ATBTLC1000 BluSDK

Scan Parameters Service Application - Getting Started Guide

USER GUIDE

Introduction

This guide describes the setup of ATBTLC1000 to be used in conjunction with a supported platforms bring-up of the Scan Parameter Service example application that is included as part of the BluSDK software release package.

The Scan Parameter service application example demonstrates retrieving scan interval window information from a peer device implementing this service. The application implements a GATT server role. For the purpose of demonstration, the example also shows how to get the updated scan interval window value, by configuring the scan refresh characteristic for notification.

This document explains the details about:

1. Getting started with the setting up supported platforms.
2. To get the Scan parameters service example application working on the above mentioned setup.

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1 Demo Setup

2 Supported Hardware Platforms and IDEs

Table 2-1. BluSDK – supported hardware and IDEs

Platform	MCU	Supported BLE Module	Supported evaluation kits	Supported IDEs
SAM L21 (MCU)	ATSAML21J18A	ATBTLC1000	ATBTLC1000-XSTK	Atmel Studio v6.2
SAM D21 (MCU)	ATSAMD21J18A	ATBTLC1000	SAMD21-XPRO + ATBTLC1000	Atmel Studio v6.2
SAM G55 (MCU)	ATSAMG55J19	ATBTLC1000	SAMG55-XPRO + ATBTLC1000	Atmel Studio v6.2

3 Hardware Setup

SAM L21 Xplained Pro Scan parameter service setup

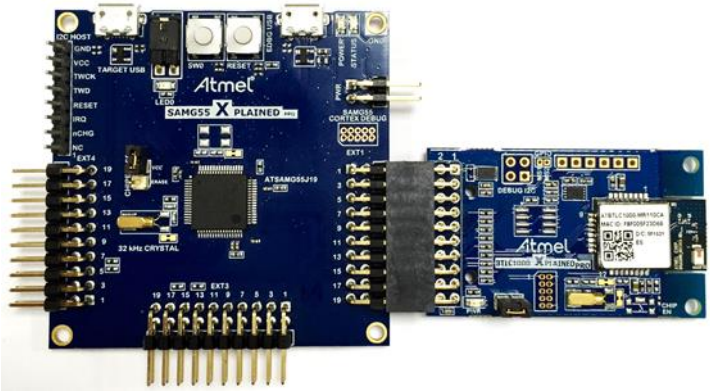
Figure 3-1. ATBTLC1000 Xplained Pro extension connected to a SAM L21 Xplained Pro

SAM D21 Xplained Pro Scan parameter service setup

Figure 3-2. BTLC1000 Xplained Pro extension connected to a SAM D21 Xplained Pro

SAM G55 Xplained Pro Scan parameter service setup

Figure 3-3. ATBTLC1000 Xplained Pro extension connected to a SAM G55 Xplained Pro



4 Software Setup

4.1 Installation Steps

1. Atmel Studio installation [**Atmel Studio 6.2 sp2 (build 1563) Installer – with .NET]**
   http://www.atmel.com/tools/atmelstudio.aspx

   (Note: SAM D21 part pack is built-in as part of Atmel Studio 6.2 sp2)

2. Install SAM G55 Part pack http://www.atmel.com/images/as-partpack-ATSAMG55-6.2.13.zip
   (Note: This installer is needed only if the bring-up is being done on the SAM G55 platform)

3. Atmel USB Driver Installer from http://www.atmel.com/tools/atmelstudio.aspx.

4. Install the standalone ASF package from
   http://www.atmel.com/tools/AVRSOFTWAREFRAMEWORK.aspx

Note: Refer to the BluSDK release notes for updates to version numbers of the components mentioned above.

This package will install the following examples within the Atmel Studio environment.

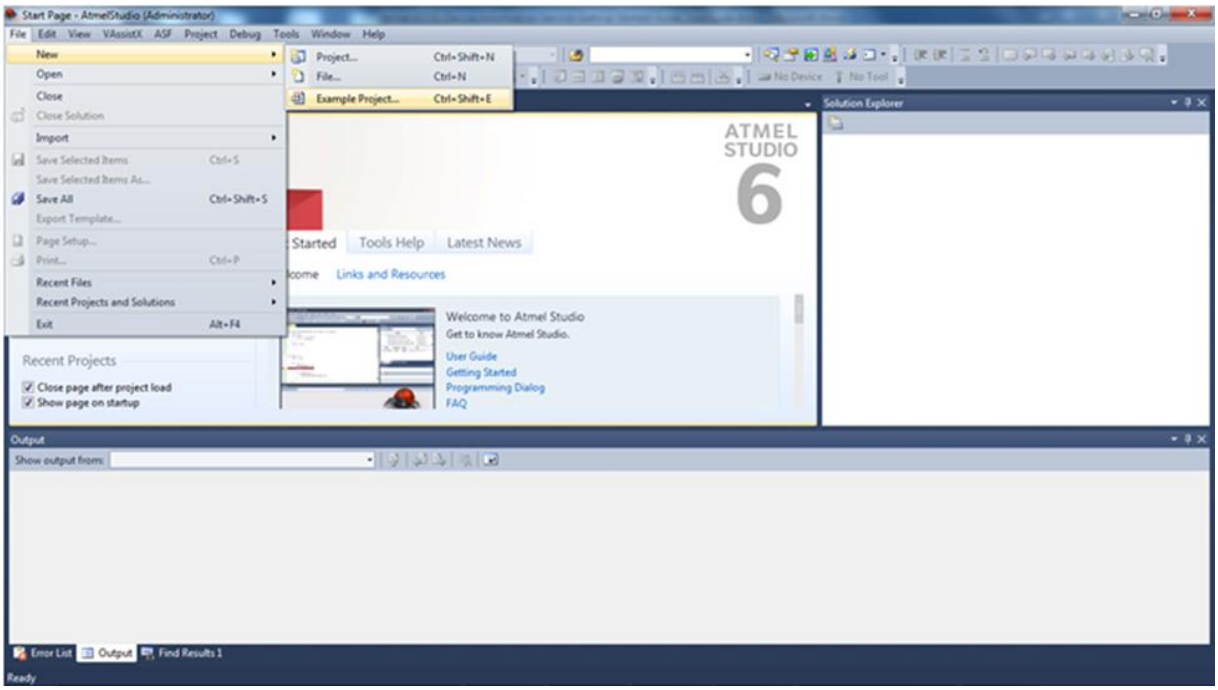
1. Scan Parameter Service Application for SAM L21.
2. Scan Parameter Service Application for SAM D21.
3. Scan Parameter Service Application for SAM G55.

4.2 Build Procedure

The following procedure is explained for SAML21 application example. The same procedure is valid for the case of all the other supported platforms as well.

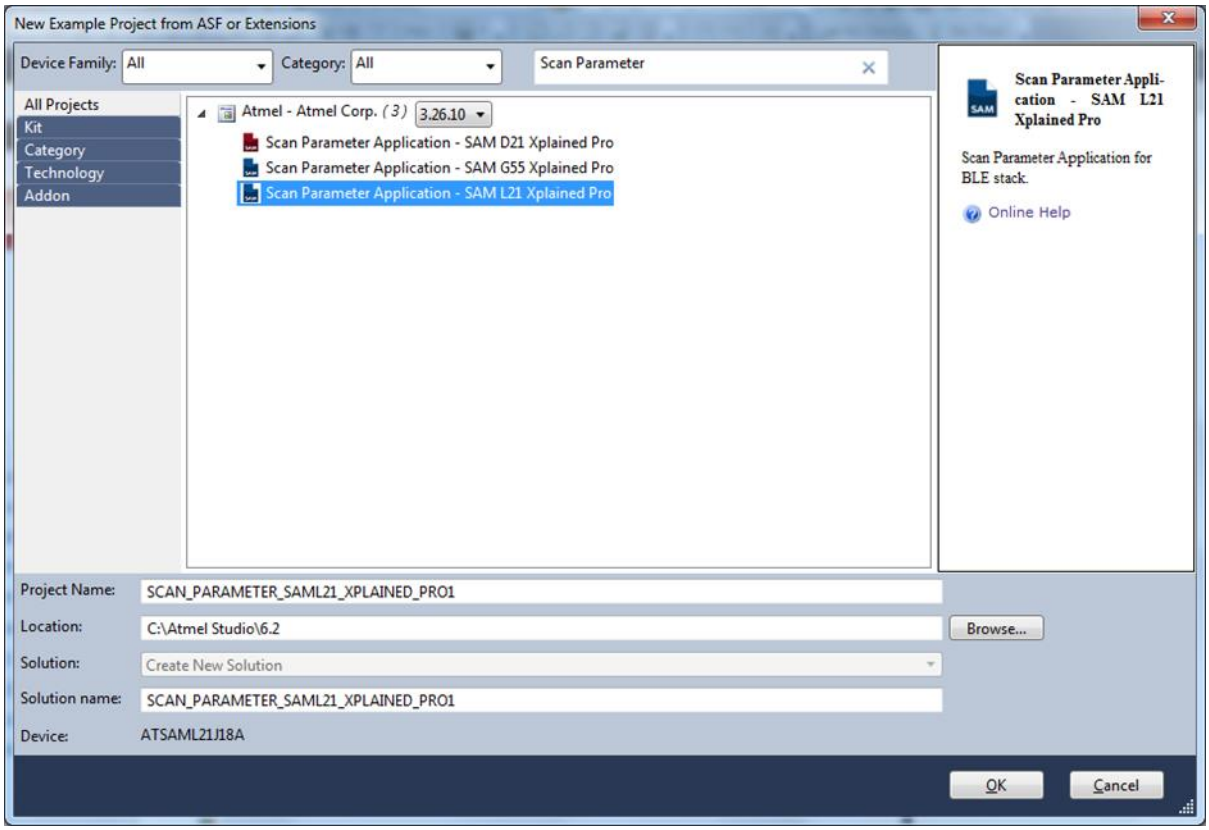
1. Select New Example Project.

Figure 4-1. Creating a New Project



2. In search box enter “Scan Parameter” in search window and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click **OK**

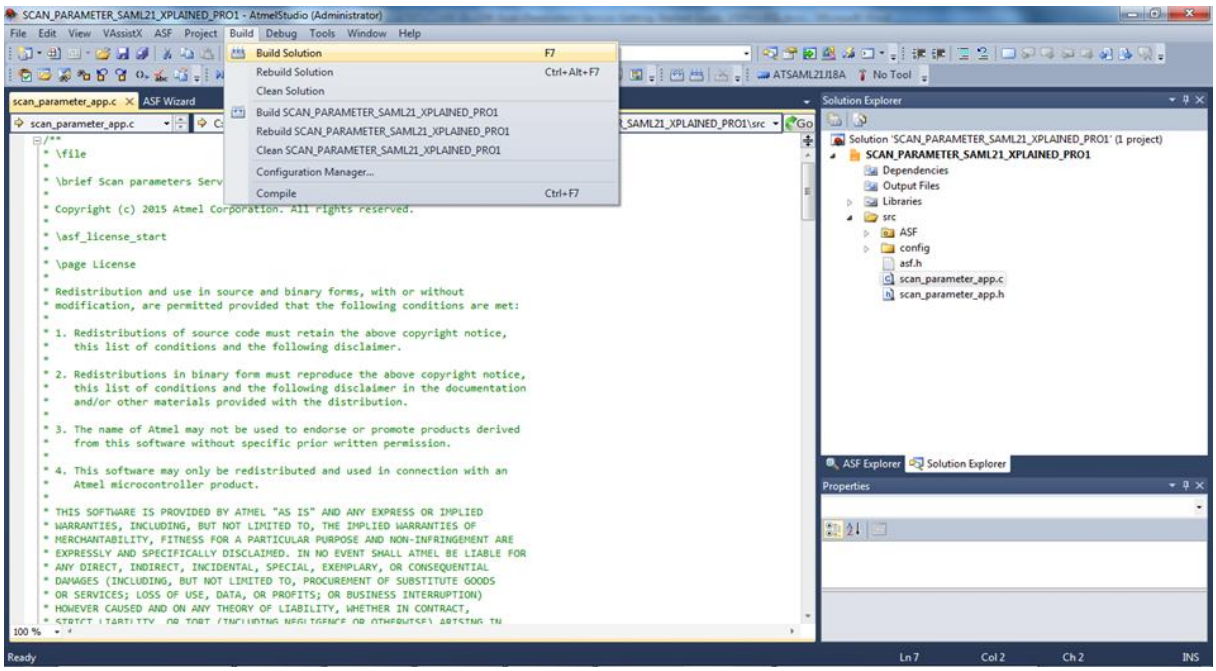
Figure 4-2. Scan Parameter Service Application



3. Accept the license Agreement. The Atmel studio will generate the Scan Parameter Service Example project for SAM L21.

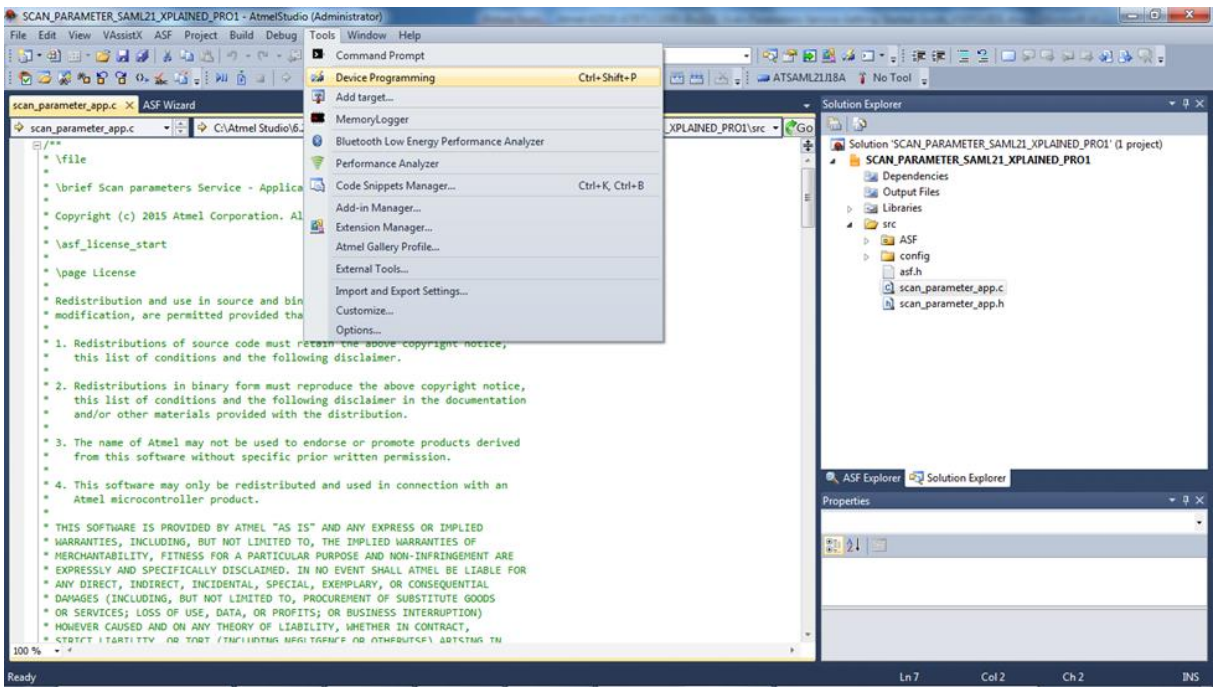
4. Build the solution.

Figure 4-3. Building Scan Parameter Service Application



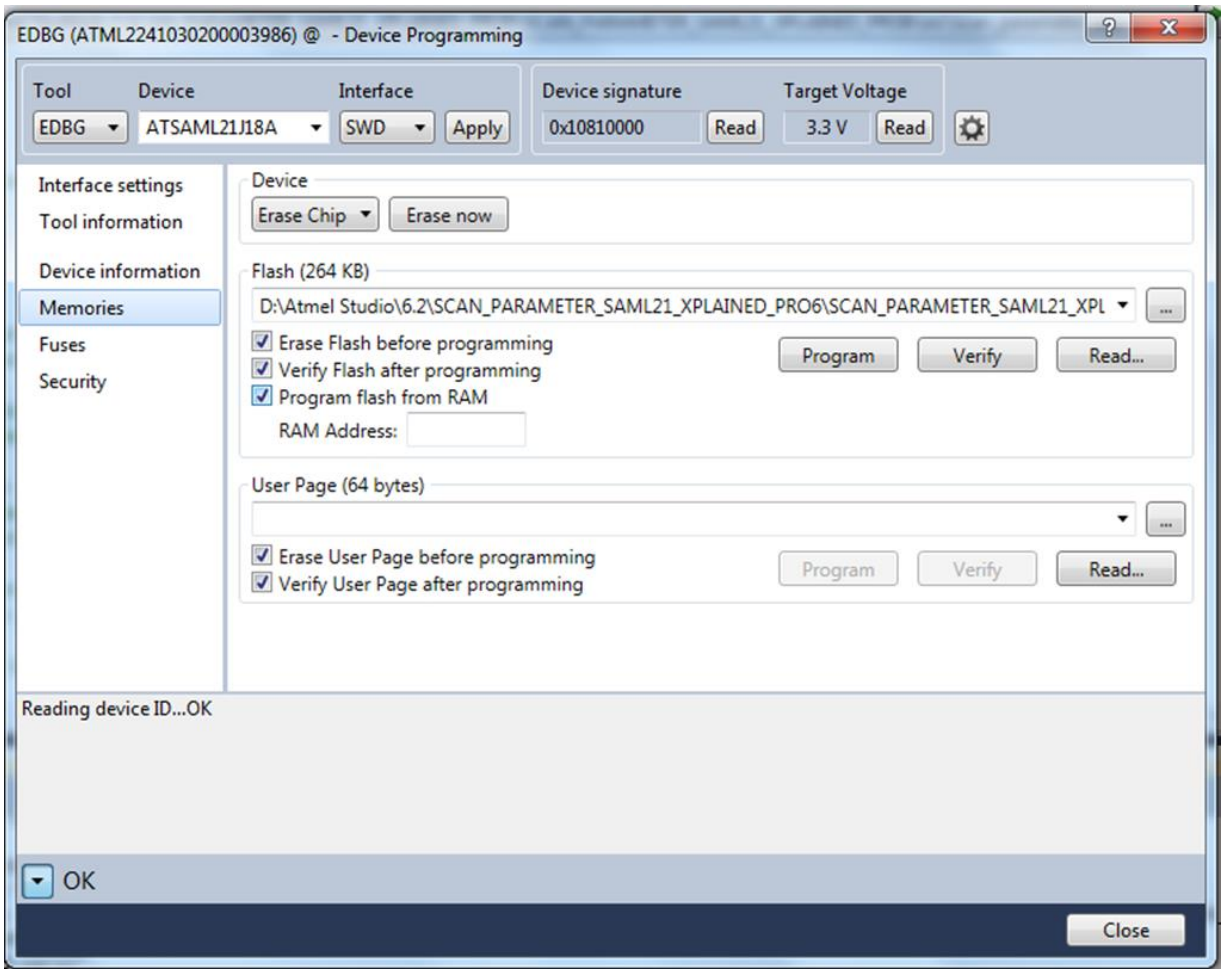
5. Download the application via the DEBUG-USB to the SAM L21 board using Device Programming option available in Tools as mentioned below.

Figure 4-4. Selecting Device Programming



6. Inside device programming the user has to select the correct configuration for device and finally program the device by clicking on the ‘Program button.

Figure 4-5. Flash Programming



7. Once the application is flashed, it is ready to be used as a BLE device supporting Scan Parameter Service (in a GATT server role).

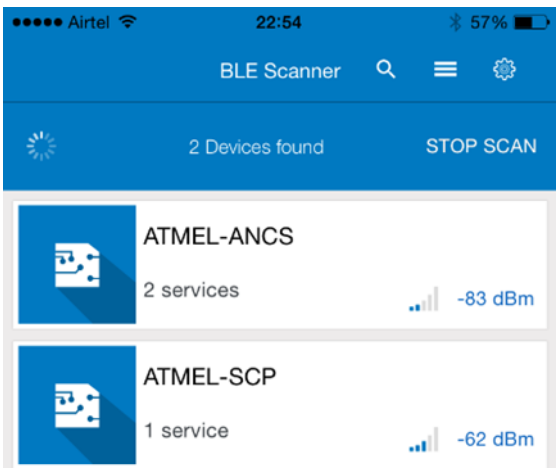
5 Running the demo

1. Connect the ATBTLC1000 Xplained Pro Board to SAM L21 Xplained Pro EXT2 as indicated in Figure 3-1.
2. Power on the SAML21 by connecting the USB Cable.
3. Open any Terminal Application (e.g. TeraTerm), select the appropriate COM Port (Settings: Baudrate 115200, None Parity, 1 Stop bit, 1 Start bit, No Hardware Handshake)
4. Press the Reset button on the SAML21 or supported platforms.
5. The device is now in advertising mode.

Figure 5-1. Console Display for Device in Advertising Mode

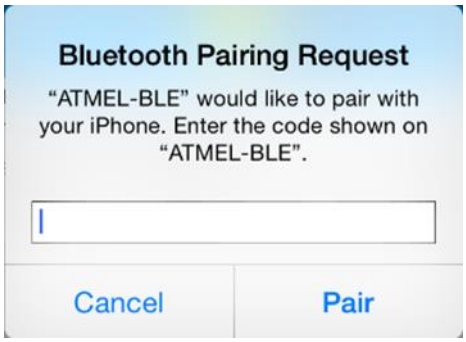
6. Enable Bluetooth from Settings page on iPhone/Android (BLE compatible). Use the Atmel Smart Connect application to scan for peripheral devices. A device with name 'ATMEL-SCP' will appear amongst the list of scanned devices.

Figure 5-2. Atmel-BLE Device Discovered by Atmel Smart Connect application



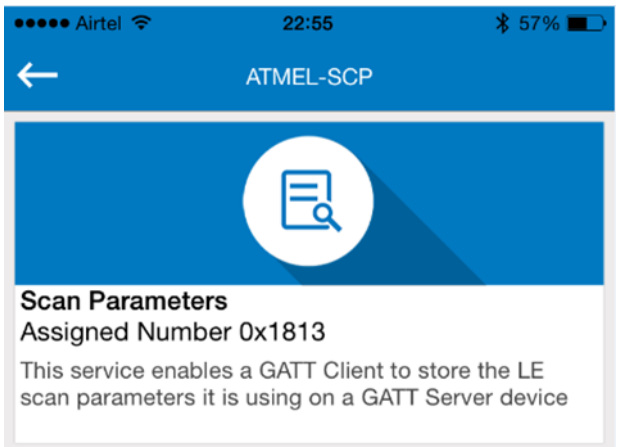
7. Click on ATMEL-SCP device. A pop-up will appear requesting pass-key. Enter “123456” and click on ‘Pair’.

Figure 5-3. Pairing Pop-Up Screen



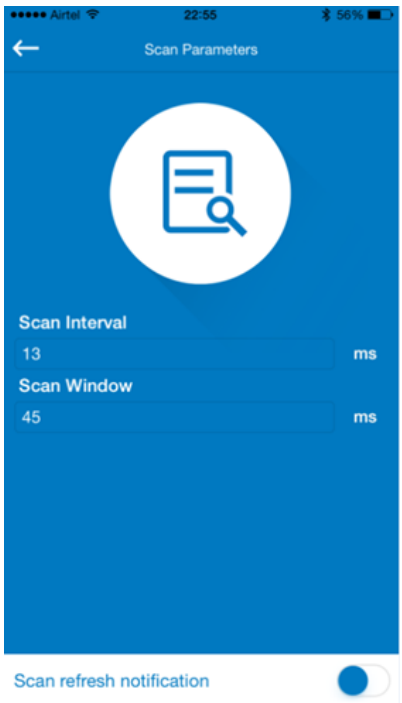
8. Once paired, the application displays the scan parameter service as shown below

Figure 5-4. Display of Scan Parameter Service



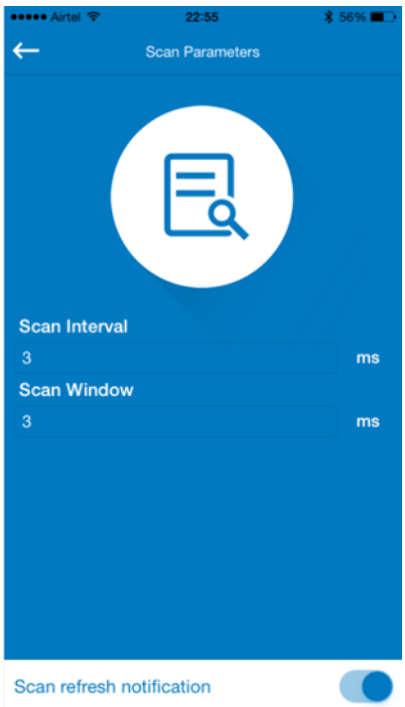
9. On clicking the Scan Parameters service, user keeps getting notifications for scan refresh characteristic value, user can disable notifications as shown below.

Figure 5-5. Scan Refresh Characteristic Notification Options



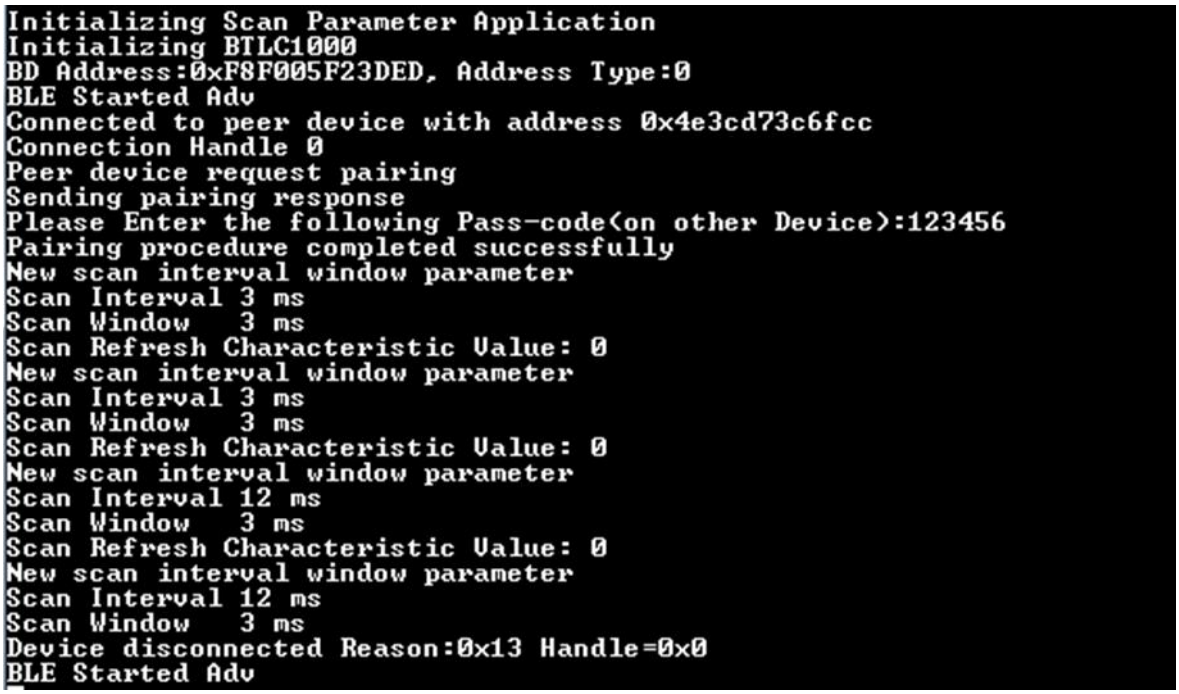
10. User can write the new value for Scan Interval Window characteristic as shown below.

Figure 5-6. Scan Interval Window Characteristic Write New Value Option



11. On the device side (SAML21+ATBTLC1000), the updated new value for scan interval and scan window that was modified on the mobile app as mentioned below.

Figure 5-7. Updated Scan Interval/Window characteristic value at ATBTLC1000/SAM L21



6 Console Logging

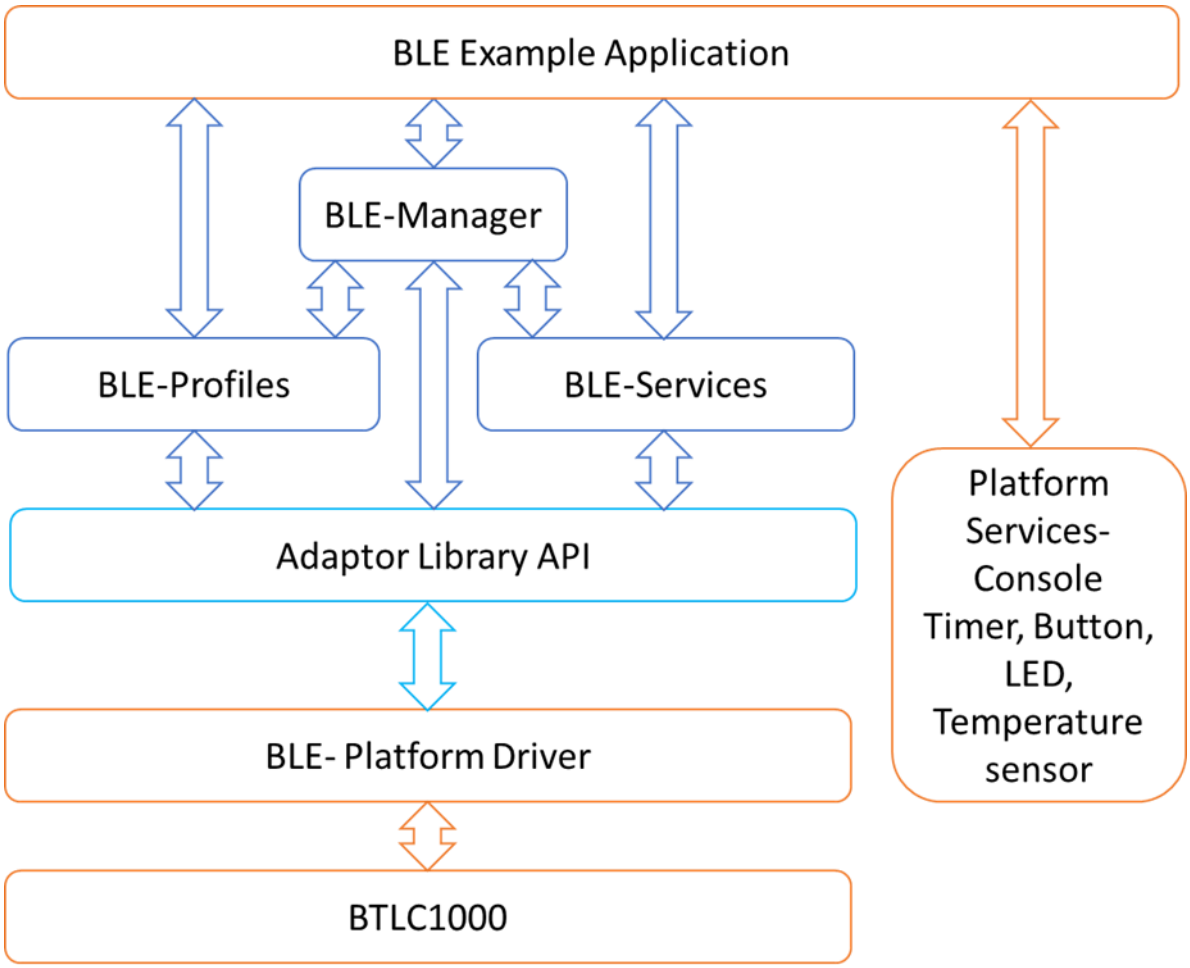
For the purpose of debugging, a logging interface had been implemented in the Scan Parameters service Application.

The logging interface utilizes the same EDBG port that connects to supported platforms. A serial port monitor application (for example TeraTerm) shall be opened and attached to the appropriate COM port enumerated by the PC.

7 BluSDK Software Architecture

The following diagram illustrates the various layers in the BluSDK Architecture. The External host can be supported platforms.

Figure 7-1. BluSDK Software Architecture



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9 Revision History

Doc Rev.	Date	Comments
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