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## WICED Studio Release Notes

**Release Versions: Wiced\_006.004.000.00xx**

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# 1 Overview

## 1.1 Scope

This document lists the new features, bug fixes and known limitations of WICED Studio 6.4 SDK software release.

## 1.2 Introduction

WICED Studio 6.4 is the SDK for the Internet of Things (IoT) that combines Wi-Fi and Bluetooth into a single integrated development environment.

In addition to providing WICED APIs and an application framework designed to abstract complexity, WICED Studio 6.4 also leverages many common industry standards.

Benefits/Features:

1. Runs on Windows®, Mac® OS X®, and Linux® through Eclipse®-based integrated development environment (IDE)
2. Single installer package with support for:
  - Wi-Fi + Bluetooth combo solution
  - Wi-Fi solutions
  - Bluetooth (Basic Rate, Enhanced Data Rate and Bluetooth Low Energy)
- Sample applications for many popular use cases like
  - Connecting to cloud services
  - Audio-over-Bluetooth/Wi-Fi
  - Low-power BLE-based sensors and beacons
  - Smart home gateways
- Code snippets to understand WICED APIs
- Applications for manufacturing and certification

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## 2 New Features

The new features in WICED Studio 6.4 are documented below.

### 2.1 Documentation

1. Release Notes (this document)
2. Updated the readme.txt in the install folder: \${INSTALLDIR}\readme.txt

### 2.2 New Chip/Platform Support

1. CYW943455EVB-02
2. CYW943012EVB-04
3. NEB1DX-02

### 2.3 Features

#### 2.3.1 Applications

- Audio re-distribution stability improvements (43907)
- Audio client improvements for ID3 tag parsing (AVS)
- Add OTA2 support for BCM94303PS with XIP
- Add Apollo 'Radio' Mode that uses monitor mode without associating for unlimited number of sinks.
- Sample lightbulb application to use HomeKit ADK
- Add scan\_prohibited\_channel to snippet app

#### 2.3.2 Libraries, Protocols, Drivers

- WPA3-Personal Support (43438, 4343w, 43907)
- Security fixes for short option length in IP header
- BLE MESH Stack update to the latest specification (1.01)
- Ali Cloud update for WICED (all)
- HomeKit ADK porting to WICED Studio - Wi-Fi & Bluetooth (43907, 4343w (WCD2), 20719)
  - Apple adjunct review ready HomeKit ADK support on CYW943907AEVAL1F and BCM94343WWCD2 platforms
  - HomeKit ADK application with BCT & OTA2 support
- BT Designer enhancements in WICED Studio 6.4 (20706, 20719, 20735, 43012)
- SuperMux enhancements in WICED Studio 6.4 (20719, 20735)
- WICED Power Logger app (CYW920719Q40EVB-01, CYW943907AEVAL1F, CYW9MCU7X9N364 (IWA)) has been updated and renamed to Cypress Power Estimator (CyPE)
- Updated Cirrent libraries including Cirrent Agent PSoC6 fix
- ITTIA MicroSQL Embedded DB server
- Add new NEB1DX-02 platform for v2 Nebula board
- Support for Low power for PSoC6 platform

- Support for Arrow Connect, RGB LED and Sensor drivers
- Coverity and other security fixes to BESL/mbedtls library
- Added Heap memory usage to command console utility
- Fixes to enterprise security for improved interoperability with IAS and FreeRADIUS servers
- Gedday:
  - Improved Gedday for BCT v1.5 compliance
  - Configured mDNS resource record TTL values as per RFC6762.
  - Added Coverity fixes
- HomeKit:
  - Introduced SRP Verifier and Salt based fixed setup code pairing
  - Re-introduced support for pairing using raw fixed setup code (for backward compatibility towards HomeKit devices which are already in the field)
  - Improved error checks in APIs
  - Introduced generic event to notify application when all the controller pairings with the accessory gets removed
  - HomeKit library implementation is upgraded to R13 version of HAP spec.
  - Added Coverity fixes
  - General library improvements to prevent potential dead-locks
  - Added support in the library to use Software Auth along with WAC2 (Secure WAC)
  - Added fixes in the library to pass all self-certification test cases as per the latest test spec
  - Added support for MFi auth chip v3.0

#### AWS Library

1. Refine application logic for AWS IoT Pub/Sub applications

#### [4390x] Security Library

1. processing AES and DES encryption/decryption with bigger chunks using HWCrypto
2. Using MBED TLS Entropy with our own entropy collector

#### Coexistence Support

1. RF Improvements for 43907 platforms

#### HomeKit Software authentication MFi

1. Updated Factory reset failure handling
2. HomeKit ADK: Support migration from native HomeKit to ADK based HomeKit
3. Homekit fixes and updates from verification and certification testing
4. Added support for MFi auth chip v3.0

##### NOTE:

- (1) MFi 3.0 chip I2C address is different from MFi 2.0C in certain WICED platforms. MFi 3.0 I2C address should be set to 0x10 in "auth\_chip\_i2c\_device" structure which is defined in platform.c
- (2) Classic WAC is not supported with MFi 3.0. Hence, use WAC2 (instead of Classic WAC) for device onboarding, if the device/platform is configured with MFi 3.0 chip

#### 2.3.3 Infrastructure

1. audio\_client: optimize ID3 tag data filtering
2. wwd gSPI fixes for performance

## 3 API Changes (43xx Wi-Fi)

### 3.1 Modified APIs

- General Rename WPL to Cypress Power Estimator ( CyPE )
- WPL renaming to CyPE

Add a new Mac Address if bringing up the SoftAP interface which is different from STA Interface.

```
wwd_result_t wwd_wifi_set_mac_address( wiced_mac_t mac, wwd_interface_t interface )
```

- Add fields to pass arguments to link up/down callbacks

```
wiced_result_t
```

```
wiced_network_register_link_callback( wiced_network_link_callback_t link_up_callback,
                                     void *link_up_user_data,
                                     wiced_network_link_callback_t
                                     link_down_callback, void *link_down_user_data,
                                     wiced_interface_t interface )
```

### 3.2 Added APIs

- WPL Renamed to CyPE
- `sntp_start_auto_time_sync_nowait( uint32_t interval_ms );`
- `wwd_wifi_join_wait_for_complete( host_semaphore_type_t *semaphore,`  
`wwd_interface_t interface )`
- `wwd_wifi_join_wait_for_complete`

### 3.3 Deprecated APIs

HomeKit

- `wiced_configure_accessory_set_raw_setup_code(FIXED_SETUP_CODE)`

### 3.4 Deprecated platforms

- NEB1DX-01 (Please use WICED SDK 6.2.1) now replaced with NEB1DX-02
- Replace CYW9WCD2REFAD2 platform with CYW9WCD760PINSAD2

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## 4 Known Issues/Fixes

### 4.1 Installer

- Please see README\_LINUX.txt, README\_OSX.txt, or README\_WINDOWS.txt in the installer folders for important last minute installation instructions.

### 4.2 Applications

- Workaround for WICED debugger under OSX
  - When debugging a device that executes code from Internal FLASH (STM-based, PSoC based), you need to un-check "Load Image" in the debugging configuration
  - Menu "Run" -> "Debug Configurations..."
  - Select "GDB Hardware Debugging" -> Debugging for Host you are using (Windows, OSX, Linux)
  - Choose Tab "Startup"
  - Un-check "Load Image"
- Fix for AVS Sports Update fails to play on WICED 6.2 MP3 decoder
- Add OTA2 support to BCM943903PS platform (including XIP support)
- Apollo broadcast mode to support an unlimited number of clients
- snip.apsta - fix for wwd\_wifi\_set\_mac\_address asserts when bringing up a concurrent AP interface
- Major updates for Homekit & ADK
- IMCP ping for packets greater than MTU size
- Support for 4390x : SDMMC/SDIO with EXFAT/File-X
- Fixes for address resolution in ble\_wifi\_introducer application
- BIG: Disabling LE Scan through curl will fail
- BIG: Health Thermometer: GATT - Reliable write to Measurement interval characteristic fails
- 20735WCDEVAL: Application download failed for ble\_mouse/ble\_keyboard and ble\_remote
- BCM943364WCD1: snip.ota\_fr not able to upgrade from SDK 4.x to 5.2
- 20735B0: Hello\_sensor connection is not successful with Win10
- (20706 A2) Watch\_SPI: audio breaks observed with LE connection
- (20719B0): LE server application failed to connect to Nexus phones

### 4.3 Libraries, Protocols, Drivers

- Multiple Coverity fixes for DEADCODE, OVERRUN, RESOURCE\_LEAK, CHECKED\_RETURN in HomeKit, MBED-TLS, BT MESH, Gedday, DHCP, COAP and LwIP network stack
- BT Update WICED SDK with firmware for CVE-2018-5383 for 6.2.2 release
- Fix for mbedTLS Security vulnerability (CVE-2018-0487)
- HomeKit: Fixed calling homekit\_stop before homekit\_start, TCI014, TCITW003, TCITW006, TCF033, TCH062, TCS003
- Corrected the resource record TTL values as per RFC6762
- Fix issues with SECURE\_FLASH, SECURE\_BOOT for 4390x platforms
- Added STM MCU support for STM32H7 and STM32L4 series



- Fixes issues in TCP server with re-listen logic
- 4390x USB20D fixes for sending ZLP bulk transfer, fixes for CDC-ACM to receive data with length larger than wMaxPacketSize, fixes for USB device buffer chain functionality
- Gedday: Fix to support "11. Source Address Check" and "5.5. Direct Unicast Queries to Port 5353" in RFC6762 for mDNS response
- BCM4390x adjust clock drift during low power
- Fix for DNS name resolution by removal of reversing byte order
- Support for mini\_printf based debug logs with NetX\_Duo
- Fix network worked queuing for NetX/NetX\_Duo
- Stability fixes to AWS IoT library, HTTP server, Websocket, AMQP and related reference applications
- HTTPS Server: Fixed resource read issue when resource size is big

## 4.4 Infrastructure

- Add Ittia DB SQL to WICED\_Pro installer
- Cirrent included in WICED Studio by default
- switch mbedtls to use wiced\_crypto\_get\_random API to generate random number
- Fix the decryption function in aes\_cbc\_128
  - Add a reconstruction option in hmac\_sha256 to reconstruct a signed file (remove sig from each block)
  - Added self test cases with random file generation, previously unimplemented
- Fix wwd\_wifi\_is\_ready\_to\_transceive returns to the right value
- BT minidriver updates
- NetX Duo AUTO-IP: Fixed number of Auto IP announcements after successful probing
  - Updated number of announcements
- Add encrypt/decrypt function to the core for OTA upgrade
- Implement AVS supported countries API framework
- Add pbuf memory stats for FreeRTOS-LWIP
- Fix for memory leak in ping for FreeRTOS-LwIP when ping is sent out
- Fix fconnections with Tenda Nova Home Mesh WiFi System (Nova\_4266) with SDK 6.x
- Remove SCO over app support
- Fixes enterprise security with task priority on FreeRTOS
- RF Improvements for CYW954907AEVAL1F nvram update
- Inclusion of WICED 6.2.2 updated security patches
- Fixes for AP's with certain ie's are undetectable by scans in Wiced 43903
- Fix for Soft AP--no channel change announcement
- Fix for buffer overwrite issue in wiced\_tcp\_send\_buffer API
- Increased sflash\_write download buffer for PSoC6
- BCM4390x: add missing sample rates to wiced\_i2s\_pll\_set\_fractional\_divider()
- NetX-Duo lib update for WICED crash with too short option length in IP header
- Fix for when using Netx Duo BSD library, \_nxd\_get\_errno is always 0
- Updating 43012C0 patches CYW43012C0\_003.001.015.0087

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## 4.5 WiFi Firmware Updates

Fixes for CVE-2019-9501 and CVE-2019-9502 included in all firmware versions.

43012

Firmware version: 13.10.271.166

Fixes: updated counters for WL

43364/43438/4343W

Firmware version: 7.45.98.83

Fixes: Coverity, CLM updates, AMPDU updates, SDIO updates, EU Adaptivity fixes

43455

Firmware version: 7.45.189

4390x

Firmware version: 7.15.168.130

Fixes: soft AP crash in shared key authentication when system is out of memory or reaching maximum scb count. Clear Basic MCS set when reinit SoftAP.

43340

Firmware version: 6.49.29

43362

Firmware version: 9.50.230.35

## 5 Known Issues

1. [20719B1] Low\_power\_sensor: Request to review power measurement values
2. [20735B1]hello\_client: Reconnection is not successful with hello\_sensor
3. [20706 A2] Gatt\_DB: Added Secondary and Included services are not coming at client side after connection
4. [BLE MESH CONFORMANCE] (20706A2) MESH/NODE/RLY/BV-02-C failed because Command receive failed (timeout)
5. HomeKit ADK: Accessory goes to no response state in Home app after turning off WiFi for 10-15 minutes in iPhone controller
6. HomeKit ADK: TCW016: WAC2 with HAT fails with error "Failed with OSStatus code-6723"
7. [20735B1] Ble\_Mouse : Need to press RESET button 2 times to establish client control app communication with bluetooth device
8. [20735B1] android\_o\_remote : Client\_Control tabs are not enabled
9. BCM943364WCD1/BCM943362WCD4 :APPS :in AMQP, data received at wiced server from rabbit mq sender is not complete
10. CYW943455EVB-02: ota\_fr webpage is not showing the progress % properly and failed to upgrade snip.scan stripped.elf fie to the Board-FreeRTOS-LwIP
11. CYW943907AEVAL1F:APPS: snip/ ping\_powersave app is not entering to low power mode
12. [20735B1] low\_power\_sensor: Connection with CYSmart windows app failed for the first time
13. [20735B1]low\_power\_sensor: Reconnection not successful from Windows CYSMART app
14. [20719B1] Low\_power\_sensor[SDS,NO TRANS]: Connection with CYSmart desktop app fails for the first time
15. [CYW920719Q40EVB-02][Watch][Ams/Ancs]: the connection gets disconnected after two hours in stress test
16. [CYW943455EVB-02]:[Bt\_dualmode\_server][stress]: the DUT is unable to maintain Le connection
17. [CYW920719Q40EVB-01]:[env\_sensing\_temperature]: We are not observing updated temperature when we perform read operation
18. Quicksilver-EVL: Card not getting detected in COM ports for Windows/Mac and quicksilver app download error in Linux
19. [CYW943012EVB-04]: Unable to obtain Btspy logs
20. IWA: Failed to download apps onto the board on MacOS
21. [CYW943012EVB-04]:[Ubuntu 18.]: We are observing Two Ports and also unable to open serial port issue observed
22. [20719B1] Watch: A2DP Connection failed when already four(no's) LE in connected state.
23. [CYW920735Q60EVB-01]:[BLE\_MOUSE]:[Broad market]: according to the excel ble\_mouse shouldn't be supported for broad market release
24. [CYW920706WCDEVAL/CYW920719Q40EVB-01]:[hci\_ble\_hid\_host]: re connection from DUT fails with Authentication failure but works fine if from device
25. [CYW920719Q40EVB-01]:[Dual\_mode\_Keyboard]: re connection is failing from device when used BR/EDR
26. [CYW943455EVB-01]:[ble\_wifi-introducer]: Re connection fails with light blue on power cycle of dut
27. [CYW920719Q40EVB-01][Watch]:[stress]: unable to listen to any song after stress though the client control shows connected
28. CYW943455EVB\_02:CERT-11N/11AC: DUT is getting reboot after executing few test cases
29. Apollo BT: Audio is not played locally on Apollo BT source device
30. Apollo BT: AVRCP test fails

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31. Apollo BT:Audio breaks in apollo sink when router is turned off in concurrent STA connection
  32. ble\_hello\_sensor: ADV White List Broken on 43xxx WICED
  33. [BLE MESH CONFORMANCE] Unable to set required Heartbeat Countlog through client control
  34. STM32F2xx and STM32F4xx platforms Cannot enable 2 IRQ handlers for the same pin # across ports
  35. Debugging the CY8CKIT\_062 platform based projects on CY8CKIT-062-WiFi-BT out of the box through WICED Studio fails - Debugging works only after editing the Debug Configuration to match the latest ModusToolbox launch profile for CY8CKIT-062-WIFI-BT