



BlueBeacon

Bluetooth LE proximity-beacon with Eddystone^(TM) specifications

Services and Characteristics

A BlueBeacon is a Bluetooth Low Energy (BLE) proximity-beacon that periodically broadcasts an advertising packet formatted according Eddystone format specifications.

BlueBeacon beacons can transmit all frame formats presently defined by Eddystone specifications: Eddystone-URL, Eddystone-UID, and Eddystone-TLM. BlueBeacon beacons can be configured to work according to the following advertising schemes:

- URL-TLM scheme (default),
- UID-TLM scheme,
- URL-UID-TLM scheme.

In all cases, URL-frames and/or UID-frames are broadcast for 10 seconds, while TLM-frame is broadcast for 1 second.

As every BLE device, a BlueBeacon implements Services, each of which contains one or more Characteristics, whose value can be read and/or written. Characteristics are used to store device information or control parameters.

A BlueBeacon has 3 Services: 2 standard BLE Services (identified by a 16-bit UUID) and 1 Eddystone-specific Service (identified by a 128-bit UUID).

Characteristics can be of four types:

- readable, fixed: such as the beacon unique serial number or model;
- readable, variable: such as the battery level;
- readable, writable: such as the beacon parameters;
- writable: such as the access passkey

The following tables and notes contain the description of each Service and Characteristic. These information are useful to access the BlueBeacon using a standard BLE app or for implementing your own app for configuring and controlling the beacon.

In order to access the BlueBeacon, as for all BLE devices, it is required that your mobile phone (based on iOS, Android, Windows or Blackberry) supports Bluetooth 4.0 or successive, at both hardware and operating system level.



Generic Access Service
UUID: 0x1800

Name Device name	UUID 0x2a00	
Description Name of the device	Default value "BlueUp-XX-YYYYYY" where XX = model number and YYYYYY = serial number	Properties Read, fixed
Name Appearance	UUID 0x2a01	
Description Appearance of the device	Default value 512 (Generic tag)	Properties Read, fixed

Device Information
UUID: 0x180a

Name Manufacturer Name String	UUID 0x2a29	
Description Name of the manufacturer	Default value BlueUp	Properties Read, fixed
Name Model Number String	UUID 0x2a24	
Description Number of the model	Default value XX (01 = Mini, 02 = Maxi, 12 = USB, 04 = Forte)	Properties Read, fixed
Name Serial Number String	UUID 0x2a25	
Description Unique serial number (SN)	Default value XXXXXX (6 decimal digits, from 000000 to 999999)	Properties Read, fixed
Name Hardware Revision String	UUID 0x2a27	
Description Revision of the hardware	Default value X.y	Properties Read, fixed
Name Firmware Revision String	UUID 0x2a26	
Description Revision of the firmware	Default value X.y.z.w	Properties Read, fixed
Name Software Revision String	UUID 0x2a28	
Description Revision of the software	Default value X.y.e	Properties Read, fixed



Eddystone Service [Note 1]

UUID: ee0c2080-8786-40ba-ab96-99b91ac981d8

Name Lock State	UUID ee0c2081-8786-40ba-ab96-99b91ac981d8	
Description Reads the lock state (boolean)	Default value Unlocked (false)	Properties Read
Name Lock	UUID ee0c2082-8786-40ba-ab96-99b91ac981d8	
Description Locks the beacon and sets the single-use lock-code (uint128)	Default value 00000000-00000-0000-0000-000000000000	Properties Write
Name Unlock	UUID ee0c2083-8786-40ba-ab96-99b91ac981d8	
Description Unlocks the beacon and clears the single-use lock-code (uint128)	Default value -	Properties Write
Name URI data	UUID ee0c2084-8786-40ba-ab96-99b91ac981d8	
Description URI (19 bytes).	Default value http://www.blueupbeacons.com	Properties Read/write
Name URI Flags	UUID ee0c2085-8786-40ba-ab96-99b91ac981d8	
Description Contains the Eddystone-URL flags (uint8)	Default value 0x00	Properties Read/write
Name Advertised TX Power Levels	UUID ee0c2086-8786-40ba-ab96-99b91ac981d8	
Description Advertised Power Levels array (uint8[4])	Default value Mini, Maxi: dce4ecf4 Forte: e0e8f0f8 USB: d1dbe4ec	Properties Read/write
Name TX Power Mode	UUID ee0c2087-8786-40ba-ab96-99b91ac981d8	
Description Transmission power mode (uint8)	Default value 0x01 [TX_POWER_MODE_LOW]	Properties Read/write
Name Beacon Period	UUID ee0c2088-8786-40ba-ab96-99b91ac981d8	
Description The period in milliseconds that a Eddystone-URL or UID packet is transmitted (uint16)	Default value 0x03e8 (1 sec.)	Properties Read/write
Name Reset	UUID ee0c2089-8786-40ba-ab96-99b91ac981d8	
Description Writing a non-zero value to this characteristic will set all characteristics to their initial values (boolean)	Default value 0x00	Properties Read/write



Name Namespace ID	UUID ee0c20a0-8786-40ba-ab96-99b91ac981d8	
Description Eddystone-UID namespace ID (uint8[10])	Default value ACFD065E1A514932AC01	Properties Read/write
Name Instance ID	UUID ee0c20a1-8786-40ba-ab96-99b91ac981d8	
Description Eddystone-UID instance ID (uint8[6])	Default value 0000XXYYYYYY where XX = model number and YYYYYY = serial number	Properties Read/write
Name Advertising mode	UUID ee0c20b0-8786-40ba-ab96-99b91ac981d8	
Description Defines the advertising scheme: URL-TLM, UID-TLM or URL-UID-TLM	Default value 0x00 (URL-TLM scheme) – Note 3	Properties Read/write
Name Connectable mode	UUID ee0c20b1-8786-40ba-ab96-99b91ac981d8	
Description Writing a non-zero value to this characteristic will leave the beacon connectable during Advertising Mode (boolean)	Default value 0x00 (not-connectable) – Note 4	Properties Read/write

Notes

1. BlueBeacon Eddystone Service uses all the characteristics defined by the Eddystone-URL Configuration Service (ref.: <https://github.com/google/eddystone/blob/master/eddystone-url/docs/config-service-spec.md>), adding BlueBeacon proprietary characteristics.
2. All Write characteristics can be written only in Unlock state
3. The following advertising schemes are available:
 - URL-TLM (10sec – 1sec): 0x00
 - UID-TLM (10sec – 1sec): 0x01
 - URL-UID-TLM (10sec – 10sec – 1sec): 0x02
4. By default, Eddystone beacons are connectable (Configuration Mode) only for 30 seconds after power-up. Leaving the beacon connectable during Advertising Mode is deprecated and not suggested by Eddystone specifications. This option is provided only for testing purposes. In real-world applications the beacon must be non-connectable during Advertising Mode.