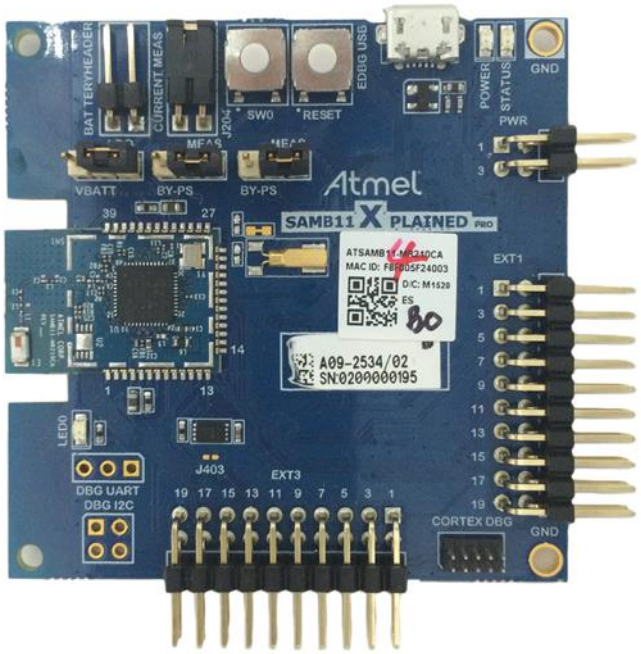
ATSAMB11 BluSDK SMART

Observer Application - Getting Started Guide

USER GUIDE



Introduction

The Observer Application continuously listen for the advertisement data over the air.

The application supports 12 advertisement data types. They are listed as follows:

- Incomplete List of 16-bit Service Class UUID
- Complete List of 16-bit Service Class UUIDs
- Incomplete List of 32-bit Service Class UUIDs
- Complete List of 32-bit Service Class UUIDs
- Incomplete List of 128-bit Service Class UUIDs
- Complete List of 128-bit Service Class UUIDs
- Shortened Local Name
- Complete Local Name
- Appearance
- Manufacturer Specific Data
- TX Power
- Advertisement Interval.

Table of Contents

1 Purpose 3

2 Demo Setup 4

3 Hardware Setup 4

4 Software Setup 5

4.1 Installation Steps 5

4.2 Build Procedure 5

5 Console Logging 7

6 Running the Demo 7

7 Configuration Options 8

8 BluSDK SMART Software Architecture 9

9 ATMEL EVALUATION BOARD/KIT IMPORTANT NOTICE AND DISCLAIMER 10

10 Revision History 11

1 Purpose

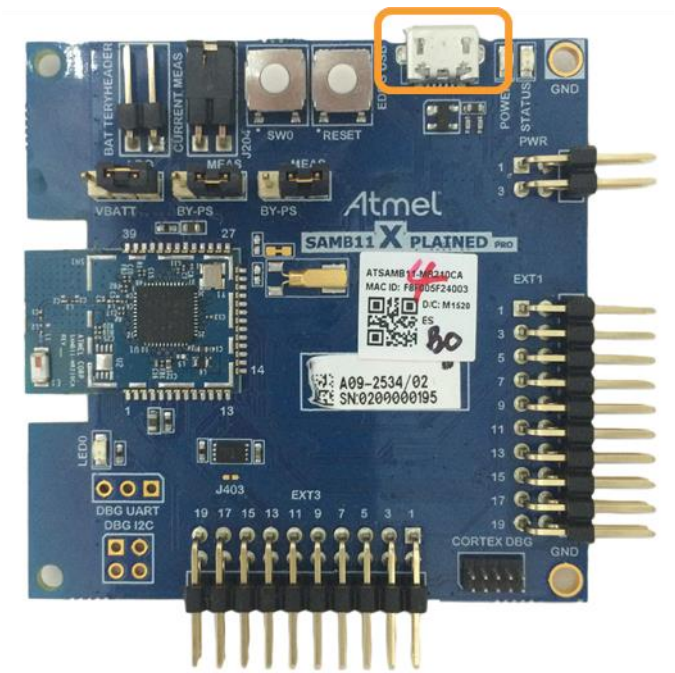
This guide describes the setup of an Atmel® ATSAMB11 Xplained board and bringing-up an example profile supplied as part of BluSDK SMART release. The Bluetooth® Observer application is an example application that is embedded as part of the software release package.

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.

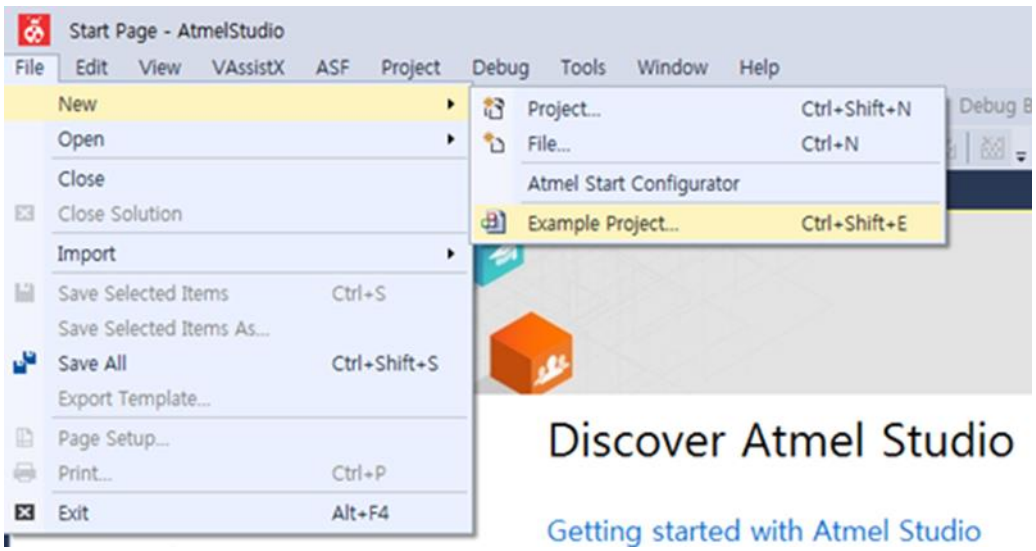
- Observer Application for ATSAMB11

4.2 Build Procedure

The following procedure is explained for ATSAMB11 application example.

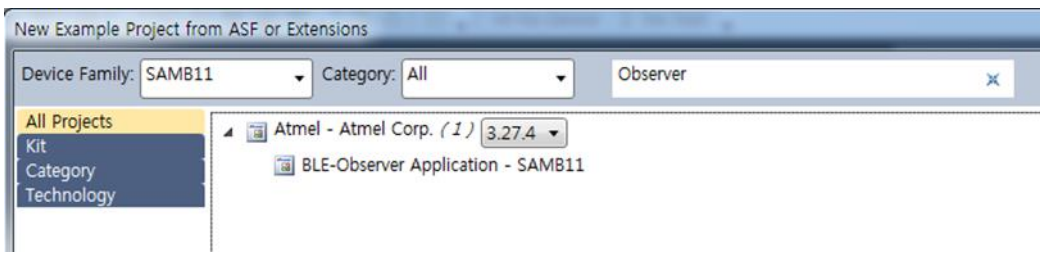
1. Select New Example Project.

Figure 4-1. Creating a New Example Project



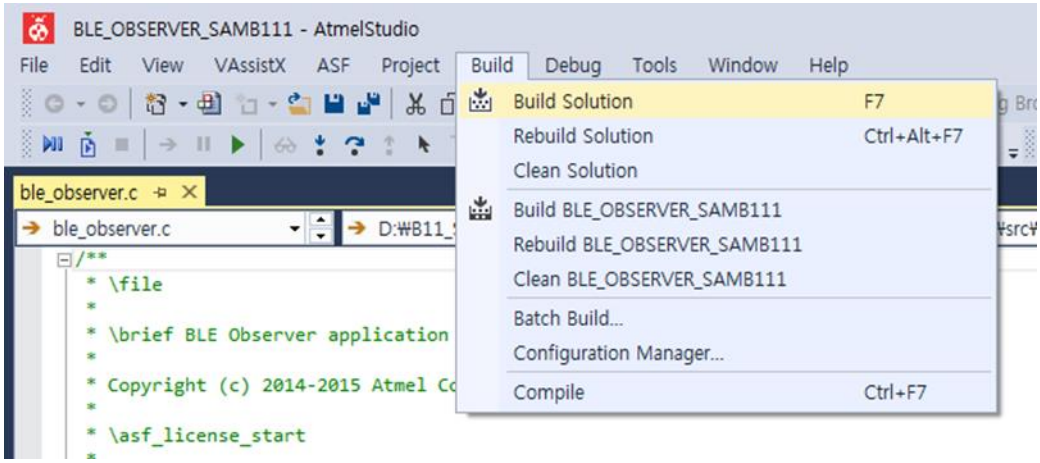
2. Select “SAMB11” in device family, enter “Observer” in search window and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click OK.

Figure 4-2. Selecting Observer Application from Example Projects



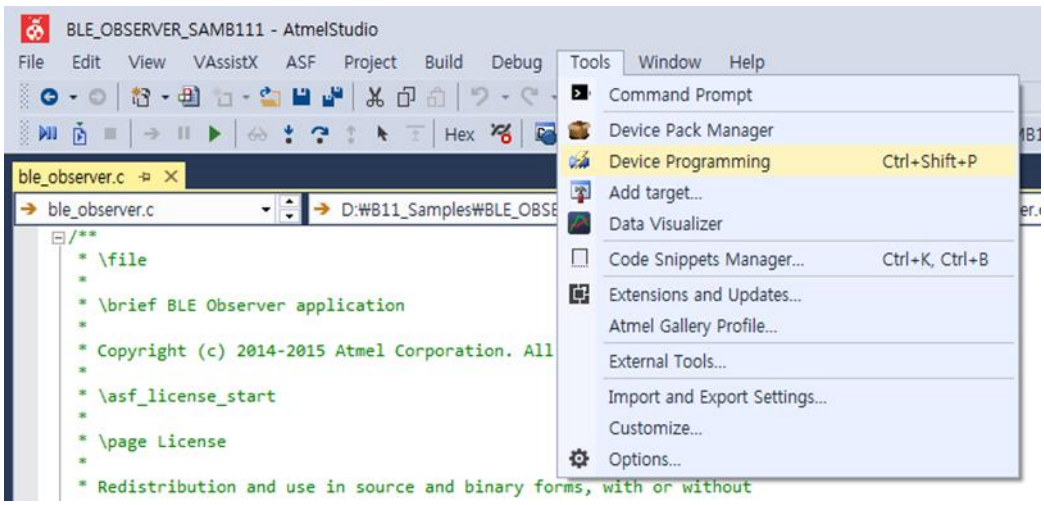
3. Accept the license Agreement. The studio will generate the Observer project for ATSAMB11.
4. Build the solution.

Figure 4-3. Building Observer 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. Flashing the Application on Atmel MCU



6. Program the device to download the Observer application as shown below.

Figure 4-5. Flashing Programming

5 Console Logging

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

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

6 Running the Demo

1. Power on the ATSAMB11 by connecting the USB Cable.
2. Open any Terminal Application (e.g. TeraTerm) Select the COM Port and 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 scanning mode.

Figure 6-1. Observer Console Output

```
Observer Application
Initializeing SAMB11
BD Address:0x444444333321, Address Type:0

Scanning…Please wait…
Scanning process initiated

Advertisement type           :  ADV_IND
Device address type          :  PUBLIC_ADDRESS
Device address               :  0xf8f005f23fff
RSSI                         :  -75
Flags                        :  LE_GENERAL_DISCOVERABLE_MODE
BREDR_NOT_SUPPORTED LE_BREDR_CAPABLE_CONTROLLER
Complete Local Name          :  AT-CSC
Complete_128bit_service_uuid :   0x1b 0xc5 0x01 0x10 0x85 0x88 0x01 0x10
0x28 0x0d 0x01 0x10 0x74 0x84 0x01 0x10Info:Device found address [0]
0xF8F005F23FFF

Advertisement type           :  ADV_SCAN_RESPONSE
Device address type          :  PUBLIC_ADDRESS
Device address               :  0xf8f005f23fff
RSSI                         :  -85
Manufacturer Specific Data   :  0x00 0x06 0xd6 0xb2 0xf0 0x05 0xf0 0xf8
Info:Device found address [1]  0xF8F005F23FFF
```

7 Configuration Options

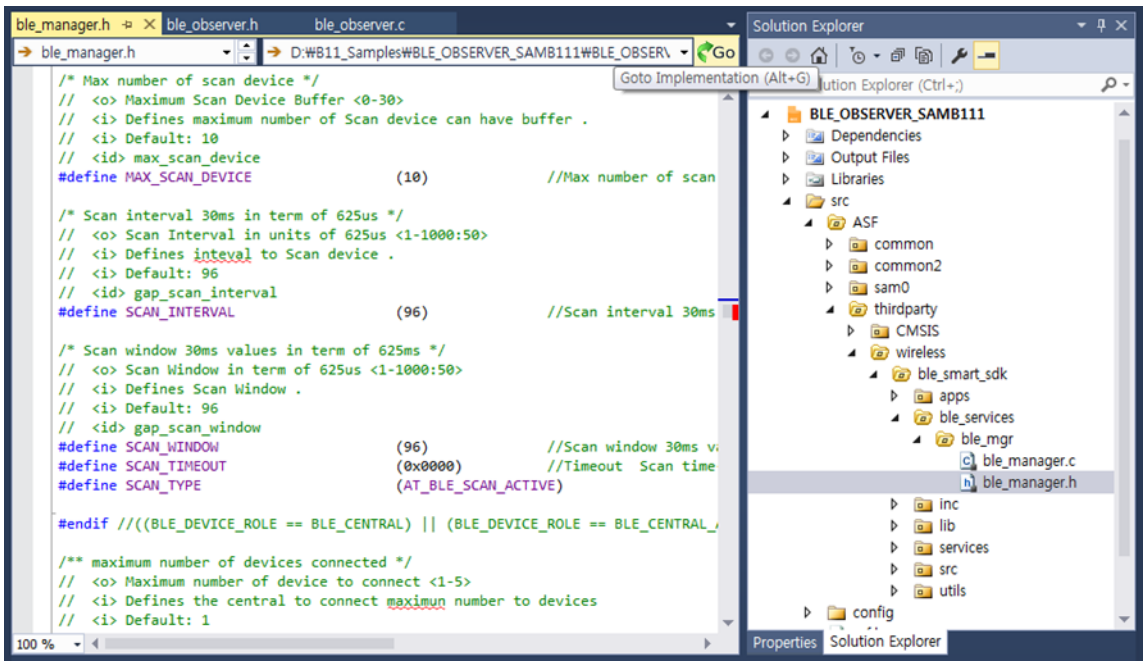
The default scanning parameters of Observer are mentioned below:

```
MAX_SCAN_DEVICE          (10)
SCAN_INTERVAL            (96)
SCAN_WINDOW              (96)
SCAN_TIMEOUT             (0x0000)
SCAN_TYPE                (AT_BLE_SCAN_ACTIVE)
```

The above options can be changed by as per the need.

They are available in the ble_manager.h located in *\asf\thirdparty\wireless\ble_smart_sdk\ble_services\ble_mgr* which is shown in Figure 7-1.

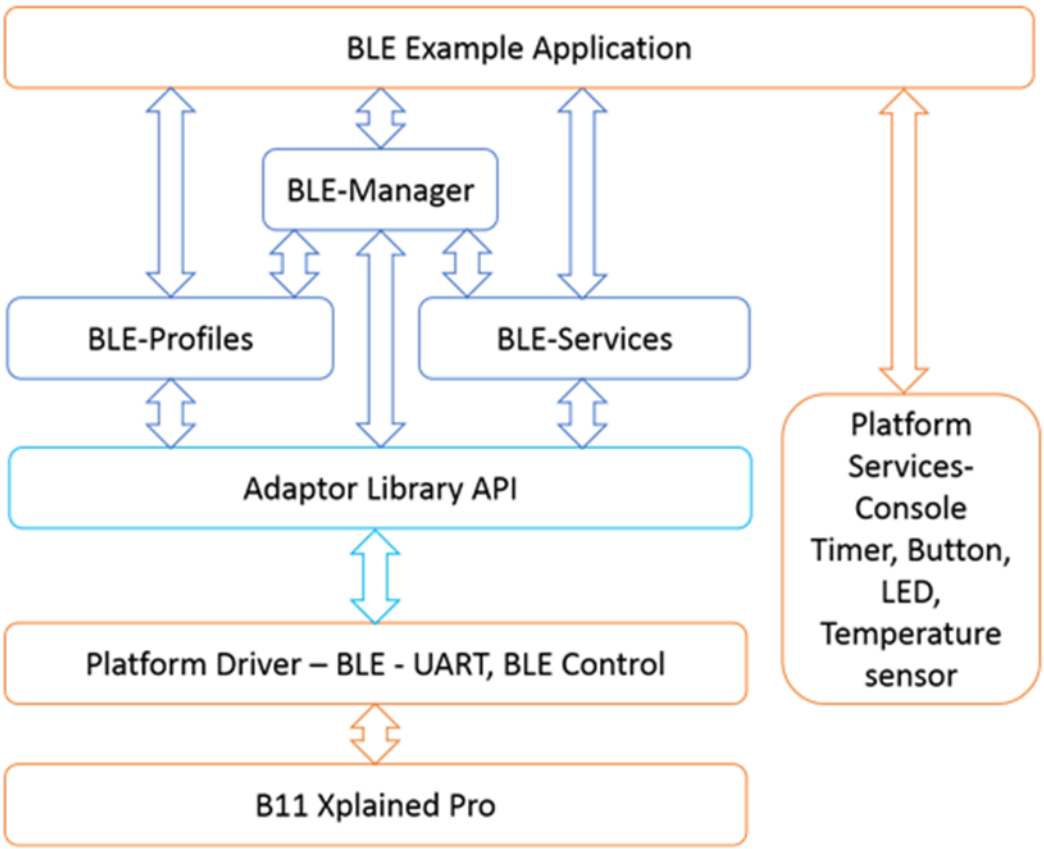
Figure 7-1. Configuration Header File for Observer



8 BluSDK SMART Software Architecture

Figure 8-1 illustrates the top level diagram for the ATSAMB11 configuration.

Figure 8-1. ATSAMB11 Software Architecture



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10 Revision History

Doc Rev.	Date	Comments
42597A	11/2015	Initial document release.

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