SL8090/SL8091
SL8092/SL8093

P1.0 Release8
(P1_0_0_18ap & P1_0_0_18bt)

Release Notes &
Upgrading Instructions

Table of Contents

General

Purpose

This document is intended to capture technical changes to the release package. The document covers changes in the Modem firmware (Bootloader and Application).

A new revision of this document will be issued when any of the firmware components of the product are updated.

Scope

This document covers issues that affect carriers and end users.

Revision History

Date	Author	Summary of changes
Mar 14, 2011	Mickael Thomas	Creation
Jul 12, 2011	Mickael Thomas	Updated for P1.0 Release1
Aug 4, 2011	Mickael Thomas	Updated for P1.0 Release2
Oct 26, 2011	Mickael Thomas	Updated for P1.0 Release3
Nov 23, 2011	Mickael Thomas	Updated for P1.0 Release4
Sep 12, 2012	Xiaofeng Gong	Updated for P1.0 Release5
Oct 22, 2012	Xiaofeng Gong	Updated for P1.0 Release6
Nov 27, 2012	Xiaofeng Gong	Updated for P1.0 Release7
April 22, 2013	Xin Wang	Updated for P1.0 Release8

Installing and Upgrading the Release

Download the Necessary Upgrade Files

Download the files and follow any additional instructions on the download website:

Please contact your Sierra Wireless representative for access/instructions.

Supported Operating Systems

This software and firmware package supports the Sierra Wireless AirPrime SL809x Series on the following Microsoft Operating Systems:

- Windows XP SP3 (Service Pack 3 or higher)
- Windows Vista SP1 (Service Pack 1 or higher)
- Windows 7

Upgrade Procedure

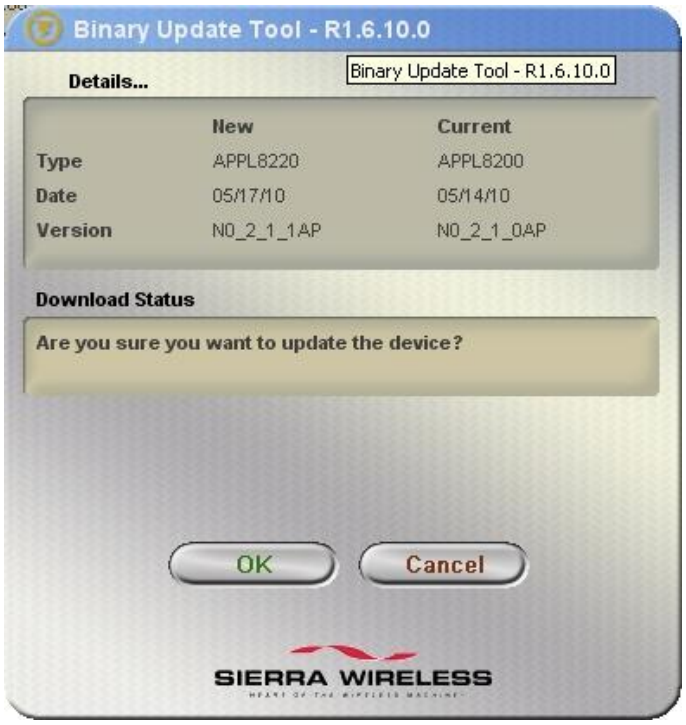
Sierra Wireless firmware upgrades are provided in a One-Click tool, which contains the firmware and download tool bundled in a self-extracting executable. Before starting an upgrade, please ensure the following:

- The host computer is connected to an AC power supply, or has at least 30 minutes of battery life remaining
- The device to be upgraded is powered and operating normally
- All applications which communicate with the device, such as Watcher, Hyper-terminal, etc. are closed

Steps:

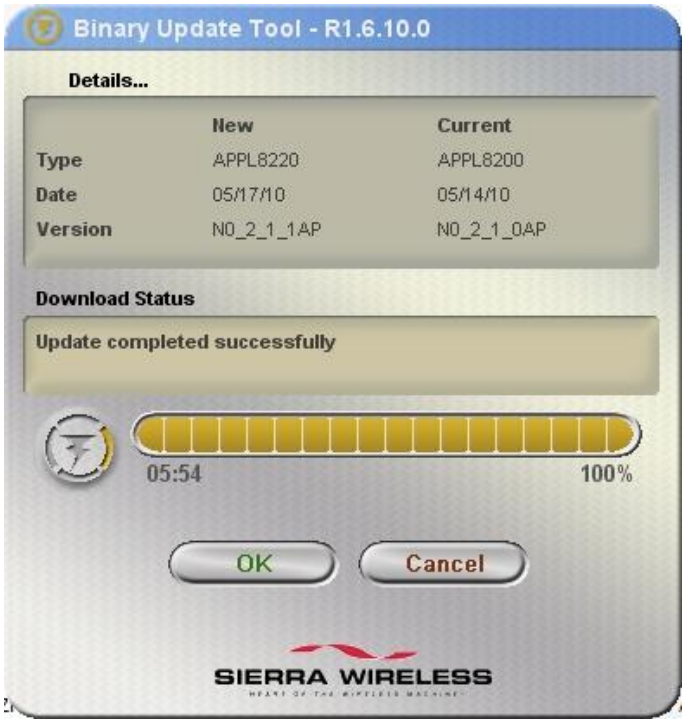
1. Navigate to the folder in the current release containing the folder named “Firmware” and open it
2. Open the folder named “OneClickTool” and click on the executable within that folder to start the BinUpdater tool

3. When BinUpdater tool starts, the following window will appear:



4. Click OK to begin the download.

NOTE: The download can take up to 10 minutes to complete. Do not remove the power to either the laptop or the modem until the Binary Update Tool announces that the upgrade has been successful, as shown here:



NOTE 2: There can be more than one firmware image bundled with the One Click Tool. If so, then you will be asked if you want to upgrade the device once for each image. If you click Cancel instead of OK, the remainder of the download will be aborted.

NOTE 3: When a boot image is released it is usually bundled with the application firmware within the same OneClickTool executable. That OneClickTool will automatically install both the boot and application images for you. If you intend to perform repeated download stability tests, please use the oneclick tools with just the Application image.

Debug Tools

Sierra Wireless devices provide support for trace tools such as QXDM or the Sierra Wireless log-gathering tool. Please contact your Sierra Wireless representative for the logger tool and the installation instructions

Revision History

P1.0 Release8

Firmware Component Revision Levels

Component	Revision	Compatibility
Hardware	All	All
Boot loader	P1_0_0_18bt	All
Application	P1_0_0_18ap	All

Firmware Changes from P1.0 Release7

- Change call state for !SWICALLPROG from incoming to waiting when there are held calls but no active calls on receiving a new call
- Fix the issue that non-voice calls are counted into call sequence number.
- Fix the issue that +CIEV can't be triggered when +CMER is set to 1,0,0,1,0
- Change AT^HVER implementation to make it same as SL909x
- Add voice mail notification feature
- Ignore ADF DF2 DF3 polling error
- Support AT+CPIN2
- Removing +CMTI for VMI and allow +WVMI to wake up USB BUS
- Update SE13 list

Known Issues with P1.0 Release7

- RTS signal is ignored in CMUX mode
- CMUX ports do not re-establish after a modem reset

P1.0 Release7

Firmware Component Revision Levels

Component	Revision	Compatibility
Hardware	All	All
Boot loader	P1_0_0_15bt	All
Application	P1_0_0_15ap	All

Firmware Changes from P1.0 Release6

- Add audio profiles for I2S interface

Known Issues with P1.0 Release6

- RTS signal is ignored in CMUX mode
- CMUX ports do not re-establish after a modem reset

P1.0 Release6

Firmware Component Revision Levels

Component	Revision	Compatibility
Hardware	All	All
Boot loader	P1_0_0_14bt	All
Application	P1_0_0_14ap	All

Firmware Changes from P1.0 Release5

- Added NMEA port auto tracking
- Added initial value for Dual-mic
- Corrected The DTMF tone does not stop playing after the call is terminated
- Corrected Modem crash after AT command at!mapuart=1
- Corrected Busy tone always can be heard after hang up from MT device

Known Issues with P1.0 Release6

- RTS signal is ignored in CMUX mode
- CMUX ports do not re-establish after a modem reset

P1.0 Release5

Firmware Component Revision Levels

Hardware	All	All
Boot loader	P1_0_0_12bt	All
Application	P1_0_0_12ap	All

Firmware Changes from P1.0 Release4

- Added IPv6 on PAD
- Added setting host post state is implemented
- Added NMEA data come from physical UART port
- Added NMEA get mode cmd is not handled
- Added IPv6 feature from MDM8200
- Added I2S support on SL8092
- Added Tx burst on indication configurable
- Enhanced stability when starting IPv4 and IPv6 data call together
- Enhanced Tx burst stability
- Enhanced factory image generation stability
- Enhanced stability when laptop resumed from standby
- Corrected Inner loop control stability in test bench for SL8092/93
- Corrected IPR value cannot be saved after reset
- Corrected GSM Tx power lower than expected after calibration
- Corrected The HSDPA category is wrong
- Corrected AT port will not work after starting GPS for a few seconds
- Changed IMEISVN to 9

Known Issues with P1.0 Release5

- RTS signal is ignored in CMUX mode
- CMUX ports do not re-establish after a modem reset
- Reset happens when NMEA output is enabled and NMEA port is not opened on host side

P1.0 Release4

Firmware Component Revision Levels

Hardware	All	All
Boot loader	P1_0_0_8bt	All
Application	P1_0_0_8ap	All

Firmware Changes from P1.0 Release3

- Added support for WCDMA band VI (SL8090/SL8091)
- Extended SAR back-off offset range
- Corrected AT&T certification test case failures
- Corrected AT!WPOWER and AT!GSTATUS bug
- Changed IMEISVN to 8

Known Issues with P1.0 Release4

- RTS signal is ignored in CMUX mode
- CMUX ports do not re-establish after a modem reset
- AT port will hang if GPS auto-start and NMEA port are enabled
- Reset happens when NMEA output is enabled and NMEA port is not opened on host side
- NMEA port not working on UART

Notes

Due to a Qualcomm stack upgrade introduced after P1.0 Release2, the Tx output power in EDGE 850 and 900 MHz at maximum power might be marginally incorrect. In order to compensate this phenomenon, the SL809x_UpdatedNV.QCN file must be downloaded after P1.0 Release4 firmware download.

P1.0 Release3

Firmware Component Revision Levels

Hardware	All	All
Boot loader	P1_0_0_7Abt	All
Application	P1_0_0_7Aap	All

Firmware Changes from P1.0 Release2

- Added Qualcomm firmware update packages
- Added SAR back-off support
- Added NDIS over PPP support
- Added Direct-IP for WinCE support

- Enhanced PAD stability
- Enhanced GPS stability
- Enhanced CMUX stability
- Enhanced UART flow control
- Enhanced output power in EDGE 850/1900 in extreme conditions
- Enhanced extreme temperatures support
- Corrected inner loop RF power test failure
- Corrected corporate personalization enabled crash
- Corrected UART buffers memory leakage
- Corrected PTCRB and AT&T certification test case failures
- Changed default PCM configuration to padding enabled
- Changed IMEISVN to 7

Known Issues with P1.0 Release3

- RTS signal is ignored in CMUX mode
- CMUX ports do not re-establish after a modem reset
- AT port will hang if GPS auto-start and NMEA port are enabled
- Multiple UDP PAD clients fail
- +++ cannot escape to online command mode on PDP1 and PDP2
- UART DCD signal not working in 8-wire group B configuration

P1.0 Release2

Firmware Component Revision Levels

Hardware	SL8092/SL8093	
Boot loader	P1_0_0_5bt	SL8090/SL8091 SL8092/SL8093
Application	P1_0_0_5ap	SL8090/SL8091 SL8092/SL8093

Firmware Changes

- Added support for sleep mode in CMUX mode
- Enhanced GPS stability
- Corrected certification test case failures
- Changed IMEISVN to 4

Known Issues with P1.0 Release2

- RTS signal is ignored in CMUX mode
- PCM default configuration does not match with SL development kits
- AT!GPSFIX=1,255,255 will sometimes crash the modem
- CMUX ports do not re-establish after a modem reset

P1.0 Release1

Firmware Component Revision Levels

Hardware	SL8090/SL8091	

	SL8092/SL8093	
Boot loader	P1_0_0_4bt	SL8090/SL8091 SL8092/SL8093
Application	P1_0_0_4ap	SL8090/SL8091 SL8092/SL8093

Firmware Changes

- Added support for firmware download via UART
- Added support for AT!RESET and AT!MAPUART on PDP ports
- Added support for BUZZER_EN output as a GPO
- Added support for mute and audio volume control in Watcher
- Added support for 4-wire UART
- Added support for PAD and auto-connect and connection watchdog
- Added support for AT!SWICALLPROG
- Added support for AT!AVRXPCMIIRFLTR and AT!AVTXPCMIIRFLTR
- Enhanced sleep mode
- Enhanced audio AT commands
- Enhanced GPS stability
- Enhanced UART control signals behavior
- Enhanced AT!DIO and AT!DIOCFG stability
- Enhanced PAD stability
- Enhanced CMUX stability
- Corrected GCF/PTCRB test case failures
- Corrected DUN connection failure on PDP1 and PDP2
- Corrected PPP frames in AT mode correction
- Corrected AT commands syntax errors
- Changed POWER_ON_N pin from edge to level sensitive
- Changed NV settings for RF performance
- Changed IMEISVN to 3
- Removed AT!PCOFFEN=2 functionality
- Removed unsupported audio AT commands

Known Issues with P1.0 Release1

- RTS signal is ignored in CMUX mode
- Sleep mode is not entered if a DLC is opened

P0.0 Beta1

Firmware Component Revision Levels

Hardware	SL8090/SL8091 PV1	
Boot loader	P0_0_7_1bt	SL8090/SL8091 PV1
Application	P0_0_7_1ap	SL8090/SL8091 PV1

Firmware Changes

- N/A - This is the first release of PX.X firmware

Known Issues with P0.0 Beta1

NV defaults not populated. Do not use AT!NVDEF command.
Sleep mode current consumption is not optimized
Firmware download over UART is not supported
AT!RESET and AT!MAPUART are not supported on PDPx ports
BUZZER_EN is not configurable as a GPO
Tx Burst Indication is not functional
GSM Half Rate voice codec is not supported
DUN connection fails on PDP2 and PDP3 ports
Wrong band mask is set when AT!SELRAT=4
AT!DIO=? and AT!DIOCFG=? have incorrect number of channels
AT!DIOCFG settings are not persistent after a reset
AT!CGCLASS? response is wrong
Module does not enter sleep mode unless the USB cable is inserted
AT!NMEACONFIG? returns ERROR
Mic and ear volumes do not take effect immediately
UART port is not enabled by default
AT!DTEMP?0 resets the module
IPv6 is not supported
Can not register to GSM bands after AT!SELRAT=4 and AT!BAND=0
PAD, Auto-Connect and Connection Watchdog are not supported
CSD does not work on PDPx over UART
Module resets when RADIORESET=2 and STARTLPM=1

Troubleshooting

The following sections describe troubleshooting information when using the SL809x on a live network or a test box.

Ciphering/Integrity

If the unit is failing to attach, check the ciphering settings. The UE needs to use the same settings as the network/test set. Generally, live networks will have ciphering/integrity enabled. Test sets may have them enabled or disabled, but it is common for test sets to leave it disabled unless explicitly testing that feature.

The AT command is noted below:

AT Command	Description
AT!GCIPHER=X	Set the card to support integrity and ciphering with the following settings: X = 0, Ciphering OFF, Integrity OFF X = 1, Ciphering ON, Integrity OFF X = 2, Ciphering ON, Integrity ON
AT!GCIPHER?	Query the GCIPHER settings.

Crash Investigation

If the UE crashes, there are a number of different means to provide useful feedback to Sierra Wireless for resolution of the issue.

Full memory dump

This is the preferred process because it captures the most crash information.

Configuring the UE for crash dump capture

This must be done to enable or disable the crash capture feature on the UE. This configuration is stored in NV so it is persistent across power cycles / power removal. The UE must be reset after changing the setting before the changes take effect.

To enable crash dump capture
AT!EROPTION=0

To enable UE reset upon a crash (default behaviour)
AT!EROPTION=1

Capturing a crash dump

1. Wait for / cause a crash to occur
2. Close connection manager software (to release the com port)
3. Run SwiMemDebug
4. Click Start to initiate crash dump collection. If this fails, the application likely cannot open the com port (see step 2)
5. Once 100% is reached, the crash dump collection is complete. Click Reset to reset the modem (optional), and Exit to exit the program
6. Crash files will be in the same location as SwiMemDebug. Zip up the crash files and label the zip file with a unique name (date/timestamp is suggested) and send the zip to Sierra Wireless for analysis

Mini Dump

If a crash occurs, the summary of why the crash occurs is saved in memory. The command following command will display the crash summary:
AT!GCDUMP

Note that this crash summary is lost once power is removed from the device (or manually cleared via AT!GCCLR).

Error Listing

The AT!ERR command will display “points of interest” that have occurred in the UE. These are not crashes, but are often used by developers to highlight areas they wish to examine.

Vista Recommendations

For optimum performance and stability in Microsoft Vista, it is recommended that USB Selective Suspend be disabled. In order to disable Selective Suspend properly, follow both procedures (B.1 and B.2) below:

B.1 Disabling Global Selective Suspend

The following procedure will disable the global selective suspend setting in Microsoft Vista:

1. Open the Control Panel
2. Select the Power Options applet
3. For whichever item is selected as the current Power Mode (ie: Maximum Battery Life), select Change plan settings
4. Select Change advanced power settings
5. Expand USB Settings
6. Expand USB Selective Suspend settings
7. Change the settings for Plugged in to DISABLED
8. Change the settings for On Battery to DISABLED
9. Close the Power Options applet

B.2 Disabling Device Specific Selective Suspend for Generic Sierra Wireless Drivers

The following procedure will disable the device specific selective suspend setting in Microsoft Vista when using a device configured with the generic Sierra Wireless drivers:

1. Open notepad
2. Type the following text into notepad

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\SWUMX32\Par
ameters]
"IdleDetect"=dword:00000000
"UsbSelSus"=dword:00000000
```