

## Introduction

The Battery Service Application provides the capability to report battery level of the device by using the battery characteristics. Any application discovering the database can access the Battery Service instance during discovery services.

For the purpose of demonstration, the example simulates battery level of the device. The battery level is changed by 1% every second. The range of battery level is from 0% to 99%. At the start of the demo, the battery level is 0%.

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# 1 Purpose

This guide describes the setup of an Atmel® ATSAMB11 Xplained board. The Battery Service Application is an example application that is embedded as part of the software release package. This documents explains the bring-up of the Battery Service example application.

## 2 Demo Setup

Scanner App on a mobile  
(E.g.: LightBlue on iPhone)



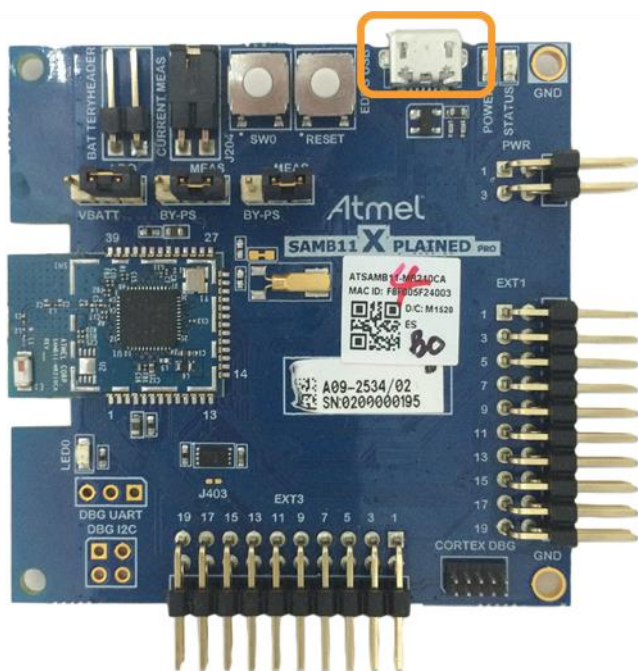
BLE Link

ATSAMB11  
(Battery Service  
Application)

## 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.

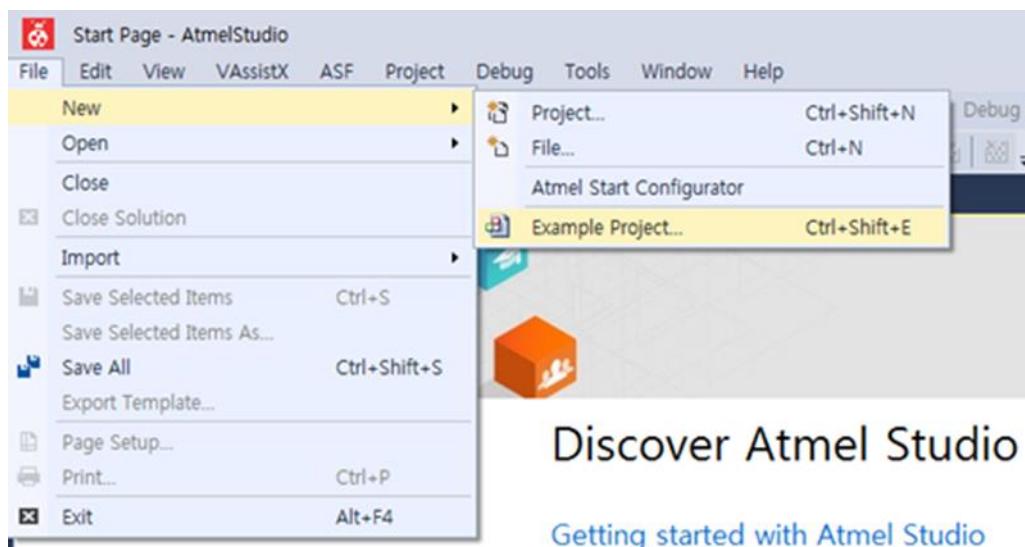
- Battery Service Application for ATSAMB11

### 4.2 Build Procedure

The following procedure is explained for ATSAMB11 application example.

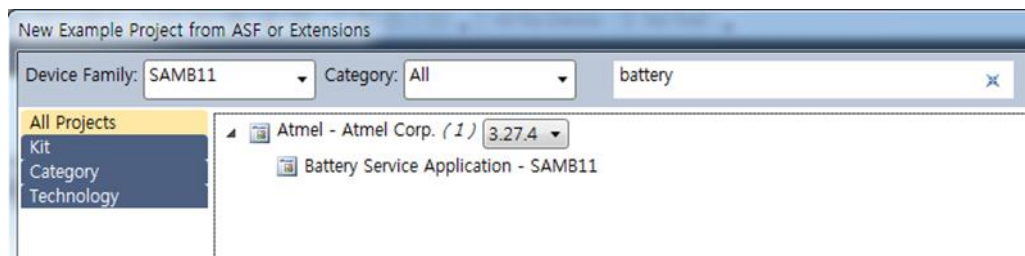
1. Select New Example Project.

Figure 4-1. Creating a New Example Project



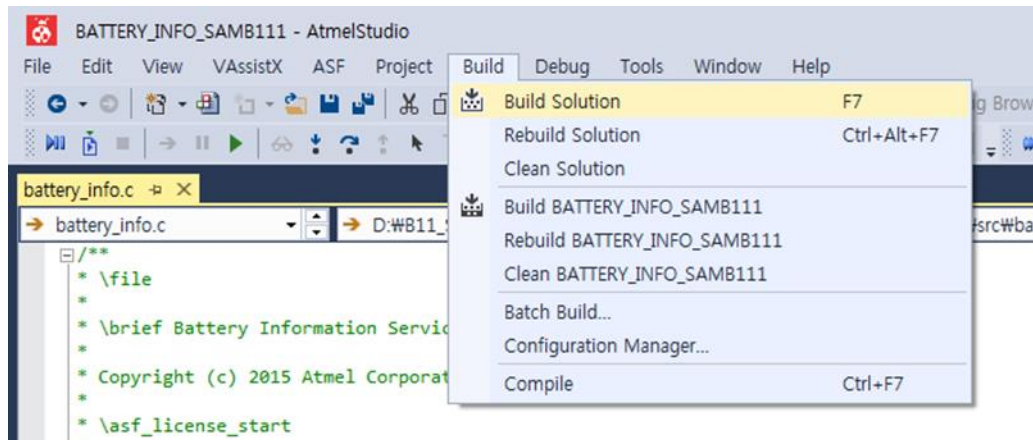
2. In search box enter “battery” in search window and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click OK

Figure 4-2. Searching for Battery Service Application Example



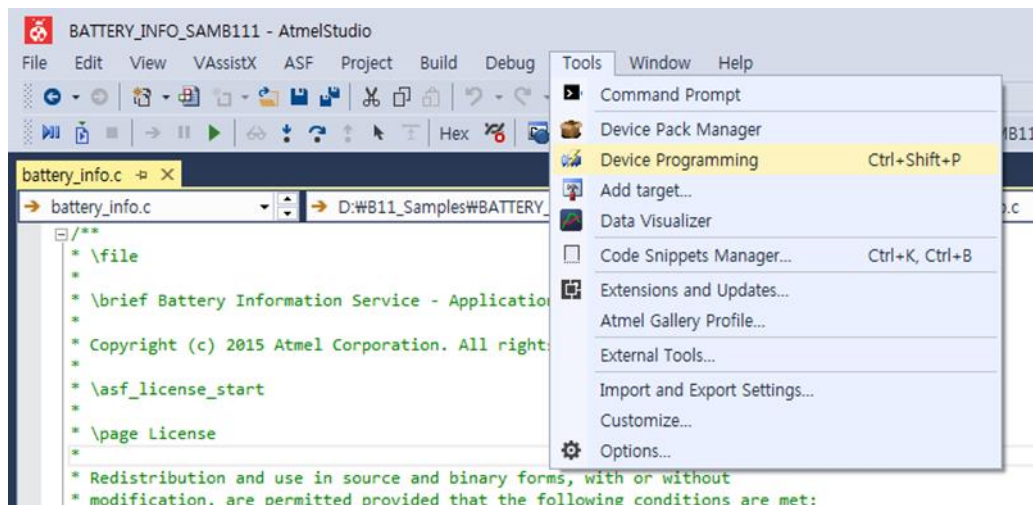
3. Accept the license Agreement. The Atmel studio will generate the Battery Service Example project for ATSAMB11.
4. Build the solution.

**Figure 4-3. Building Battery Service Application**



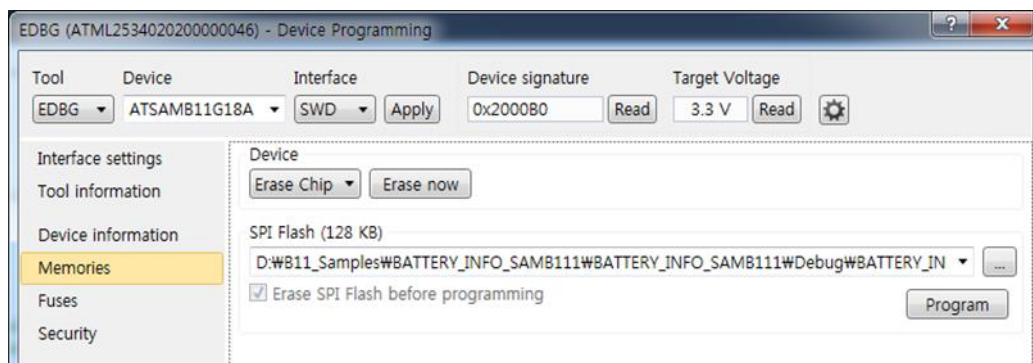
5. Download the application via the DEBUG-USB to the ATSAMB11 board by using the Device Programming option available in Tools as mentioned below.

**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 Battery Service.

## 5 Console Logging

For the purpose of debugging, a logging interface has been implemented in the Battery 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 EDBG COM port.

## 6 Running the Demo

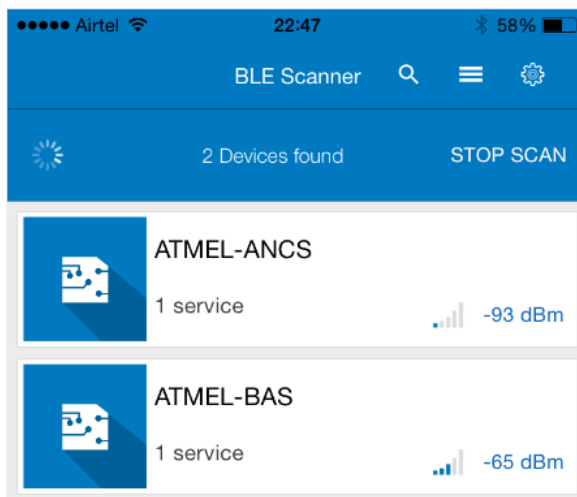
1. Power on the SAM B11 by connecting the USB Cable.
2. Open any Terminal Application (e.g. TeraTerm). Select the COM Port with the following settings: Baudrate 115200, Parity None, one Stop bit, one Start bit, no Hardware Handshake.
3. Press the Reset button on the SAM B11 board.
4. The device is now in advertising mode.

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

```
Initializing Battery Service Application
Initializing SAMB11
BD Address:0xF8F005F23FFF, Address Type:0
Device is in Advertising Mode
```

5. Enable Bluetooth® from the Settings page on a BLE compatible Android device or iPhone®. Use the Atmel SmartConnect application to scan for peripheral devices. A device with the name 'ATMEL-BAS' will appear in the list of scanned devices.

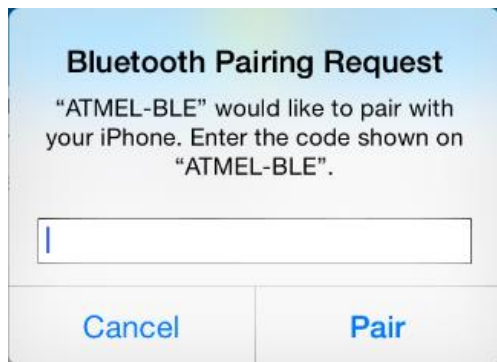
**Figure 6-2. Atmel-BLE Device Discovered by Atmel SmartConnect Application**



6. Click on the "ATMEL-BAS" device. A pop-up will appear requesting pass-key. Enter "123456" and click on 'Pair'.

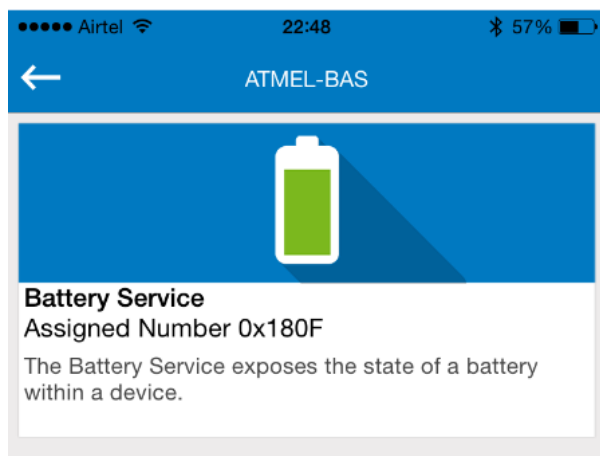


**Figure 6-3. Pairing Pop-up Screen**



7. Once paired, the application displays the battery service as shown in [Figure 6-4](#).

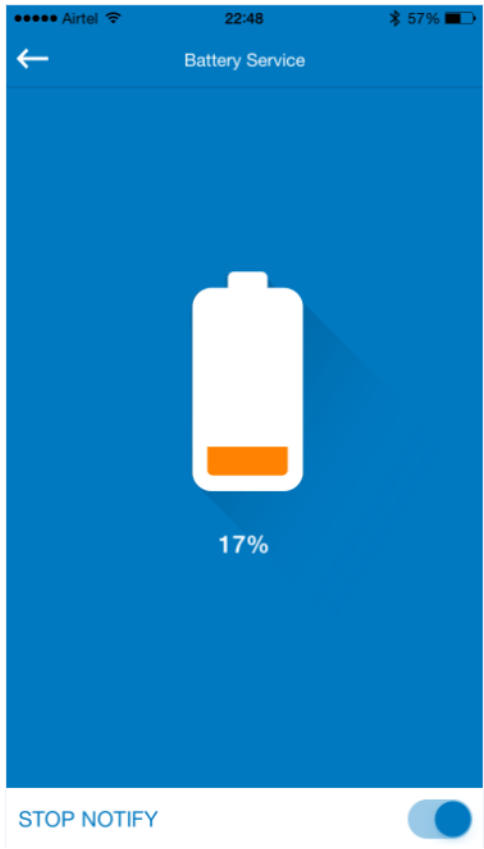
**Figure 6-4. Display of Battery Service**



8. Once the "Battery Service" is clicked user gets notifications for battery level characteristic. User can stop receiving the notifications by disabling notifications as shown in [Figure 6-5](#).



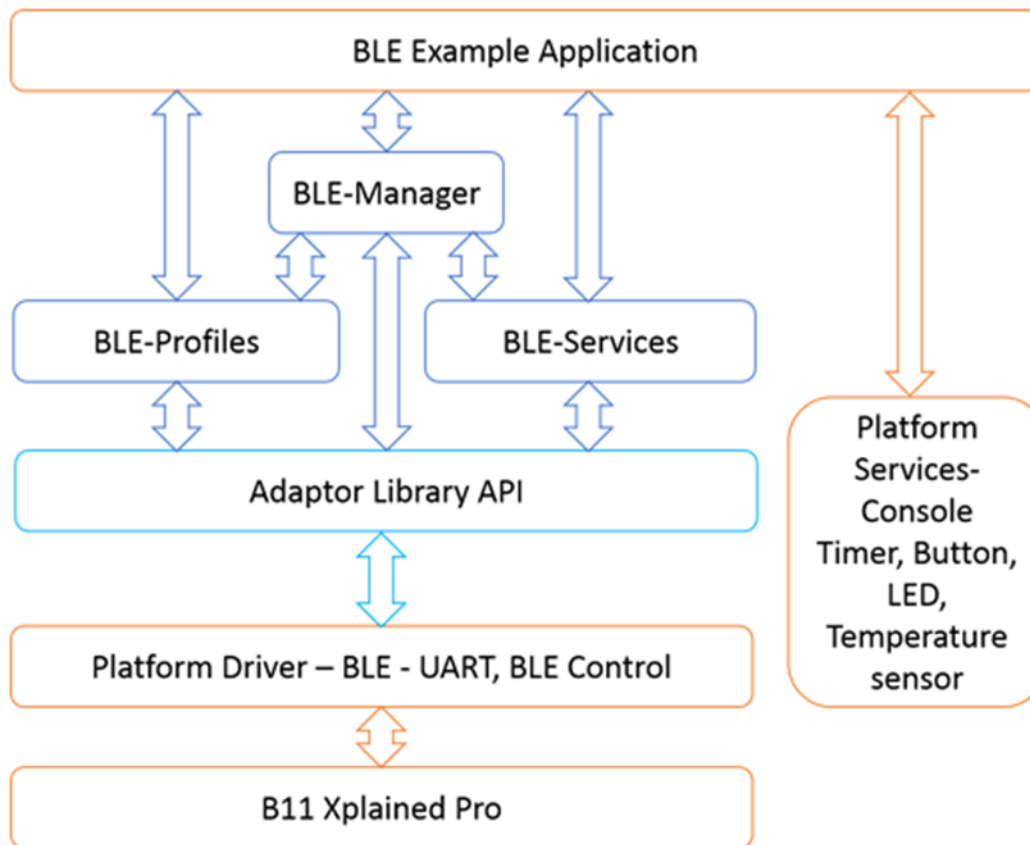
Figure 6-5. Battery Level Characteristic Notification Options



## 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
42596B	01/2016	Chapter “Running the Demo” is updated.
42596A	11/2015	Initial document release.



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