Getting Started with Serial Provisioning of LoRaWAN Application running on SAMR34

Hardware Setup

1) SAM R34 Xplained Pro Development Board (DM320111)
2) Micro USB Cable
3) LoRaWAN Gateway

Software Setup

1) TeraTerm (Terminal Emulator)
2) Network Server with Gateway and End Device Registered
3) LoRaWAN Gateway (Online)

Plug In

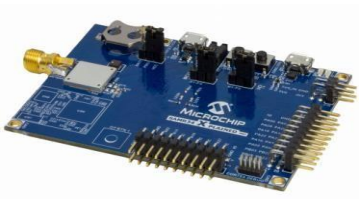
Connect your board (EDBG USB) to your PC with a micro USB cable. Your Personal Computer will recognize the board as a Virtual COM Port. The Virtual COM port can be opened in a Terminal Emulator running on the PC and data can be sent and received.

Link Up - Connect to Network Server Using pre-programmed serial network provision application

The SAM R34 Xplained Pro comes pre-programmed with a LoRaWAN End Device application which is provisioned using the serial port (UART). Open TeraTerm, choose the EDBG Virtual COM Port and enabled local echo. The default settings for the UART interface are 115200 bps, 8 bits, no parity, 1 Stop bit and no flow control. Press the reset button. A menu with 2 types of Join options will appear on TeraTerm. Based on the Join Mechanism (OTAA/ABP) chosen while registering the End Device choose the appropriate option. Enter the appropriate EUI/address/keys (LoRaWAN Network Provisioning Information) based on the join mechanism chosen. Provisioning information can be either in uppercase 0-F or lower case 0-f values without spaces or special character in between subsequent values. On entering all the network parameters expected for the join type chosen, user is prompted to confirm the network parameters entered. Next step is to choose application type. Choose Demo Application followed by selecting the appropriate band based on the region of operation. The preprogrammed End Device Application supports 7 bands of LoRaWAN regional specification, EU868, NA915, AU915, AS923, JPN923, KR920, IND865. After choosing the band, Join Request is sent to the Network Server/Join server through the gateway.

Dive In

Once the End Device is connected to the registered Network Server/Join Server, user will be immediately able to dive into the temperature data from the built-in temperature sensor of SAMR34



References

- ATSAMR34 Xplained Pro User Guide
- SAM R34 Datasheet
- SAMR34-R35 Microchip LoRaWAN Stack Software API Reference Manual
- SAMR34 MLS Getting Started Guide

Example

```
Last reset cause: External Reset
**********************************************************
Microchip LoRaWAN Stack MLS_SDK_1_0_P_0
Init - Successful
---Join Type Selection---
1. Over The Air Activation(OTAA)
2. Activation By Personalization(ABP)
Enter your choice: 1
```

```
Enter Device EUI(hex 0-F): 0003A30B001AD41E
Enter Application EUI(hex 0-F): 70A3D57ED0009A77
Enter Application Key(hex 0-F): 3CAC24967A9C205905AC3363BDB47B2C
```

```
---Configuration Selected ---
Activation Type: OVER THE AIR ACTIVATION (OTAA)
Device EUI: 0x03a3b01ad41e
Application EUI: 0x70a3d57ed009a77
Application Key: 0x3cac24967a9c20595ac3363bdb47b2c
1. Confirm App Configuration Selection
2. Modify Configuration
Enter your choice: 1
```

```
--Choose Application Type--
1. Demo application
2. Certification application
 Select Application: 1
```

```
Please select one of the band given below
1. EU868
2. NA915
3. AU915
4. AS923
5. JPN923
6. KR920
7. IND865
8. Clear PDS
9. Reset Board
Select Regional Band: 2
Enter SUBBAND(1-8): 2
```

For US and AU regions 8 sub-bands are available to choose from. Gateway manufacturers typically have only 1 sub-band available for use. Refer to gateway manufacturer documentation to find the sub-band the gateway is listening on.

```
Join Request Sent for NA915
Joining Successful
DevAddr: 0x26022044
**********Application Configuration**********
DevType : CLASS A
ActivationType : OTAA
Transmission Type - UNCONFIRMED
FPort - 1
**************************************************
**************************************************
1. Send Join Request
2. Send Data
3. Sleep
4. Select Band
Enter your choice: 2
Temperature:36.0ø C/96.8ø F
Tx Data Sent
Transmission Success
**************************************************
```