



# MediaTek LinkIt™ SDK v4 Release Notes

Version: 4.2.0

Release date: 13 January 2017

---

© 2015 - 2017 MediaTek Inc.

This document contains information that is proprietary to MediaTek Inc. ("MediaTek") and/or its licensor(s). MediaTek cannot grant you permission for any material that is owned by third parties. You may only use or reproduce this document if you have agreed to and been granted explicit permission within the "[License Agreement](#)" that is available on MediaTek's website ("Permitted User"). If you are not a Permitted User, please cease any access or use of this document immediately. Any unauthorized use, reproduction or disclosure of this document in whole or in part is strictly prohibited. For more information, please consult your legal advisor. Specifications contained herein are subject to change without notice.

### Document Revision History

Revision	Date	Description
3.0.0	7 March 2016	Initial release for MediaTek LinkIt SDK v3.0.0.
3.1.0	31 March 2016	<ul style="list-style-type: none"> <li>Added support for LinkIt 2523 HDK.</li> <li>Added the change logs for MediaTek LinkIt SDK v3.1.0.</li> </ul>
3.2.0	2 May 2016	<ul style="list-style-type: none"> <li>New Bluetooth stack support in MediaTek LinkIt SDK v3.2.0.</li> <li>New SDK API support for Bluetooth, Wi-Fi and HAL modules.</li> <li>IAR embedded workbench IDE support for LinkIt 2523 HDK.</li> </ul>
3.3.0	30 June 2016	Added the release notes for SDK v3.3.0.
3.3.1	4 July 2016	<ul style="list-style-type: none"> <li>Update the HAL module in MT2523 API reference manual.</li> <li>Update KEIL EULA license path.</li> </ul>
3.3.2	28 July 2016	Enhanced the Wi-Fi throughput on MT76x7.
4.0.0	2 September 2016	<ul style="list-style-type: none"> <li>Added support for new Bluetooth stack on MT2523.</li> <li>Updated new features, applied bug fixes and added known issues for SDK 4.0.0.</li> </ul>
4.1.0	4 November 2016	<ul style="list-style-type: none"> <li>Added the list of documents supporting the chipset.</li> <li>Updated the features, applied bug fixes and added known issues for SDK 4.1.0.</li> </ul>
4.2.0	13 January 2017	<ul style="list-style-type: none"> <li>Added support for MT2533D.</li> <li>Added a migration guide to migrate applications from SDK v4.1.0 to SDK v4.2.0.</li> </ul>

## Table of contents

---

<b>1.</b>	<b>Introduction.....</b>	<b>1</b>
1.1.	Architecture layout of the LinkIt SDK v4.....	1
1.2.	Knowledgebase.....	2
<b>2.</b>	<b>MediaTek LinkIt™ SDK Version 4.2.0.....</b>	<b>4</b>
2.1.	Main changes.....	4
2.2.	Known issues .....	4
2.3.	Migration .....	5
<b>3.</b>	<b>MediaTek LinkIt™ SDK Version 4.1.0.....</b>	<b>9</b>
3.1.	Main changes.....	9
3.2.	Known issues .....	9
<b>4.</b>	<b>MediaTek LinkIt™ SDK Version 4.0.0.....</b>	<b>11</b>
4.1.	Main changes.....	11
4.2.	Known issues .....	11
<b>5.</b>	<b>MediaTek LinkIt™ SDK Version 3.3.2.....</b>	<b>12</b>
5.1.	Main changes.....	12
<b>6.</b>	<b>MediaTek LinkIt™ SDK Version 3.3.0.....</b>	<b>13</b>
6.1.	Main changes.....	13
6.2.	Known issues .....	13
<b>7.</b>	<b>MediaTek LinkIt™ SDK Version 3.2.0.....</b>	<b>14</b>
7.1.	Main changes.....	14
<b>8.</b>	<b>MediaTek LinkIt™ SDK Version 3.1.0.....</b>	<b>15</b>
8.1.	Main changes.....	15
8.2.	Known issues .....	15
<b>9.</b>	<b>MediaTek LinkIt™ SDK Version 3.0.0.....</b>	<b>16</b>
9.1.	Known issues .....	16

## List of figures

---

Figure 1. Architecture layout of the LinkIt SDK v4 for LinkIt 7687 HDK .....	1
Figure 2. Architecture layout of the LinkIt SDK v4 for LinkIt 2523 HDK and MT2533D evaluation board .....	2
Table 1. Documentation relevance for different chipsets .....	3
Table 2. Structures and enumerations migration for Bluetooth notification services .....	5
Table 3. Structures and enumerations migration for Bluetooth callback manager services .....	6
Table 4. Structures and enumerations migration for Bluetooth LE ANCS .....	7

## 1. Introduction

MediaTek LinkIt™ software development kit (SDK) v4 provides comprehensive software solution for LinkIt 7687 HDK and LinkIt 2523 HDK. The SDK supports hardware abstraction layers (HAL), peripheral drivers, Wi-Fi module, FreeRTOS, Lightweight IP (lwIP) and other features.

### 1.1. Architecture layout of the LinkIt SDK v4

The three-layer architecture layout of the SDK for LinkIt 7687 HDK includes Applications, Middleware and BSP, as shown in Figure 1.

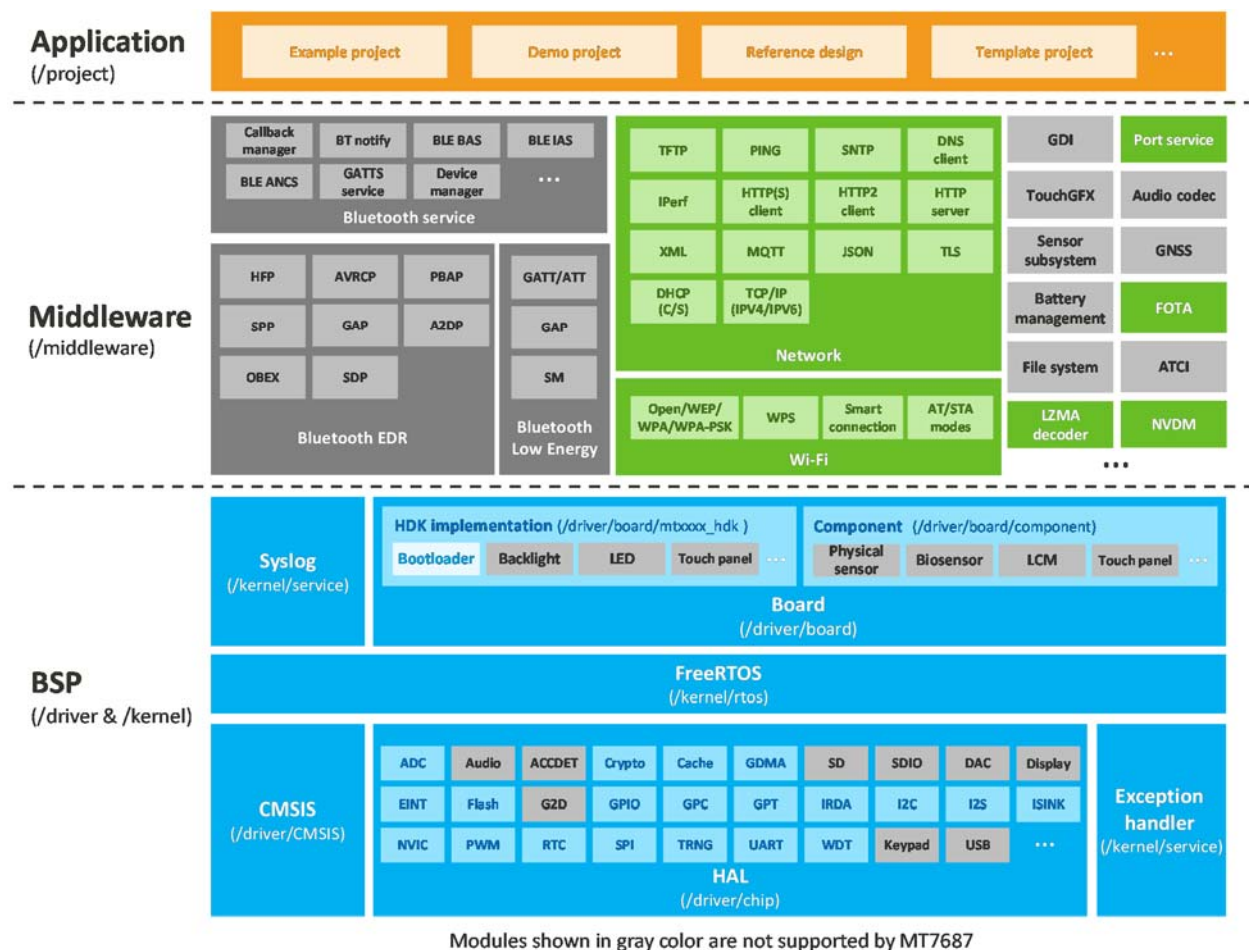
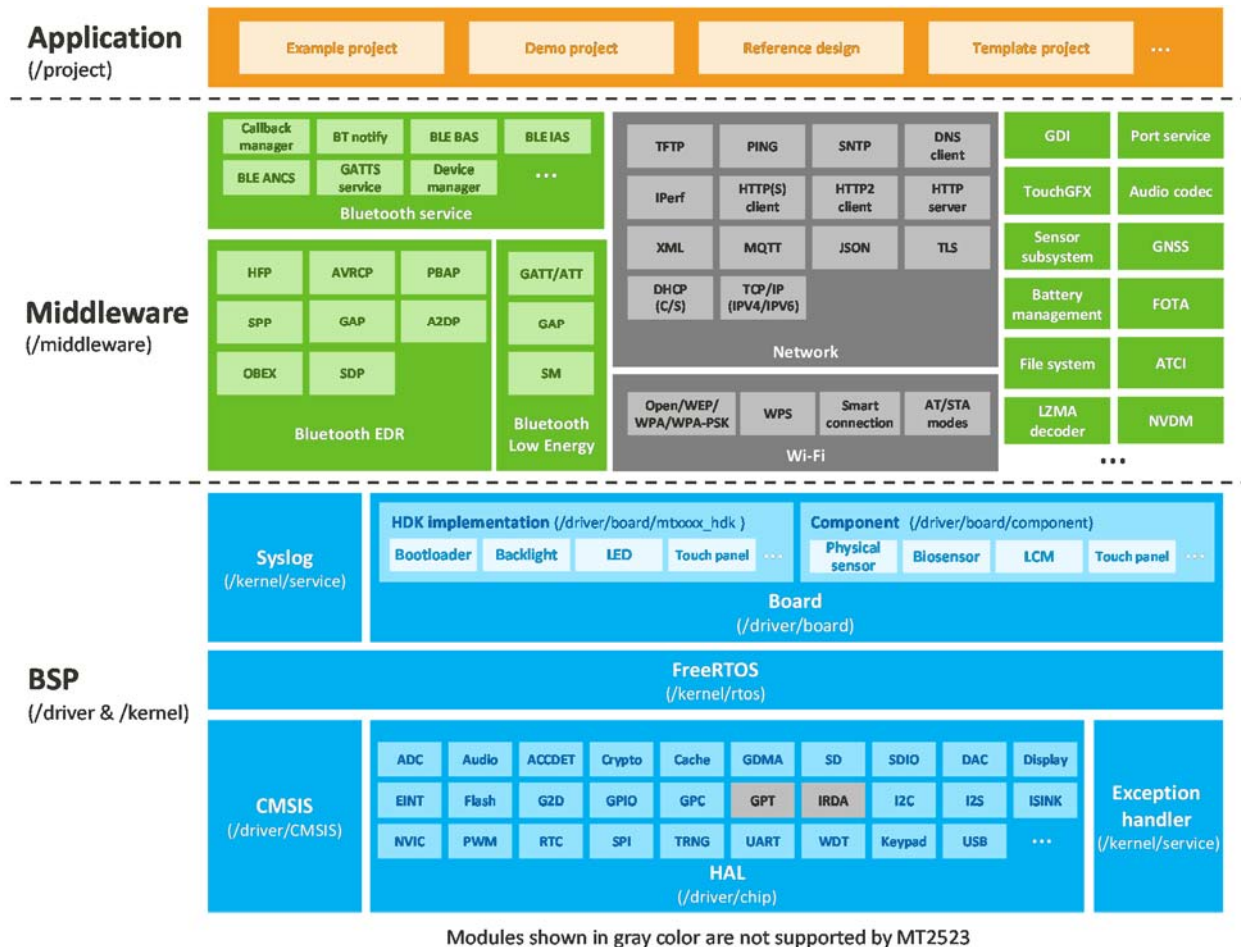


Figure 1. Architecture layout of the LinkIt SDK v4 for LinkIt 7687 HDK

A functional block in grey means the HDK does not support the feature. The top layer includes the application projects running on the SDK. They are based on Middleware, OS and HAL layers. These layers provide rich features for application development, such as the Middleware provides the network connectivity, Wi-Fi and Bluetooth Low Energy Stack. The FreeRTOS provides the underlying real-time operating system.

The three-layer architecture layout of the SDK for LinkIt 2523 HDK and MT2533D evaluation board includes Applications, Middleware and BSP, as shown in Figure 2.



**Figure 2. Architecture layout of the LinkIt SDK v4 for LinkIt 2523 HDK and MT2533D evaluation board**

A functional block in grey means the HDK does not support the feature. The top layer includes the application projects running on the SDK. They are based on Middleware, OS and HAL layers. These layers provide rich features for application development, such as the Middleware provides the Bluetooth Low Energy Stack, GNSS, FOTA, Sensor subsystem, file system and Battery Management. The FreeRTOS provides the underlying real-time operating system.

## 1.2. Knowledgebase

The released SDK includes documentations to guide developers through each module and its features, in a convenient and developer-oriented approach.

The documentations are located under SDK's doc folder.

- MediaTek LinkIt™ Development Platform for RTOS Get Started. This guide covers the SDK features, step-by-step setup of the development environment and its usage.
- MediaTek LinkIt™ Development Platform for RTOS API reference manual. This reference manual provides detailed description of the APIs in the SDK.
- MediaTek LinkIt™ Development Platform for RTOS Open Source Components Guide. This document guides you through the open source modules and the features used in the SDK.
- MediaTek LinkIt™ HDK Memory Layout Developer's Guide. This guide provides details on the memory layout of the SDK, and how to adjust the memory layout for a custom application.

- MediaTek LinkIt™ Development Platform for RTOS Wi-Fi Developer's Guide. This document complements the Wi-Fi API reference manual.
- MediaTek LinkIt™ Development Platform for RTOS System Log Developer's Guide. This document guides you through the usage of the system logging feature provided in the SDK.
- MediaTek LinkIt™ Development Platform for RTOS Firmware Update Developer's Guide. This document guides you to use the FOTA and how to adjust the memory usage of FOTA.
- MediaTek LinkIt™ Development Platform for RTOS Internet Middleware API Reference Manual. This reference manual provides details on the usage of internet protocol APIs.
- MediaTek LinkIt™ SDK v4 GCC Build Environment Guide. This document provides details on how to create and build a project, and how to create a module, with the SDK in the GCC build environment.
- MediaTek LinkIt™ Development Platform for RTOS Bluetooth Developer's Guide. This document guides you through the supported Bluetooth library and its usage with reference examples.
- MediaTek LinkIt™ Development Platform for RTOS Power Mode Developer's Guide. This document addresses the MCU system's power mode configuration and power consumption measurement focused on power modes provided by MediaTek LinkIt development platform for RTOS.
- MediaTek LinkIt™ Development Platform for RTOS LCM Porting Guide. This guide provides detailed description on LCM porting, including the LCM driver creation and backlight control.

The related chipsets of each document under <sdk\_root>/doc folder are listed in Table 1.

**Table 1. Documentation relevance for different chipsets**

Document file name	MT7687F	MT7697/ MT7697D	MT2523D/ MT2523G
LinkIt_for_RTOS_Bluetooth_Developers_Guide.pdf		√	√
LinkIt_for_RTOS_Firmware_Update_Developers_Guide.pdf	√	√	√
LinkIt_for_RTOS_Get_Started_Guide.pdf	√	√	√
LinkIt_for_RTOS_GNSS_Developers_Guide.pdf			√
LinkIt_for_RTOS_Internet_and_Open_Source_Software_Guide.pdf	√	√	√
LinkIt_for_RTOS_LCM_Porting_Guide.pdf			√
LinkIt_for_RTOS_Memory_Layout_Developers_Guide.pdf	√	√	√
LinkIt_for_RTOS_Power_Mode_Developers_Guide.pdf	√	√	√
LinkIt_for_RTOS_System_Log_Developers_Guide.pdf	√	√	√
LinkIt_for_RTOS_WiFi_Developers_Guide.pdf	√	√	
LinkIt_SDK_v4_GCC_Build_Environment_Guide.pdf	√	√	√
LinkIt_for_RTOS_Wi-Fi_Migration_Developers_Guide.pdf	√	√	
LinkIt_SDK_v4_Release_Notes.pdf	√	√	√

## 2. MediaTek LinkIt™ SDK Version 4.2.0

---

### 2.1. Main changes

- Software features and optimization
  - Added support for MT2533D chipset, including drivers and board support package.
  - [Watch reference design] Enabled Bluetooth LE Find Me profile (FMP) on a watch reference design (for licensed customers only).
  - [Watch reference design] Enabled sport application related features, such as heart rate, GNSS and pedometer on watch reference design (for licensed customers only).
  - [MT76x7] Enhanced the Flash Tool to support Ubuntu Linux.
  - [MT2523x, MT2533D] Added the console mode for Flash Tool in Ubuntu Linux and Windows.
  - Added Easy PinMux Tool support in Ubuntu Linux.
  - [MT7697x] Added the support for Bluetooth, Wi-Fi, Bluetooth LE and Wi-Fi Bridge in `iot_sdk_demo` example application.
  - [MT76x7] Added the RSSI sorting to match the SSID in scan table.
- Bug fixes
  - [MT2523x, MT2533D] Fixed the system crash issue while establishing A2DP connection with certain Bluetooth dongle and PCs.
  - [MT2523x, MT2533D] Fixed the system timer ([SysTick](#)) drifting when the clock (CLK) is at 104 MHz and the clock source is High Frequency Oscillator (HFOSC). SysTick is used by FreeRTOS as a basic timer
  - [ Watch reference design] Using any undefined character in a drawing function of watch reference UI will cause a system error.
  - [MT76x7] Fixed the issue that occurs when the power consumption value is higher than the one defined in the specification in DTIM10 mode.
  - DTIM 10 mode: DTIM interval = 10, Wi-Fi wakes up every 10 beacon period (1000ms).
  - [MT76x7] Fixed the issue of drifting system tick during frequent interrupts in idle mode.
  - [MT76x7] Fixed the uneven throughput between transmit and receive operations, the transmitting throughput was much higher than the receiving throughput, when the throughput was set at maximum for both operations at the same time.

### 2.2. Known issues

There are known issues in this version of the SDK, avoid the following:

- [MT2523x, MT2533D] Creating an eSCO HFP and a Bluetooth LE GATT profile simultaneously might add noise during a phone call when GATT is streaming a large amount of data.
- [MT2523x, MT2533D] During two BDR and two Bluetooth LE multi-link transmission, the link connections might be unstable.



## 2.3. Migration

Migrate the following module based applications when upgrading the SDK from version 4.1.0 to version 4.2.0 and higher.

- 1) Bluetooth notification services at <sdk\_root>/middleware/MTK/bt\_notify.
  - Related structures — the related structures and enumerations are listed in Table 2.
  - Related examples — `bt_android_notification`, `fota_download_manager` and `gnss_get_location` under `mt2523_hdk` folder, `watch_demo` under `mt2523_watch` folder.
  - How to migrate — replace the structures and enumerations of SDK v4.1.0 with the corresponding ones in SDK v4.2.0, as described in Table 2.

**Table 2. Structures and enumerations migration for Bluetooth notification services**

Structures and enumeration in SDK v4.1.0 (Struct or enum name. field name)	Structures and enumeration in SDK v4.2.0 (Struct or enum name. field name)
<code>bt_notify_indication_event_t.</code> <code>BT_NOTIFY_EVENT_NEW_MSG</code>	<code>bt_notify_event_t.</code> <code>BT_NOTIFY_EVENT_NONE</code>
<code>bt_notify_indication_event_t.</code> <code>BT_NOTIFY_EVENT_DATA</code>	<code>bt_notify_event_t.</code> <code>BT_NOTIFY_EVENT_DATA_RECEIVED</code>
<code>bt_noti_data_t.</code> <code>err_code</code>	<code>bt_notify_event_data_t.</code> <code>error_code</code>
<code>bt_noti_data_t.</code> <code>len</code>	<code>bt_notify_event_data_t.</code> <code>length</code>
<code>bt_notify_remote_system_t</code>	<code>bt_notify_remote_system_type_t</code>
<code>bt_notify_notification_action_t.</code> <code>BT_NOTIFY_NOTIFICATION_NEW</code>	<code>bt_notify_action_type_t.</code> <code>BT_NOTIFY_ACTION_TYPE_NEW</code>
<code>bt_notify_notification_action_t.</code> <code>BT_NOTIFY_NOTIFICATION_DELETE</code>	<code>bt_notify_action_type_t.</code> <code>BT_NOTIFY_ACTION_TYPE_DELETE</code>
<code>bt_notify_page_content_t</code>	<code>bt_notify_page_content_list_t</code>
<code>bt_notify_noti_t.</code> <code>noti_action</code>	<code>bt_notify_notification_t.</code> <code>action_content</code>
<code>bt_notify_sms_t.</code> <code>send_number</code>	<code>bt_notify_sms_t.</code> <code>sender_number</code>
<code>bt_notify_call_t.</code> <code>send_number</code>	<code>bt_notify_missed_call_t.</code> <code>sender_number</code>
<code>bt_notify_remote_system_t</code>	<code>bt_notify_remote_system_type_t</code>
<code>bt_notify_callback_t.</code> <code>noti_data</code>	<code>bt_notify_callback_data_t .</code> <code>event_data</code>
<code>bt_notify_result_t.</code> <code>BT_NOTIFY_NO_SUPPORT</code>	<code>bt_notify_result_t.</code> <code>BT_NOTIFY_RESULT_NOT_SUPPORTED</code>
<code>bt_notify_result_t.</code> <code>BT_NOTIFY_REGISTER_RET_INVALID_PARAMETER</code>	<code>bt_notify_result_t.</code> <code>BT_NOTIFY_RESULT_REGISTER_INVALID_PARAMETER</code>
<code>bt_notify_result_t.</code> <code>BT_NOTIFY_REGISTER_RET_SYSTEM_REGISTER</code>	<code>bt_notify_result_t.</code> <code>BT_NOTIFY_RESULT_REGISTER_SYSTEM_ALREADY</code>

Structures and enumeration in SDK v4.1.0 (Struct or enum name. field name)	Structures and enumeration in SDK v4.2.0 (Struct or enum name. field name)
RED	Y_REGISTERED
bt_notify_result_t. BT_NOTIFY_REGISTER_RET_REPEAT_REGISTER	bt_notify_result_t. BT_NOTIFY_RESULT_REGISTER_REPEATED_REGISTRATION
bt_notify_result_t. BT_NOTIFY_REGISTER_RET_NOT_IMPLEMENT	bt_notify_result_t. BT_NOTIFY_RESULT_REGISTER_NOT_IMPLEMENT
bt_notify_result_t. BT_NOTIFY_RET_INVALID_PARAMETER	bt_notify_result_t. BT_NOTIFY_RESULT_INVALID_PARAMETER
bt_notify_result_t. BT_NOTIFY_RET_PARSE_PARAMETER_ERROR	bt_notify_result_t. BT_NOTIFY_RESULT_PARSING_ERROR
bt_notify_result_t. BT_NOTIFY_RET_NO_CHANNEL	bt_notify_result_t. BT_NOTIFY_RESULT_CHANNEL_UNAVAILABLE
bt_notify_result_t. BT_NOTIFY_RET_FAIL	bt_notify_result_t. BT_NOTIFY_RESULT_FAILED
bt_notify_result_t. BT_NOTIFY_REGISTER_RET_OK	bt_notify_result_t. BT_NOTIFY_RESULT_REGISTER_OK
bt_notify_data_source_t. BT_NOTIFY_DATA_SOURCE_UNKNOWN	bt_notify_data_source_t. BT_NOTIFY_DATA_SOURCE_INVALID

- 2) Bluetooth callback manager service at <sdk\_root>/middleware/MTK/bt\_callback\_manager.
- Related structures — the related structures and enumerations are listed in Table 3.
  - Related examples — bt\_android\_notification, fata\_download\_manager and gnss\_get\_location under mt2523\_hdk folder.
  - How to migrate — replace the structures and enumerations of SDK v4.1.0 with the corresponding ones in SDK v4.2.0, as described in Table 3.

**Table 3. Structures and enumerations migration for Bluetooth callback manager services**

Structure and enumeration in SDK 4.1.0 (Struct or enum name. field name)	Structure and enumeration in SDK 4.2.0 (Struct or enum name. field name)
bt_callback_type_t. bt_callback_type_gatts_get_execute_write_result	bt_callback_type_t. bt_callback_type_gatts_get_execute_write_result
Implement the function bt_sdps_get_customized_record() and return the record array.	Bt_status_t bt_callback_manager_add_sdp_customized_record ( const bt_sdps_record_t * record); Call this function to add your own record.

- 3) Bluetooth LE Apple Notification Center Service (ANCS) at <sdk\_root>/middleware/MTK/ble\_ancs.
- Related differences — ble\_ancs\_gprot.h in SDK v4.1.0 and ble\_ancs.h in SDK v4.2.0. The related structures, enumerations and APIs are listed in Table 4.
  - Related examples — ble\_ancs\_ios\_notification under the mt2523\_hdk folder and watch\_demo under the mt2523\_watch folder of SDK v4.1.0.

- How to migrate — replace the header file name, structures, enumerations and APIs as described in Table 4.

**Table 4. Structures and enumerations migration for Bluetooth LE ANCS**

Structure , enumeration and API in SDK 4.1.0 (Struct or enum name. field name)	Structure, enumeration and API in SDK 4.2.0 (Struct or enum name. field name)
ANCS_EVENT_ID_NUM	BLE_ANCS_MAX_EVENT_ID_NUMBER
ANCS_CATEGORY_ID_NUM	BLE_ANCS_MAX_CATEGORY_ID_NUMBER
ANCS_NOTIFICATION_ATTR_NUM	BLE_ANCS_MAX_NOTIFICATION_ATTR_NUMBER
BLE_ANCS_CHAR_NUM	BLE_ANCS_MAX_CHARC_NUMBER
ble_ancs_uuid_type_t. BLE_ANCS_PRIMARY_SERVICE_UUID BLE_ANCS_NOTIFICATION_SOURCE_UUID BLE_ANCS_CONTROL_POINT_UUID BLE_ANCS_DATA_SOURCE_UUID	ble_ancs_uuid_t . BLE_ANCS_UUID_PRIMARY_SERVICE BLE_ANCS_UUID_NOTIFICATION_SOURCE BLE_ANCS_UUID_CONTROL_POINT BLE_ANCS_UUID_DATA_SOURCE
ancs_msg_type_t. BT_ANCS_GAP_LE_DISCONNECT_IND BT_ANCS_GATTC_WRITE_CHARC	bt_msg_type_t. BT_GAP_LE_DISCONNECT_IND BT_GATTC_WRITE_CHARC
bt_status_t ble_ancs_event_callback( ancs_msg_type_t msg, bt_status_t status, void *buff);	bt_status_t ble_ancs_event_callback( bt_msg_type_t msg, bt_status_t status, void *buffer);
bt_status_t ble_ancs_parse_notification_source( ble_ancs_event_notification_t *notif_source, const uint16_t length, uint8_t *data);	bt_status_t ble_ancs_parse_notification( ble_ancs_event_notification_t *notification, uint16_t length, uint8_t *data);

- Bluetooth sink service at <sdk\_root>/middleware/MTK/bt\_sink.
  - Related structures — bt\_sink\_srv\_am\_files\_format\_t.path of SDK v4.1.0 and bt\_sink\_srv\_am\_files\_format\_t.file\_type of SDK v4.2.0.
  - Related examples — mp3\_local\_playback under the mt2523\_hdk folder.
  - How to migrate — replace the bt\_sink\_srv\_am\_files\_format\_t.path in mp3\_local\_playback with bt\_sink\_srv\_am\_files\_format\_t.file\_type.
- Memory stick and SD memory card controller configuration file (msdc\_custom\_config.h).
  - Symptom: An error occurs “Build... hal\_msdc.o FAIL” when building the projects.
  - Related examples — all example projects under mt2523\_hdk folder.
  - How to migrate — add <sdk\_root>/project/mt2523\_hdk/apps/atci\_register\_command/inc/msdc\_custom\_config.h in SDK v4.2.0 to the inc folder of the target application of SDK v4.1.0.
- Common folder at <sdk\_root>/project/common.
  - Related examples — all projects using Command Line Interface (CLI) commands.
  - How to migrate — use the <sdk\_root>/project/common folder of SDK v4.2.0, do not replace the folder with SDK v4.1.0.

7) Port service at <sdk\_root>/middleware/MTK/port\_service.

- Symptom — An error occurs “multiple definition of `log\_control\_block\_atci\_serialport'” when building the projects.
- Related examples — bt\_headset\_23alpha, iot\_sdk\_demo, iot\_sdk\_dev, low\_power\_without\_psram, modem\_wifi5931\_ref\_design, mp3\_local\_playback under mt2523\_hdk, bt\_headset\_23alpha, bt\_headset\_wifi5931 under mt2523s\_headset and headset\_gui\_ref\_design, headset\_ref\_design under mt2533\_evb folders.
- How to migrate — remove the at\_command\_serial\_port.c file from the src folder of the projects and modify the related Makefiles and configure files for Keil IDE and IAR embedded workbench IDE.

### 3. MediaTek LinkIt™ SDK Version 4.1.0

---

#### 3.1. Main changes

- Software features and optimization
  - [MT2523x] Added a reference design for watch supporting heart rate, GNSS and Bluetooth notification. (<sdk\_root>/project/mt2523\_hdk/apps/watch\_ref\_design)
  - [MT2523x] Added the support to update the firmware of LinkIt 2523 HDK through GATT profile using Mediatek Smart Device, an Android app on a hand-held device.
  - [MT2523x] Added the support for USB mass storage protocol (reference application at <sdk\_root>/project/project/mt2523\_watch/apps/watch\_demo).
  - [MT2523x] Added the support for MP3 audio playback from an SD card.
  - [MT7697x] Added support to Wi-Fi and Bluetooth LE coexistence. Application can control all the links of the two protocols without any interference.
- Bug fixes
  - [MT2523x] Fixed the issue that the A2DP connection between MT2523x-based device (Client) and certain dedicated device (Server) gets disconnected when the audio transfer is paused, waits for a while, and resumes the playback again.
  - [MT2523x] Fixed the issue that LinkIt 2523 HDK cannot establish Bluetooth audio connection (A2DP) with an iPhone with iOS 10 or later versions of OS.
  - [MT2523x] Fixed the issue in multiple links where one link (eSCO link) is on call, the other idle link (ACL link) gets disconnected.
  - [MT2523x, MT7697x] Fixed the issue in multiple links when master and slave roles coexist at the same time, one of the links might be disconnected.
  - [MT76x7] Fixed the issue that the system hangs when an application listens to the Wi-Fi traffic in sniffer mode.
- Notes
  - This version introduces a new method to add a module. To handle the migration of your application to this SDK, see section 6.2, “Adding a module to the build flow of the project” in <sdk\_root>/doc/LinkIt\_SDK\_v4\_GCC\_Build\_Environment\_Guide.pdf.

#### 3.2. Known issues

There are known issues in this version of the SDK; developer needs to avoid the following scenarios.

- [MT2523x] Using any undefined character in a drawing function of watch reference UI will cause a system error.

- [MT2523x] Creating an eSCO HFP and a Bluetooth LE GATT profile simultaneously might add noise during a phone call when GATT is streaming a large amount of data.
- [MT2523x] In two BDR and two Bluetooth LE multi-link transmission, the links might be unstable.

## 4. MediaTek LinkIt™ SDK Version 4.0.0

---

### 4.1. Main changes

Software features and optimization

- The SDK includes a new Bluetooth stack. The Bluetooth stack prior to v4.0.0 will be deprecated in SDK 4.0 and removed after 2016. The new stack has the following characteristics compared to the prior versions of the API.
- The footprint is reduced significantly with the same profile support: GAP, HFP (HF), A2DP (SINK), AVRCP (CT), SPP (Server and Client), PBAP (Client), GATT and SM.
  - Current footprint: 70kB ROM and 20kB RAM.
  - Prior footprint: 330kB ROM and 130kB RAM.
- RAM is configurable and memory usage could be optimized to fit the application requirements according to the section “Memory management” of “LinkIt for RTOS Bluetooth Developer's Guide” in the <sdk\_root>/doc folder.
- The Bluetooth API in SDK v4.0.0 is not backward compatible with the prior versions of the API.
- [MT2523x] LCM driver and `iot_sdk_demo` demo project based on LinkIt 2523 HDK by SAC support 320 x 320 pixel resolutions.
- Merged RTOS tasks to save resources. Refined the task priority and collected the task configurations into one header file for clarity and better maintainability.
- [MT2523x] Supports logging from USB (USB2 COM port) in the `iot_sdk_demo` project on the LinkIt 2523 HDK by SAC.
- [MT2523x] Supports MP3 audio file local playback.
- Bug fixes
  - [MT76x7] Fixed the connection failure issue in security establishment phase when connecting to a legacy AP (802.11a, 802.11g, or 802.11b).
- Notes
  - Please format the whole flash with the MT76x7 flash tool when flashing the SDK 4.0.0 binary to LinkIt 7687 and 7697 HDK for the first time, as described in the “Formatting the storage” section of MT76x7 Flash Tool Users Guide in the root folder of MT76x7 Flash tool.

### 4.2. Known issues

There is one known issue when using the SDK; developer needs to avoid the following scenario.

- [MT76x7] The peak throughput may drop from 1 to 5Mbps when connecting to a 40Mhz bandwidth (HT40) AP in repeater mode.

## **5. MediaTek LinkIt™ SDK Version 3.3.2**

---

### **5.1. Main changes**

- Bug fixes for LinkIt 76x7 HDK
  - Fixed the Wi-Fi throughput drop when the external interrupt has not been received for more than 30 seconds.
  - Fixed the Wi-Fi throughput drop in the mid-range signal strength (the RSSI is between -60 to -80dbm), improved the connection stability and ping in long-range (the RSSI is less than -80dbm).



## 6. MediaTek LinkIt™ SDK Version 3.3.0

---

### 6.1. Main changes

- Software features and optimization
  - [MT2523x] Support LCM with DBI and DSI interfaces in the same firmware. Provide an auto-detection mechanism to select RM69032 (DSI) or ST7789H2 (DBI) LCM.
  - [MT2523x] Support 2D graphics drawing with HAL G2D API.
  - [MT7697x] Support setting Bluetooth radio transmission power.
  - [MT7697D] Support Wi-Fi 5G AP/STA (excluding DFS).
  - [MT76x7] Support Wi-Fi repeater mode.
  - [MT76x7] Provide easy-to-use Wi-Fi initialization API to address the requirement of reading implicit configurations from NVDM.
  - [MT76x7] Support auto-detection of AP's authentication mode and encryption type.
- Tool features and optimization
  - [MT2523G] Enhance the upgrade speed of GNSS firmware on MT2523 flash tool
- Bug fixes
  - [MT76x7] Reduced the time to connect to an access point, where two Wi-Fi access points exist with the same SSID within the Wi-Fi RF visible range.

### 6.2. Known issues

There is one known issue when using the SDK; developer needs to avoid the scenario listed as below.

- [MT2523x] In multi-link and one of them is on call (eSCO link), the idle link (ACL link) might be disconnected.

## 7. MediaTek LinkIt™ SDK Version 3.2.0

---

### 7.1. Main changes

- Features and optimization
  - New BLE stack is available for MT7697 with small footprint and support Bluetooth 4.2.
  - Add the capabilities of configuring and retrieving the CPU frequency with DVFS APIs.
  - Support SPI slave on MT76x7 with new HAL SPI APIs.
  - Reduce the interrupt latency in flash read or write operation.
  - IAR tool chain support, pre-integrate HAL, FreeRTOS, Bluetooth, FOTA, GNSS example projects and the IoT demonstration project with IAR IDE tool.
- Bug fixes
  - The MacAddr, IpAddr, IpGateWay, and IpNetmask attributes in access point (AP) profile is not workable and those values must be stored in station (STA) profile for both AP and STA modes.
  - The Wi-Fi driver will obtain Wi-Fi MAC address from NVRAM, but not eFuse of the MT76x7.
  - Every event passed to `wifi_connection_register_event_notifier()` can only register one corresponding function handler.

## **8. MediaTek LinkIt™ SDK Version 3.1.0**

---

### **8.1. Main changes**

- SDK supports LinkIt 2523 HDK, including peripheral drivers, middleware and demonstration applications.

### **8.2. Known issues**

There are some known issues when using the SDK; developer needs to avoid these scenarios listed as below.

- The MacAddr, IpAddr, IpGateWay, and IpNetmask attributes in access point (AP) profile is not workable and those values must be stored in station (STA) profile for both AP and STA modes.
- The Wi-Fi driver will obtain Wi-Fi MAC address from NVRAM, but not eFuse of the MT76x7.
- Every event passed to `wifi_connection_register_event_notifier()` can only register one corresponding function handler.

## **9. MediaTek LinkIt™ SDK Version 3.0.0**

---

### **9.1. Known issues**

There are some known issues when using the SDK; developer needs to avoid these scenarios listed as below.

- The MacAddr, IpAddr, IpGateWay and IpNetmask attributes in access point (AP) profile are not workable and those values must be stored in station (STA) profile for both AP and STA modes.
- The Wi-Fi driver will obtain the Wi-Fi MAC address from NVRAM, but not from eFuse for MT76x7.
- Every event passed to `wifi_connection_register_event_notifier` can only register one corresponding function handler.