initialize after the kernel is started, and a delay is observed between USB enumeration and functional communication on the USB interfaces such as the Network adapter, Modem port, etc. Delays of approximately 5 seconds are measured on typical power up, and up to 25 seconds when Linux is starting up for the first time on blank flash.	Linux / Boot
Bugs			
LE-6265	Legato ECM Interface	The Legato ECM interface DHCP configuration is as a default gateway. This causes a host (Linux or Windows) to use the ECM interface as the default gateway and will break the host's internet connectivity while ECM is enabled. In Windows, the Legato ECM interface can be disabled in the Device Manager as a temporary workaround. In Linux, the ECM interface (usb0) can be disabled, or the eth1 interface can be added as the default routing option, e.g.: <pre>sudo route add default eth1 sudo dhclient eth1</pre>	USB / ECM



ID	Title	Description	Impacted Domain
QT19X07-162	Linux USB Port mapping	<p>This release includes the following USB port mapping on a Linux host platform: /dev/ttyUSB0 - DM Port /dev/ttyUSB1 - AT Command Port /dev/ttyUSB2 - NMEA Port</p> <p>The expected port mapping should be: /dev/ttyUSB0 - DM Port /dev/ttyUSB1 - NMEA Port /dev/ttyUSB2 - AT Command Port</p>	Linux USB

13 SWI9X07Y Release 1

Release 1 is provided for initial sample recipients of WP7601 and WP7603 DV2 hardware. Significant limitations related to early sample delivery include:

e. Software validation:

- Sierra has performed minimal functional validation.
- Legato Application Framework has not been formally validated.
- No formal GCF, PTCRB or Carrier certification testing has been performed.
- Linux Firmware source code will not be published to Source

f. Future firmware upgrade support:

- This release uses a generic CWE image type that will be deprecated in future releases. Upgrades to future firmware releases will not be supported.
- Samples are not provisioned with AirVantage credentials, and therefore will not be able to connect to the Sierra Wireless AirVantage server in the future.
- Samples are not provisioned with carrier-specific parameters related to OMADM, and therefore will not be able to connect to Carrier OMADM servers in the future.

g. RF calibration:

- Samples are not individually calibrated. Devices are loaded with a calibration file from a single calibrated device, and are not expected to match production quality or fully meet 3GPP requirements.

h. Feature support:

- This release does not include full WP76xx feature support.

13.1 Software Release Description

13.1.1 Release identification

Component	Revision
Modem Firmware	SWI9X07Y_01.00.02.00 000000 jenkins 2016/12/17 02:19:17

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Component	Revision
Linux Firmware	SWI9X07Y_01.00.02.00 2016-12-17_02:44:34
MCU Firmware	None
Legato Application Framework	16.10.0_423bd939a089fff35bac1deedeb1c3d6
Binary Size	59MB (compressed binaries)
IMEI SV	0
Qualcomm Stack Version	MDM9607.LE.1.1-00050-STD.PROD-2
Linux Kernel Version	3.18.20 #2 PREEMPT Sat Dec 17 03:12:05 UTC 2016 armv7l GNU/Linux
Supported H/W	WP7601 DV2, WP7603 DV2

13.1.2 Software Tools Versions

S/W Tools Name	Version	Resource file
Windows Driver Package	B4484	
Windows SDK	None	
Skylight	None	
Linux Drivers	S2.26N2.39	
Linux SDK	04.00.00	

13.1.3 Released Files and Download Processes

Release 1 is provided as programmed hardware samples only. Software update packages are not made available for this release.

Download Option	Files
Windows	None
CWE/NVU files	None
Windows Firmware and Configuration upgrade tools	None

13.2 Software Changes Description

This is the initial release for WP76xx samples.

13.3 Known Issues

This section presents all known issues in this release.

ID	Title	Description	Impacted Domain
Stability			
QT19X07-189	Device crashes if UIM2 interface is enabled	The device resets during power up if the UIM2 interface is enabled. Samples will be configured with the interface disabled.	SIM



ID	Title	Description	Impacted Domain
Features			
QT19X07-182	MCU programming interface	MCU firmware is not available for this release. ULPM Mode is not available in this release	MCU / ULPM
QT19X07-126	External GPIO control	External GPIO control is not supported in this release.	GPIO
QT19X07-150	Micro SD support	Micro SD support is intermittent in this release	uSD
QT19X07-163	RAM / Flash partitioning is not optimized	RAM and Flash partitioning has not been optimized to provide maximum capability to the Linux subsystem.	Memory
Various	Legato ECM Interface	The Legato ECM interface IP configuration is not initialized in this release.	USB / ECM
Various	USB Selective Suspend	USB Selective Suspend is not supported in this release	USB
Various	Audio / Voice	Audio / Voice is not supported in this release	Audio
Various	Configuration	Factory configuration processes are not fully supported, and therefore samples are available with minimal custom configuration.	Configuration
Various	Carrier Image Switching	Carrier-specific image support is not available in this release	Certification
Various	AirVantage Connectivity is not supported	The AirVantage device client is unavailable for this platform in this release.	AirVantage
Various	Partial AT and QMI SDK support	This release does not support all planned AT commands or QMI messages used by Sierra SDK.	AT / QMI / SDK
Various	Linux Boot time is not optimized	Various debug capabilities and debug modules are included in the Kernel and Rootfs, which increases the Sierra Linux system boot time.	Linux / Boot

14 Troubleshooting

Please contact customer service for support and debug

15 Certification Description

Release 1 is not intended for industrial or carrier certification.

16 Restrictions and Additional Information

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

ID	Description (What/When)	Impacted Domain
Various	Modules should not be used on live networks	Certification

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