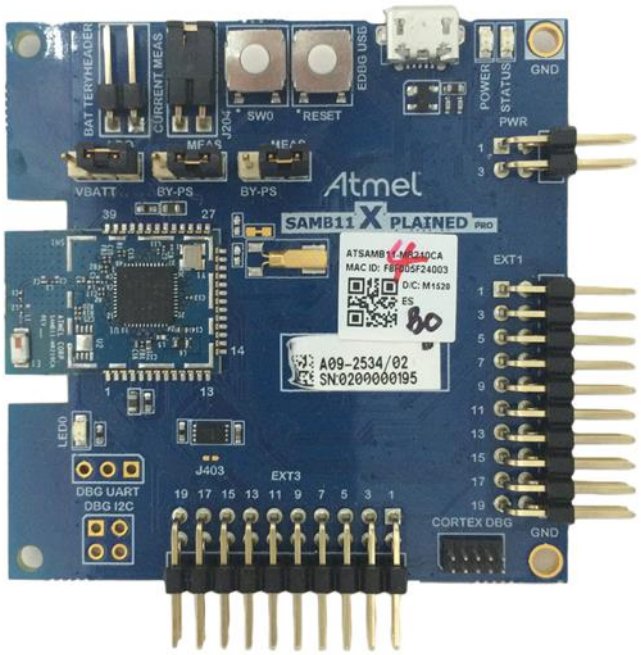
ATSAMB11 BluSDK SMART

Scan Parameters Service Application - Getting Started Guide

USER GUIDE



Introduction

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.

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1 Purpose

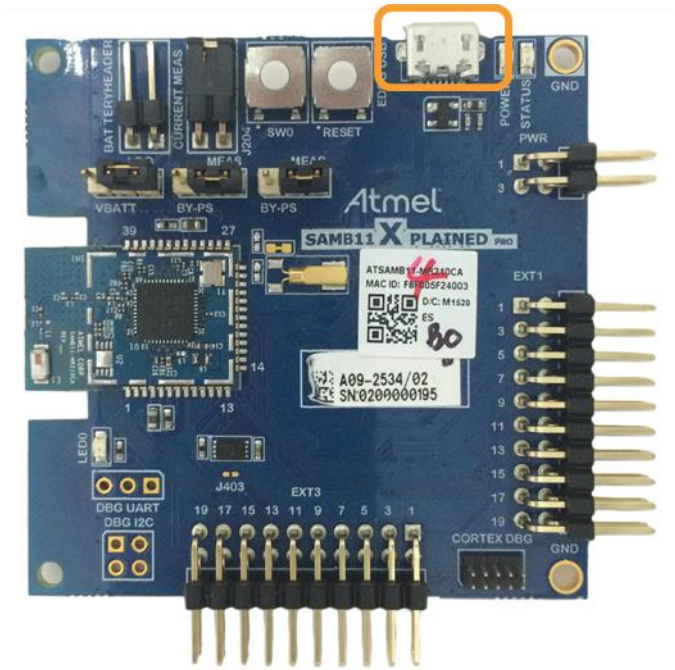
This guide describes the setup of an Atmel® ATSAMB11 Xplained board and bring-up of the Scan Parameter Service example application that is included as part of the BluSDK SMART software release package.

2 Demo Setup

3 Hardware Setup

Connect the ATSAMB11 board to the host PC using a Micro-USB cable.

Figure 3-1. EDBG USB Port



4 Software Setup

4.1 Installation Steps

1. Install the latest Atmel Studio **[Atmel Studio 7.0 (build 629 or later) web installer (recommended)]**
   http://www.atmel.com/tools/ATMELSTUDIO.aspx.
2. Install the latest Atmel Software Framework.

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

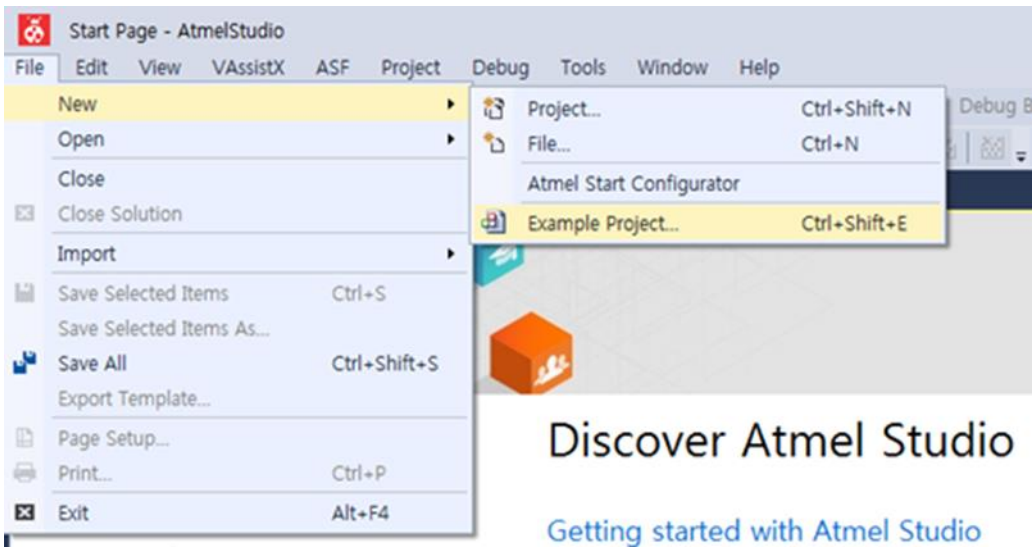
- Scan Parameter Service Application for ATSAMB11

4.2 Build Procedure

The following procedure is explained for ATSAMB11 application example.

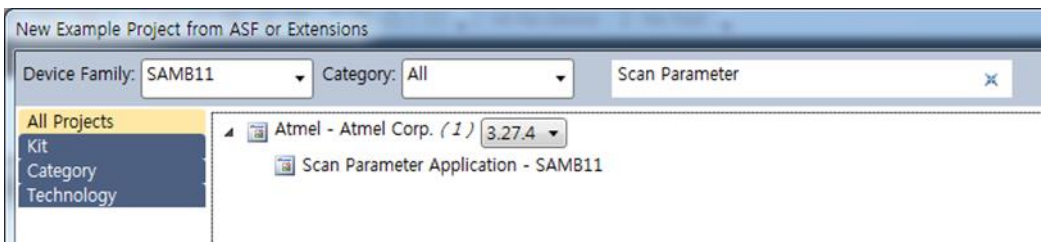
1. Select New Example Project.

Figure 4-1. Creating a New Example Project



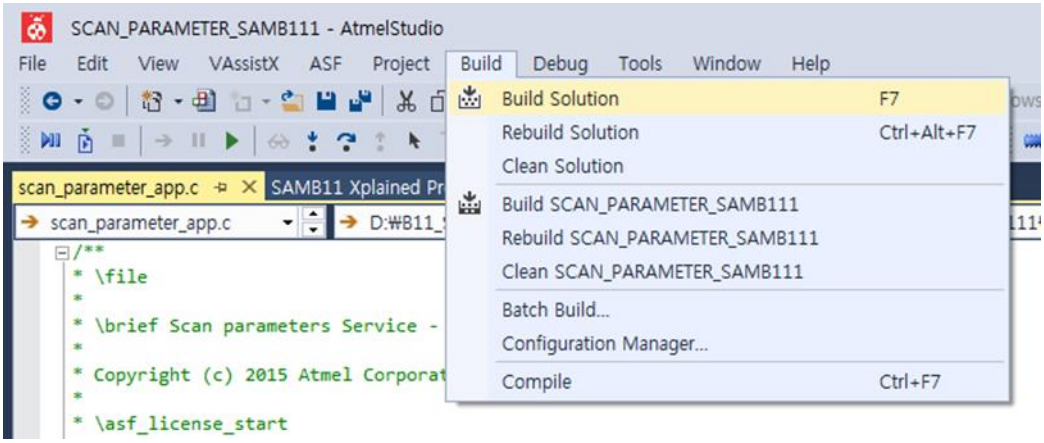
2. Select “SAMB11” in device family, enter “Scan Parameter” in the search window, and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click OK.

Figure 4-2. Selecting Scan Parameter Service Application from Example Projects



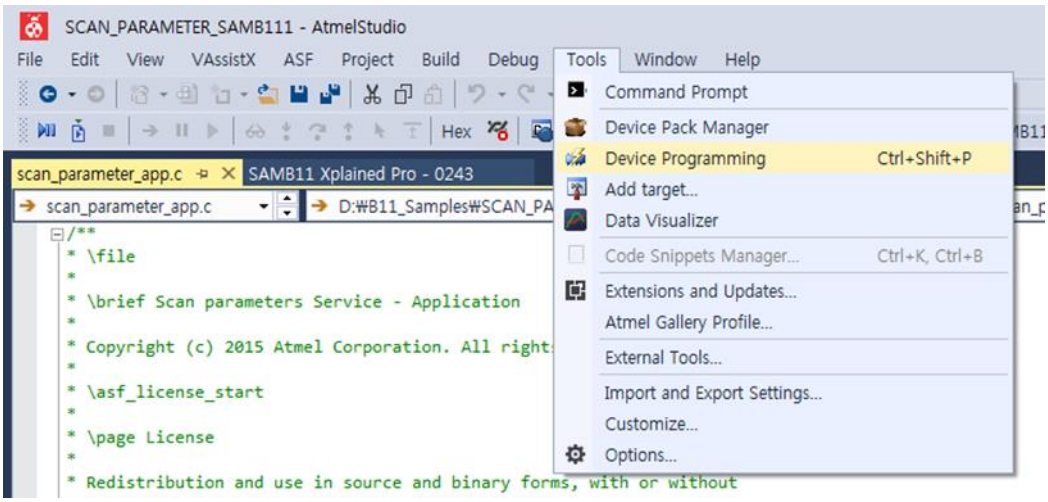
3. Accept the license Agreement. The studio will generate the Scan Parameter Service Example project for ATSAMB11.
4. Build the solution.

Figure 4-3. Building the Scan Parameter Service Application



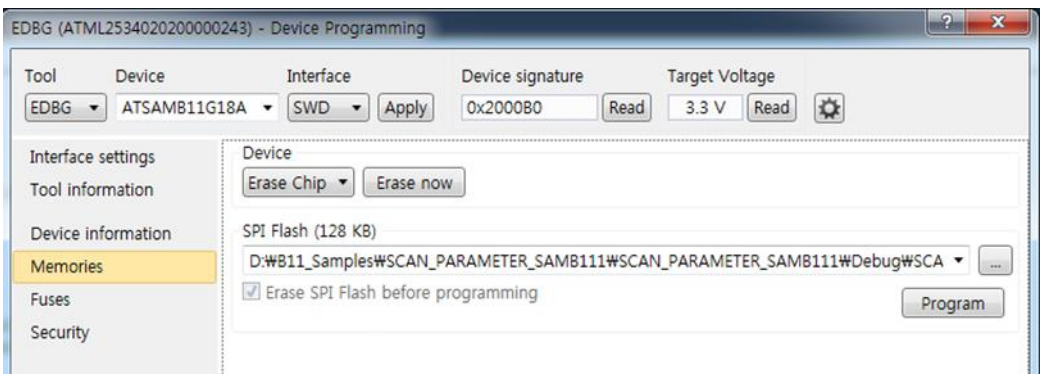
5. Download the application via the USB to the ATSAMB11 board by using the Device Programing option available in Tools as shown below.

Figure 4-4. Selecting Device Programming Option



6. Inside the device programming the user has to select the correct configuration for the device and finally program the device by using the program button.

Figure 4-5. Flashing 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 Console Logging

For the purpose of debugging, a logging interface has been implemented in the Scan Parameter Service Application.

The logging interface utilizes the same EDBG port that connects to ATSAMB11. A serial port monitor application (for example TeraTerm) shall be opened and attached to the appropriate COM port enumerated by the PC.

6 Running the Demo

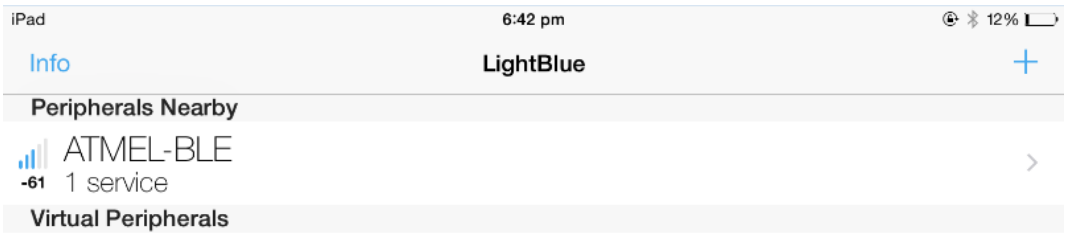
1. Power on the ATSAMB11 by connecting the USB cable.
2. Open any Terminal Application (e.g. TeraTerm), select the appropriate COM Port (settings: Baudrate 115200, None Parity, one Stop bit, one Start bit, no Hardware Handshake).
3. Press the Reset button on the ATSAMB11 board.
4. The device is now in advertising mode.

Figure 6-1. Console Display for the Device in Advertising Mode

```
Initializing Scan Parameter Application
Initializing SAMB11
BD Address:0xF8F005F24004, Address Type:0
BLE Started Adv
```

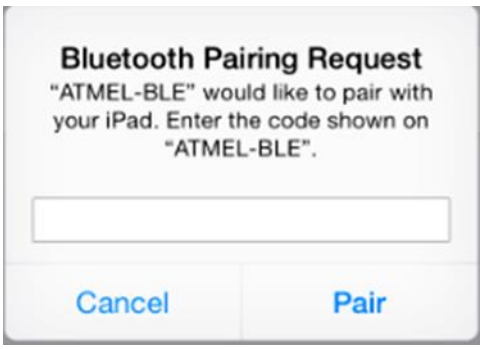
5. Enable Bluetooth® from the Settings page on the iPhone®. Use the LightBlue application to scan for peripheral devices. A device with the name ‘Atmel-BLE’ will appear in the list of scanned devices.

Figure 6-2. Atmel-BLE Device Discovered by LightBlue Application



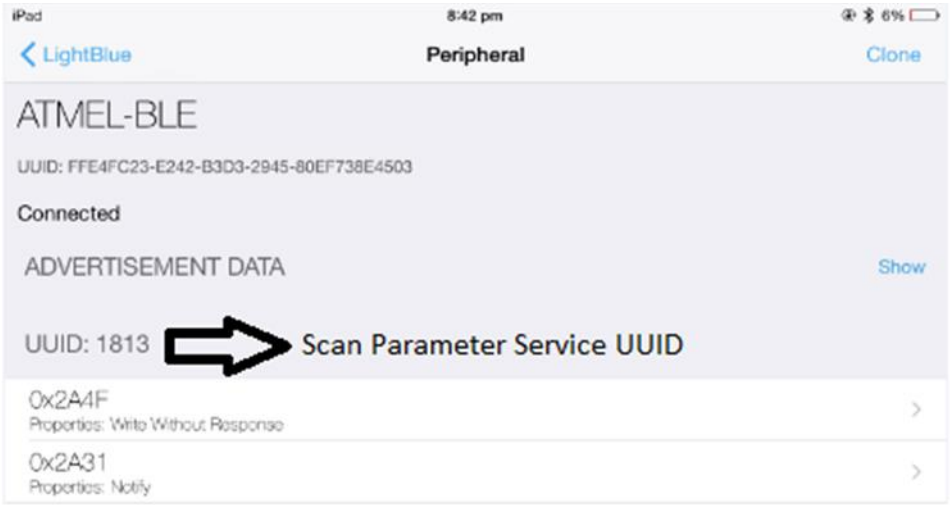
6. Click on ATMEL-BLE device. A pop-up will appear requesting pass-key. Enter “123456” and click on ‘Pair’.

Figure 6-3. Pairing Pop-up Screen



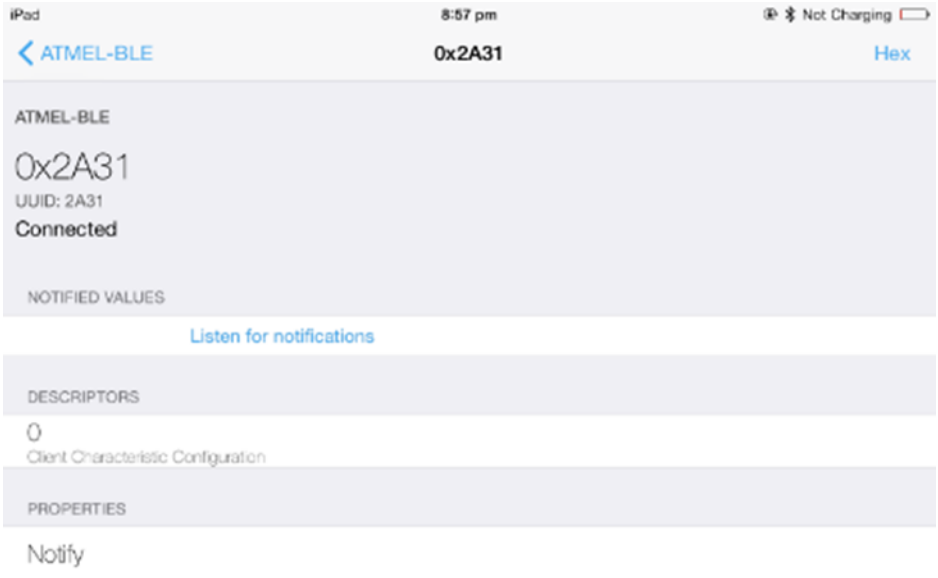
7. Once paired, the application displays the Scan Parameter Service and characteristic as shown below.

Figure 6-4. Display of Scan Parameter Service



8. Click on the list for notifications for getting the scan refresh characteristic value that is notified by the server.

Figure 6-5. Scan Refresh Characteristic Notification Options



9. The user can write the new value for Scan Interval Window characteristic.

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

10. The ATSAMB11 device get the new value for scan interval and scan window as mentioned below.

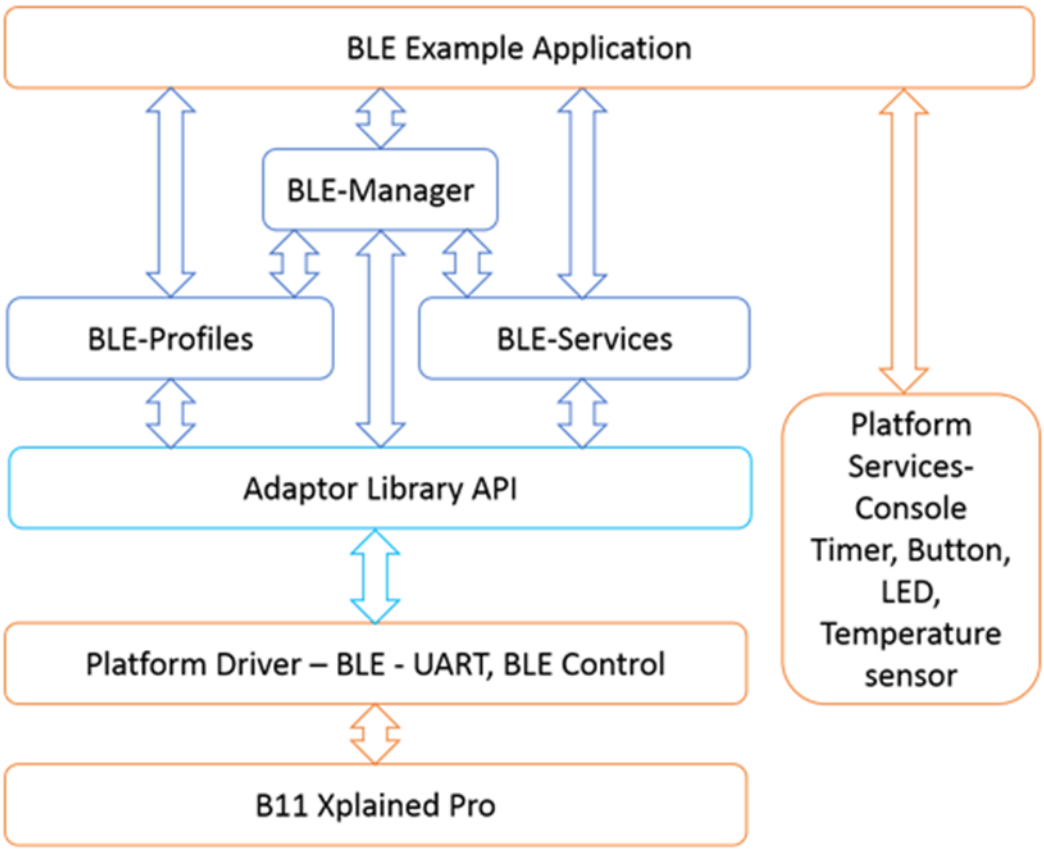
Figure 6-7. Updated Scan Interval Window Characteristic Value at ATSAMB11

```
Initializing Scan Parameter Application
Initializing SAMB11
BD Address:0xF8F005F24004, Address Type:0
BLE Started Adv
Connected to peer device with address 0x6b2d2a1fe5e5
Connection Handle 0
Peer device request pairing
Sending pairing response
Please Enter the following Pass-code(on other Device):123456
AT_BLE_CHARACTERISTIC_CONFIGURATION_CHANGED
Pairing procedure completed successfully
LED On~~~
LED Toggle~~~
Scan Refresh Characteristic Value: 0
New scan interval window parameter
Scan Interval 3 ms
Scan Window   3 ms
LED Toggle~~~
Scan Refresh Characteristic Value: 0
New scan interval window parameter
Scan Interval 45 ms
Scan Window   3 ms
```

7 BluSDK SMART Software Architecture

Figure 7-1 illustrates the top level diagram for the ATSAMB11 configuration.

Figure 7-1. ATSAMB11 Software Architecture



8 ATMEL EVALUATION BOARD/KIT IMPORTANT NOTICE AND DISCLAIMER

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9 Revision History

Doc Rev.	Date	Comments
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