Developers Guide

Ayla Generic GATT Service Guide

Ayla BLE Service Profile

Version: 1.0

Date Released: July 27, 2017

Document Number: AY006DGG3-1

Ayla Networks

Referenced Documents

Ayla Networks does not supply all documents that are referenced in this document with the equipment. Ayla Networks reserves the right to decide which documents are supplied with products and services.

Contact Information

Ayla Networks TECHNICAL SUPPORT and SALES

Contact Technical Support: https://support.aylanetworks.com
or via email at support@aylanetworks.com

Contact Sales: https://www.aylanetworks.com/company/contact-us

Ayla Networks REGIONAL OFFICES

GREATER CHINA
Shenzhen
Room 310-311
City University of Hong Kong
Research Institute Building
No. 8 Yuexing 1st Road
High-Tech Industrial Park
Nanshan District
Shenzhen, China
Phone: 0755-86581520

HEADQUARTERS
Silicon Valley
4250 Burton Drive, Suite 100
Santa Clara, CA 95054
United States
Phone: +1 408 830 9844
Fax: +1 408 716 2621

JAPAN
Wise Next Shin
Yokohama, 2-5-14
Shnyokohama, Kohokuku
Yokohama-shi, Kanagawa-ken
Yokohoma, 222-0033 Japan

EUROPE
London
30 Great Guildford St
London SE1 0HS
United Kingdom

TAIWAN
Taipei
5F No. 250 Sec. 1
Neihu Road, Neihu District
Taipei 11493, Taiwan

For a Complete Contact List of Our Offices in the US, China, Europe, Taiwan, and Japan:
https://www.aylanetworks.com/company/contact-us

Table of Contents

1 Introduction

Bluetooth LE (BLE) defines an application protocol to read, write, and push elements organized into a Generic Attribute Profile (GATT). The application specifies its available user profiles in the form of GATT services and characteristics. The Bluetooth specification also defines widely used, popular user-service profiles in order to standardize those for inter-operability. However, these do not cover a wide variety of use cases and pose issues such as recognizing a device, which exposes a particular custom service.

In order to address these issues, Ayla defines the Ayla Generic GATT Service Profile, registered with Bluetooth SIG.

1.1 About this Document

This document defines the Ayla Generic GATT Service Profile, registered with Bluetooth SIG under the name of Ayla Networks. This will guarantee an “official”, universally global Ayla UUID, which can be identified by clients. Furthermore, this will allow clients to assume a certain subset of custom profiles and functionality, supported by Ayla enabled devices.

1.2 Intended Audience

This document is written for all users of the Ayla Developer Portal, involved in the development of Bluetooth LE (BLE) based device and mobile applications.

1.3 Related Documentation

Related documents and resources include:

- Ayla Local Devices Developers Guide (AY006DLD2)

1.4 Abbreviations and Acronyms

- BLE – Bluetooth Low Energy
- GATT – Generic Attribute Profile
- UUID – Universally Unique Identifier
- DUID – Device Unique Identifier
- FW - Firmware

2 GATT Service Summary

The Ayla Generic GATT Service is a profile registered with Bluetooth SIG under the name “Ayla Networks”.

The presence of this profile indicates that the BLE GATT server conforms to Ayla Networks’ specifications on usage and restrictions of GATT server and characteristics UUIDs, to enable inter-operability.

2.1 Features

This service exposes the following information about the device:

- A unique device identifier, unique to all devices within the OEM
- The OEM ID provided by Ayla Networks
- The OEM Model provided by Ayla Networks
- The template version supported by that device FW
- Identification action, to have the device identify itself
- A user-friendly display name

3 GATT Profile Specification

It is highly recommended to advertise the presence of the Ayla Generic GATT Service in the BLE advertisement frames. Since its UUID has been registered, it is a globally unique, and will allow the BLE client to assume that the device conforms to other Ayla defined custom characteristics and services.

Additionally, the BLE client (controller/mobile application) may use this information to apply filters on its scan results, and only show Ayla enabled devices to users. This also allows the BLE client to know which devices are Ayla enabled before establishing a BLE connection with them.

3.1 Ayla Generic GATT Service: (UUID: 0xFE28)

This service has been officially registered with Bluetooth SIG and so this UUID is globally allocated for Ayla's use. This service is a mandatory service required to detect an Ayla capable BLE device.

Table 1 - Ayla Generic GATT Service Characteristics

Overview	Properties	Security	Description
Device Unique ID (DUID)	Read - Mandatory	None	Unique ID in OEM scope (must be Unique)
OEM	Read - Optional	None	The Ayla OEM ID of the device
OEM Model	Read - Optional	None	The Ayla OEM Model of the device
Template Version	Read - Optional	None	The template version ("oem_host_version reserved property)
Identify	Write - Optional	None	Make the device identify itself
Display Name	Read, Paired Write - Optional	Authenticated Encryption	User friendly display name for the device

3.1.1 Device Unique ID (DUID): (UUID: 00000001-FE28-435B-991A-F1B21BB9BCD0)

DUID is a unique ID set by the device manufacturers (or OEMs) and **must** be unique in the OEMs scope. It is a UTF-8 string and must be limited to 32 characters.

NOTE	If the device has an Ayla assigned DSN, then this must be set to the DSN.

Table 2 – DUID Characteristics

Names	Field Requirements	Format	Min Value	Max Value	Additional Info.
DUID	Mandatory	utf8s	N/A	N/A	This ID can be set by the OEMs and must be unique in OEMs scope.

3.1.2 OEM: (UUID: 00000002-FE28-435B-991A-F1B21BB9BCD0)

This is a UTF-8 string characteristic and **must** be the Ayla provided OEM ID and must be limited to 20 characters.

Table 3 – OEM Characteristics

Names	Field Requirements	Format	Min Value	Max Value	Additional Info.
OEM	Mandatory	utf8s	N/A	N/A	Ayla OEM ID

3.1.3 OEM Model: (UUID: 00000003-FE28-435B-991A-F1B21BB9BCD0)

This is a UTF-8 string characteristic and **must** be the Ayla provided OEM Model number. It must be limited to 20 characters.

Table 4 – OEM Model Characteristics

Names	Field Requirements	Format	Min Value	Max Value	Additional Info.
OEM Model	Mandatory	utf8s	N/A	N/A	Ayla OEM Model

3.1.4 Template Version: (UUID: 00000004-FE28-435B-991A-F1B21BB9BCD0)

The Template Version ("oem_host_version" reserved property) is an UTF-8 string characteristic. It is used to in conjunction with the OEM ID and OEM Model by the cloud for template association. It is limited to 255 characters.

Table 5 – Template Version Characteristics

Name	Field Requirements	Format	Min Value	Max Value	Additional Info.
Template Version	Mandatory	utf8s	N/A	N/A	OEM defined Template Version

3..1.5 Identify: (UUID: 00000005-FE28-435B-991A-F1B21BB9BCD0)

Identify is a Boolean write-only characteristic and is used to identify the device before it is paired (blink 3 times) to help with configuration and registration. It is optional and **must not** be writable when the device is bonded with a controller.

Table 6 – Identify Characteristics

Names	Field Requirements	Format	Min Value	Max Value	Additional Info.
Idenfify	Optional	boolean	N/A	N/A	Only when device is unpaired

3.1.6 Display Name: (UUID: 00000006-FE28-435B-991A-F1B21BB9BCD0)

This is a user-friendly display name for the device. It is a UTF-8 string characteristic and must be limited to 40 characters. It is a Read/Write characteristic and if written to must also update the Generic Access (Bluetooth SIG: 0x1800), device name characteristic, which is the name used in the BLE advertisements.

Table 7 – Display Name Characteristics

Names	Field Requirements	Format	Min Value	Max Value	Additional Info.
Display Name	Optional	utf8s	N/A	N/A	User friendly display name

4250 Burton Drive, Santa Clara, CA 95054
Phone: +1 408 830 9844
Fax: +1 408 716 2621