BLE Find Me Profile Example Project

1.0

Features

- BLE IAS Service GATT Server role operation
- DeepSleep mode support
- LED status indication

General Description

This example project demonstrates the Find Me Profile operation of the BLE PSoC Creator Component. The Find Me Target utilizes the Find Me Profile with one instance of Immediate Alert Service to display the alerts if the Client has configured the device for alerting. Find Me Target operates with other devices which implement the Find Me Locator Profile. The device switches to the DeepSleep mode between BLE connection intervals.

Development Kit Configuration

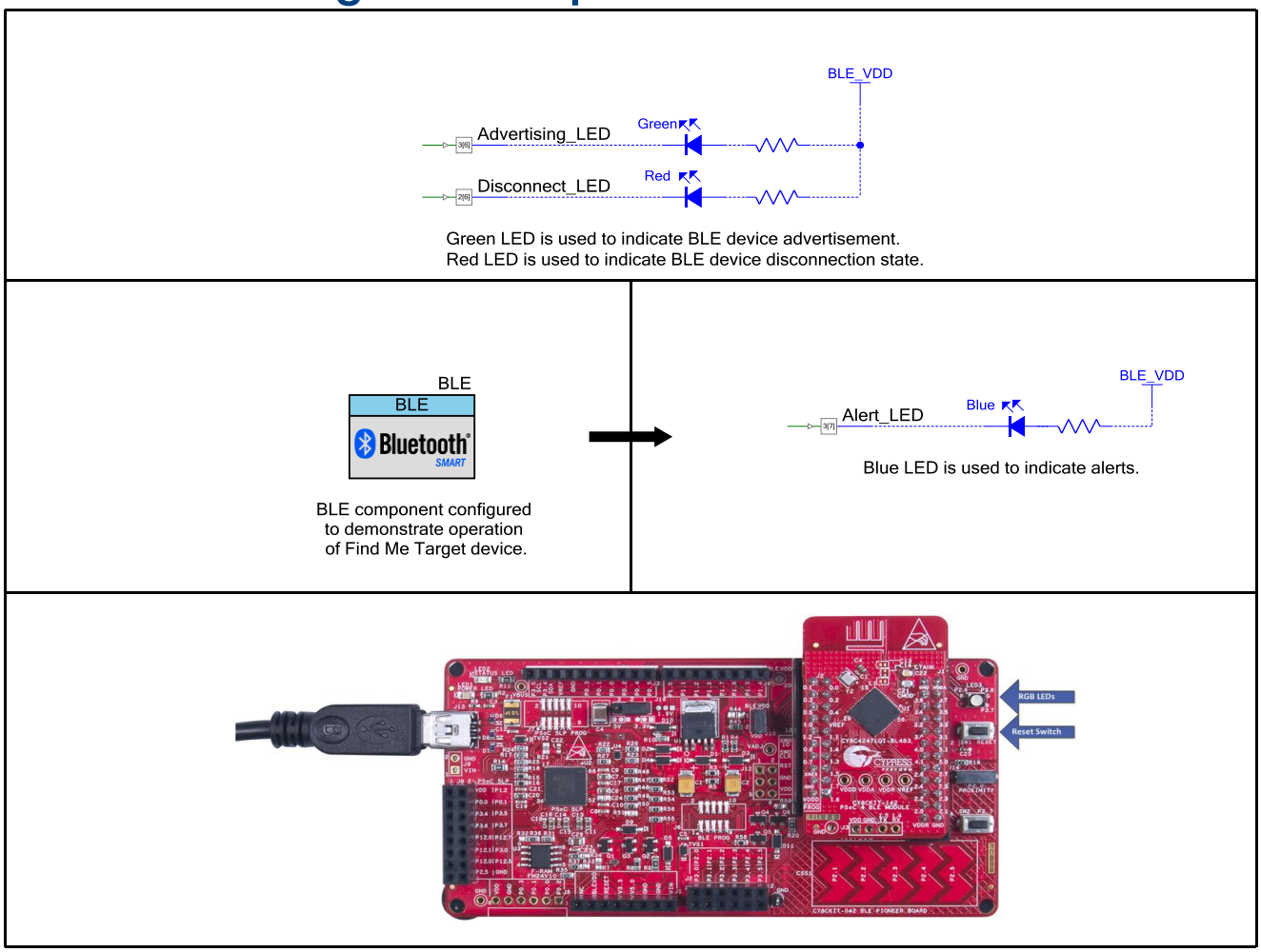
Configure your device as follows:

- Green LED (port 3 pin 6) is used to indicate advertising state.
- Red LED (port 2 pin 6) is used to indicate BLE disconnection state.
- Blue LED (port 3 pin 7) is used to indicate alerts.

Project Configuration

The top design schematic is shown in **Figure 1**.

Find Me Target Example For CY8CKIT-042 BLE



Note: This is a basic BLE example and it isn't optimized for power (LEDs, CPU power mode are not optimized for lower power consumption)

Figure 1. Top design schematic

The BLE component is configured as Find Me Target in the GAP Peripheral role with the settings shown in the figures below.

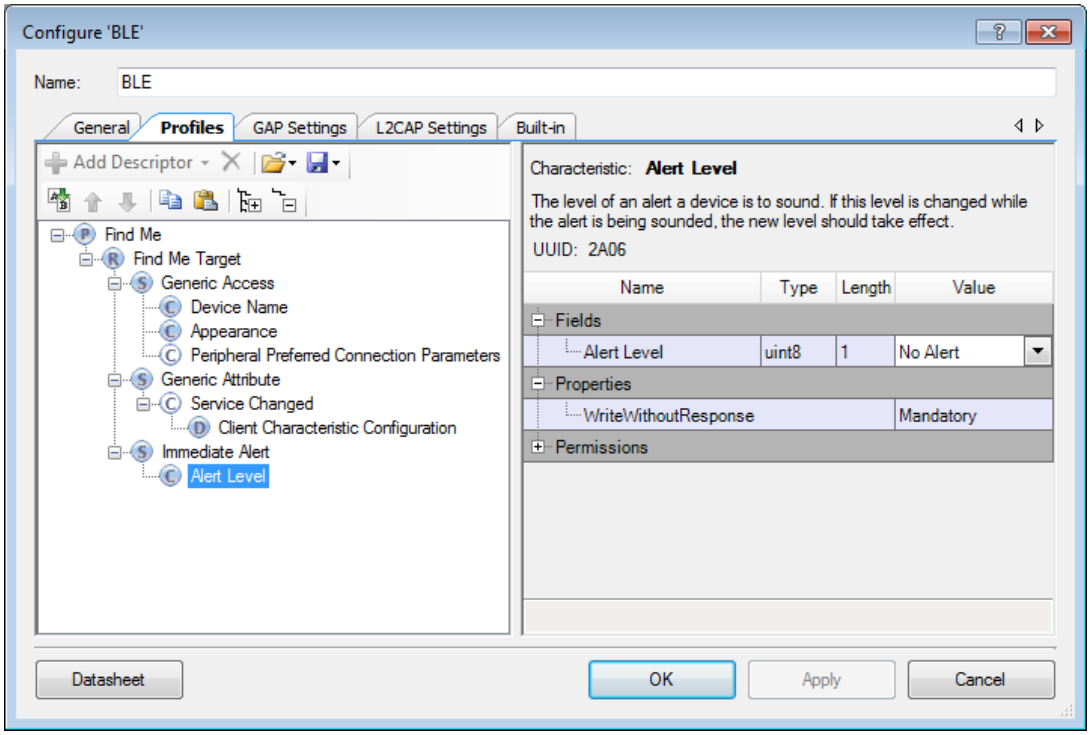


Figure 2. GATT settings

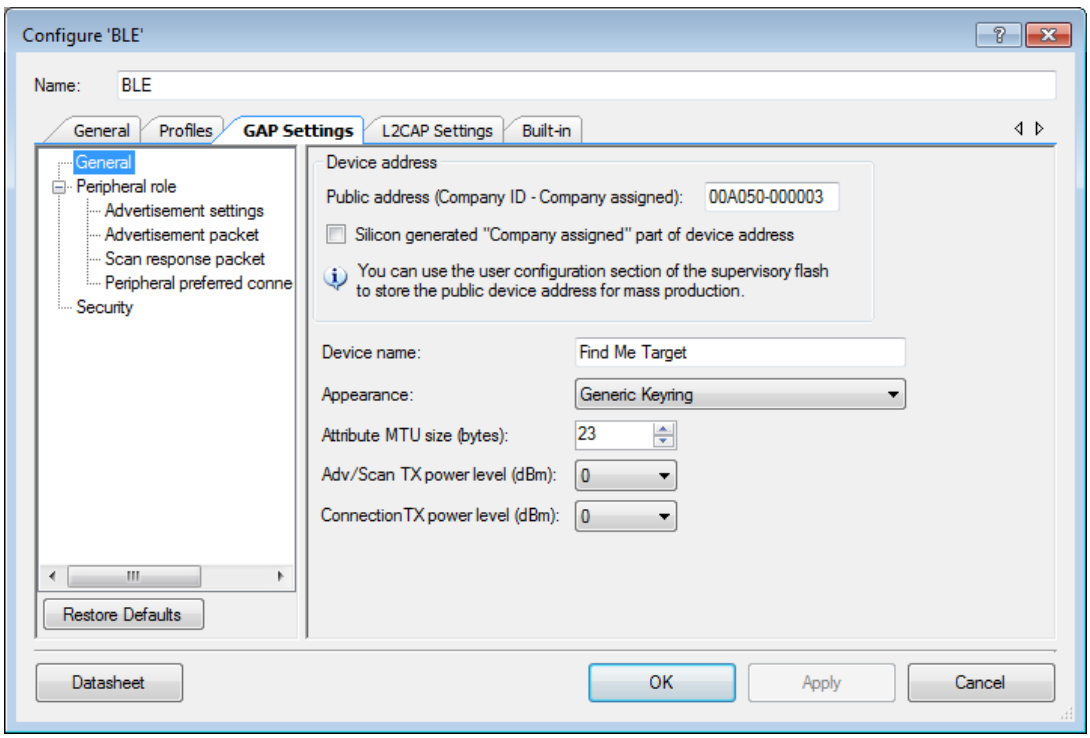


Figure 3. GAP settings

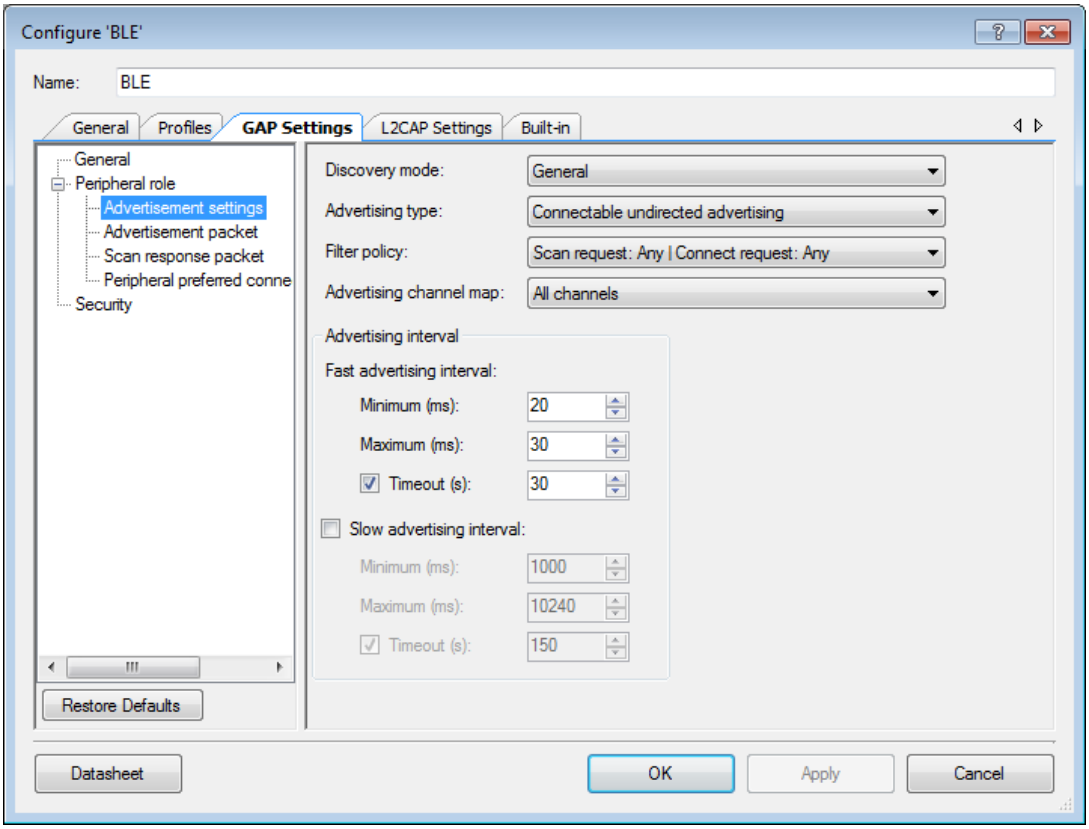


Figure 4. GAP settings -> Advertisement settings

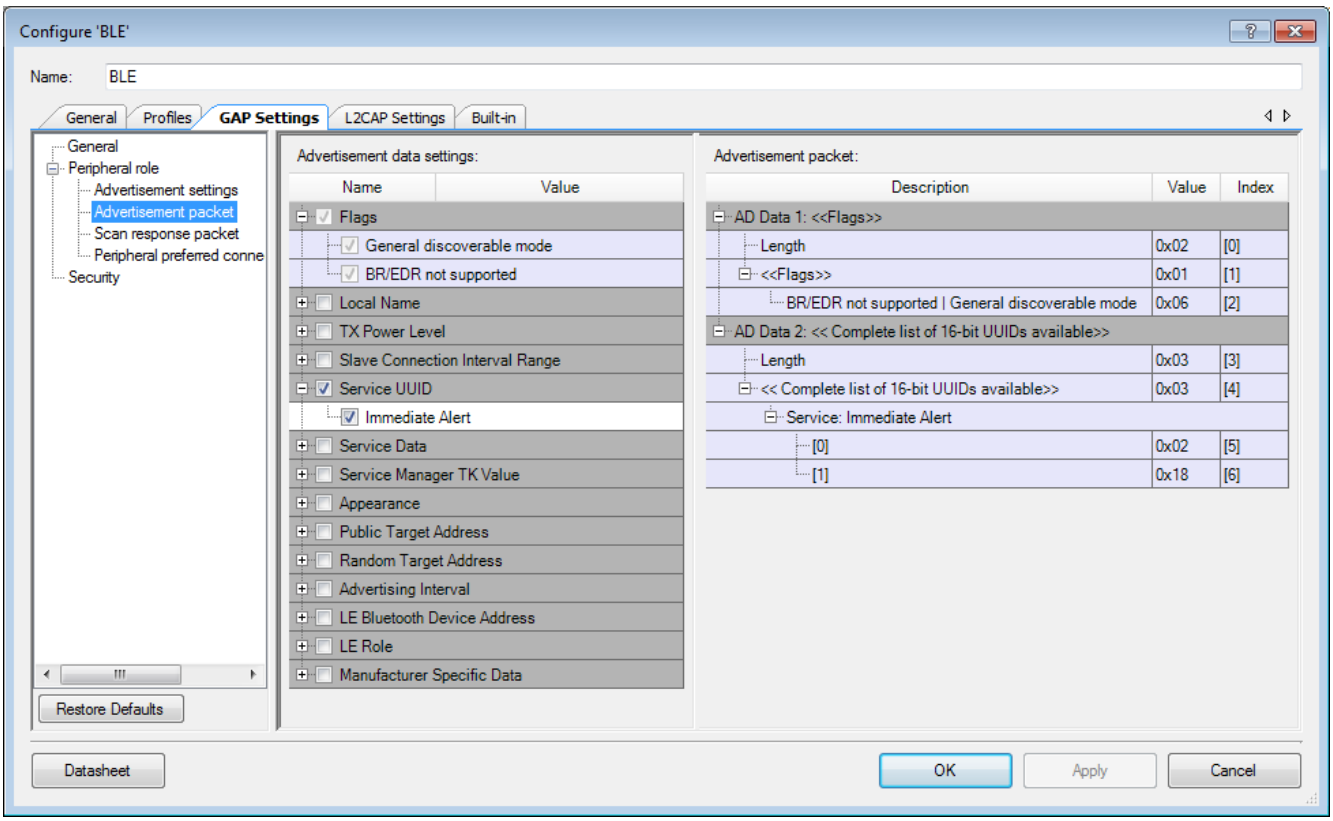


Figure 5. GAP settings -> Advertisement packet

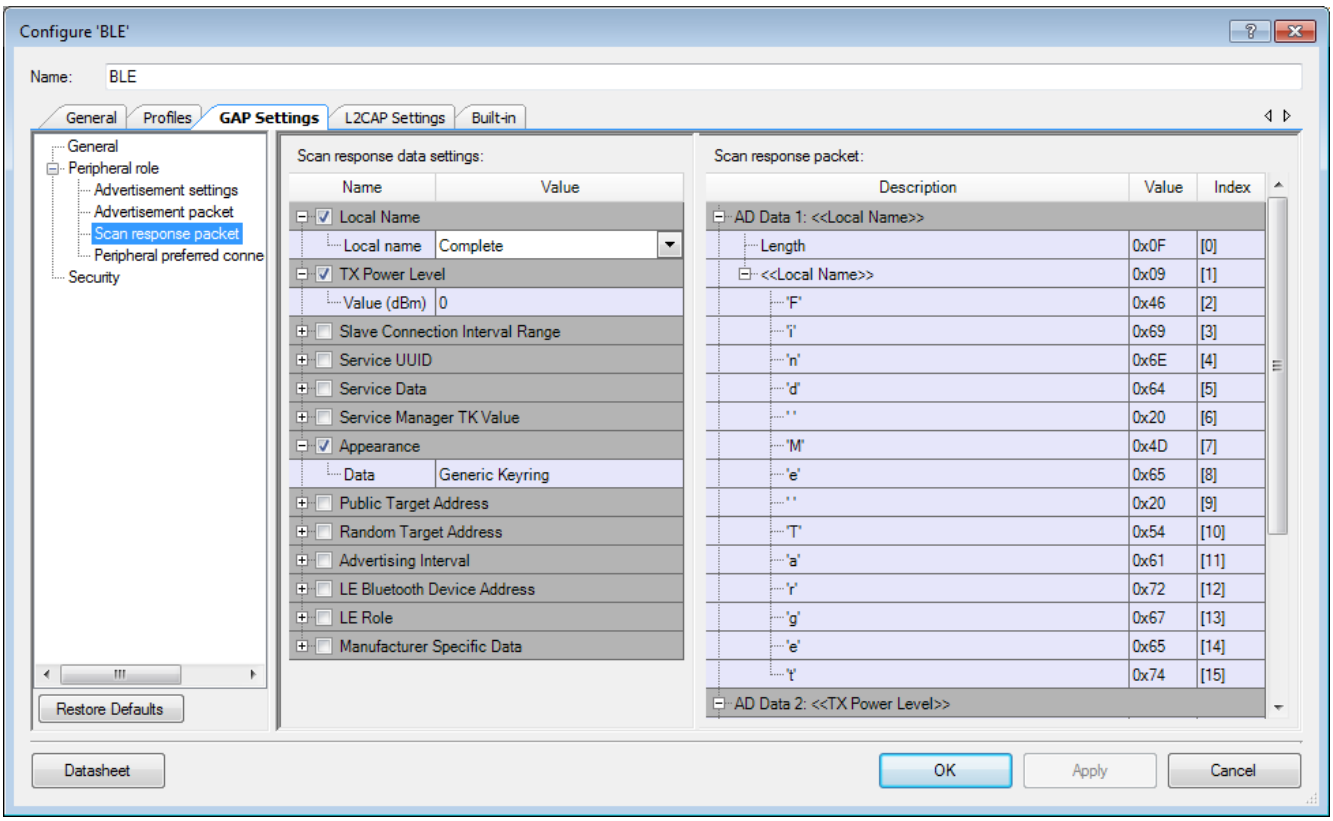


Figure 6. GAP settings -> Scan response packet

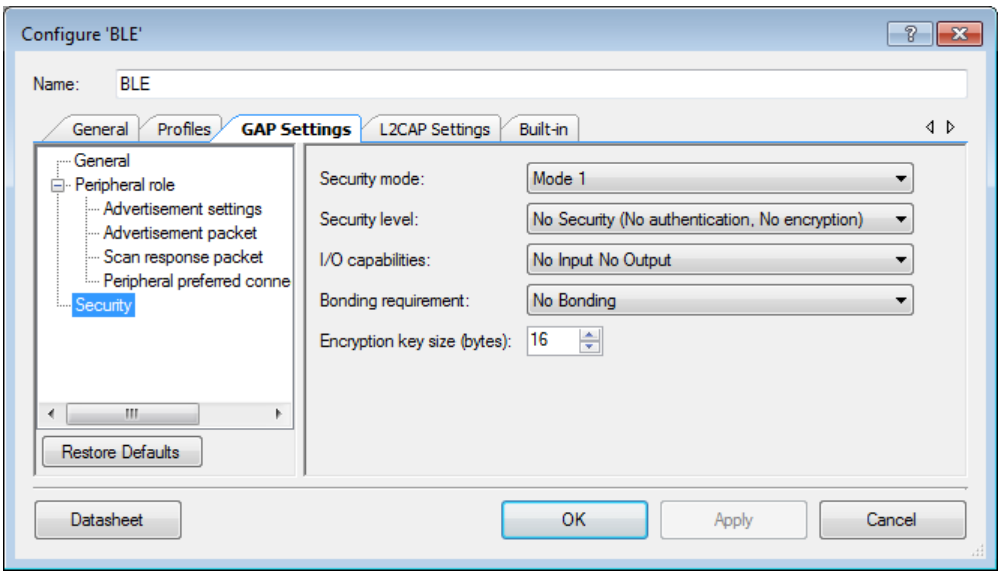


Figure 7. Security settings

Project Description

The project demonstrates the core functionality of BLE component configured as a Find Me Target.
Right after startup the device performs initialization of the BLE component. In this project two callback functions are used for BLE operation. One callback function (StackEventHandler()) is required for receiving generic events from the BLE, and the other (IasEventHandler()) is required for receiving events from the Immediate Alert Service. The CYBLE_EVT_STACK_ON event indicates a successful initialization of the BLE Stack. After this event is received, the component starts advertising with the packet structure as configured in BLE component customizer (see **Figure 5**). The BLE stops advertising once the 30 seconds advertising period expires. On advertisement event timed out the device will go to low power mode (Stop mode) and wait for device reset event to wake up the device again.

You can connect to the Find Me Target device with BLE 4.0 or BLE 4.1 compatible device configured in GAP Central role and capable of discovering Immediate Alert service and Alert Level characteristic. To connect to Find Me Target device, send a connection request to the device when the device is advertising. The green LED is turned on while the device is advertising. If the Client is connected to the Find Me Target, then the Alert Level Characteristic can be written to trigger alerts on the remote device. If the Alert Level is set to CYBLE_MILD_ALERT, then the blue LED starts blinking. If the Alert Level is set to CYBLE_HIGH_ALERT, then the blue LED is turned on. To clear the alerts, send a request from the Client to set the Alert Level Characteristic to CYBLE_NO_ALERT. The alerts are also cleared when the connection with the Client is canceled or lost.

While connected to a Client and between connection intervals, the device is put into DeepSleep Mode.

You can use CySmart mobile app (Android / iOS) to switch Alert Level between **Low**, **Mild** and **High** states:

Figure 8. CySmart Android app discovered Find Me service

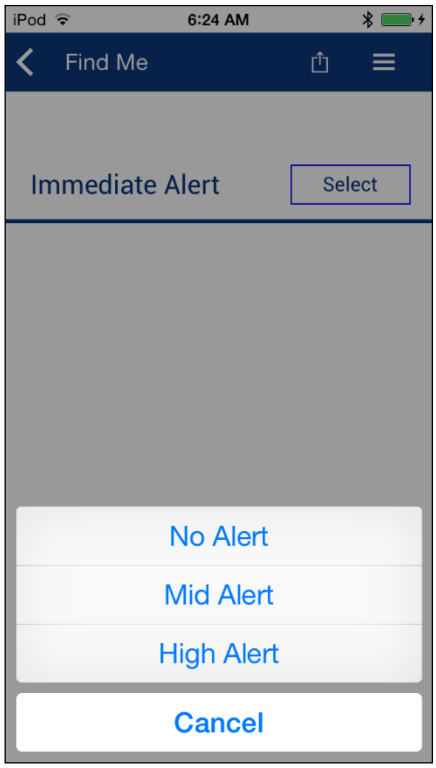


Figure 9. CySmart iOS app is changing Immediate Alert Level

Expected Results

Green LED is turned on when the device is advertising.
Red LED is turned on when the device is in hibernate mode.
Blue LED is blinking or turned on when the device is alerting.