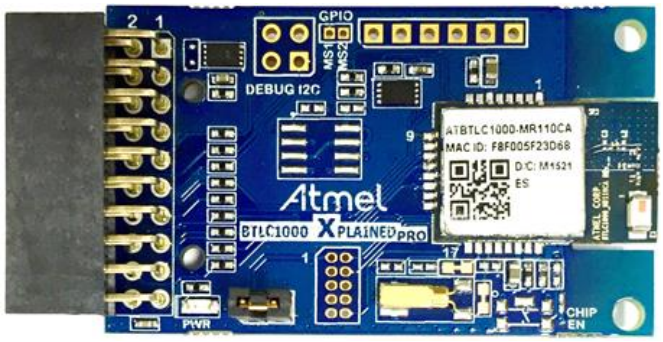
ATBTLC1000 BluSDK

Phone Alert Status Profile - Getting Started Guide

USER GUIDE



Introduction

This getting started guide describes the setup of the Atmel® ATBTLC1000 with a supported platform bringing-up an example profile supplied as part of BluSDK release. The Bluetooth® Phone Alert Status Profile is an example application that is embedded as part of the software release package.

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.

This document explains the details about:

1. Getting started with the setup of supported platform to be used as a Phone Alert Client.
2. Getting the Phone Alert Status Application working on the above mentioned setup.

Features

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

1 Demo Setup

Figure 1-1. Demo Setup for Phone Alert Status

2 Supported Hardware Platforms and IDEs

Table 2-1. BluSDK – Supported Hardware and IDEs

Platform	MCU	Supported BLE Module	Supported evaluation kits	Supported IDEs
SAM L21 (MCU)	ATSAML21J18A	ATBTLC1000	ATBTLC1000-XSTK	Atmel Studio v6.2
SAM D21 (MCU)	ATSAMD21J18A	ATBTLC1000	SAMD21-XPRO + ATBTLC1000	Atmel Studio v6.2
SAM G55 (MCU)	ATSAMG55J19	ATBTLC1000	SAMG55-XPRO + ATBTLC1000	Atmel Studio v6.2

3 Hardware Setup

3.1 SAM L21 Xplained Pro Phone Alert Status Client Setup

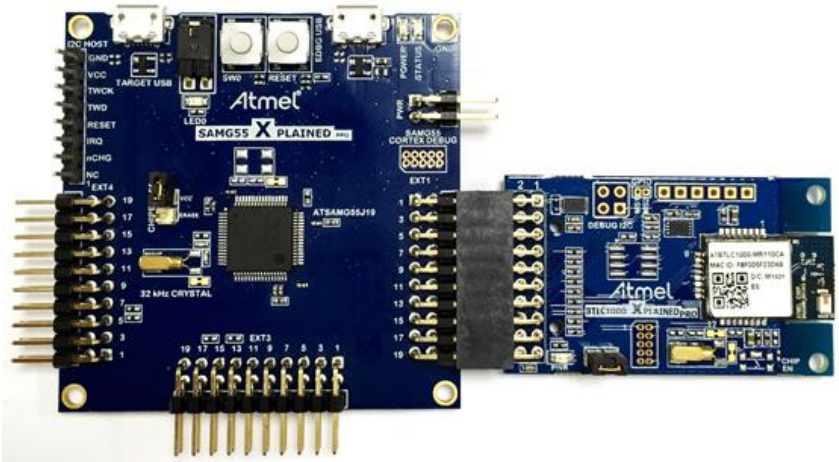
Figure 3-1. ATBTLC1000 Xplained Pro Extension Connected to a SAM L21 Xplained Pro

3.2 SAM D21 Xplained Pro Phone Alert Status Client Setup

Figure 3-2. ATBTLC1000 Xplained Pro Extension Connected to a SAM D21 Xplained Pro

3.3 SAM G55 Xplained Pro Phone Alert Status Client Setup

Figure 3-3. ATBTLC1000 Xplained Pro Extension Connected to a SAM G55 Xplained Pro



4 Phone Alert Status Notifications

The Profile defines two roles; the Phone Alert Server and the 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's implemented on the ATBTLC1000 + along with supported platform.

The example application utilizes the SW0 button on the supported platform to demonstrate the notification use-cases. A BLE compatible Android device running the Atmel Smart Connect 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 set 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 return 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 work only with BLE compatible Android devices running the Atmel Smart Connect mobile application.

5 Software Setup

5.1 Installation Steps

1. Atmel Studio installation [**Atmel Studio 6.2 sp2 (build 1563) Installer – with .NET**] http://www.atmel.com/tools/atmelstudio.aspx.

   (Note: SAM D21/SAM L21 part pack is built-in as part of Atmel Studio 6.2 sp2.)

2. Install SAM G55 Part pack http://www.atmel.com/images/as-partpack-ATSAMG55-6.2.13.zip.

   (Note: This installer is needed only if the bring-up is being done on the SAM G55 platform.)

3. Atmel USB Driver Installer http://www.atmel.com/tools/atmelstudio.aspx.
4. Install the standalone ASF package from http://www.atmel.com/tools/AVRSOFTWAREFRAMEWORK.aspx.

Note: Refer to the BluSDK release notes for updates to version numbers of the components mentioned above.

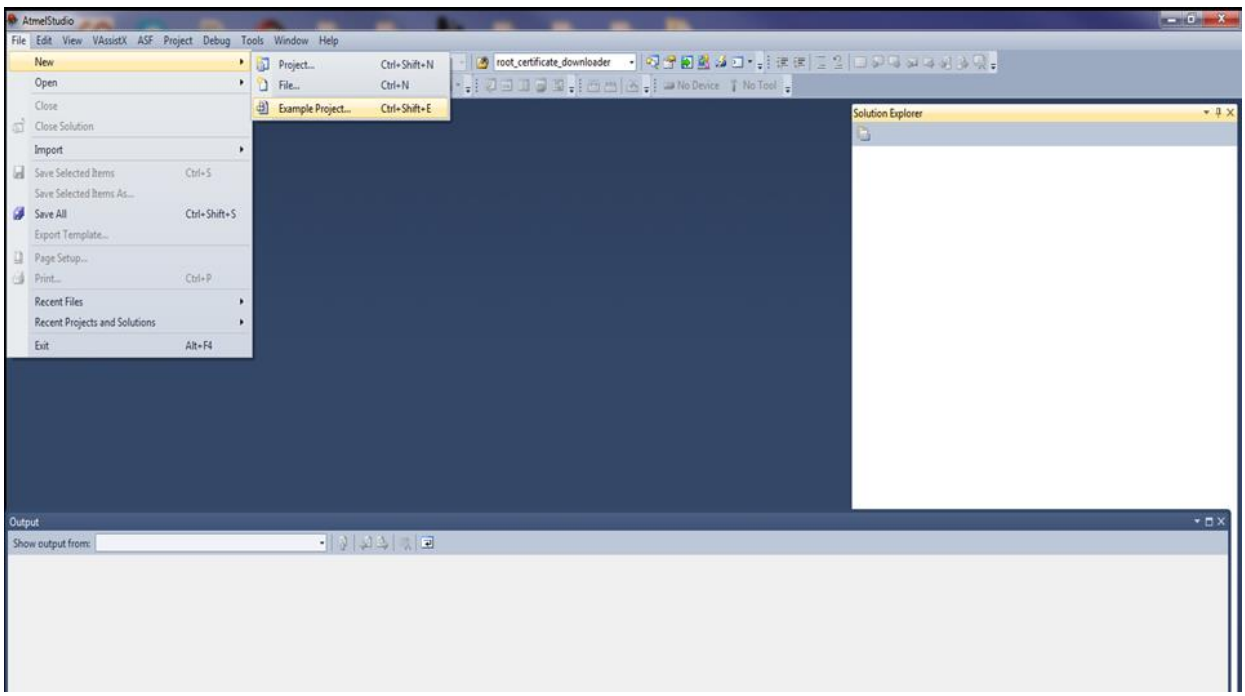
This package will install the following examples within the Atmel Studio environment.

1. Blood Pressure Application for SAM L21.
2. Blood Pressure Application for SAM D21.
3. Blood Pressure Application for SAM G55.

5.2 Build Procedure

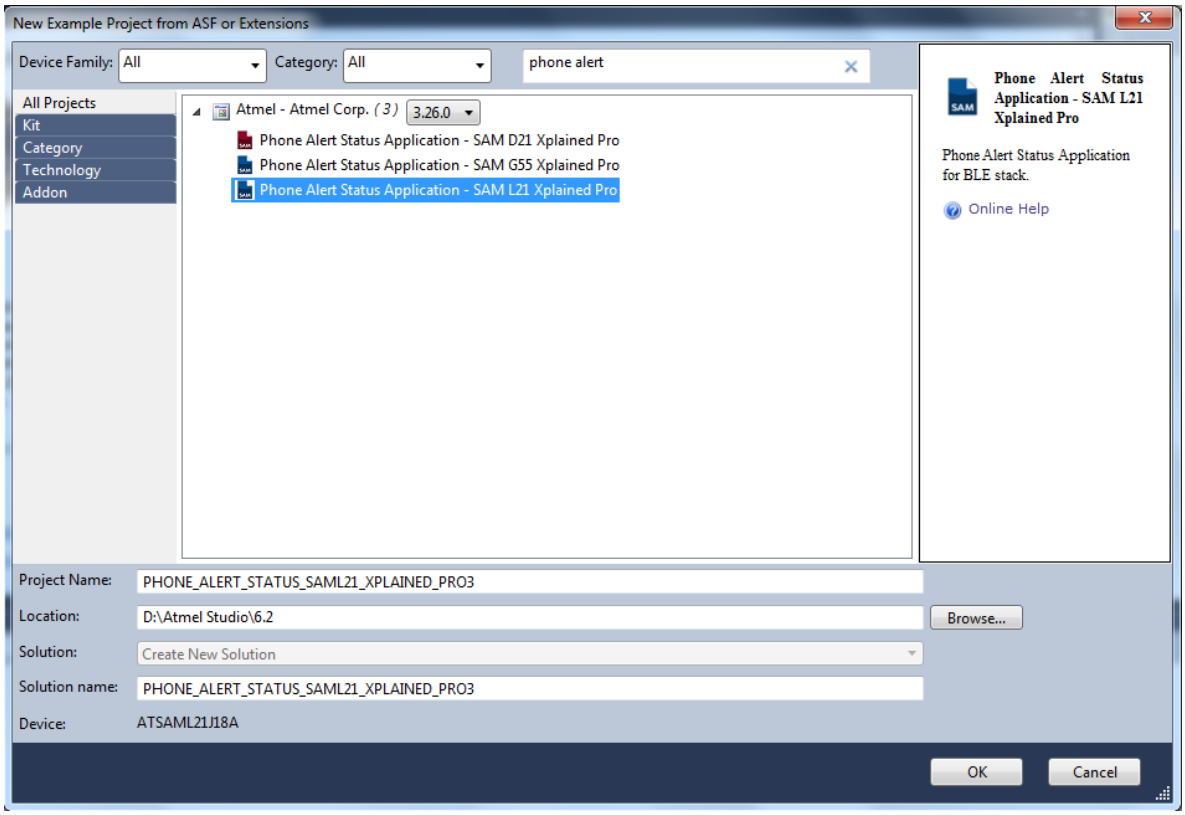
The following procedure is explained for the SAM L21 application example. The same procedure is valid for the case of all the other supported platforms as well.

Figure 5-1. Creating a New Project



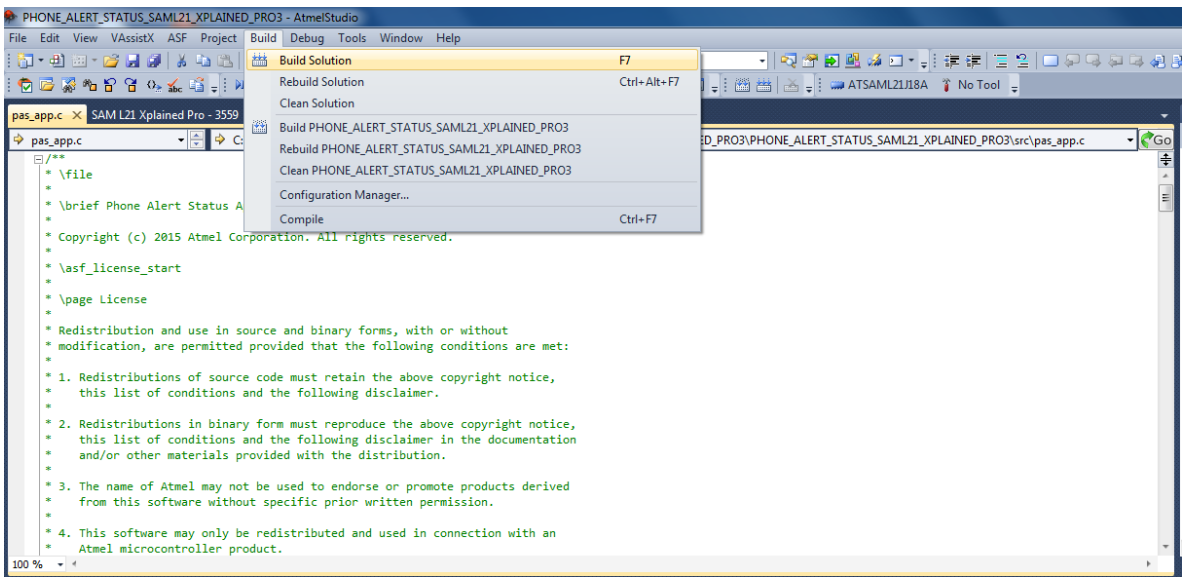
1. Select “SAML,32-bit” in device family, enter “Phone Alert Status” in search window, and expand Atmel Corp. Projects. The location and the name of the project can be selected in the respective fields. Click OK.

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



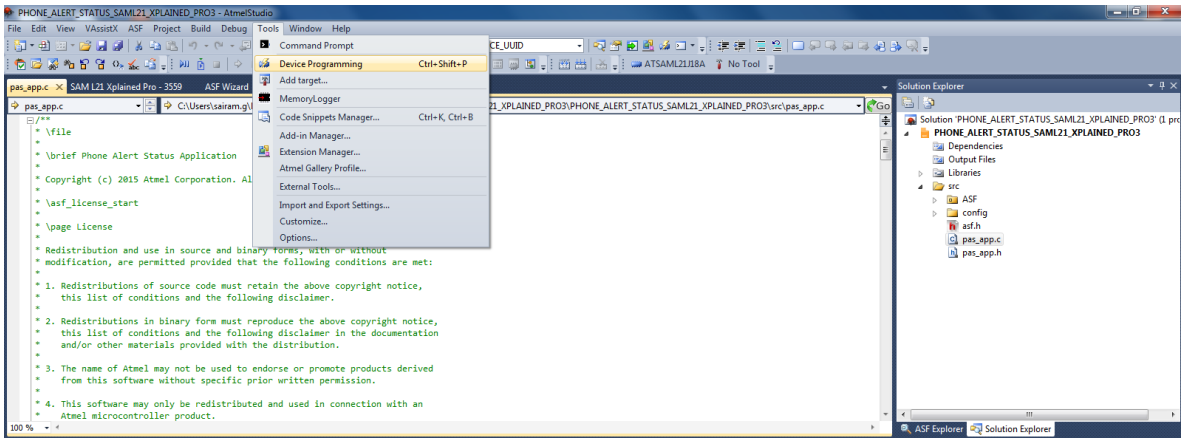
2. Accept the license Agreement. The studio will generate the Phone Alert Status Server project for SAM L21.
3. Build the solution.

Figure 5-3. Building the Phone Alert Status Application



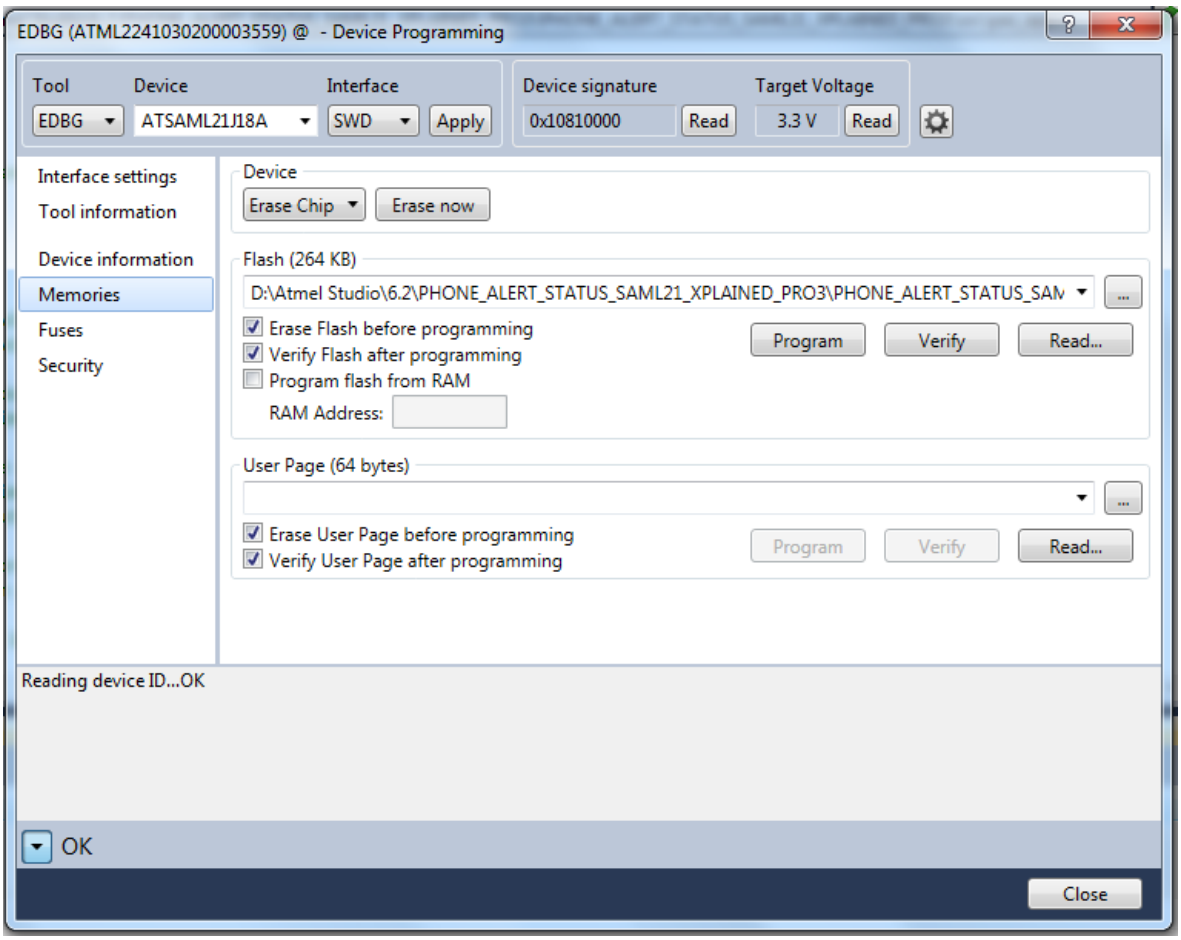
4. Download the application via the USB to the SAM L21 board using the Device Programming option available in Tools, as mentioned below.

Figure 5-4. Programing the SAML21



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

Figure 5-5. Flashing the Phone Alert Status Application



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

6 Console Logging

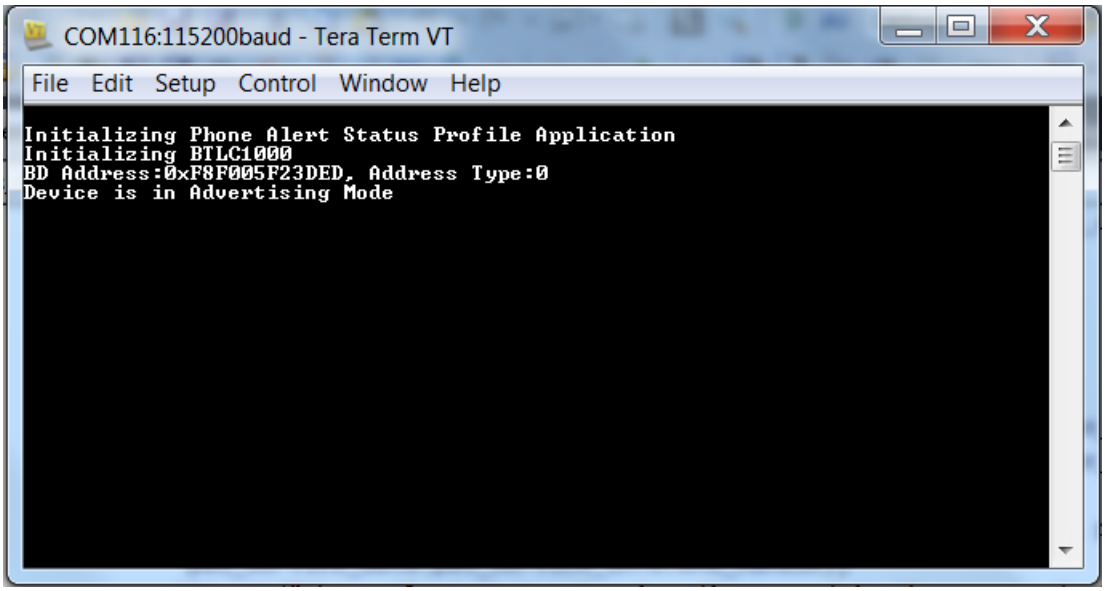
For the purpose of debugging, a logging interface had been implemented in the Phone Alert Status Application.

The logging interface utilizes the same EDBG port that connects to supported platform. 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 SAM L21 + ATBTLC1000 setup by connecting the USB cable as indicated in Figure 3-1.
2. Open a console window by 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 SAM L21 or supported platform board.
4. The device is now in advertising mode.

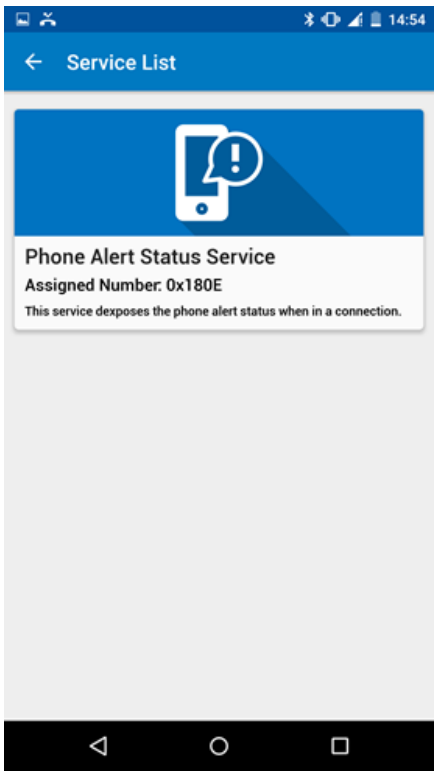
Figure 7-1. Console Display for Device in Advertising Mode



On a BLE compatible Android phone enable Bluetooth in the Settings page. Use the Atmel Smart Connect App and scan for devices. ATMEL-PAS will be appear amongst the devices scanned. Click on ATMEL-PAS to connect to the SAM L21 or supported platform + ATBTLC1000 device.

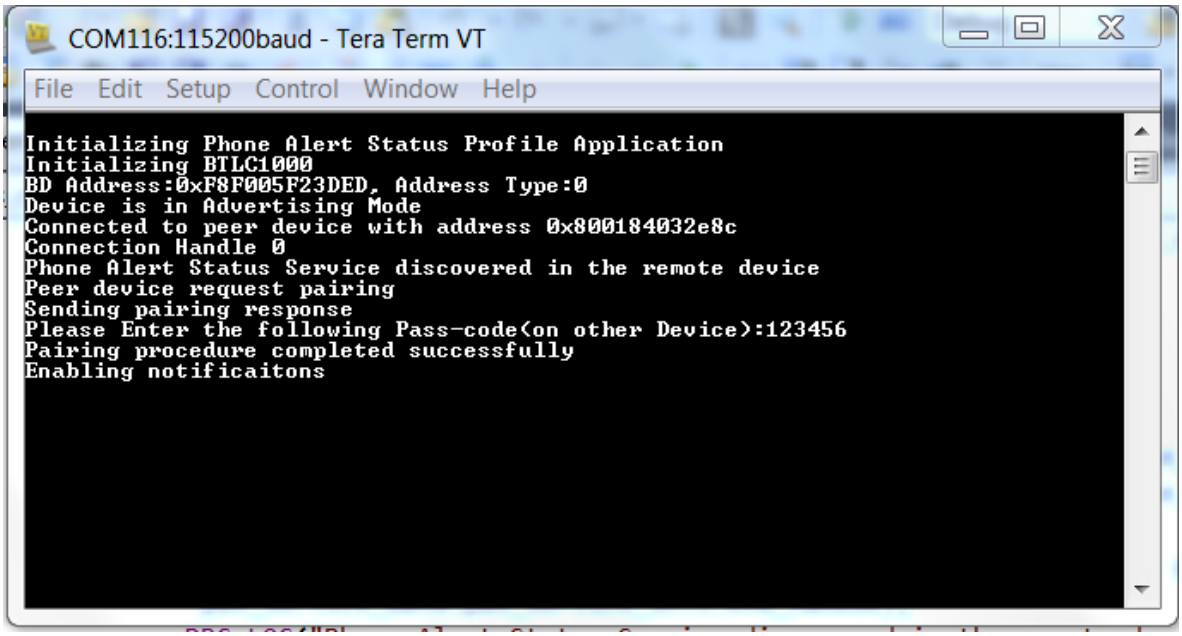
Figure 7-2. Device Discovery in *Atmel Smart Connect App*

Figure 7-3. Service Page After Connection



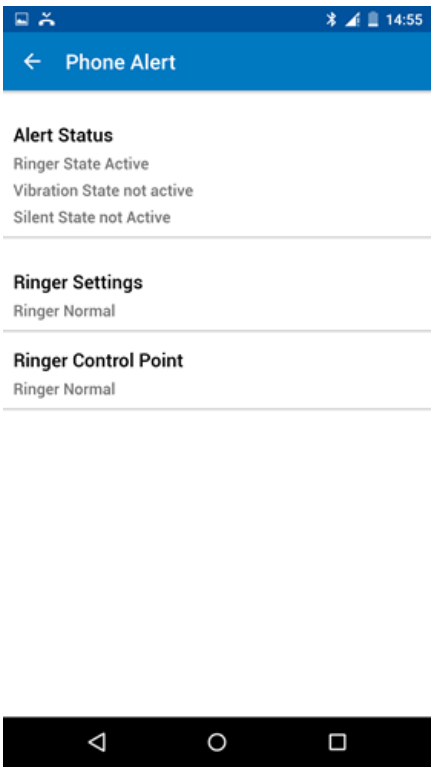
5. Once connected, the client side will request for the pairing procedure with the phone. The console log provides a guidance to the user to enter the pass-key on the phone.

Figure 7-4. Console log for pairing



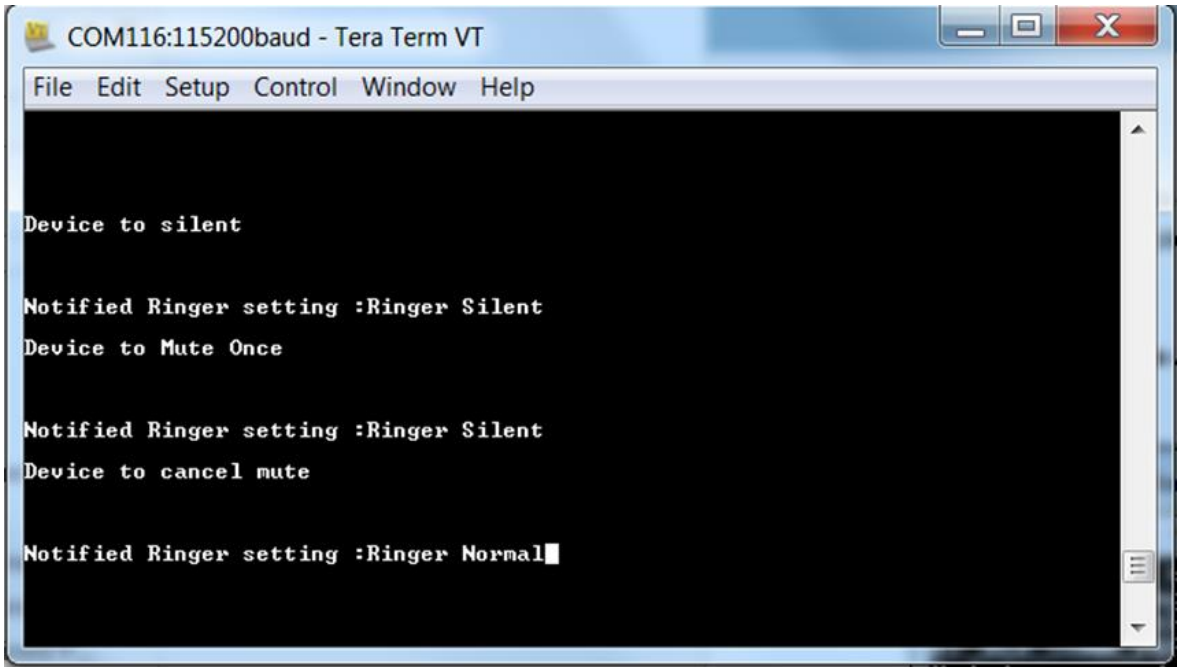
6. Once the device is connected, notifications are automatically enabled and the application reads the values of ‘Alert Status’, ‘Ringer Settings’, and ‘Ringer Control Point’ characteristics, which are updated on the mobile app as shown.

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



7. Now, when the SW0 button is pressed as described in Chapter 4, the device is set to different modes by using the notifications and the corresponding console logs are displayed as shown.

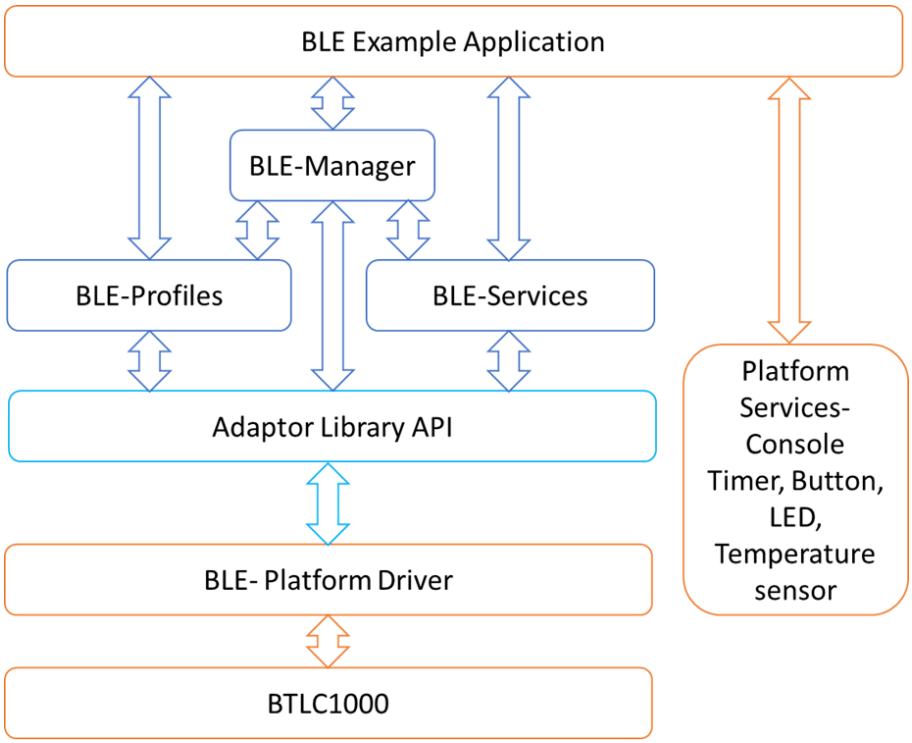
Figure 7-6. Phone Alert Status Console Log



8 BluSDK Software Architecture

Figure 8-1 illustrates the various layers in the BLE subsystem for the ATBTLC1000 configuration. The External host can be supported platform. The application in this example is Phone Alert Status Profile.

Figure 8-1. BluSDK Software Architecture



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