

Introduction

This getting started guide describes the setup of the Atmel® ATBTLC1000 with a supported platform (see [Table 2-1](#)) bringing up an example profile supplied as part of BluSDK release. The Bluetooth® Apple® Notification Center Service is an example application that is embedded as part of the software release package. The device acts as Alert Notification Client with custom UUID as per Apple's ANCS specification. This service is unique to Apple and available only on iOS devices.

The ANCS Profile is used to enable a device to obtain notifications from an iOS device that exposes Apple Notification Center Service.

The ANCS Profile defines two roles:

- Notification Provider (NP):
The Notification Provider is a device that provides the IOS notifications.
- Notification Consumer (NC):
The Notification Consumer is a device that receives the IOS notifications and notification related data from Notification Provider.

This document explains the details about:

1. Getting started with the setup of supported platform (see [Table 2-1](#)) to be used as a Notification Consumer.
2. Getting the ANCS Application working on the above mentioned setup.

The example application provided currently supports only 'Incoming Call Alert Notification'.

Features

- Device Discovery and Disconnection
- Pairing / Bonding
- Apple Notification Center Service
- Alert on incoming call

Table of Contents

1	Demo Setup.....	3
2	Supported Hardware Platforms and IDEs	3
3	Hardware Setup	4
3.1	SAM L21 Xplained Pro ANCS Setup	4
3.2	SAM D21 Xplained Pro ANCS Setup	4
3.3	SAM G55 Xplained Pro ANCS Setup	5
4	Incoming Call Notification.....	5
5	Software Setup.....	5
5.1	Installation Steps	5
5.2	Build Procedure.....	7
6	Console Logging	10
7	Running the Demo	10
8	BluSDK Software Architecture.....	14
9	ATMEL EVALUATION BOARD/KIT IMPORTANT NOTICE AND DISCLAIMER	15
10	Revision History	16

1 Demo Setup

Figure 1-1. Demo Setup for ANCS Profile



2 Supported Hardware Platforms and IDEs

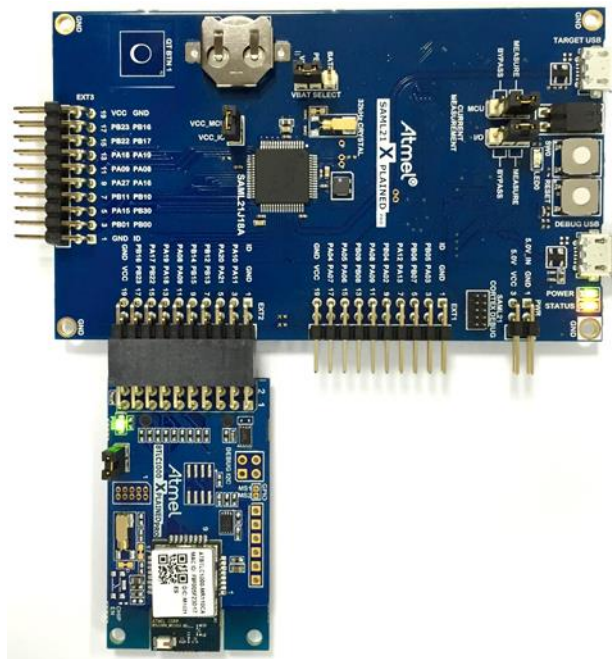
Table 2-1. BluSDK – Supported Hardware and IDEs

Platform	MCU	Supported BLE Module	Supported evaluation kits	Supported IDEs
SAM L21 (MCU)	ATSAML21J18B	ATBTLC1000	ATBTLC1000-XSTK (ATSAML21-XPRO-B + AT-BTLC1000 XPRO)	Atmel Studio v6.2
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 ANCS Setup

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



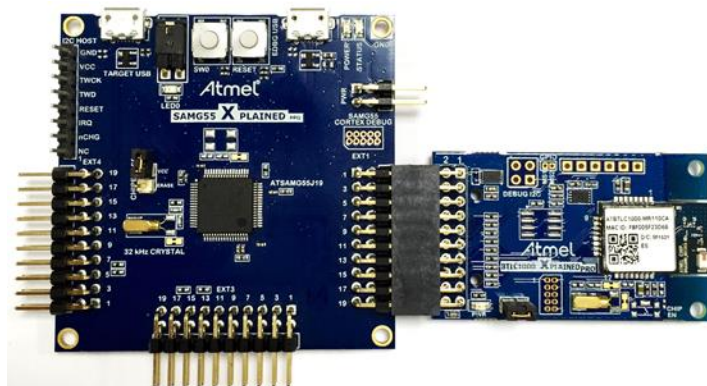
3.2 SAM D21 Xplained Pro ANCS Setup

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



3.3 SAM G55 Xplained Pro ANCS Setup

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



4 Incoming Call Notification

The SAM L21 or supported platform (see [Table 2-1](#)) + ATBTLC1000 device must be paired with an iPhone^{®1} after which, upon an incoming call received by the iPhone, a notification is displayed in the console.

Bluetooth[®] SIG defined Alert Notification Profile provides similar functionality. ANCS is a variant of Alert Notification Profile customized by Apple. For similar functionality on Android devices, please refer to the Alert Notification Profile example application provided by Atmel.

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: SAML21 Rev A/SAMD21 part pack is built-in as part of Atmel Studio 6.2 sp2.)
2. Part Packs.
 - a. Install SAML21 Rev B Part Pack <http://www.atmel.com/images/ATSAML21revB-6.2.6.zip>
(Note: Atmel BTLC1000 X-STK ships with SAML21 XPRO-B and requires this installer)
 - b. 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. Atmel USB Driver Installer from <http://www.atmel.com/tools/atmelstudio.aspx>.
5. 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.

¹ Note: ANCS is only supported in iOS versions 7.0 and above.

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

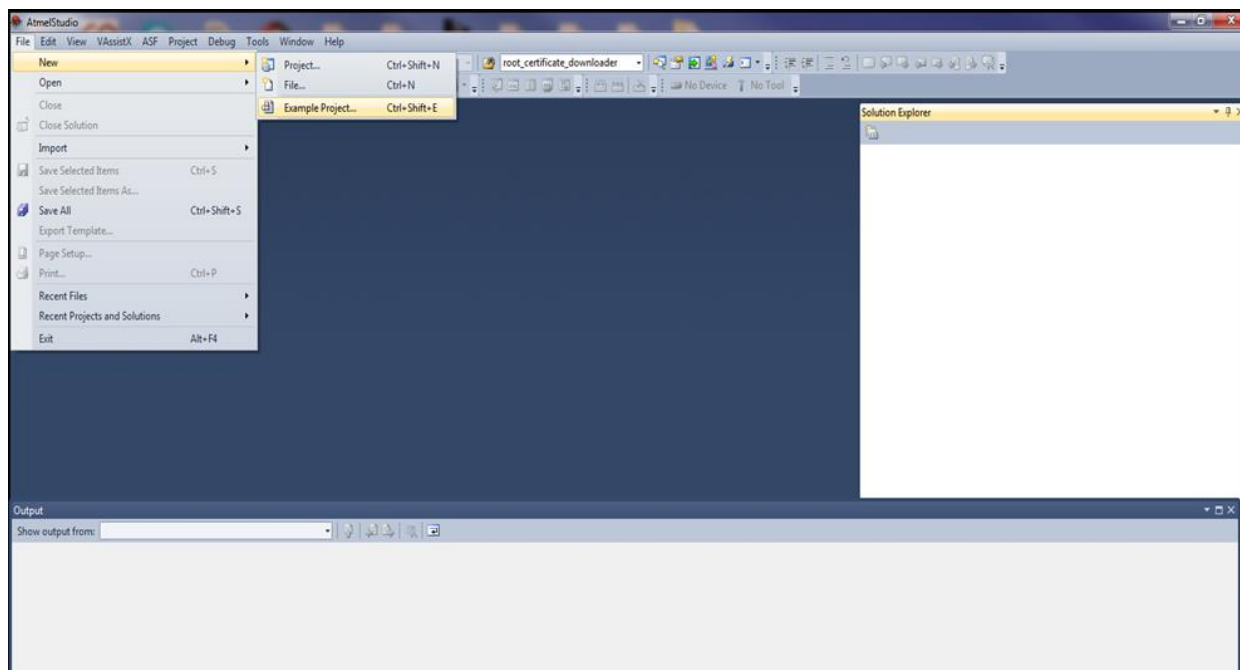
1. ANCS Application for SAM L21.
2. ANCS Application for SAM D21.
3. ANCS Application for SAM G55.

5.2 Build Procedure

The following procedure is explained for SAM L21 application example. The same procedure is valid for the case of all the other supported platforms (see [Table 2-1](#)) as well.

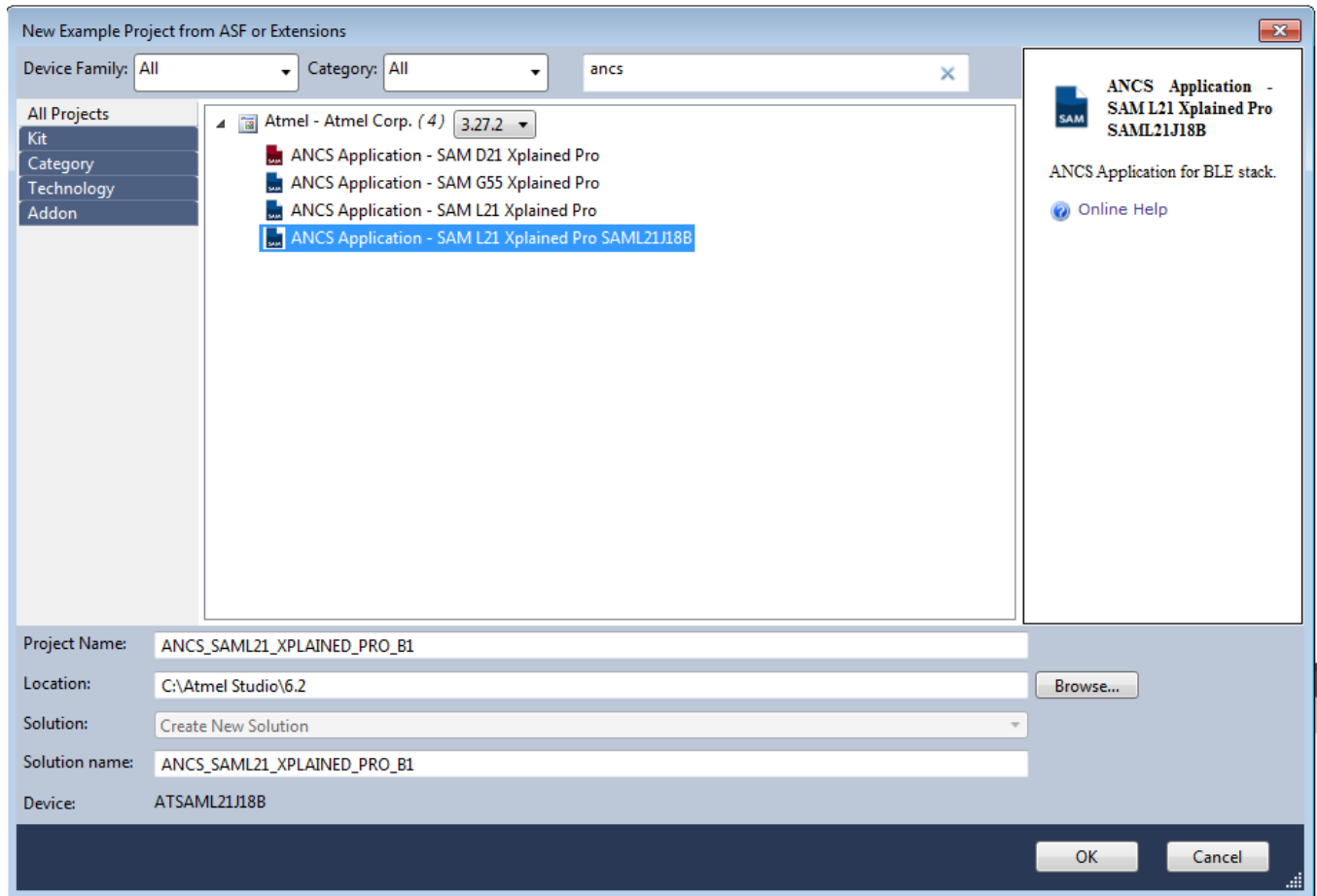
Select New Example Project.

Figure 5-1. Create a New Project



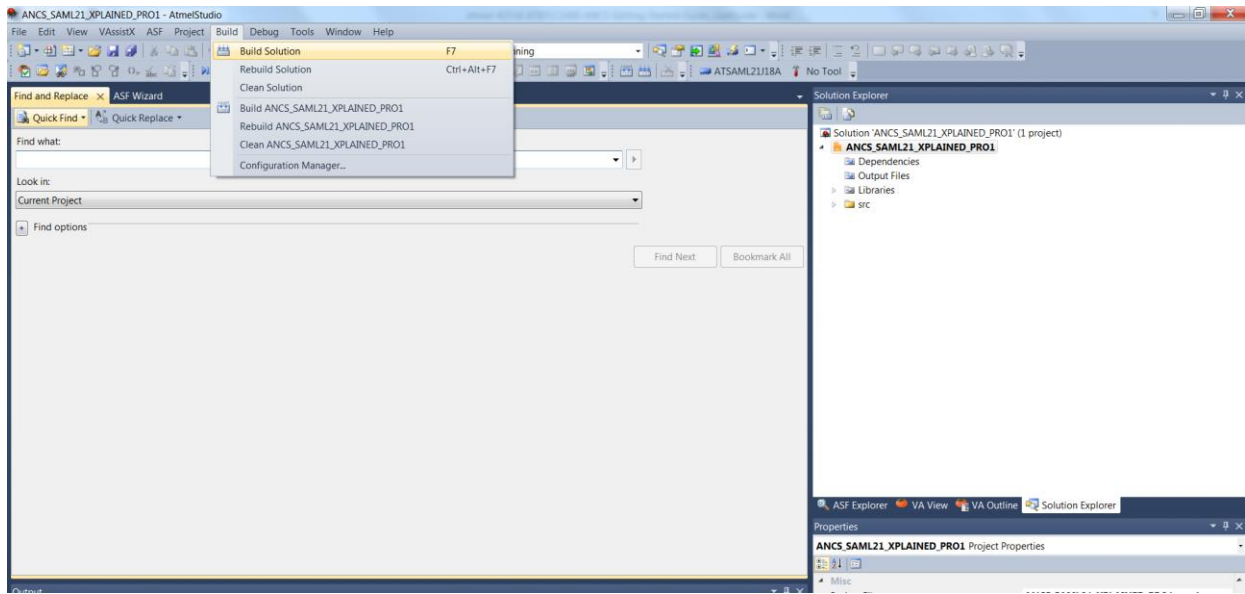
1. Select “SAML,32-bit” in device family, enter “ancs” in the search window and expand Atmel Corp Projects. The location and the name of the project can be selected in the respective fields. Click OK.

Figure 5-2. Selecting ANCS Application from Example Projects



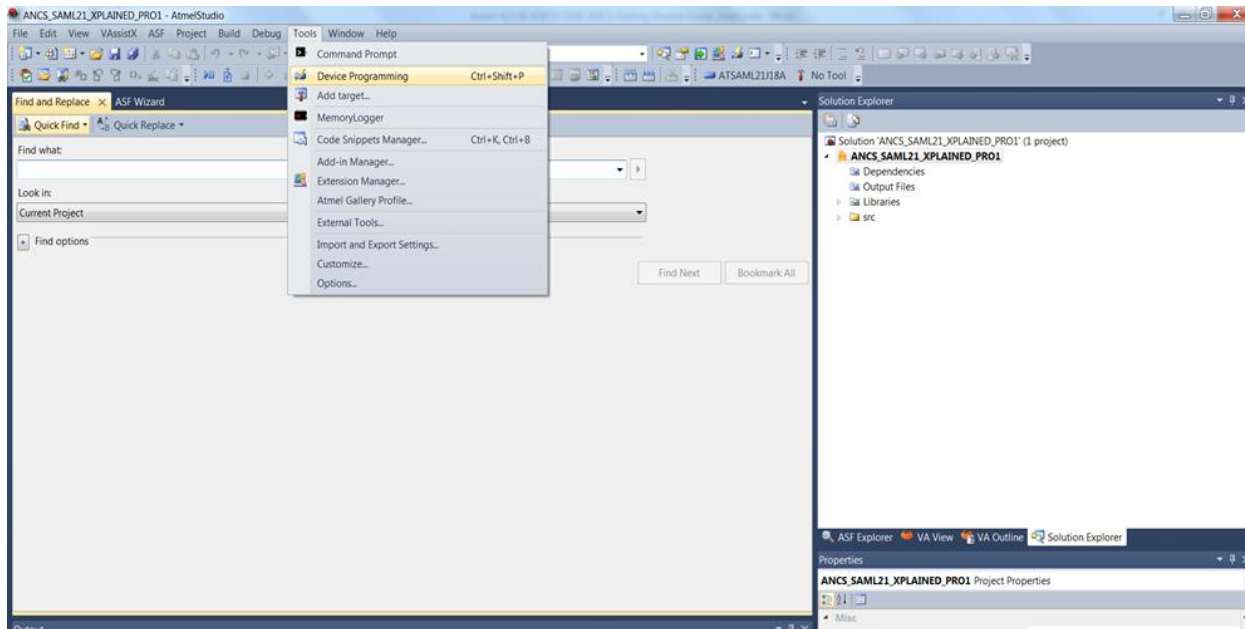
2. Accept the license Agreement. The studio will generate the ANCS Profile project for SAM L21.
3. Build the solution.

Figure 5-3. Building the ANCS Application



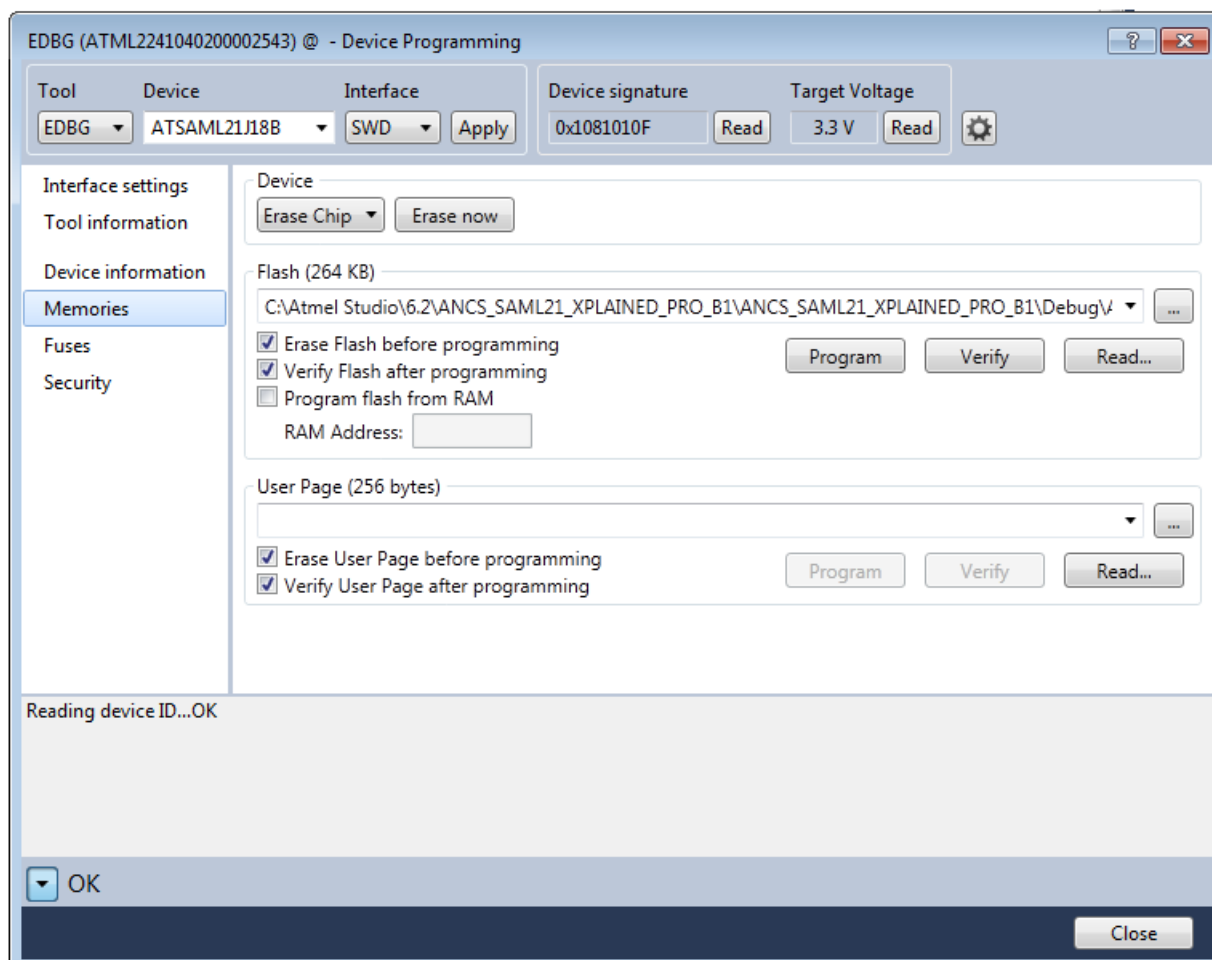
4. Download the application via the USB to the SAM L21 board using the Device Programming option available in Tools, as mentioned below.

Figure 5-4. Programming the Application to SAM L21



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

Figure 5-5. Flash the ANCS Application to SAM L21



6. Once the application is flashed the ANCS Application is ready for usage.

6 Console Logging

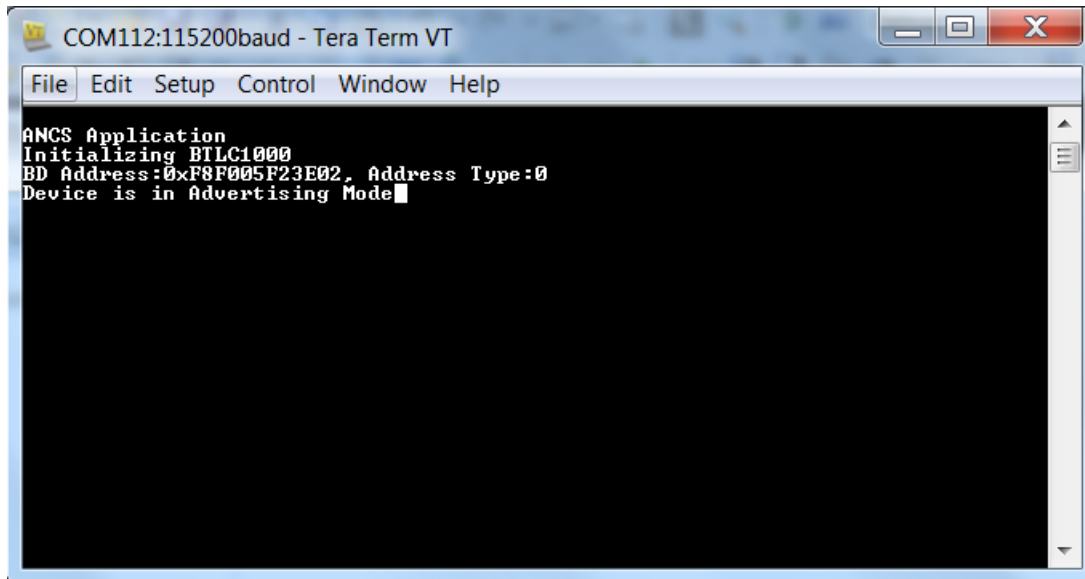
For the purpose of debugging, a logging interface has been implemented in the ANCS Application.

The logging interface utilizes the same EDBG port that connects to supported platform (see [Table 2-1](#)). 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. Baud rate should be set to 115200.

7 Running the Demo

1. Connect the ATBTLC1000 Xplained Pro Board to SAM L21 Xplained Pro EXT2 as shown in [Figure 3-2](#). (The steps mentioned below use SAM L21 as reference. If SAM D21 or SAM G55 is used for the demo, the same steps are applicable.)
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.
3. Press the Reset button on the SAM L21 or supported platform (see [Table 2-1](#)) board.
4. The device is now in advertising mode.

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



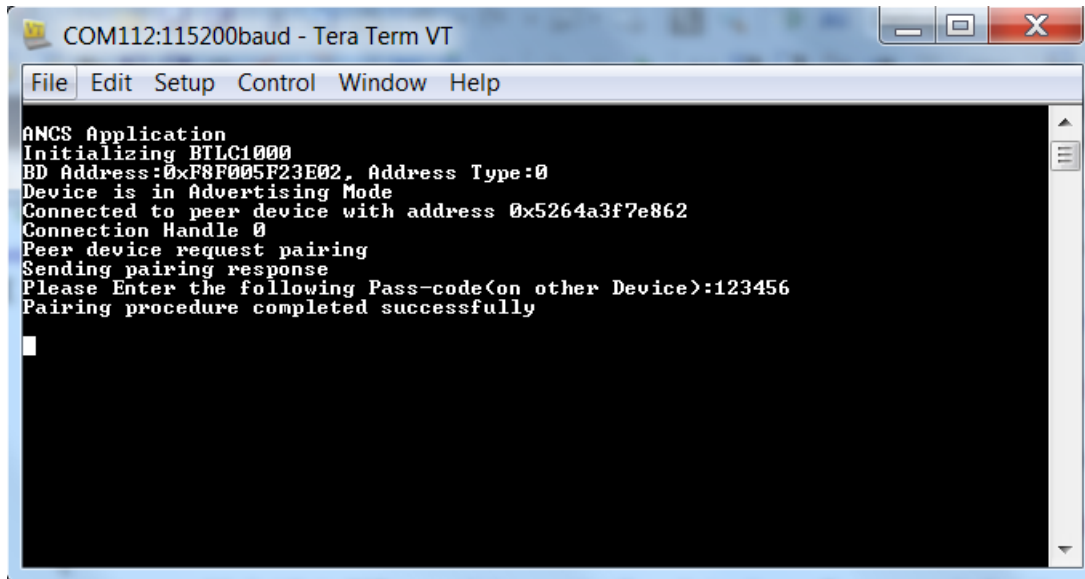
5. On the iPhone, enable Bluetooth in the Settings page. The phone will start to scan for devices. ATMEL-ANCS will appear amongst the devices scanned. Click on ATMEL-ANCS to connect to the SAM L21 or supported platform (see [Table 2-1](#)) + ATBTLC1000 device.

Figure 7-2. ATMEL-ANCS Device Discovery in iPhone



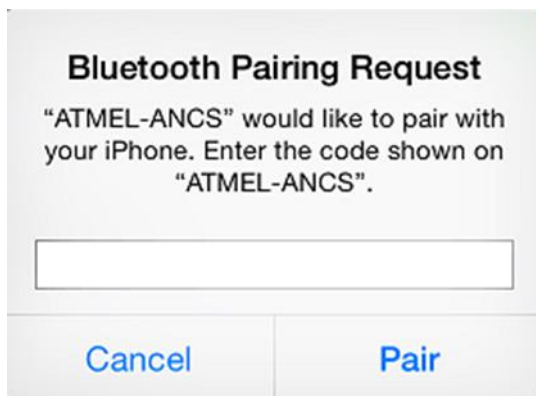
6. Once connected, on the client side will request for pairing procedure with iPhone. The console log provides a guidance for the user to enter the pass-key on iPhone.

Figure 7-3. Console Display for Pairing in ANCS



7. On iPhone side, a pop-up screen prompting the user to enter the pass-key will appear. Enter '123456' in the text box and click on 'Pair'.

Figure 7-4. Pairing Pop in iPhone



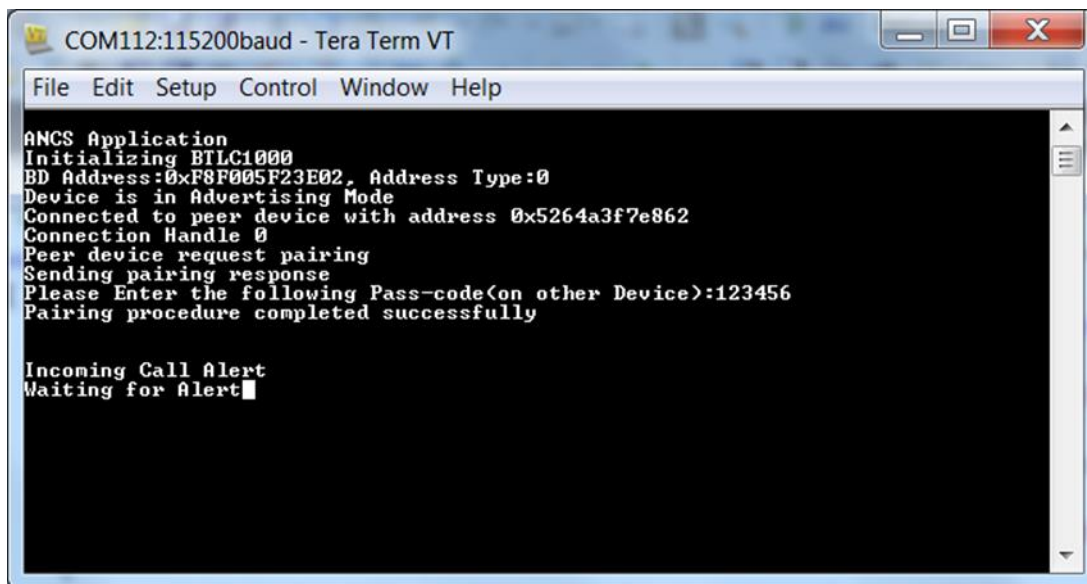
8. Once the device is connected, ATMEL-ANCS will appear in the MY DEVICES section on the iPhone.

Figure 7-5. iPhone Connected to ATMEL-ANCS



9. The user can now user initiate a mobile terminated call to the iPhone. When the iPhone indicates an incoming call, the corresponding incoming call alert is indicated in the console log on ATBTLC1000 + SAM L21 or supported platform (see [Table 2-1](#)). Once the call has terminated the device will wait for a new alert to occur as shown below.

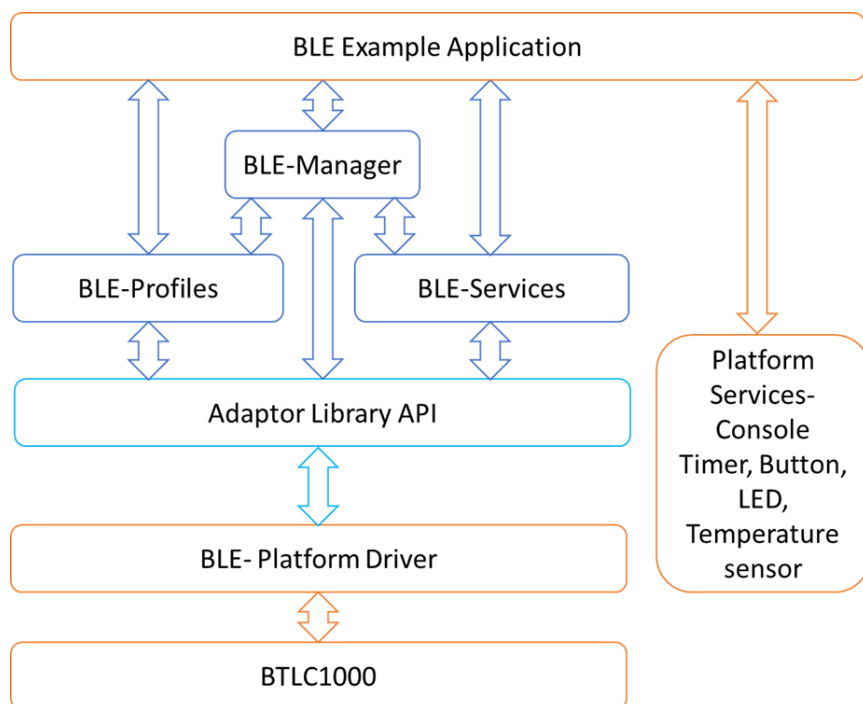
Figure 7-6. Console Display for Notification Received as Incoming Call Alert



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 (see Table 2-1). The application in this example is ANCS Profile.

Figure 8-1. BluSDK Software Architecture



9 **ATMEL EVALUATION BOARD/KIT IMPORTANT NOTICE AND DISCLAIMER**

This evaluation board/kit is intended for user's internal development and evaluation purposes only. It is not a finished product and may not comply with technical or legal requirements that are applicable to finished products, including, without limitation, directives or regulations relating to electromagnetic compatibility, recycling (WEEE), FCC, CE, or UL. Atmel is providing this evaluation board/kit "AS IS" without any warranties or indemnities. The user assumes all responsibility and liability for handling and use of the evaluation board/kit including, without limitation, the responsibility to take any and all appropriate precautions with regard to electrostatic discharge and other technical issues. User indemnifies Atmel from any claim arising from user's handling or use of this evaluation board/kit. Except for the limited purpose of internal development and evaluation as specified above, no license, express or implied, by estoppel or otherwise, to any Atmel intellectual property right is granted hereunder. **ATMEL SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RELATING TO USE OF THIS EVALUATION BOARD/KIT.**

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10 Revision History

Doc Rev.	Date	Comments
42518A	09/2015	Initial document release.



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