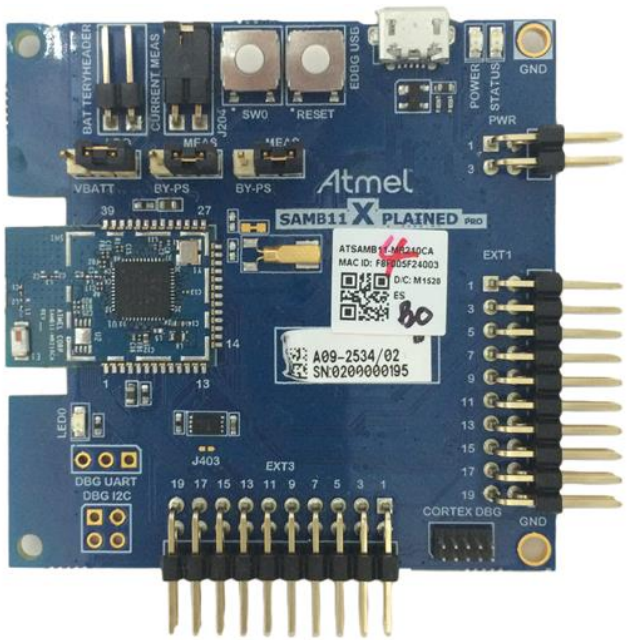
ATSAMB11 BluSDK SMART

Phone Alert Status Profile - Getting Started Guide

USER GUIDE



Introduction

The Phone Alert Status profile (PAS) is used to obtain the Phone Alert Status exposed by the Phone Alert Status service on a mobile device. Alert Status and Ringer Setting information of a mobile phone can be received and modified by the Phone Alert Status service. The device can also use this profile to configure ringer status on the mobile device.

Features

- Device Discovery and Disconnection
- Pairing/Bonding
- Phone Alert Status Alerts
- Console Display

Table of Contents

1 Purpose

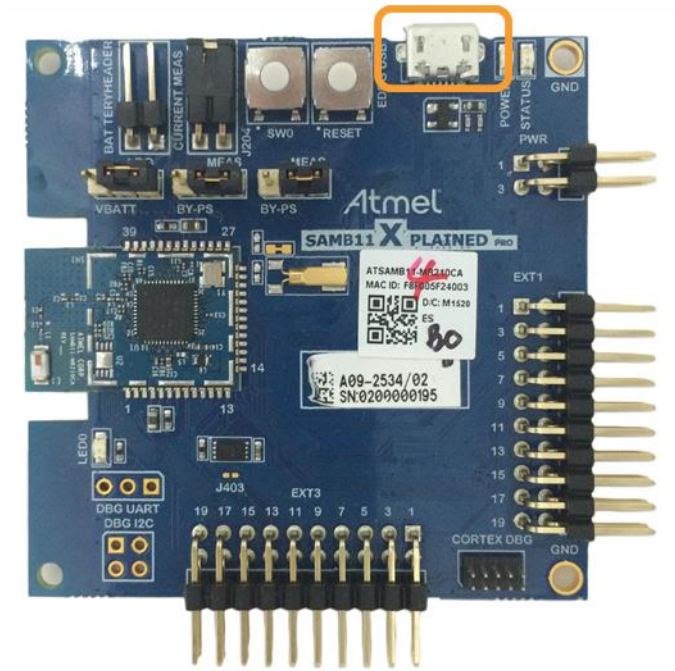
This getting started guide describes the setup of an Atmel® ATSAMB11 Xplained board and bringing up an example profile supplied as part of the BluSDK SMART release. The Bluetooth® Phone Alert Status Profile is an example application that is embedded as part of the software release package.

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 Phone Alert Status Notifications

The Profile defines two roles; Phone Alert Server and Phone Alert Client. The Phone Alert Server is the device that originates the alerts and the Phone Alert Client is the device that receives the alerts and alerts the user.

The Phone Alert Client which is a GATT client, is the configuration that is implemented on the ATSAMB11.

The example application utilizes the SW0 button on the ATSAMB11 to demonstrate the notification use-cases. A BLE compatible Android device running Atmel SmartConnect mobile application provides the Phone Alert Server (PAS Server) functionality in this example. On the application, once the service is discovered and the user clicks on PAS service, notifications are enabled.

1. Post connection with mobile device, the first button press will put the PAS server to ‘Silent’ mode.
2. The second button press, the device will be set to ‘Mute’ State.
3. The third button press, will turn the device back to ‘Normal’ Mode.
4. The fourth button press issues a ‘Read Characteristic’ request that will read the characteristics of ‘Alert Status’, ‘Ringer Settings’ and ‘Ringer Control Point’.

Note: iOS devices like iPhone® do not natively support Phone Alert Status profile. This demo/example will only work with BLE compatible Android devices running Atmel SmartConnect mobile application.

5 Software Setup

5.1 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:

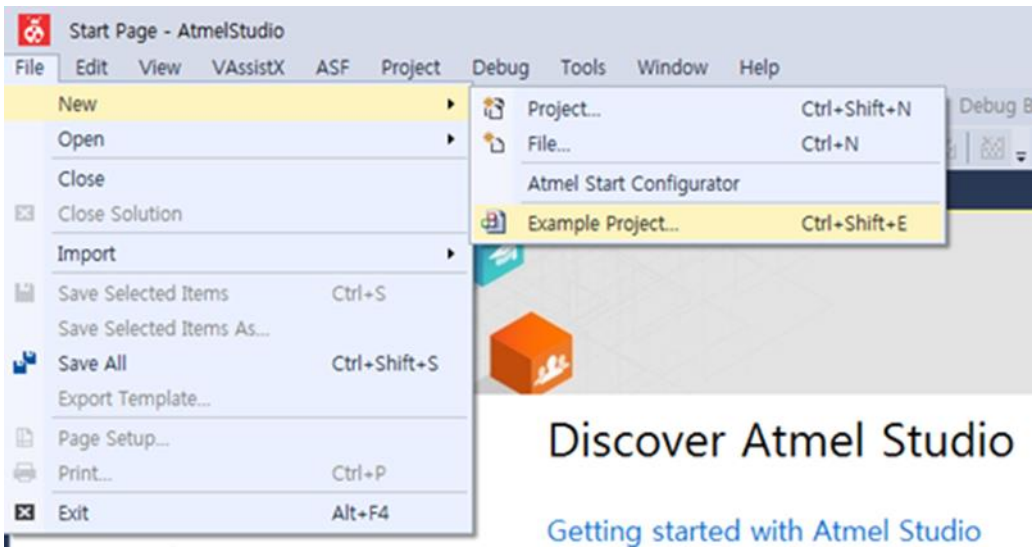
- Phone Alert Status application for ATSAMB11

5.2 Build Procedure

The following procedure is explained for ATSAMB11 application example.

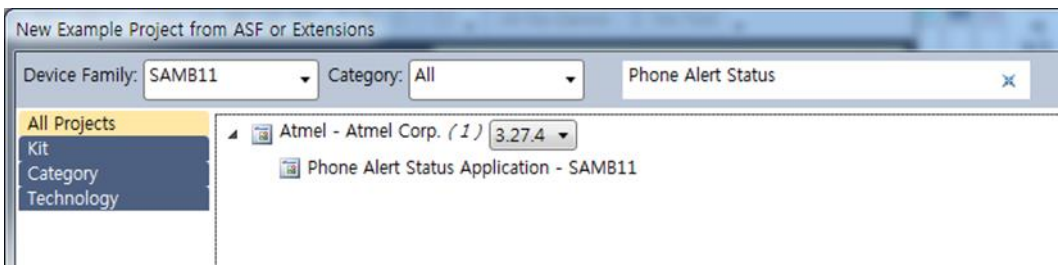
1. Select New Example Project.

Figure 5-1. Creating a New Example Project



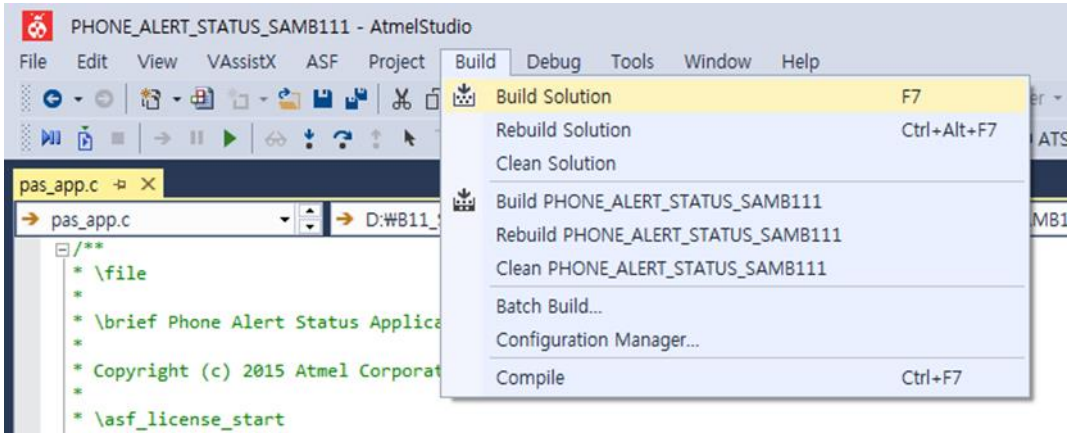
2. Select “SAMB11” in device family, enter “Phone Alert Status” in search window, and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click OK.

Figure 5-2. Selecting Phone Alert Status Application from Example Projects



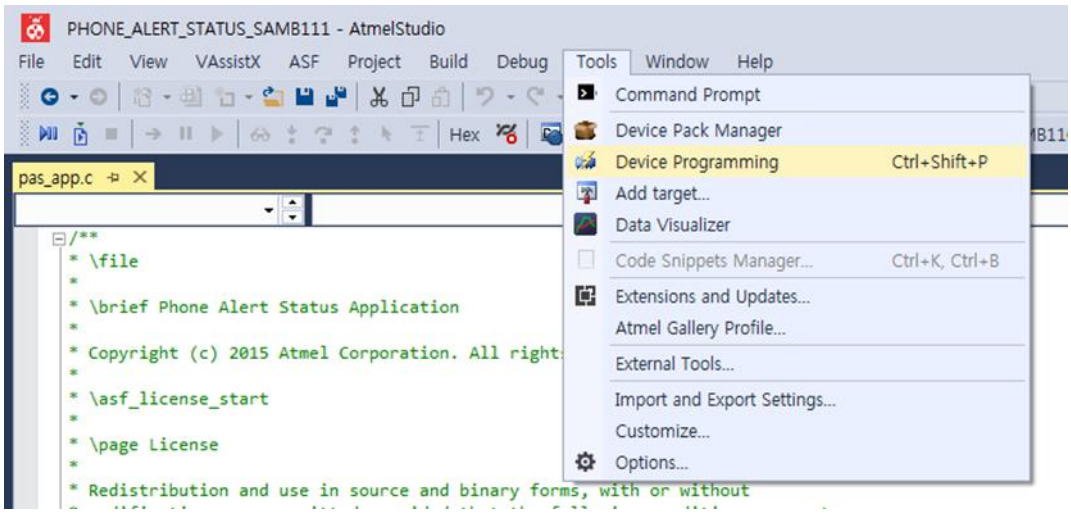
3. Accept the license Agreement. The Atmel studio will generate the Phone Alert Status Server project for ATSAMB11.
4. Build the solution.

Figure 5-3. Building the Phone Alert Status Application



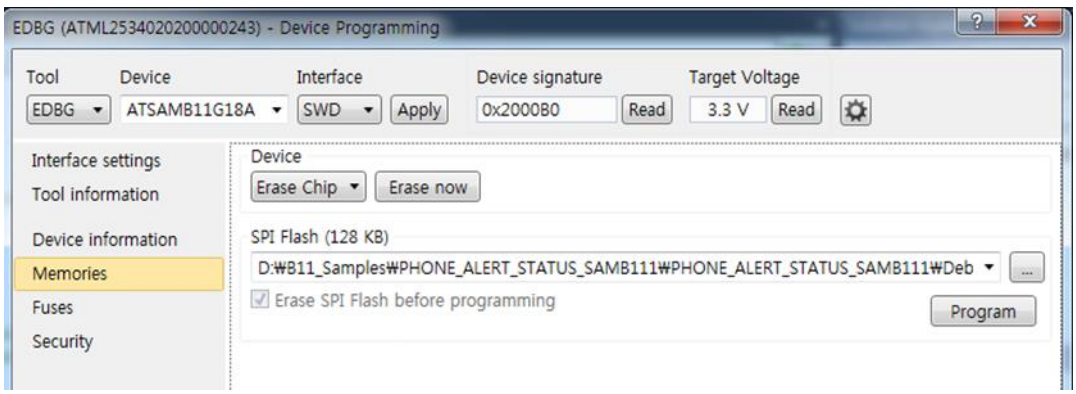
5. Download the application via the USB to the ATSAMB11 board by using the Device Programing option available in Tools as shown below.

Figure 5-4. Programming the Application



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 5-5. Flash the Phone Alert Status Application



7. Once the application is flashed, the Phone Alert Status Client Application is ready for usage.

6 Console Logging

For the purpose of debugging, a logging interface has been implemented in the Phone Alert Status 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 corresponding COM port enumerated on the PC by the device with a baud rate of 115200.

7 Running the Demo

1. Power on the ATSAMB11 by connecting the USB cable.
2. Open a console window using TeraTerm or any equivalent serial port monitor application and connect to the corresponding COM port enumerated on the PC. Configure 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 ATSAMB11 board.
4. The device is now in advertising mode.

Figure 7-1. Console Display for Device in Advertising Mode

```
Initializing Phone Alert Status Profile Application
Initializing SAMB11
BD Address:0xFFFACAF1A76F, Address Type:0
pas_client_init
Device is in Advertising Mode
```

5. On a BLE compatible Android phone enable Bluetooth in the Settings page. Use the Atmel SmartConnect App and scan for devices. ATMEL-PAS will appear amongst the devices scanned. Click on ATMEL-PAS to connect to the ATSAMB11 device.

Figure 7-2. Device Discovery in Atmel SmartConnect App

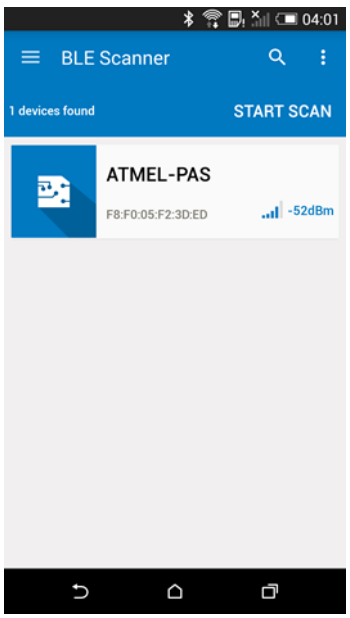
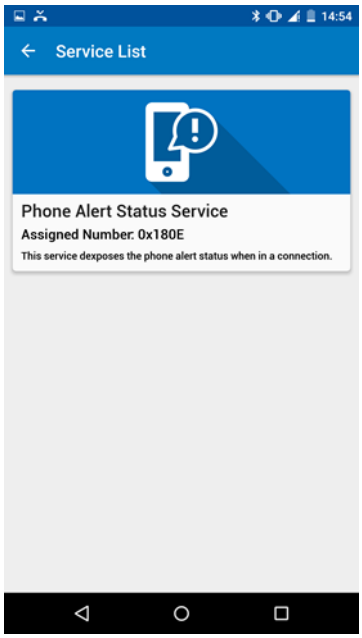


Figure 7-3. Service Page After Connection



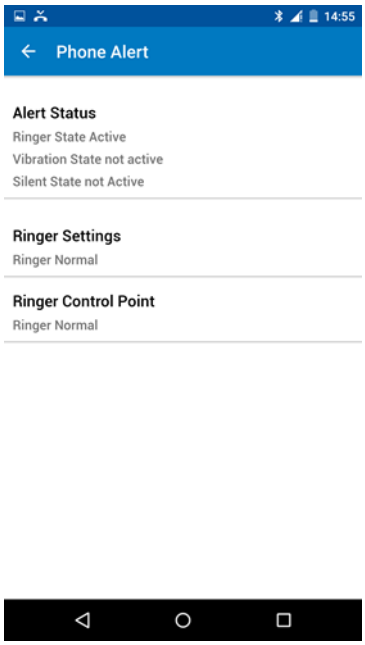
6. Once connected, the client side will request for the pairing procedure with the phone. The console log provides a guidance to the user to enter the pass-key on the phone.

Figure 7-4. Console Log for Pairing

```
Initializing Phone Alert Status Profile Application
Initializing SAMB11
BD Address:0xFFFACAF1A76F, Address Type:0
pas_client_init
Device is in Advertising Mode

Connected to peer device with address 0x5c5173f5c937
Connection Handle 0

Peer device request pairing
Sending pairing response

Please Enter the following Pass-code(on other Device):123456

Pairing procedure completed successfully
Notifications has been enabled
```

7. Once the device is connected, notifications are automatically enabled and the application reads the values of ‘Alert Status’, ‘Ringer Settings’ and ‘Ringer Control Point’ characteristics which are updated on the mobile app as shown.

Figure 7-5. Application Screen Displaying the Characteristics of Phone Alert Service



8. Now, when the SW0 button is pressed as described in Chapter 2, the device is set to different modes using the notifications and the corresponding console logs are displayed as shown.

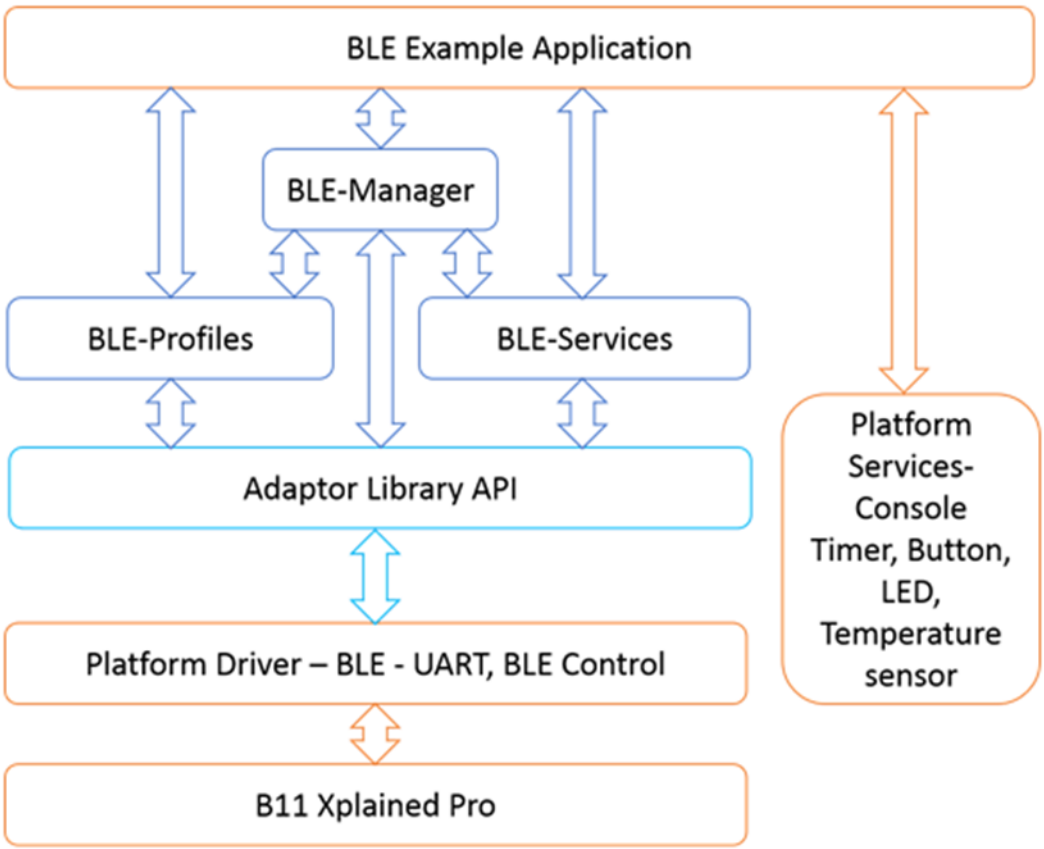
Figure 7-6. Phone Alert Status Console Log

```
button Pressed
Device to silent

AT_BLE_CHARACTERISTIC_WRITE_CMD_CMP
AT_BLE_CHARACTERISTIC_WRITE_COMMAND : SUCCESS

button Pressed
Device to Mute Once

AT_BLE_CHARACTERISTIC_WRITE_CMD_CMP
AT_BLE_CHARACTERISTIC_WRITE_COMMAND : SUCCESS

button Pressed
Device to cancel mute

AT_BLE_CHARACTERISTIC_WRITE_CMD_CMP
AT_BLE_CHARACTERISTIC_WRITE_COMMAND : SUCCESS

button Pressed
reading the alert status and ringer setting
pas_client_char_read_response_handler
Alert setting read :
pas_client_char_read_response_handler
Alert Status read:
Ringer State Active
Vibrate State Active
Display State Active
```

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
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