Release Notes

MSD45N/SSD45N

Version 23.3.5.13

This document provides release notes for version 23.3.5.13 of the MSD45N/SSD45N radio software as well as previously distributed release notes.

Release notes are a summary of new and enhanced features, resolved issues, and known issues that are not resolved in this version. Consult the user's guide for details on the features of this software release.

Operating System Support

- Windows CE 5
- Windows CE 6
- Windows Embedded Compact 7
- Windows Embedded Compact 2013
- Windows Mobile 5.0
- Windows Mobile 6.5

The following software releases are included in these release notes:

- Software Version 23.3.5.13
- Software Version 23.3.5.12
- Software Version 23.3.5.11
- Software Version 23.3.5.9
- Software Version 23.3.5.8
- Software Version 23.3.5.7
- Software Version 23.3.3.22
- Software Version 23.3.3.18
- Software Version 23.3.3.16
- Software Version 23.3.3.14
- Software Version 23.3.3.12
- Software Version 23.3.3.9
- Software Version 23.3.3.8
- Software Version 23.3.3.5
- Software Version 3.5.2.18
- Software Version 3.5.2.17
- Software Version 3.5.2.16
- Software Version 3.5.1.6

Software Version 23.3.5.13

Released March 2018

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina
3.5.3.11	37.3.5.15	40.3.11.2	48.3.2.33	41.3.3.3	42.3.4.4

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.4.1	54.2.2.29	52.4.12.9	53.2.3.6	49.3.3.9	62.1.1.4	61.1.1.4

New and Enhanced Features

- **Configurable bus access** – Added support to configure the type of SDIO bus access generated by the client driver. Block mode bus access could improve throughput on some platforms in some circumstances, however block mode is problematic on some host platforms. Releases 23.3.3.x and earlier always used byte mode access, while previous 23.3.5.x releases always used block mode. With this release, the bus mode is now configurable, with the default set to byte mode. Block mode access is configured with the following registry entry. (12550)

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```
[HKEY_LOCAL_MACHINE\Comm\SD45N1\Parms]
"blockMode"=x  ; 0=byte mode, 1=block mode, default is 0
```

- **Automatic PMK** – Added supplicant support to dynamically correct the OPMK/SPMK setting if possible. SPMK (Standard PMK caching) should be used with autonomous APs, whereas OPMK (Opportunistic PMK caching) should be used with controller based APs. The supplicant is not able to determine autonomous vs controller based APs, so it is important that this setting is manually set correctly but that is often missed. With this new feature, the supplicant will attempt the other setting if it determines that the current PMK caching method is not working as expected. (12518)

Resolved Issues

The following issues have been resolved in this release:

- **Driver data abort at suspend** – Fixed an issue that could cause a data abort in the client driver at suspend in rare circumstances. (12447)
- **Large A-MSDU packets cause driver hang** – Fixed an issue that caused A-MSDU aggregated packets to be processed incorrectly. Depending on the packet size, this issue could have caused the client driver to hang temporarily. (12513)
- **Unnecessary disconnect/reconnect due to PMKID timeout** – Fixed an issue in the supplicant that resulted in an unnecessary disconnect and reconnect after a very long period. (12518)
- **Managed LCM UI cleanup** – Fixed several user interface issues in the managed LCM. (10488, 12504, 12505)
- **Managed LCM stability** – Fixed an issue that could cause a data abort in the managed LCM. (12497)
- **Managed LCM scan list profile creation not protected** – Fixed an issue that allowed a user without admin credentials to create a profile from the scan dialog in the managed LCM. (12087)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only, the radio attempts to connect to an AP that is set to non-G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three-wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

Software Version 23.3.5.12

Released January 2018

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina
3.5.3.10	37.3.5.13	40.3.10.19	48.3.2.33	41.3.3.3	42.3.4.4

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.4.1	54.2.2.29	52.4.12.9	53.2.3.6	49.3.3.8	62.1.1.4	61.1.1.4

New and Enhanced Features

- **Added support for Roam Delta** – Modified roaming algorithm to include support for the roam delta configuration parameter. The firmware roam candidate selection algorithm previously ignored this parameter. (12314, 12315)

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- **Added support for configurable probe count** – Added support to configure the number of probe requests sent per channel during a scan. The number of probe requests is configured with the following optional registry entry. (12394)

```
[HKEY_LOCAL_MACHINE\Comm\SD45N1\Parms]
"ProbeCount"=x  ; Possible values 1-5, default is 1
```

Resolved Issues

The following issues have been resolved in this release:

- **Slow connection on security upgrade** – Fixed an issue that could cause a long initial connect time under some circumstances if the profile was configured for WPA/WPA2 TKIP/AES but the AP supported a better key management/encryption combination. (12282)
- **Unnecessary NULL SSID probe requests** – Fixed an issue that caused NULL SSID broadcast probe requests to be sent in addition to probe requests with the desired SSID. (12393)
- **Poor roaming on DFS channels when SSID is not broadcast** – Fixed an issue that impaired roaming on DFS channels in some cases if the infrastructure was not broadcasting the SSID. (12420)
- **Ping incorrectly shows success in Managed LCM** – Fixed an issue in the managed LCM that caused the Ping diagnostic test to sometimes incorrectly show success when pinging an IP address that did not exist. (12400)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only, the radio attempts to connect to an AP that is set to non-G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three-wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

SOFTWARE VERSION 23.3.5.11

Released November 2017

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina
3.5.3.9	37.3.5.9	40.3.10.19	48.3.2.33	41.3.3.3	42.3.4.4

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.4.1	54.2.2.29	52.4.12.9	53.2.3.6	49.3.3.8	62.1.1.4	61.1.1.4

Resolved Issues

The following issues have been resolved in this release:

- **KRACK vulnerability** – Fixed WPA2 KRACK vulnerability (12108)
- **Managed LCM stability updates** – Fixed several stability issues. (11981, 12188)
- **Managed LCM WEP key limited** – Fixed an issue that limited the character set available when configuring a passphrase-based WEP key. (11996)

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- **Managed LCM Chinese localization** – Fixed several strings that were not localized into Chinese Simplified properly. (11693, 11694)
- **Managed LCM Ping Start button not enabled** – Fixed an issue that prevented the Ping Start/Stop button from being enabled in some non-English configurations. (11697)
- **WEC2013 Information Broker load failure** – Fixed an issue that prevented the Information Broker debug engine from loading correctly in WEC2013. (11976)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only, the radio attempts to connect to an AP that is set to non-G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

SOFTWARE VERSION 23.3.5.9

Released October 2017

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina
3.5.3.9	37.3.5.9	40.3.10.9	48.3.2.33	41.3.3.3	42.3.4.4

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.4.1	54.2.2.29	52.4.12.9	53.2.3.6	49.3.3.5	62.1.1.3	61.1.1.3

Resolved Issues

The following issues have been resolved in this release:

- **Transmission failure and firmware hang** – Fixed an issue that could cause transmission to stop followed by a firmware hang when CCX RM features are enabled on the infrastructure controller. (11929)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only, the radio attempts to connect to an AP that is set to non-G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.5.8

Released September 2017

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina
3.5.3.9	37.3.5.8	40.3.10.9	48.3.2.33	41.3.3.3	42.3.4.4

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.4.1	54.2.2.29	52.4.12.9	53.2.3.6	49.3.3.5	62.1.1.3	61.1.1.3

Resolved Issues

The following issues have been resolved in this release:

- **China channel set update** – Added support for UNII-1 and UNII-2 channels in China (11779)
- **Singapore channel set update** – Added support for UNII-2 extended channels in Singapore (7982)
- **Failure to connect to best AP available** – Fixed an issue that caused the firmware to connect to the first AP found above the roam threshold at initial connect request instead of connect to the best AP available. (11509)
- **Regulatory test mode –** Fixed an issue that could cause incorrect TX power levels to be used in some channel/rate combinations in the 5G band while in regulatory test mode. This issue does not affect normal operation. (11843)
- **Parameter change does not take immediate effect –** Fixed an issue that caused some global and profile parameter changes to take effect only after other parameters were changed or a driver restart occurred. (11801, 11846)

Known Issues

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- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)
- **Firmware hang** – The SD45 firmware will occasionally hang on some infrastructures. The root cause is unknown, but appears to be related to the AP going off-channel to scan at the same time the SD45 radio is trying to transmit a management packet. Usually the radio driver can recover on its own, but sometimes the recovery attempt fails. The host controller driver must reset the radio and reload the client driver if the client driver signals a radio hang event. (11158)

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SOFTWARE VERSION 23.3.5.7

Released July 2017

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina
3.5.3.9	37.3.5.7	40.3.10.9	48.3.2.33	41.3.3.3	42.3.4.4

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	Irdibs	Irdiblogger
44.3.4.1	54.2.2.29	52.4.12.9	53.2.3.6	49.3.3.5	62.1.1.3	61.1.1.3

New and Enhanced Features

- **Multi-language support in managed LCM** – Added support for localized strings in the managed LCM for Japanese, Korean, Simplified Chinese and French. All managed dlls must be included in the image in their respective subdirectories to utilize this feature. This option can be selected from the Platform Builder catalog. Please see the *.bib and *.dat files for integration requirements if not using the Platform Builder catalog to integrate Laird software.
- **Supplicant upgraded** – The Laird supplicant has been rebased to WPA supplicant v2.6.
- **Improved logging performance** – Improved the performance of the diagnostic logging engine in the Information Broker, further reducing CPU overhead incurred when logging is enabled.
- **Bluetooth support in managed LCM** – Added Bluetooth device management support to the managed LCM when using the Laird Bluetooth stack and separate BT830 Bluetooth radio. This brings the managed LCM to feature parity with the older native LCM. The managed LCM (LCMDN.exe) is recommended as the radio management tool over the older native LCM for all devices.
- **Radio hang recovery** – Added support for host controller drivers to detect radio hang and reset the radio if necessary. The driver will signal an autoreset event named "LAIRD/RadioHang" if the host needs to reset the radio due to an unrecoverable firmware hang. The host controller driver can initiate an artificial card eject to cause the bus driver to unload the client driver, then reset the radio hardware, then initiate an artificial card insertion to cause the bus driver to re-load the client driver.

Resolved Issues

The following issues have been resolved in this release:

- **Imported profile does not connect** – Fixed an issue that sometimes prevented the LCM from importing a profile correctly. (8871)
- **Buffer overflow with potential data corruption** – Fixed several issues with the Laird Bluetooth stack implementation that caused buffer overflows and potential data corruption. This is only relevant when using the separate BT830 radio in conjunction with this release. (10760)
- **LCM user interface issues** – Fixed several user interface issues. (8563)
- **LCM stability updates** – Fixed several stability issues in the LCM profiles dialog. (10576, 11435, 11529)
- **Managed LCM stability updates** – Fixed several stability issues in the managed LCM. (10295, 10425, 10351, 9590, 8938, 8820, 8819, 8804)
- **Managed LCM UI issues** – Fixed several issues with the managed LCM user interface. (10917, 10664, 10601, 10600, 9016, 9011, 8941, 8926, 8814)
- **Managed LCM performance** – Fixed several performance issues in the managed LCM. (10821, 10517, 8934)

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- **Certificate load failure** – Fixed an issue that prevented the supplicant from finding a certificate in the store until a reboot occurred if the certificate was loaded while the supplicant was running. (11037)
- **Bluetooth initialization procedure improved** – Modified the Bluetooth initialization procedure to unconditionally occur at device boot, instead of waiting on the Bluetooth stack to be enabled (relevant only when using the separate BT830 radio with this release). By default, the BT830 radio is not re-initialized at resume. However, if the radio is reset or powered down during suspend the initialization procedure needs to occur again. This can be enabled by setting the following registry key:

  [HKEY_LOCAL_MACHINE\Software\Summit\BT] registry key:

  PatchOnResume = 1

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)
- **Firmware hang** – The SD45 firmware will occasionally hang on some infrastructures. The root cause is unknown, but appears to be related to the AP going off-channel to scan at the same time the SD45 radio is trying to transmit a management packet. Usually the radio driver can recover on its own, but sometimes the recovery attempt fails. The host controller driver must reset the radio and reload the client driver if the client driver signals a radio hang event. (11158)

SOFTWARE VERSION 23.3.3.22

Released December 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.3.8	37.3.3.122	40.3.4.9	48.3.1.22	41.3.3.1	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.25	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.30

Resolved Issues

The following issues have been resolved in this release:

- **Unable to change networks after creating an adhoc cell** – Fixed an issue that prevented the supplicant from changing the desired network once an adhoc cell was created. This issue only occurred if an adhoc cell was created, it did not occur if the radio joined an existing adhoc cell. (9786)
- **Adhoc connection failures –** Fixed several adhoc connection issues including failure to detect peers joining and leaving an adhoc cell and failure to transmit WEP encrypted unicast packets. (8186, 8187, 10314)
- **Open SSID connect request does not differentiate between network types** – Fixed an issue that could cause the radio to attempt to connect to a network using the wrong network type (adhoc versus infrastructure). This issue would only

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occur if the supplicant requested the radio to connect to any open SSID and the strongest open network available was of the opposite network type. (10260)

- **Driver connects to wrong network after profile change** – Fixed an issue that could cause the driver to remain connected to the previous network after a profile change on rare occasions. (10287)
- **GetWEPKey does not indicate txKey** – Fixed an issue that prevented the GetWEPKey() API from returning the correct transmit key. (9764)
- **EAP-TLS fails if TLSv1.2 is used** – Fixed an issue that caused authentication to fail if TLS version 1.2 is used. This issue only occurred if the authentication server supported TLSv1.2. (9262, 10372)
- **Connection drop when broadcast key rotation packet received** – Fixed an issue that caused the connection to drop if the AP transmitted an incorrectly formatted broadcast key rotation packet. (9475)
- **EAP-TTLS with inner method CHAP/MSCHAP fails with TLS version 1.2** – Worked around an issue on some versions of the FreeRadius authentication server that caused authentication to fail when using EAP-TTLS with inner method CHAP/MSCHAP and TLSv1.2. (9554)
- **TLS middle certificate validation fails** – Fixed an issue that caused TLS middle certificate validation to fail in some cases. (9598)
- **Username incorrectly masked** – Fixed an issue that caused the LCM to incorrectly mask the username. (10265)
- **Customized font size not applied to all LCM dialogs** – Fixed an issue that prevented a customized font size from being applied to all LCM dialogs. (10402)
- **Log file fills with repeated content** – Fixed an issue that caused the log file to fill up with unnecessary repeated content if the logging level was changed during operation. (10289)
- **Transmit Power Control limited to a single adjustment** – Fixed an issue that prevented the radio from accepting more than one Transmit Power Control adjustment via 802.11h. (7147, 10312)

Known Issues

The following are known issues with this release:

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- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.3.18

Released August 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.117	40.3.2.9	48.3.1.19	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

Resolved Issues

The following issues have been resolved in this release:

- **Asterisks not allowed in PSK passphrase** – Fixed an issue that prevented asterisks from being used in a PSK passphrase in the LCM. (9713)
- **LCM status tab incorrectly shows Connected** (9714) – Fixed an issue in the LCM that caused the status tab to display the radio as Connected when an incorrect PSK passphrase was used. (9714)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported . (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)
- **WEP encrypted adhoc connections are not functional –** Adhoc connections encrypted with WEP are not functional. (10314)

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SOFTWARE VERSION 23.3.3.16

Released July 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.117	40.3.2.9	48.3.1.17	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

Resolved Issues

The following issues have been resolved in this release:

- **LCM Ping Payload list truncated** – Fixed an issue that caused the Ping Payload list to be truncated on devices with QVGA screens. (9562)
- **LCM dialog rendered incorrectly with vertical scrolling** – Fixed an issue that caused some LCM dialogs to be rendered incorrectly when using the vertical scroll bar on some Windows Mobile devices. This is an update to the fix that was originally implemented in the previous release. (9275)
- **LCM not centered when launched** – Fixed an issue that caused the LCM to load into the upper left hand corner of the screen on some devices instead of being centered as it was in earlier releases. (9610)

Known Issues

The following are known issues with this release:

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- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.3.14

Released June 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.117	40.3.2.9	48.3.1.15	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

Resolved Issues

The following issues have been resolved in this release:

- **Multiple AntennaAdjust reduction** – Fixed an issue that caused an additional AntennaAdjust power reduction to be applied on every resume, resulting in lower than intended TX power and eventually a firmware assert. This issue was only relevant on platforms that implemented an AntennaAdjust attenuation, and only on platforms that did not cause the driver to unload and reload at suspend/resume. (9466)
- **LCM UI Issues** – Fixed several minor LCM UI issues. (9275, 9276, 9277)
- **LCM may not show updated Country Code** – Fixed an issue that could prevent the LCM from showing the currently adopted country code under some conditions. (9417)

Known Issues

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- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported. (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.3.12

Released May 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.113	40.3.2.9	48.3.1.14	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

Resolved Issues

The following issues have been resolved in this release:

- **TX power limits updated** – Updated TX power limits for some frequencies and rates to ensure regulatory compliance. (9181)
- **Channel 1 missing from host initiated scan** – Fixed an issue that caused channel 1 scan results to be lost when a host initiated scan was performed. (9188)
- **Disconnect on receipt of a country code** – Fixed an issue that could cause the radio to repeatedly disconnect if a new country code was detected and adopted after connecting to an AP. (9240)
- **CAM powerSave setting does not persist across suspend** – Fixed an issue that prevented the driver from configuring the powerSave setting to CAM after a suspend/resume on some platforms. (9327)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.3.9

March 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.109	40.3.2.9	48.3.1.14	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

Resolved Issues

The following issues have been resolved in this release:

- **Memory leak** – Fixed a memory leak that occurred on platforms that do not issue card eject and insert notifications at suspend/resume. (9061)
- **Channel set not updated when switching profiles** – Fixed an issue that prevented the valid channel set from updating when switching from a profile with a limited channel set to a profile that had no channel restrictions. This issue only occurred when DFS channels were enabled. (9071)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported. (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.3.8

February 2016

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.107	40.3.2.9	48.3.1.14	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

Resolved Issues

The following issues have been resolved in this release:

- **LCM UI** – Fixed a UI issue that could cause the radio state to incorrectly appear as Initializing when it was actually disabled. (8809)
- **Low memory** – Added a driver work around for a low memory issue that could occur on some platforms due to memory allocation patterns in the operating system networking stack across numerous suspend/resume cycles. (8579)
- **Failure to disable radio** – Fixed an issue that allowed the radio to maintain connection to an access point even though the radio was disabled in the LCM UI or via a call to the RadioDisable() API. (8821)
- **KCC regulatory domain channel set** – Fixed an issue that allowed the radio to incorrectly connect on channels 128-140 in the KCC (Korea) regulatory domain. (8610)
- **WindowsMobile WiFi applications** – Fixed an issue that prevented an OEM from disabling the WindowsMobile WiFi application set with the [HKLM\System\
State\Hardware\Wifi] registry key. (8816)

Known Issues

The following are known issues with this release:

- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported. (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 23.3.3.5

December 2015

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.2.6	37.3.3.102	40.3.2.9	48.3.1.12	41.3.3.0	42.3.4.1	65.0.2.7

scutray	sdc_bttray	sdc_bt	sdc_btss	LCMDN	lrdibs	lrdiblogger
44.3.3.3	54.2.2.23	52.4.10.24	53.2.3.2	49.3.1.8	62.0.0.10	61.0.0.29

New and Enhanced Features

- **Support for new FCC requirements** – This release implements changes needed to comply with new FCC requirements as follows:
  - Improve device security by validating firmware and configuration files
  - Uses multiple access points as supplemental information to validate country codes received as part of 802.11d
- **WEC2013** – Added support for WEC2013
- **Enhanced Logging** – Redesigned the debug logging mechanism to unify debug output from all components into one log file using a new Information Broker component. This change improves performance while logging is enabled by moving the logging overhead out of the driver.
- **Managed LCM** – Added a new Laird Configuration Utility written in managed code with an overhauled UI. The new managed LCM has the same feature set as the previous LCM with the exception of Bluetooth.
- **Antenna Adjust –** Added support for Antenna Adjust using the Laird Manufacturing Utility, allowing the transmit power to be reduced at manufacturing if required due to high gain antennas.
- **Show country code when in WW regulatory domain** – SCU and LCM now show the 802.11d country code in effect (if any) when the World Wide regulatory domain is used.
- **Supplicant upgraded** – The Laird supplicant has been rebased to WPA supplicant v2.4

Note: The version numbering scheme has changed with this release. The primary change is to the first set of digits. In most cases, the first set of digits is now a unique component identifier.

Resolved Issues

The following issues have been resolved in this release:

- **LCM UI issues** – Fixed several minor UI issues in the LCM (5687, 7204, 7246, 8572, 8488)
- **EAP timeout improvement** – Fixed an issue that caused an authentication retry to delay longer than necessary when an EAP failure occurred. (7438)
- **Data abort on ARP packet** – Added a work around to avoid a data abort in the Microsoft TCPIP module that sometimes occurred when receiving a gratuitous ARP packet that was broadcast from host platform. (8295)
- **Regulatory test mode does not limit target power** – Fixed an issue that prevented the test mode firmware from limiting TX power. TX power in regulatory test mode is now limited in the same way that the TX power is limited in the normal firmware. (8024)
- **User channel list reset** – Fixed an issue that caused the user configured channel list to be reset. (5977, 5988, 7034)
- **CCX RM request with unsupported channel** – Fixed a hang that could occur if a CCX RM request was received for an unsupported channel. (7542)

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- **Failure to pick best AP on initial connect –** Fixed an issue that sometimes caused the SD45 to connect to a weak AP on the initial connect scan even though a stronger AP was available. (7527)
- **Support channels 100-140 in TELEC regulatory domain** – Added support for channels 100-140 in the TELEC regulatory domain. (7796)
- **Support channels 100-124 in the KCC regulatory domain** – Added support for channels 100-124 in the KCC regulatory domain. (7797)
- **Unable to connect after adapter disable/enable** – Fixed an issue that prevented the radio from connecting after the network adapter was disabled and re-enabled. This issue could appear on some operating systems when using ActiveSync configured to block the data connection or at suspend/resume. (8564, 8566, 8571, 8574)
- **Connect issues when changing profiles –** Fixed several issues that could cause a failure to connect or delay the connect when changing profiles. (8421, 8512)
- **LCM support for 64 character hex PSK -** Fixed an issue that prevented the use of a 64 character hex PSK. (8238)
- **PMKID optimization –** Fixed several issues with PMKID handling to improve fast roam performance and fully utilize the PMKID cache. (8383)
- **BT830 radio initialization –** Fixed several issues with the BT830 initialization sequence that could prevent it from completing successfully, thus preventing the BT830 radio from functioning. (8608).

Known Issues

The following are known issues with this release:

- **Driver load failure at warm reset –** The driver may fail to load after a warm reset in some platform configurations. The driver loads successfully after a suspend/resume. This is still under investigation but thought to be related to failure to reset the SD slot as part of platform initialization. (5961)
- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported. (6153)
- **Failure to detect when all devices have left adhoc cell –** The driver does not detect when all other devices have left an adhoc cell. It continues to indicate that it is connected and reports the last signal strength it received. (8187)
- **Failure to detect adhoc connection –** The driver does not detect when another device joins an adhoc cell that it creates as master. The driver does detect when it joins an already existing adhoc cell. (8186)
- **Bluetooth three wire coexistence is not supported –** The SD45 does not support three wire coexistence. Bluetooth coexistence is limited to Adaptive Frequency Hopping (AFH) implemented in the Bluetooth radio. (6717, 6846)

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SOFTWARE VERSION 3.5.2.18

September 2015

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.0.19	3.5.2.31	3.5.24.0	4.3.48.250	3.5.0.3	3.5.2.0	1.0.2.2

scutray	sdc_bttray	sdc_bt	sdc_btss	sdc_wmpcontrol	sdcApplet	btwrlmgr
3.5.1.8	1.2.2.21	3.4.10.18	4.2.2.8	1.0.0.1	3.5.1.3	1.0.0.3

Resolved Issues

The following issues have been resolved in this release:

- **Scutray popup –** Fixed an issue that caused an unwanted popup message to occur. (7704)
- **LCM layout –** Fixed an LCM UI artifact that affected some large screen devices. (7559)
- **LCM doesn't save SSID in profile –** Fixed an issue that prevented the SSID from being saved if another parameter is unconfigured and then corrected during profile creation. (7157)
- **LCM scan button missing –** Fixed an issue that caused the Scan button to disappear from the Configuration screen under some conditions on WM65 devices. (8098)
- **LCM incorrectly allowed WPA2 TKIP network to be configured from Scan results –** Fixed an issue that allowed WPA2 TKIP networks to be configured if the user double clicked that network entry in the scan results dialog. WPA2 TKIP networks are not permitted as part of the Wi-Fi Alliance certification, and this behavior has been removed. (8102)
- **LCM password and network key obfuscation –** Fixed several issues to make password and network key obfuscation behavior consistent. Dialogs used to create network keys or the Admin password now show the password as it is typed. Dialogs used to log in with previously created passwords or network keys will obfuscate the password. (8122, 8133)
- **Driver fails to reconnect on resume –** Fixed an issue that prevented some devices from reconnecting after resume. (8029)
- **Regulatory compliance in Korea –** Modified power settings to address band edge compliance issues in Korea. (8159)
- **Data abort while configuring BT830 –** Fixed an issue that caused a data abort while configuring the BT830 radio on some platforms. (7963)

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Software Version 3.5.2.17

July 2015

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.0.19	3.5.2.26	3.5.24.0	4.3.48.248	3.5.0.3	3.5.2.0	1.0.1.0

scutray	sdc_bttray	sdc_bt	sdc_btss	sdc_wmpcontrol	sdcApplet	btwrlmgr
3.5.1.5	1.2.2.21	3.4.10.18	4.2.2.8	1.0.0.1	3.5.1.3	1.0.0.3

Resolved Issues

The following issues have been resolved in this release:

- **Radio may not generate interrupt without SDCLK –** Fixed an issue that could prevent the radio from generating an interrupt if the SDIO host clock was not active. (7878)

Software Version 3.5.2.16

April 2015

Content

SDK	sd45n	Supplicant	LCM	sdcgina	sdc_gina	lrdbtc
3.5.0.19	3.5.2.25	3.5.24.0	4.3.48.248	3.5.0.3	3.5.2.0	1.0.1.0

scutray	sdc_bttray	sdc_bt	sdc_btss	sdc_wmpcontrol	sdcApplet	btwrlmgr
3.5.1.5	1.2.2.21	3.4.10.18	4.2.2.8	1.0.0.1	3.5.1.3	1.0.0.3

New and Enhanced Features

The following are new or enhanced features in this release:

- **WEC7 ARMv5** – WEC7 ARM binaries are now built targeting ARMv5 instead of ARMv7, ensuring compatibility with all supported ARM processor types in WEC7
- **LRU Support** – Added support for the Laird Regulatory Utility (5829)

Resolved Issues

The following issues have been resolved in this release:

- **Driver will only connect to WPA when WPA/WPA2 is configured –** Fixed an issue that prevented the radio from connecting to a WPA2 AP when a WPA/WPA2 profile was configured. With this release, the radio will connect to the best available encryption/key management combination advertised by the AP. (5450)
- **LCM may not display properly on x86 platforms –** Fixed an issue that prevented the LCM from operating correctly on some X86 platforms (5902)
- **CCKM Fast Roam failure –** Fixed an issue that resulted in a full disconnect/reconnect sequence on every roam, which caused CCKM fast roam to fail. (6327)

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- **SDC Bluetooth data abort –** Fixed an issue which resulted in a data abort while rendering debug output if a Bluetooth API call failed (6565)
- **Sdc_bt fails to load on Windows Mobile 6.5 platforms –** Fixed an issue that prevented sdc_bt.dll from loading on WM6.5 platforms. This issue affected only WM6.5. (6576)
- **Sdc_bt data abort –** Fixed an issue that that caused sdc_bt.dll to generate a data abort when loaded in a Windows Embedded Compact 7 debug image. (6309)
- **Laird BT stack failure in WEC7 –** The Laird Bluetooth stack may fail on a WEC7 platform. (6379)
- **BT830 coexistence configuration –** Fixed an issue in the BT830 configuration file to enable BT coexistence signals on the correct pins. (6394)
- **Platform Builder Integration –** Fixed an issue that prevented the Laird Bluetooth stack components from being properly integrated into the OS image when using the Catalog Item Distribution.
- **LCM profile isn't activated properly after an import** – An import all will now successfully activate the proper profile. (6523)
- **Laird Bluetooth Stack may fail to work correctly when CID integration is used** – Relocated the SS1 components to the FILES section so they can be loaded in either USER or KERNEL space. (6788)
- **BT830 configuration incorrect when CID integration is used –** Updated the BT830 registry settings to correctly configure the BT830 radio. (6778)
- **Improve roaming performance –** Updated firmware to improve roaming performance. This change uses only the roamTrigger to configure the roaming threshold; roamDelta is unused. (6904)
- **TX power set incorrectly with 802.11h –** Updated firmware to fix numerous issues with 802.11d/802.1h implementation that resulted in the Transmit power level set too low when an 802.11h power constraint element was broadcast by the AP. (6904, 4996)
- **Blank section on LCM UI** – Fixed an issue that caused a blank section to temporarily appear on the UI after selecting or managing a profile. (6876, 6877)
- **Inconsistent LCM layout** – Fixed an issue that caused an inconsistent LCM screen layout in some cases (6396)
- **Bluetooth SDK and API version truncated on QVGA screens** – Fixed an issue in LCM that caused the Bluetooth SDK and API version numbers to be truncated on QVGA screens. (6826)
- **AP blacklisted after session timeout** – Fixed an issue that caused the client to blacklist an AP for a period of time when a session timeout or manual disconnect occurred. (7206)
- **Frequent disconnect in edge of coverage scenarios** – Fixed an issue that caused unnecessary disconnect/connect indications in edge of coverage scenarios. (7244)
- **Radio connects to Open networks by default –** Fixed an issue that caused the radio to connect to Open networks by default even though the network SSID was not configured in the profile. (6276)
- **Radio attempts to connect to very weak APs -** Updated firmware to fix an issue that caused the radio to incorrectly treat a roam candidate with extremely low RSSI (below -96dbm) as if it had a strong signal. This would result in a roam attempt away from the current AP to a very bad AP. (7359)
- **LCM failure when scanning for Bluetooth services –** Fixed an issue that caused an LCM crash on WEC7 devices when scanning for services supported by a connected Bluetooth device. (6995)
- **BT830 performance is inconsistent –** Updated to the latest CSR ROM patch to address several BT830 performance issues. (6704, 6783)

Known Issues

The following are known issues with this release:

- **Driver load failure at warm reset –** The driver may fail to load after a warm reset in some platform configurations. The driver loads successfully after a suspend/resume. This is still under investigation but thought to be related to failure to reset the SD slot as part of platform initialization. (5961)

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- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **Driver will scan and connect on disabled A channels when A Only rates are selected –** The driver will scan and connect on disabled A channels if Radio Mode is set to A Rates Only. (5988)
- **G rates only failure –** When the profile is set to G-rates only the radio will attempt to connect to an AP that is set to non G basic rates. (5962)
- **Signal quality indication not supported –** The signal quality measurement is currently not supported (6153)

PREVIOUS RELEASE - VERSION 3.5.1.6

August 2014

Package

The release package consists of:

- MSD45N NDIS5 Device Driver 3.5.1.6
- Laird Connection Manager 4.3.43.209
- Laird 802.1X Supplicant 3.5.22.0
- Laird SDK 3.5.0.6

New Features

The following are the primary features of the 3.5.1.6 build.

1.1.1.1 Operating System Support

- Windows CE 5
- Windows CE 6
- Windows Embedded Compact 7
- Windows Mobile 6.5

1.1.1.2 Security

- WPA/WPA2 Personal/Enterprise
- 802.1X with EAP-TLS, PEAP-TLS, PEAP-GTC, PEAP-MSCHAPv2, EAP-TTLS, EAP-FAST, LEAP
- AES-CCMP

1.1.1.3 Regulatory Domain Support

- WW
- ETSI
- FCC
- MIC (TELEC)
- IEEE 802.11d

1.1.1.4 Laird Configuration Manager

- Configurable profiles
  - SSID
  - Power Save Mode
  - Radio Mode
  - Roaming Parameters
  - Security Settings
- Diagnostic Utilities

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Known Issues

The following are known issues with the 3.5.1.6 release:

- **Driver load failure at warm reset –** The driver may fail to load after a warm reset in some platform configurations. The driver loads successfully after a suspend/resume. This is still under investigation but thought to be related to failure to reset the SD slot as part of platform initialization. (5961)
- **Driver will only connect to WPA when WPA/WPA2 is configured –** The driver will only attempt to APs that advertise WPA if the profile indicates WPA/WPA2. In order to connect to a WPA2 AP, the profile must be explicitly configured for WPA2 (5450)
- **LCM may not display properly on x86 platforms –** The LCM may not display properly on some X86 platforms (5902)
- **SRU is not supported –** The SRU tool is not supported in this release (5829)
- **CCX cannot be disabled –** The driver always sends the CCX IE in an association request regardless of the CCX setting in the profile. (6028)
- **Driver will scan and connect on disabled A channels when A Only rates are selected –** The driver will scan and connect on disabled A channels if Radio Mode is set to A Rates Only. (5988)

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