Technical Document

GlobalTop Technology Inc.

Security Profile Application Notes

Revision: V0A

Version History

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V0A	2014-12-05	Rico	First Release

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1. Introduction

This document describe how the Security Tag works by demonstrating Find me and the Proximity profile, and all these profile are defined by the Bluetooth SIG.

1.1 Profiles overview

Find me Profile

The Find me profile defines the behavior to locate devices by pressing immediate alert to remote devices.
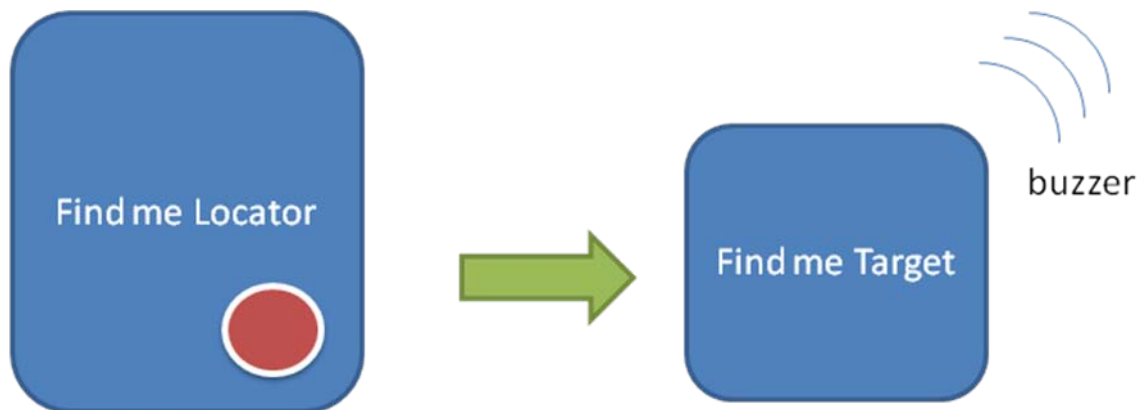
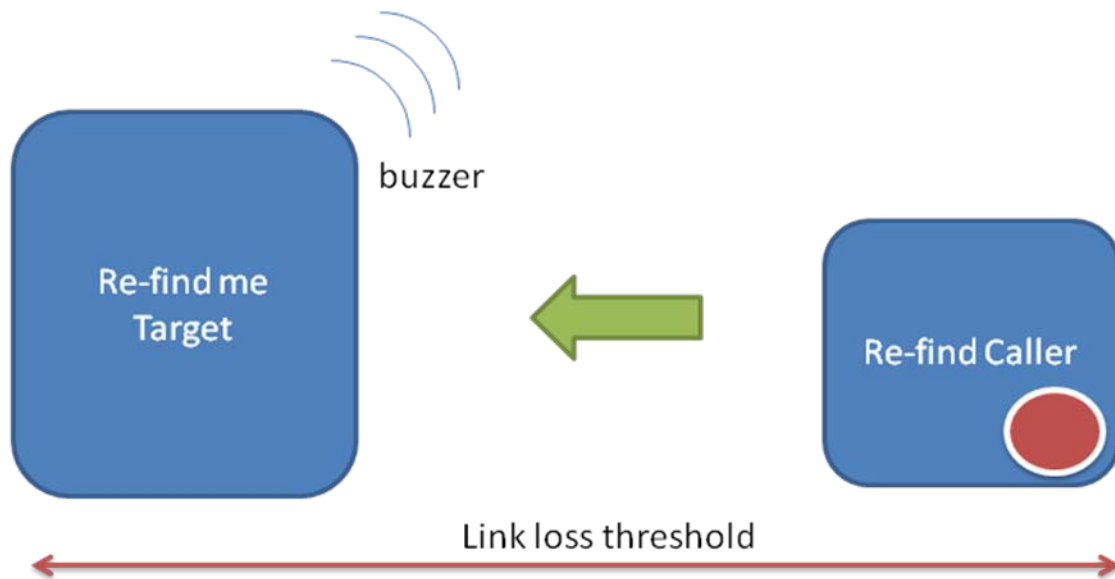| Role	Description
Find me Locator	The device will launch an immediate Alert to remote device
Find me Target	The device will alert when receive an immediate alert signal

Proximity Profile

The Proximity profile defines the behavior when a device move away from a remote devices, the path loss increases above a preset level then immediate alert occurred on Proximity monitor. Another usage is to press a button on proximity reporter when loss link not exceeds the link single requirement, the Proximity Monitor alarms to be a re-find me service.

buzzer

Proximity
monitor

Proximity
reporter

Pre set link loss threshold
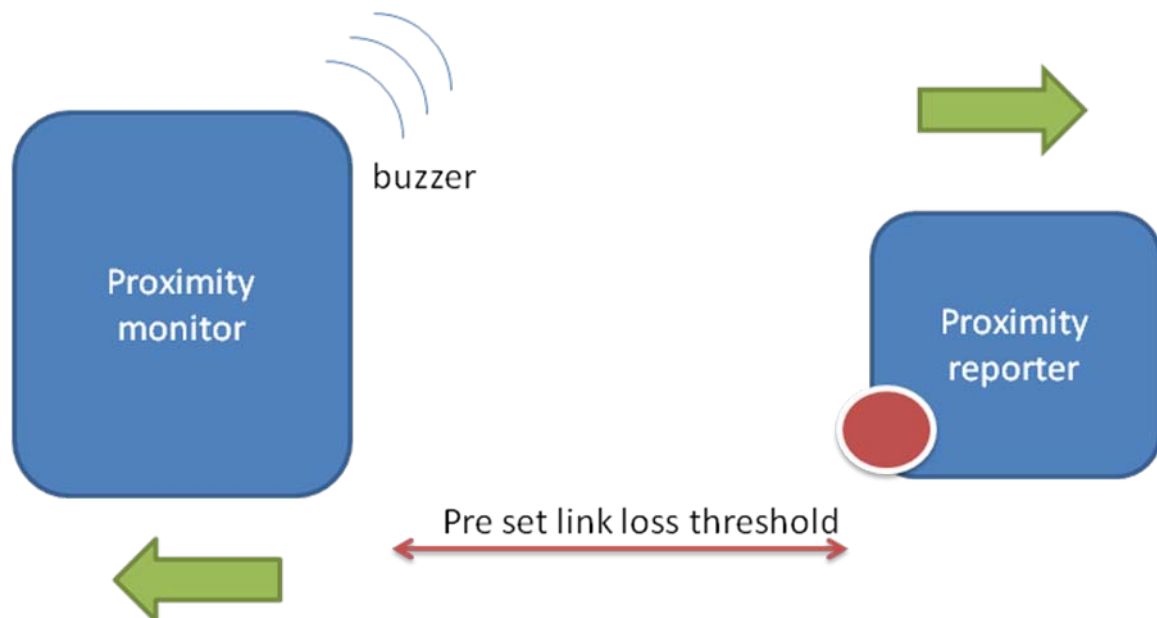
Role	Description
Proximity monitor	The device will launch an immediate Alert to remote device
Proximity reporter	The device will alert when receive an immediate alert signal

Re-find Me

The re-find me service is used to opposite search for the device.

Role	Description
Re-find me Target	The device will receive a remote Alert to launch an alarm
Re-find me Caller	The device will launch a remote Alert to target device

2. Security Profile
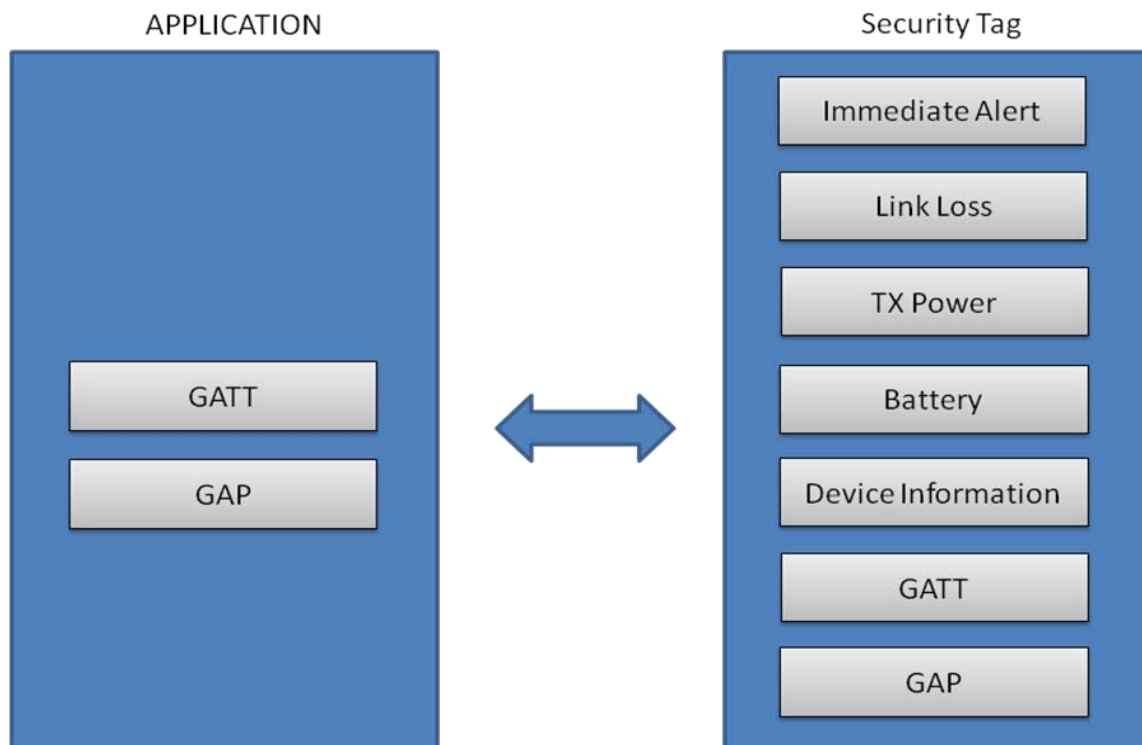
1. Immediate Alert (Version 1.0)

2. Link Loss (Version 1.0)

3. Tx Power (Version 1.0)

4. Battery (Version 1.0)

5. Device Information (Version 1.1)

6. GAP

7. GATT

The Find Me and the Proximity Profiles together mandate three services: Immediate Alert, Link Loss and Tx Power. GAP and GATT services are mandated by Bluetooth Core Specification Version 4.1. Battery and Device Information Services are optional.

Please take a look on Immediate Alert Service Specification Version 1.0, Link Loss Service Specification Version 1.0, Tx Power Service Specification Version 1.0 for more information on immediate Alert, Link Loss and Tx Power services. Please find in Bluetooth SIG for detail information.

3. Security Service

3.1 Service Characteristic

Link Loss Service Database

Characteristic	Database Handle	Access Permissions	Managed by	Security Permission	Value
Alert Level	0x000b	Read, Write	Application	Security mode 1 and Security level 2	Alert value on link loss

Immediate Alert Service Database

Characteristic	Database Handle	Access Permissions	Managed by	Security Permission	Value
Alert Level	0x000b	Write	Application	Security mode 1 and Security level 2	Current alert level

Tx Power Service Database

| Characteristic	Database Handle	Access Permissions	Managed by	Security Permission	Value
Tx Power Level	0x0011	Read	Application	Security mode 1 and Security level 2	Tx power Level

4. Device Discovery & Pairing

The application makes use of the button, buzzer and LED available on emulation board. There are two pairs of button (Button A, Button B) and two pairs of LED (Led A, Led B).

In any of the States, **short press Button A** will show the battery is alive on Led A. If there is low battery, low battery would be shown on Led A by x seconds.

In Connected State, **extra long Button B** press will erase device bonding and would return back to Slow Advertising State.

 **Long Button B** press in Connected State will do re-find me to APP.

If no connection request is received, after 1 minute Slow Advertising timeout, it will go to Idle State. In the Idle State, **short press button B** will enter fast advertising state.
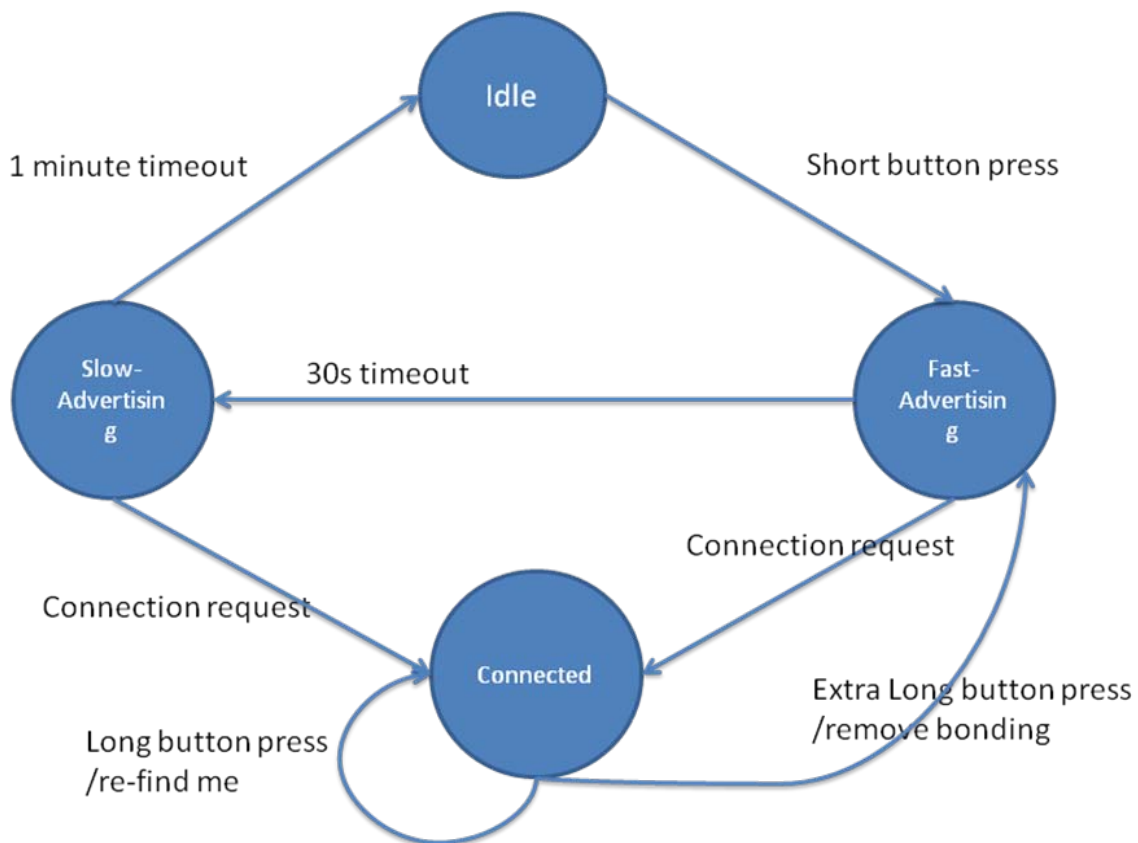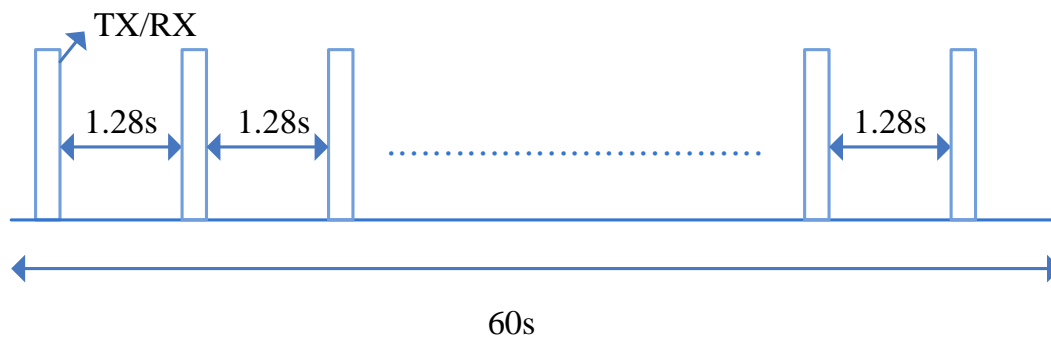
5. Advertising/Connected Interval

The advertising/connected interval described here is for standard firmware version.

Fast Advertising：

TX/RX

60ms   60ms 60ms

30s

Slow Advertising：

TX/RX

1.28s   1.28s 1.28s

60s

Connected：

TX/RX

2s   2s 2s
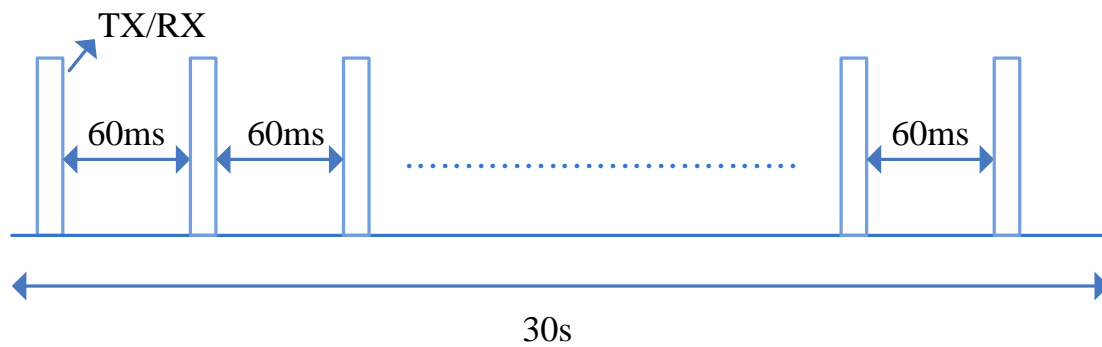
6. Reference

Document	Reference
Bluetooth Core Specification Version 4.1	https://www.bluetooth.org/Technical/Specifications/adopted.htm
Find Me Profile Specification Version 1.0	https://www.bluetooth.org/Technical/Specifications/adopted.htm
Proximity Profile Specification Version 1.0	https://www.bluetooth.org/Technical/Specifications/adopted.htm
Link Loss Service Specification Version1.0	https://www.bluetooth.org/Technical/Specifications/adopted.htm
Immediate Alert Service Specification Version 1.0	https://www.bluetooth.org/Technical/Specifications/adopted.htm
Tx Power Service Specification Version1.0	https://www.bluetooth.org/Technical/Specifications/adopted.htm