SDK Quick Start Guide for ATM22xx/32xx Devices

Revision History

Date	Version	Description
July 9, 2019	0.50	Initial version created.
March 13, 2020	0.51	Updated various sections.
March 31, 2021	0.52	Added the note in EVK Setup. Changed the postfix of SDK from xxxxxxxx to [version_number]. Updated Figure 4. Modified the note in Install RDI Interface. Added Atmosic SDK Platform Working Directory section. Updated Building ATM3 Beacon Application Using Atmosic SDK.
April 14, 2021	0.53	Updated format, no content change.
July 15, 2021	0.54	Updated Atmosic SDK Platform Working Directory, Simple Beacon Configurator, Building ATM2 Beacon Application Using Atmosic SDK, Building ATM3 Beacon Application Using Atmosic SDK, Uninstall Atmosic SDK sections.

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1 Overview

This document provides instructions on how to install the Atmosic software development kit (SDK) and use it with an ATM2201, ATM2221, ATM3201 or ATM3221 evaluation kit (EVK). For EVK power consumption measurements, please refer to the EVK Power Consumption Evaluation document. For more information about using the EVK, please refer to the EVK User's Guide for ATMx201 or EVK User's Guide for ATMx221 as appropriate.

2 EVK Setup

1. Plug the interface board (**green**) into the EVB (**red**) as shown in Figure 1.
2. Attach the 2.4 GHz whip antenna to the RFIO port of the EVB as shown in Figure 2.
3. Plug in a USB cable into the USB1 port of the interface board as shown in Figure 3.
4. Plug the other end of the USB cable into a Windows computer.

NOTE: Newer versions of the EVB are **green** or **red**. The newer version of the interface board is red.

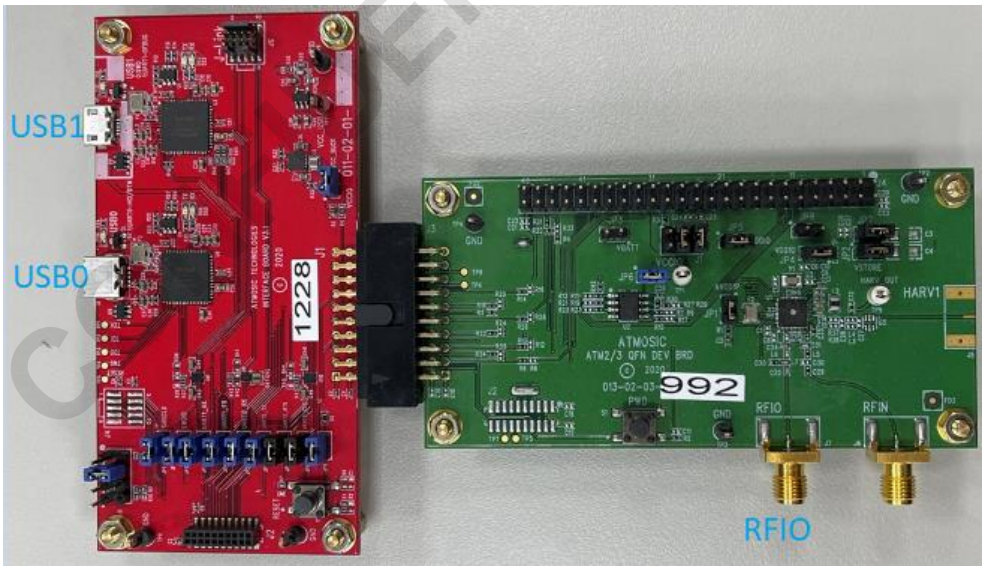

Figure 1 - Side-mount EVB To The Interface Board

Figure 2 - EVB with 2.4 GHz Whip Antenna Attached

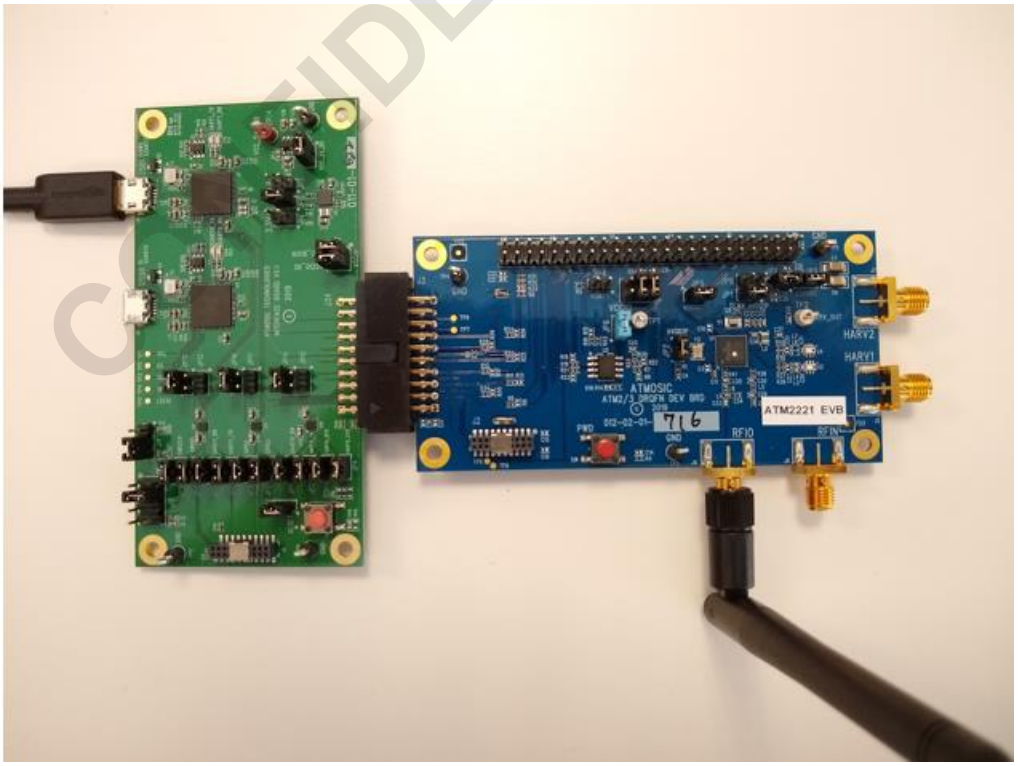

Figure 3 - Interface Board with USB Cable Attached

2.1 Using Windows Installer

A Windows 10 Installer zip file “AtmosicSDK_Inst_[version_number].zip” is in the ATM3_2X > SW folder. Download the zip file onto your desktop. See Figure 4.

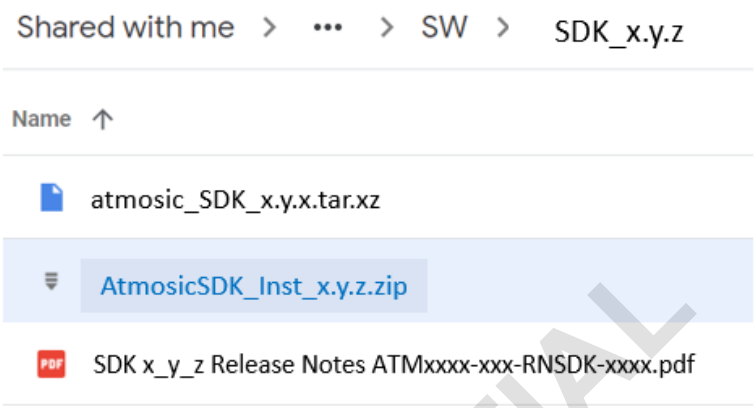

Figure 4 - SW Directory

The Windows 10 Installer is also available in the Customer Support Portal. See Figure 5.

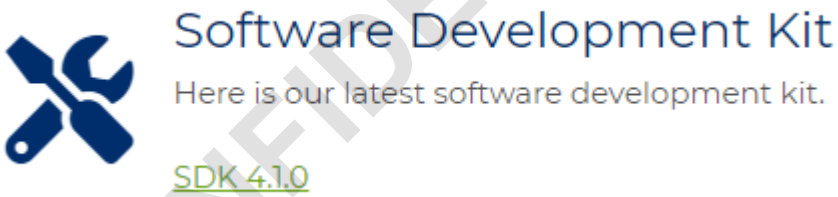

Figure 5 - Customer Support Portal

2.2 Install Atmosic SDK

The setup package of Windows Installer for Atmosic SDK is a compressed file named AtmosicSDK_Inst_[version_number].zip. Please extract the file and double click the “AtmosicSDK_Inst_[version_number].exe" to start the Atmosic SDK Installer. Figure 6 shows the release package source tree after extract file.

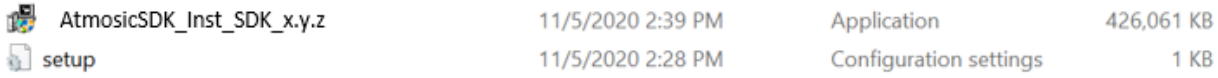

Figure 6 - Extracted Release Package

The Atmosic SDK will occupy 1.2 GB disk space and be located in the “C:\AtmosicSDK\” folder. See Figure 7. Please make sure the disk space is enough before installing the Atmosic SDK. Subsequently, click the “Install” button to continue.

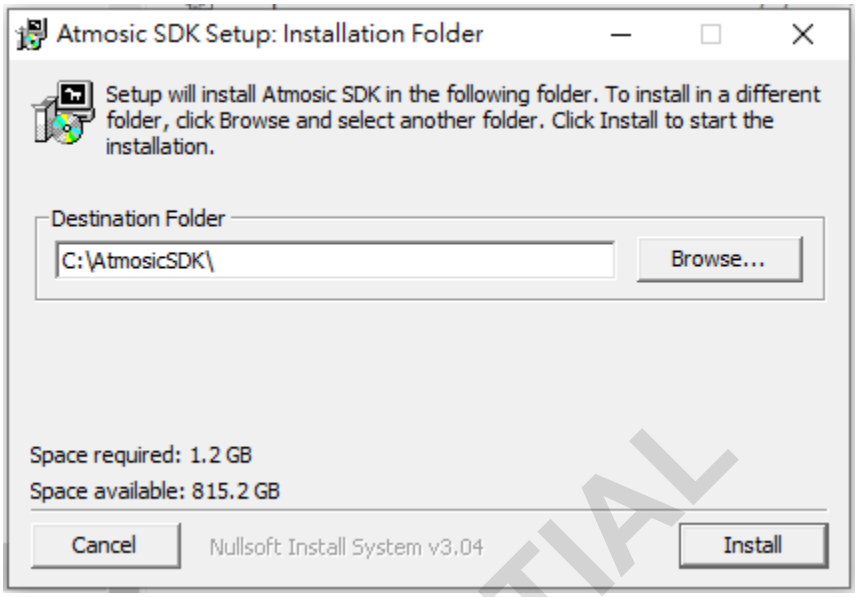

Figure 7 - SDK Setup Directory

Note: The installer cannot accept a path destination directory name with spaces. For example, “Atmosic SDK” is not acceptable while “AtmosicSDK” is acceptable. The Windows Installer will pop-up a message if the user selects an installation path name that includes spaces. See Figure 8.

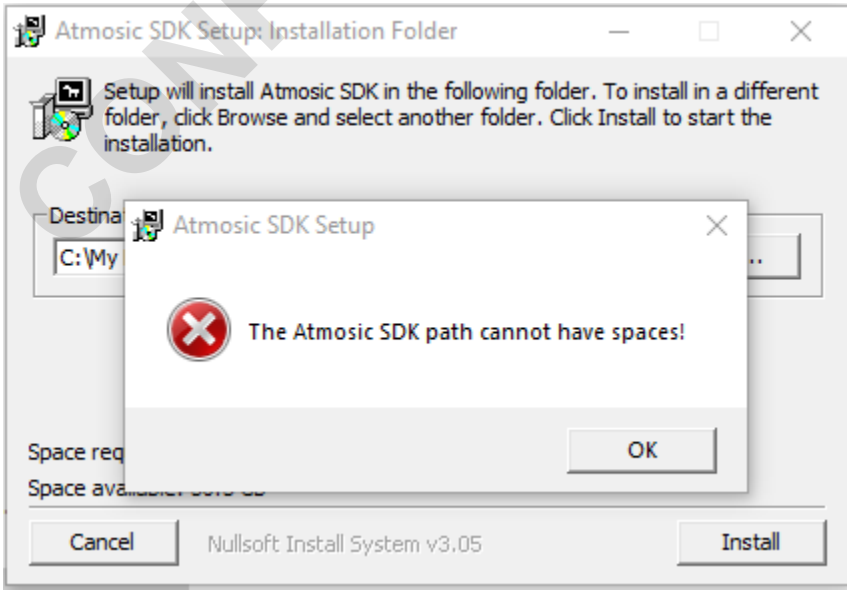

Figure 8 - SDK Installation Path Message

The installation process takes several minutes to complete. The Windows Installer is installing MSYS2, GNU Toolchain and Atmosic SDK files to the target directory. See Figure 9.

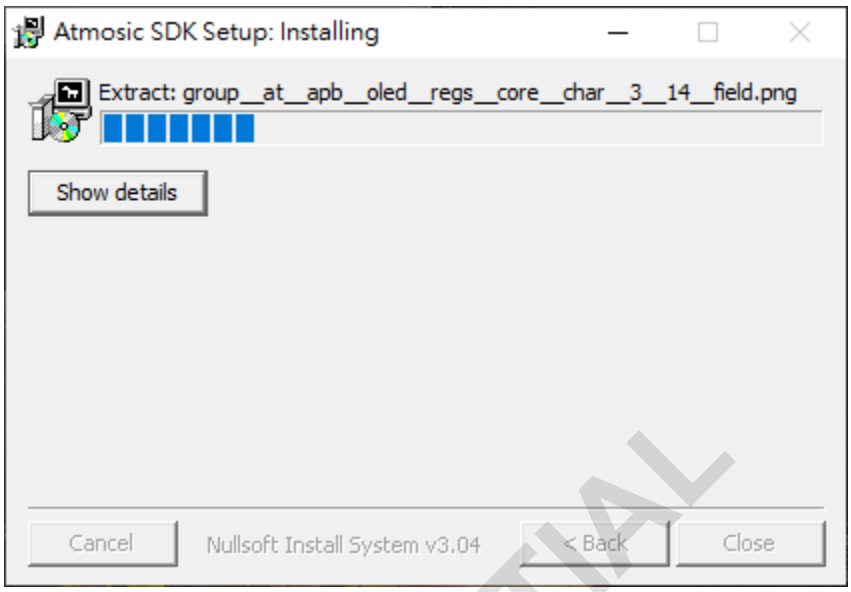

Figure 9 - Installing SDK

The Windows Installer will pop-up a message to notify the installation completed, click “OK“ to close the Windows Installer. See Figure 10.

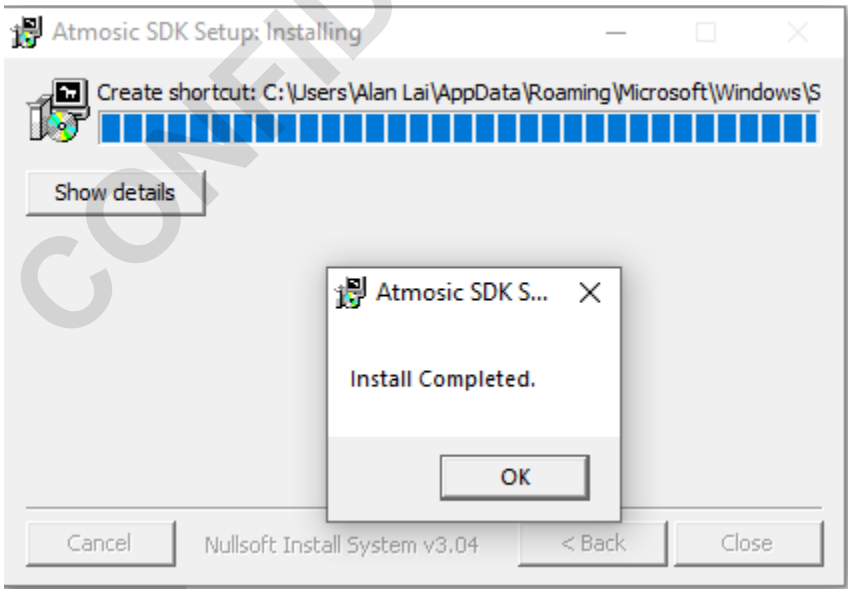

Figure 10 - Installation Completed

The Installer will create a folder named AtmosicSDK in “Start Menu” as shown in Figure 11 during the installation process.

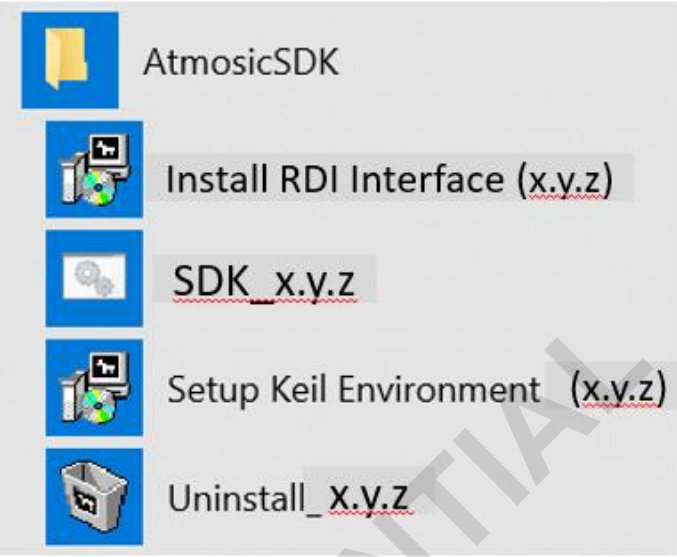

Figure 11 - SDK in Start Menu

2.3 Install RDI Interface

Please connect the Atmosic EVK (USB1) to the laptop and wait a while (~ 30 seconds).

Open the device manager (open the “Run” dialog box by pressing and holding the Windows key, then press the R key.

Enter “devmgmt.msc” then click the OK button) to verify whether the Atmosic RDI USB interface exists or not.

If there are 2 COM ports listed in the device manager after plug-in the Atmosic EVK to the laptop, please click the “Install RDI Interface" shortcut in “Start Menu”/Atmosic folder.

NOTE: The COM port numbers are assigned by the Windows system.

NOTE: If the device manager shows Atmosic RDI USB driver is already installed, move to the next section.

NOTE: Atmosic RDI USB driver installation is required when the new interface board is connected to the computer at the first time.

Install Device Manager before installing Atmosic RDI USB driver.

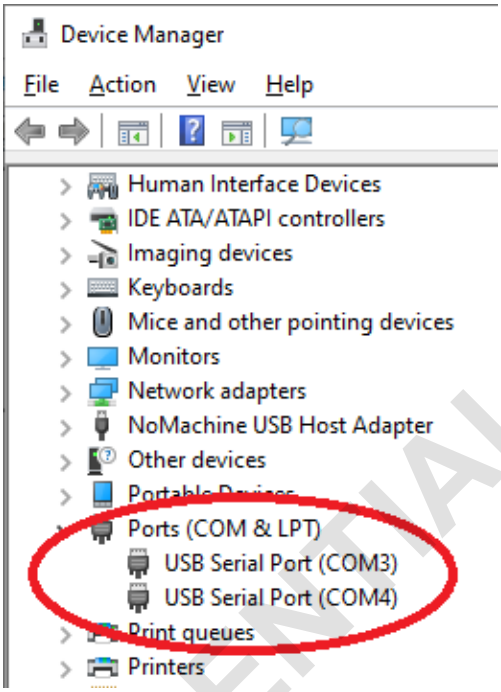

Figure 12 - USB COM Port

Please click the “Install” button if the system pop-up the following message.

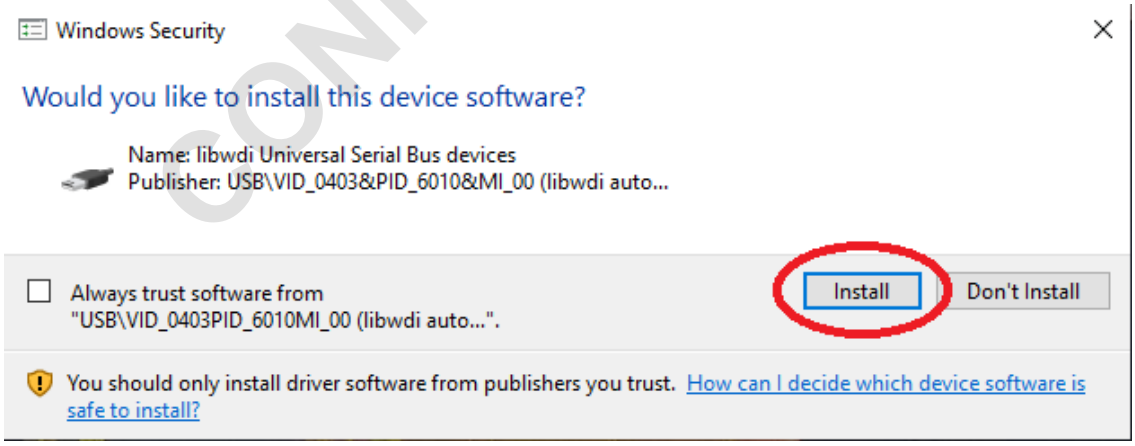

Figure 13 - Install RDI USB Driver

After installing Atmosic RDI USB driver, the Atmosic RDI USB1 interface will display in the Device Manager. Moreover, the COM4 is a debug console that could be used to display debug messages through PuTTY.

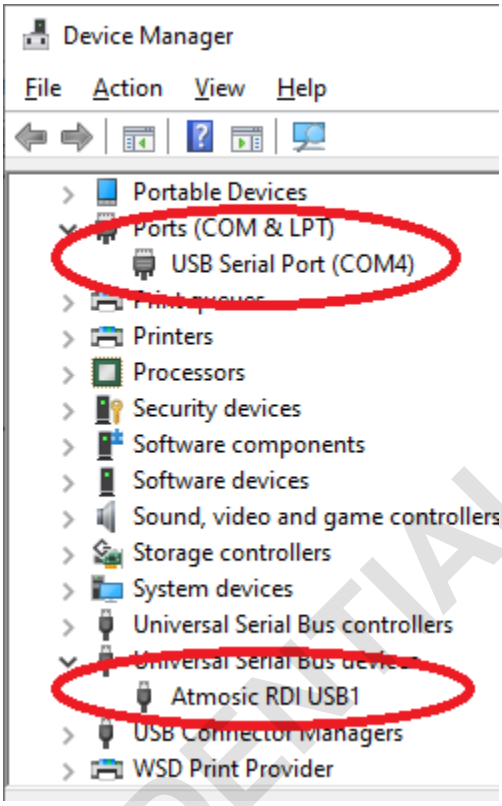

Figure 14 - RDI USB in Device Manager

2.4 Connect To Debug Interface

The Atmosic EVK provides the log output through debug interface (COM port). The developer could use utility to capture (i.e. PuTTY, Tera Term ...etc.) log. This section describes how to capture logs through PuTTY. When open the PuTTY tool, click the "**Serial**" radio button then input the COM port information in "**Serial line**" item (i.e. COM4), and input **115200** in "Speed" item. Subsequently, click the "Open" button to open the COM port and wait for debug message input. See Figure 15.

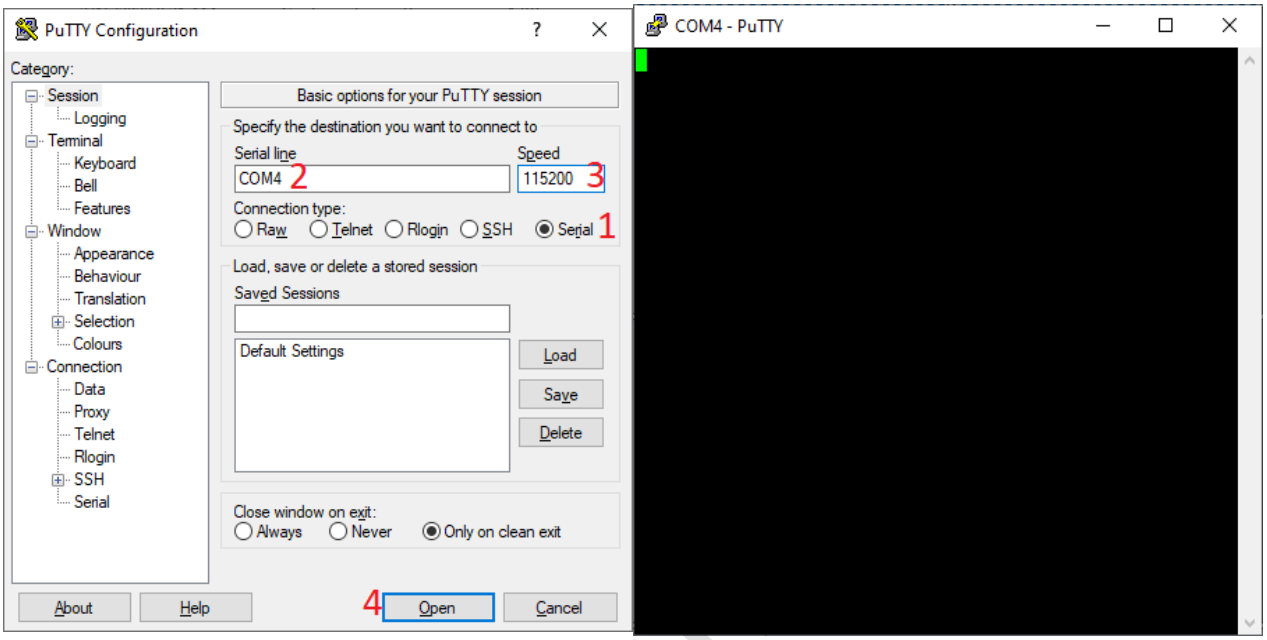

Figure 15 - Debug Interface Using PuTTY

2.5 Launch MSYS2 shell

Open MSYS2 shell from Windows menu, “Start Menu” → ”AtmosicSDK” → ”SDK_[version_number]”. Figure 16 shows the Start Menu.

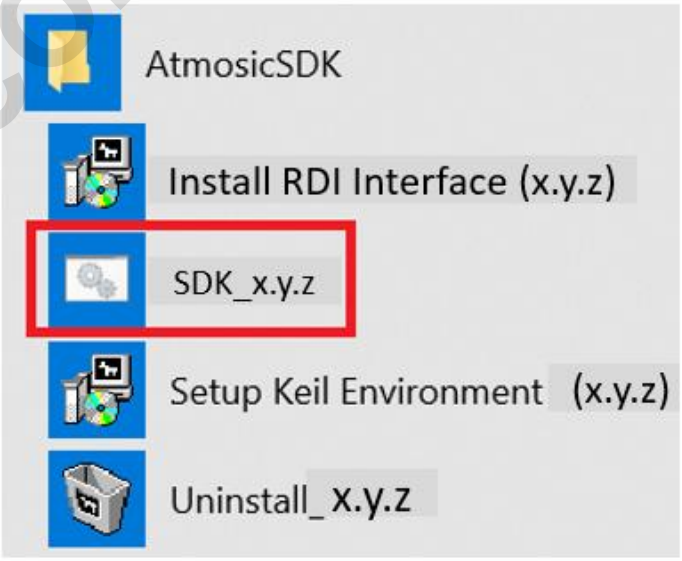

Figure 16 - Start Menu

The MSYS2 shell will open and redirect the working path to the Atmosic SDK path as shown in Figure 17.

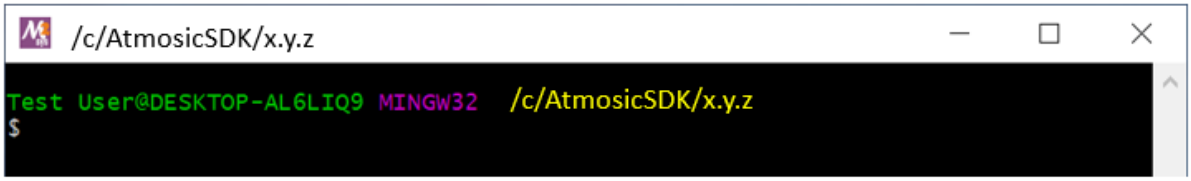

Figure 17 - Atmosic SDK Path

2.6 Atmosic SDK Platform Working Directory

Atmosic supports two different versions of all ATM2 and ATM3 devices. The difference between these two device versions is captured by the second digit in the -xxx extension of the product code for the device. In order to build the correct application software for any ATM2 or ATM3 device it is necessary to identify the device version and use the appropriate directory in the Atmosic Software Development Kit (SDK) for the software build.

All evaluation boards have a sticker that identifies the part number of the IC on the board. For example, the Atmosic EVB is labeled with ATM3221-010 as shown in Figure 18. It was assembled with an ATM32xx-x1x chip and to compile the project, the path is platform/atm3/ATM32xx-x1x. Refer to the Atmosic Chip Revisions Application Note for information regarding chip revisions.

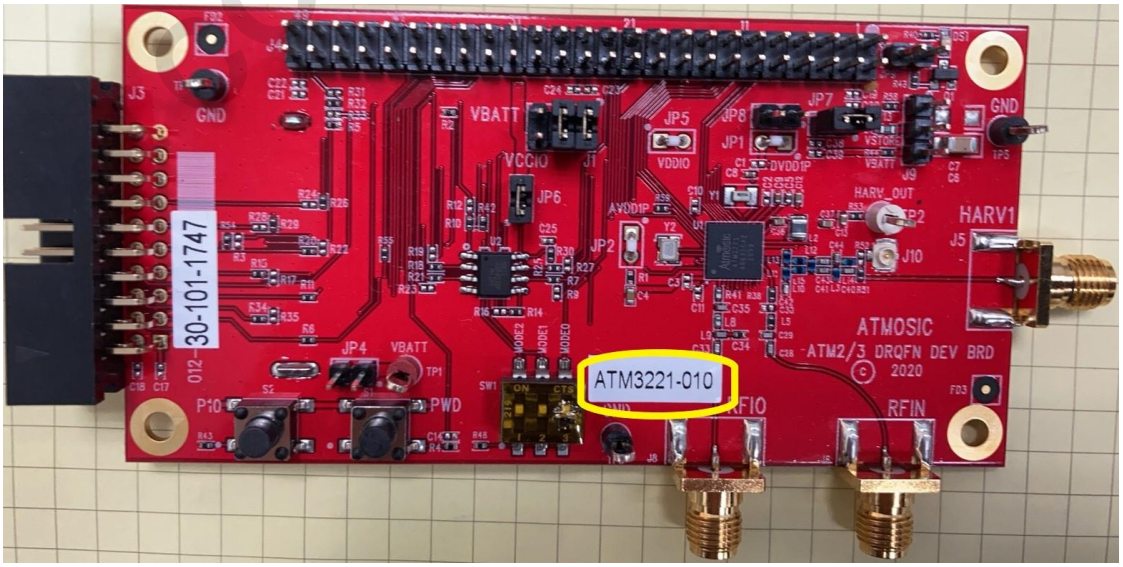

Figure 18 - Atmosic Product Code on the EVB

Following is a list of all Atmosic SDK platform working directories, please use the appropriate directory in the Atmosic SDK for the software build.

- platform/atm2/ATM22xx-x0x
- platform/atm2/ATM22xx-x1x
- platform/atm3/ATM32xx-x0x
- platform/atm3/ATM32xx-x1x

2.7 Simple Beacon Configurator

Atmosic EVK comes with a pre-programmed Beacon application in Flash. Simple beacon configurator web tool allows the user to change/tune a few parameters of this beacon. This tool allows beacon configuration as Eddystone or iBeacon or Beacon with Manufacturer specific data. See Figure 19.

NOTE: The Simple Beacon Configurator is only meant for use with ATM2201 and ATM2221 EVK's. For ATM3201 and ATM3221 EVK's, please skip to section 4 Building ATM3 Beacon application using Atmosic SDK.

To start using simple beacon configurator, run following commands in MSYS2 shell

```
$ cd platform/atm2/ATM2xx-x0x/examples/BLE_adv/
$ make openocd
```

Now open following page from favorite browser (replace <version_number> with the current SDK version):

C:\AtmosicSDK\<version_number>\tools\configurator\index.html

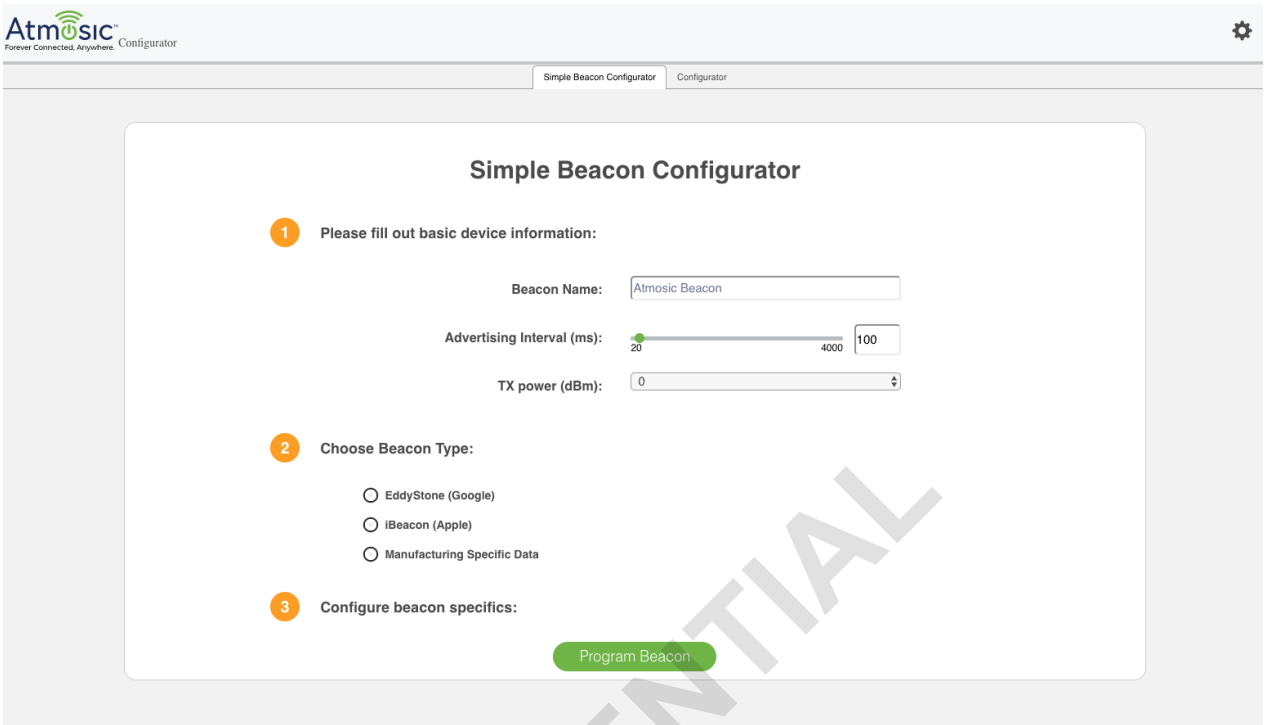

Figure 19 - Simple Beacon Configurator

Fill out all sections as needed (preset defaults are used for unchanged fields).
Once configuration is done, click on the “Program Beacon” button to program EVK with updated beacon parameters.

NOTE: Simple Beacon configurator does not restore previous settings and starts with preset defaults.

3 Building ATM2 Beacon Application Using Atmosic SDK

At MSYS2 shell, go to the BLE_adv example folder to compile the project through the following command.

Beacon configuration: EddyStone, Non Connectable, Scannable, 100 ms Interval.

```
$ cd platform/atm2/ATM22xx-x0x/examples/BLE_adv/
$ make
```

If everything is correct, the “make” should execute without error as shown in Figure 20.

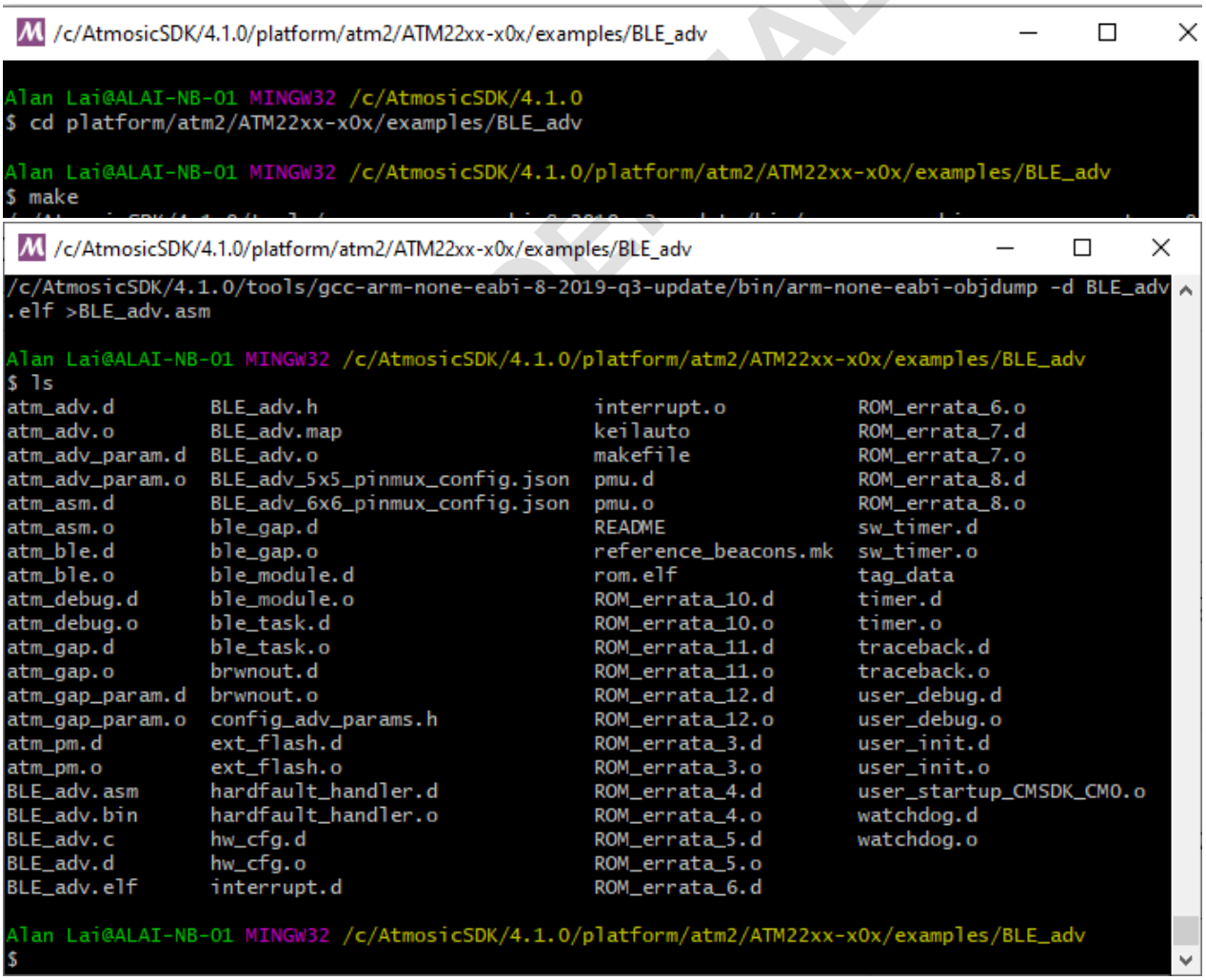

Figure 20- Make Executed without Error

At MSYS2 shell, type “make run_all” to build and load firmware into Atmosic EVK. Figure 21 shows the results on shell and debug terminals after the “make run_all” command is successfully executed.

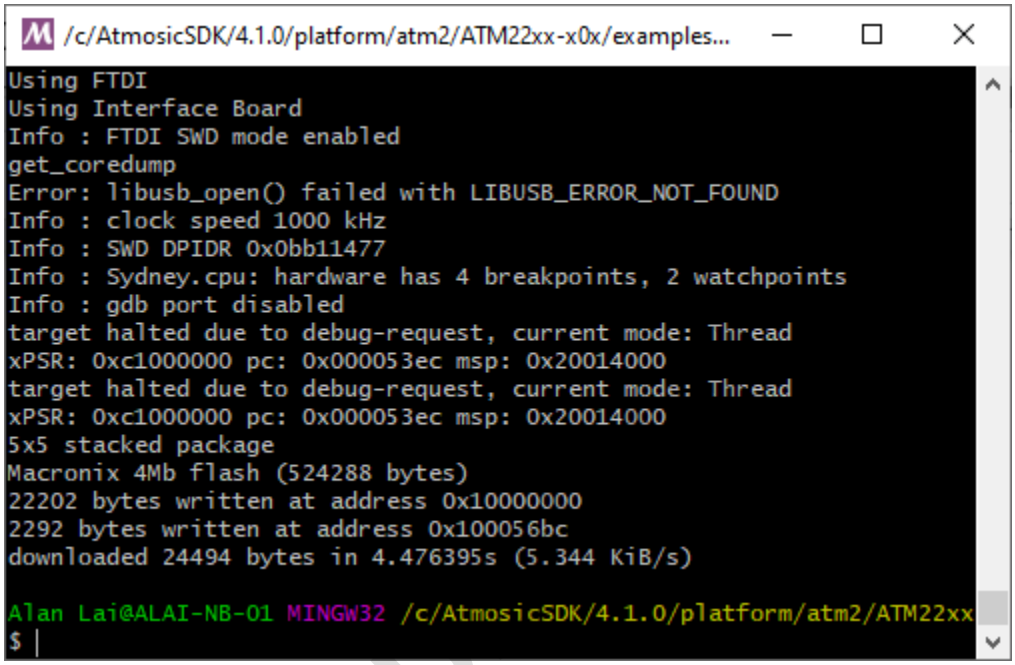

Figure 21 - Execution result of “make run_all”

Detailed documentation for Beacon and other examples in SDK is available in platform/atm2/ATM2xx-x0x/examples/<example_name>/README file.

4 Building ATM3 Beacon Application Using Atmosic SDK

At MSYS2 shell, go to the BLE_harv_adv example folder to compile the project through the following command.

Beacon configuration: EddyStone, Non Connectable, Scannable, 1s Interval.

```
$ cd platform/atm3/ATM32xx-x0x/examples/BLE_harv_adv/
$ make DEBUG=  run_all
```

5 Uninstall Atmosic SDK

Follow the steps to uninstall Atmosic SDK. Also see Figure 22.

1. Click the “Start Menu”/”Settings”.
2. In the “Settings” page, click the “Apps” item.
3. Find the “Atmosic SDK (<version_number>)” item in the “Apps & features” page
4. Click the “Uninstall” button to start the Atmosic SDK uninstall procedure.
5. The Atmosic RDI Interface will be removed during uninstallation procedure. Please pull-out the Atmosic EVK before reinstalling the Atmosic SDK again.

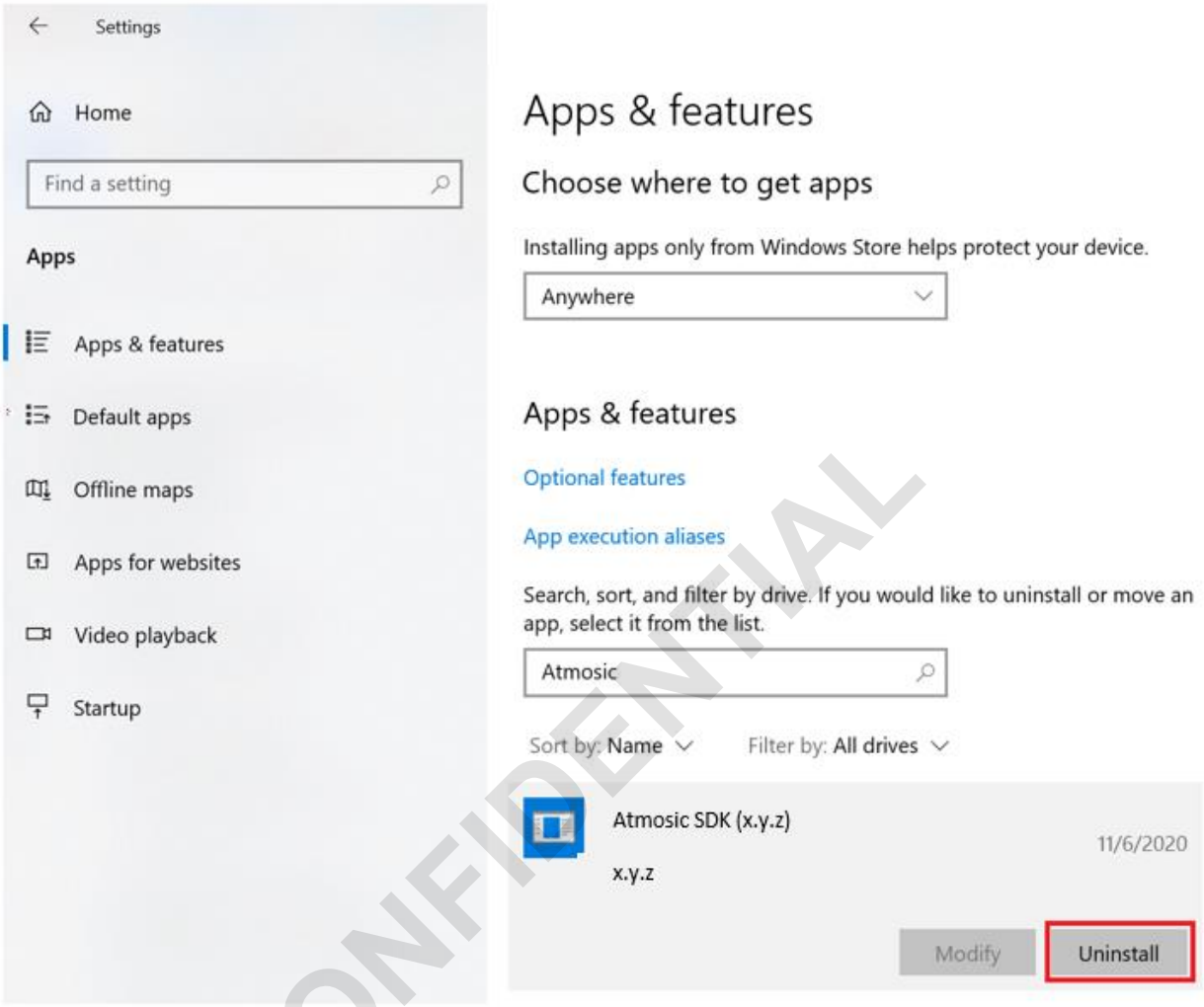

Figure 22 - Uninstall SDK

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