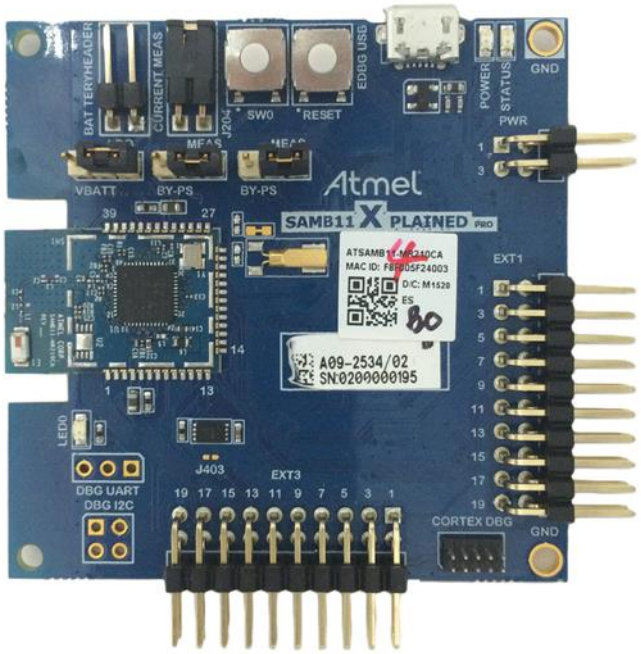
ATSAMB11 BluSDK SMART

iBeacon - Getting Started Guide

USER GUIDE



Introduction

The Beacon Application advertises iBeacon specific packets that includes UUID, Major, and Minor numbers. Any beacon scanner application should be able to find the beacon device. The supplied iOS demo app can be used to find the beacon devices in the vicinity.

The profile defines two roles:

- Monitor: The iOS/Android device that searches for beacon packets.
- Reporter: This device that continuously advertises the beacon packet as part of advertisement data.

Features

- Device Discovery
- RSSI Sampling
- Beacon Advertising
- iBeacon Demo App for iOS/Android

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1 Purpose

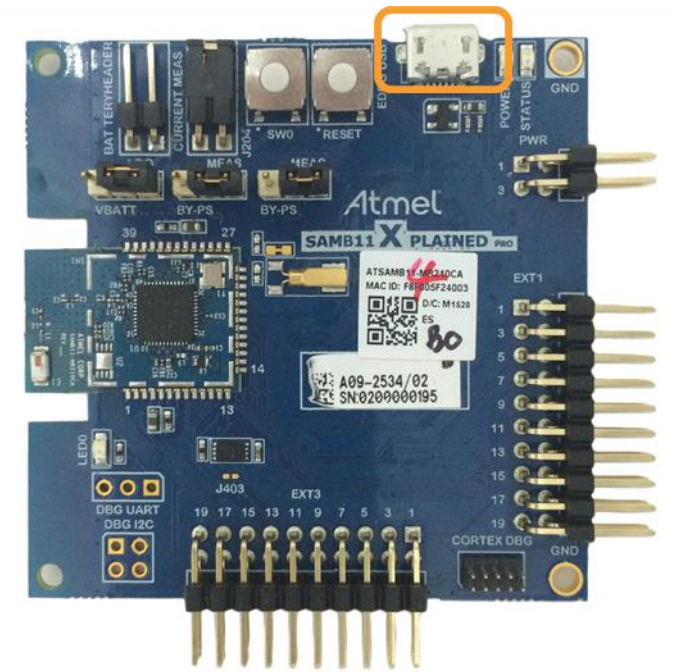
This getting started guide describes the setup of an Atmel® ATSAMB11 Xplained board and bringing up an example profile supplied as part of BluSDK SMART release. The Bluetooth® iBeacon Profile is an example profile application that is embedded as part of the software release package.

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:

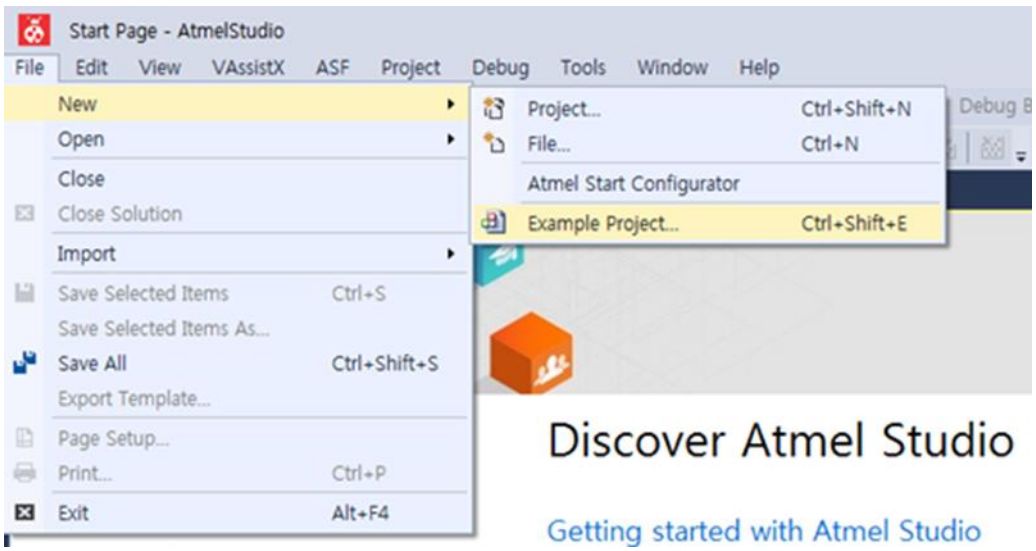
- Beacon Application for ATSAMB11

4.2 Build Procedure

The following procedure is explained for ATSAMB11 application example.

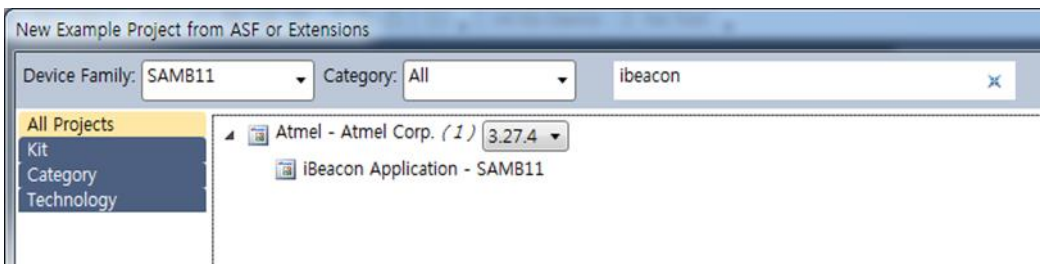
1. Select New Example Project.

Figure 4-1. Creating a New Example Project



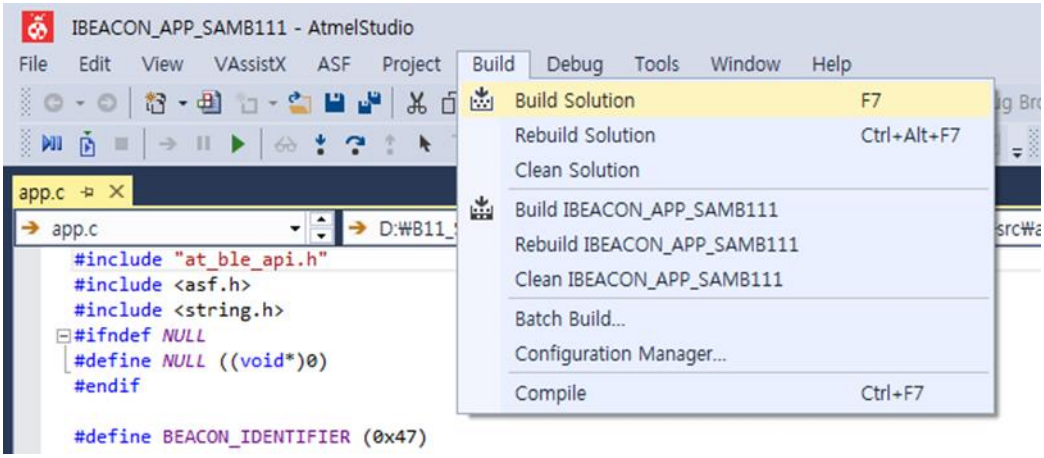
2. Select “SAMB11” in device family, enter “ibeacon” in search window, and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click OK.

Figure 4-2. Selecting iBeacon Application from Example Projects



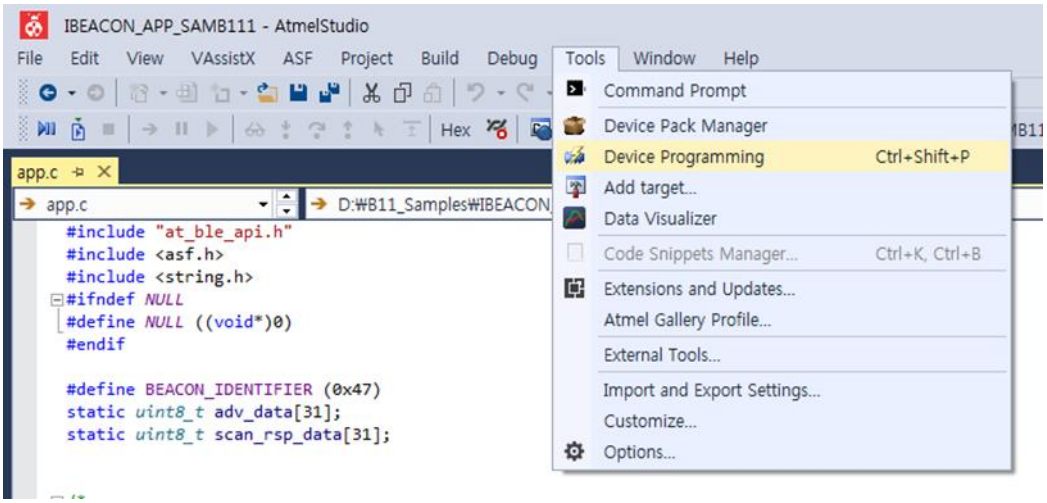
3. Accept the license Agreement. The studio will generate the Beacon Profile project for ATSAMB11.
4. Build the solution.

Figure 4-3. Building the iBeacon Application



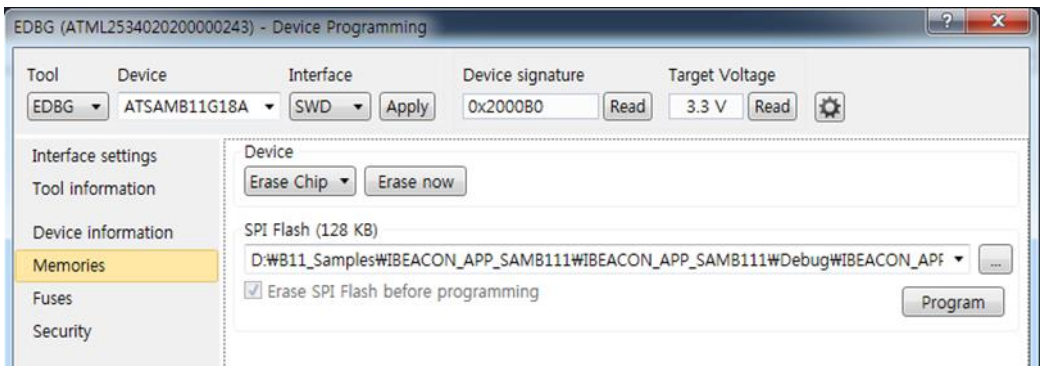
5. Download the application via the USB to the ATSAMB11 board by using the Device Programing option available in Tools as shown below.

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 advertise beacon packets.

5 Console Logging

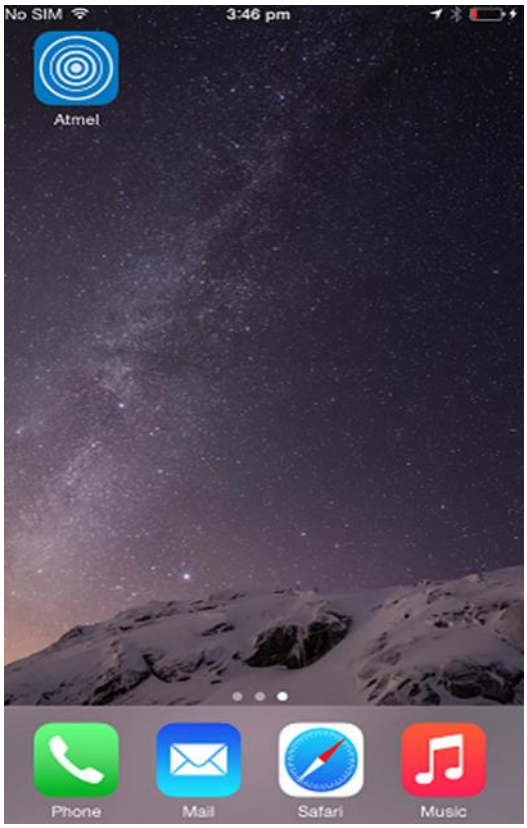
For the purpose of debugging, a logging interface has been implemented in the Beacon Application.

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 ATSAMB11 by connecting the USB cable.
2. Press the Reset button on the ATSAMB11 board.
3. Start the Beacon application on the iPhone/Android.

Figure 6-1. Atmel Beacon Radar Profile App Launch Screen



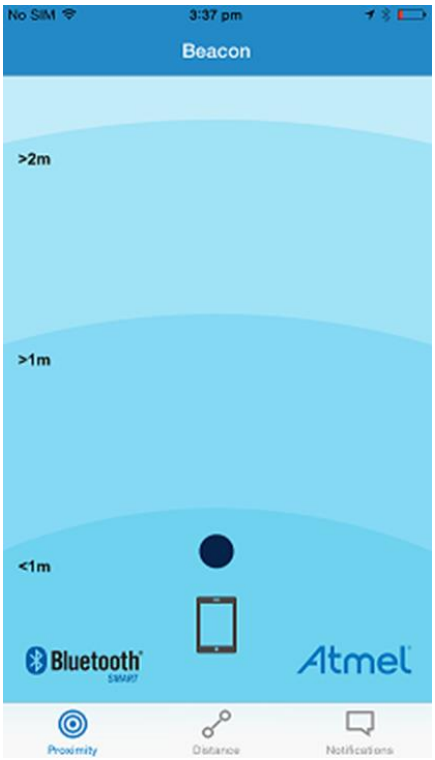
4. As soon as the Beacon application is launched it will show the positioning of the beacon device with respect to the mobile device. It also represent three modes as mentioned below:

   Proximity: This mode is used to display beacon specific information when the mobile device comes in close proximity to a given beacon. The mode then shows the corresponding product related information that is configured for this particular beacon device.

   Distance: To indicate the distance between the beacon device and the mobile.

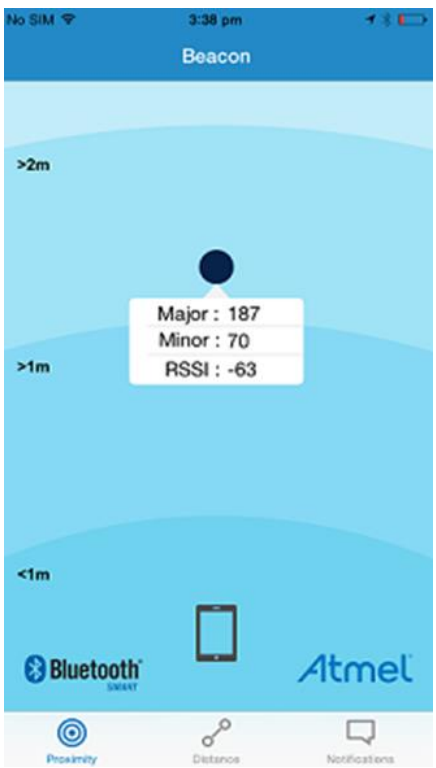
   Notification: This mode is used to demonstrate the ranging capabilities of a given beacon. The notification messages change appropriately based on the proximity to a given beacon.

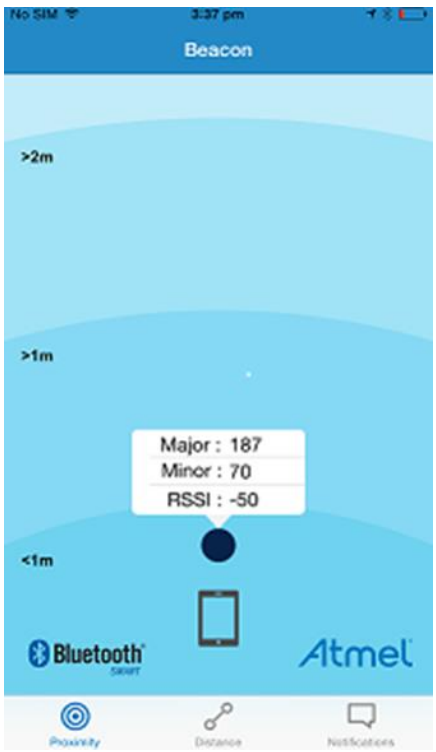
Figure 6-2. Beacon Radar Application Initial Screen



5. Click on the dark blue circle to check the Major, Minor, and RSSI Value. The RSSI values get automatically updated based on the movement of the scanner device.

Figure 6-3. Beacon Radar Application in Distance Mode



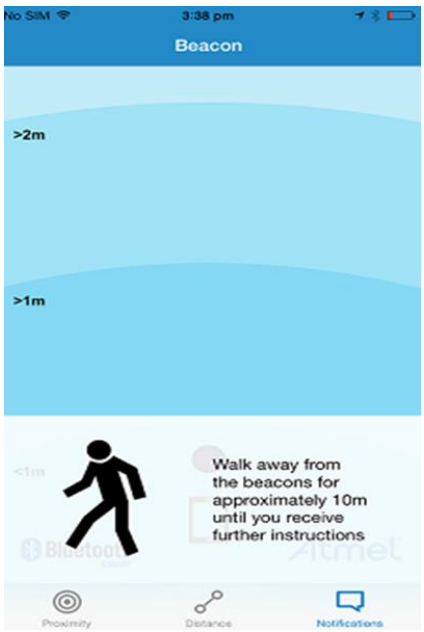


6. Inside the proximity mode if the scanner device is very near to beacon, the user will see the product information when the user is in close proximity to a given beacon device. If the user moves away from the beacon device the information content will not be shown any more. It is just an indication that the user moved away from the beacon device. The user can optionally close the message by clicking on close.

Figure 6-4. Beacon Radar Application in Proximity Mode

7. The user can select the notification mode and follow the instructions on the screen to check the range of a given beacon device.

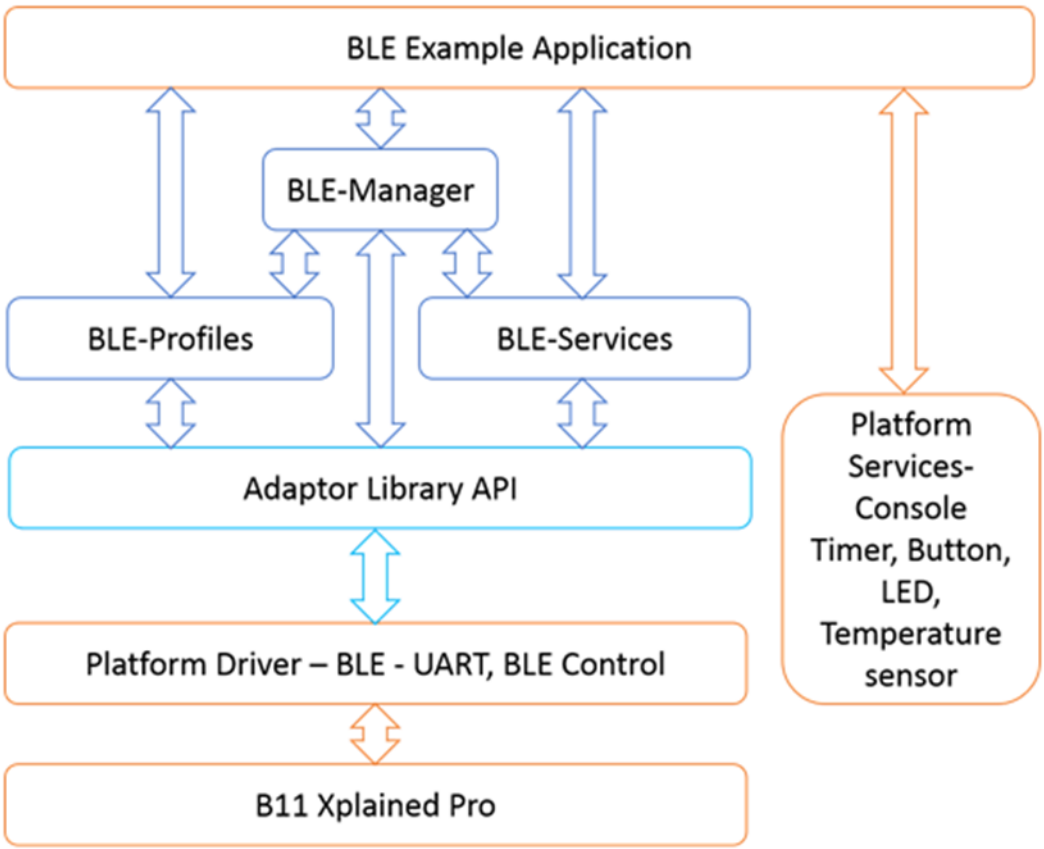
Figure 6-5. Beacon Radar Application in Notification Mode



7 BluSDK SMART Software Architecture

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

Figure 7-1. ATSAMB11 Software Architecture



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9 Revision History

Doc Rev.	Date	Comments
42599A	11/2015	Initial document release.

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