BLE Long Read Application

User Guide
Version 0.1

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This project is applicable to all the WiSeConnect variants like WiSeConnect Plus, WiSeMCU and WYZBEE. The term WiSeConnect refers to its appropriate variant.

Application Overview:

This application demonstrates how a GATT client device accesses a GATT server device.

Setup required:

1. Windows PC with Cocoox IDE.
2. WiSeConnect module.
3. Smartphone/Tablet/ WiSeConnect module.

Description:

WiSeConnect module acts as a GATT client or server device and explains reads and writes.

Client role is explained with server initialized with Battery service.

Server role is explained with a custom service.

Details of the Application:

The application (running in WiSeConnect module) includes following steps.

1. Make WiSeConnect module to act as GATT client or server device.
2. Connect the WiSeConnect module with the remote device.

Configuring the Application:

- Open ***sapis/include/rsi_wlan_config.h*** file and update/modify following macros,

```
#define CONCURRENT_MODE             RSI_DISABLE
#define RSI_FEATURE_BIT_MAP         FEAT_SECURITY_OPEN
#define RSI_TCP_IP_BYPASS           RSI_DISABLE
#define RSI_TCP_IP_FEATURE_BIT_MAP  TCP_IP_FEAT_DHCPV4_CLIENT
#define RSI_CUSTOM_FEATURE_BIT_MAP   0
#define  RSI_BAND                   RSI_BAND_2P4GHZ
```

- Configure the below configurable macros in the Application file.

1. RSI_BLE_REMOTE_BD_ADDRESS- The address of the remote device to connect.
2. GATT_ROLE – 0 - Server role

1 - Client role

3. BT_GLOBAL_BUFF_LEN – Number of bytes required for the Application and the Driver.
4. RSI_BLE_CHAR_SERV_UUID- standard attribute type of characteristic service
5. RSI_BLE_CLIENT_CHAR_UUID- standard attribute type of client characteristic configuration descriptor.
6. RSI_BLE_NEW_SERVICE_UUID – service uuid when module acts as server
7. RSI_BLE_ATTRIBUTE_1_UUID – characteristic uuid when module acts as server
8. RSI_BLE_NEW_CLIENT_SERVICE_UUID- To use this service present in GATT server LE device.
9. RSI_BLE_CLIENT_ATTRIBUTE_1_UUID- To use this characteristic present under above service in GATT server LE device.
10. RSI_BLE_MAX_DATA_LEN- The maximum attribute value length.
11. MAX_NUMBER_OF_SCAN_LIST- The maximum number of devices to be scanned in a list
12. RSI_BLE_ADV_REPORT_EVENT- Event number to set the advertisement report case.
13. RSI_BLE_CONNN_EVENT- Event number to set the remote device connected case.
14. RSI_BLE_DISCONN_EVENT- Event number to set the remote device disconnected case.
15. RSI_BLE_GATT_WRITE_EVENT- Event number to set the GATT writes event case.
16. RSI_BLE_READ_REQ_EVENT – Event number to set the GATT read event case.
17. RSI_BLE_MTU_EVENT- Event number to set the GATT level MTU size event case.
18. RSI_BLE_GATT_PROFILE_RESP_EVENT- Event number to set the GATT profile case.
19. RSI_BLE_GATT_CHAR_SERVICES_RESP_EVENT- Event number to set the GATT characteristic services case.

20. RSI_BLE_APP_GATT_TEST- To set the local device name.

Following are the **non-configurable** macros in the application.

21. RSI_BLE_ATT_PROPERTY_READ – Used to set read property to an attribute value.
22. RSI_BLE_ATT_PROPERTY_WRITE - Used to set write property to an attribute value.
23. RSI_BLE_ATT_PROPERTY_NOTIFY - Used to set notify property to an attribute value.

Executing the Application:

1. Connect WiSeConnect module to the Windows PC running Cocoox IDE.
2. Configure the macros in the file located at **sapis/examples/ble/long_read/rsi_long_read.c**
3. Compile and launch the application.
4. After the program gets executed, WiSeConnect module would connect to remote device as specified by RSI_BLE_REMOTE_BD_ADDRESS when in client mode or would advertise in server mode.
5. Power on GATT server LE device, which has the support for battery service as per application.
6. After connecting, mtu size will be updated. As per mtu size, reads and writes are taken care.
7. In either role: If mtu size is of 100 bytes, module can read upto 98 bytes, write upto 97 bytes
8. For the data more than 20 bytes, application has to store value and send using gatt_read_response function whenever remote device reads some handle's data.

   NOTE:

   1. For read request event to be raised auth_read flag in rsi_ble_add_char_val_att function need to be set.
   2. Based on GATT_ROLE configurable macro, this application will be act as a GATT server or GATT client device.