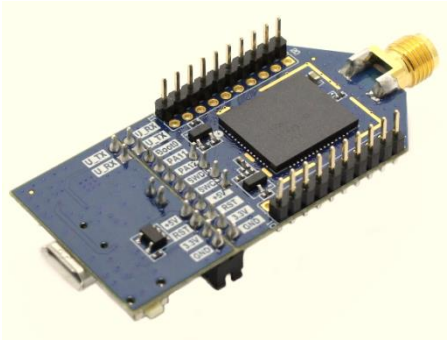
S76S/S78S

SDK1 and SDK2 Q&A



Document Name	**S76S/S78S SDK1 and SDK2 Q&A**
Version	**V1.0.0.en**
Doc No	
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1. S76S/S78S SDK1

1.1 LoRaWAN Q&A

1.1.1 Support Regions

REGION_AS923 : For Asia 923MHz(about the detail to reference the country rule)

REGION_AU915 : For Australia 915~928MHz

REGION_CN470 : For China 470~510MHz

REGION_CN779 : For China 779~787MHz

REGION_EU433 : For Europe 433~434MHz

REGION_EU868 : For Europe 863~870MHz

REGION_IN865 : For India 865~867MHz

REGION_KR920 : For South Korea 920~923MHz

REGION_US915 : For United States 902~928MHz

REGION_US915_HYBRID : For United States 902~928MHz HYBRID

1.1.2 Device EUI, Application EUI, Application KEY for OTAA join.

In “Commissioning.h” file, setting the define LORAWAN_DEVICE_EUI, LORAWAN_APPLICATION_EUI, LORAWAN_APPLICATION_KEY.

1.1.3 Network Security KEY, Application Security KEY, Device Address for ABP join.

In “Commissioning.h” file, setting the define LORAWAN_DEVICE_ADDRESS, LORAWAN_NWKSKEY, LORAWAN_APPSKEY.

1.1.4 What is the LoRaMac code base in S7xS SDK1?

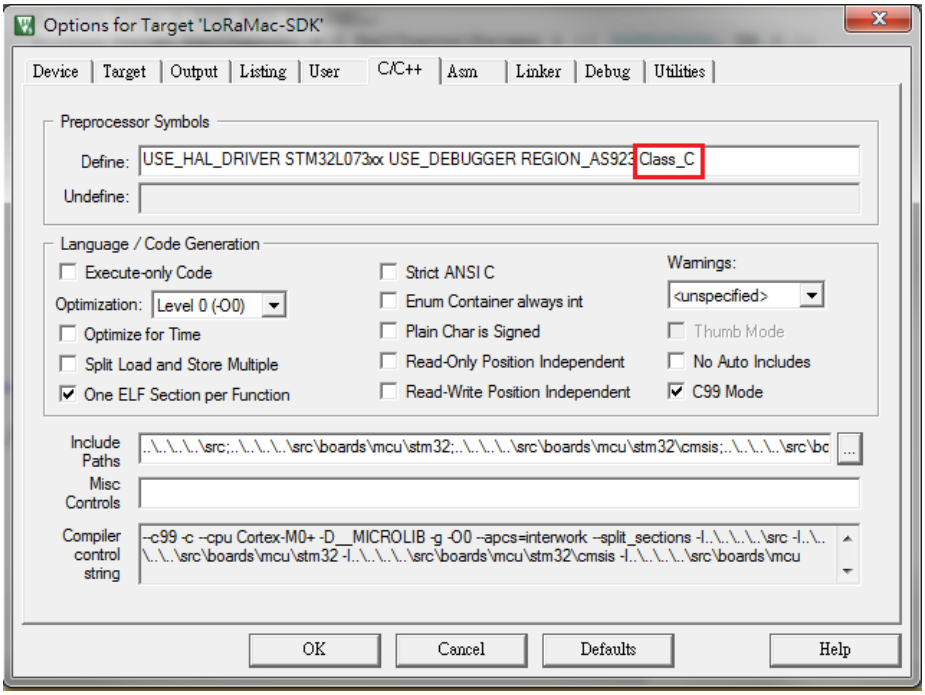
The LoRaMac code base is GitHub Lora-net/LoRaMac-node v4.4.1.

1.1.5 What the LoRaWAN stack implements in S7xS SDK1?

LoRaWAN stack implements all regions defined in "LoRaWAN Regional Parameters v1.0.2rB" document. Class A and Class C endpoint implementation is fully compatible with "LoRaWAN specification 1.0.2".

1.1.6 How to define the class C in the LoRaWAN Node?

Default is Class A, if need setting in class C, input the key word “Class_C” in Define field. As shown in the following figure.



1.1.7 Join by OTAA or ABP?

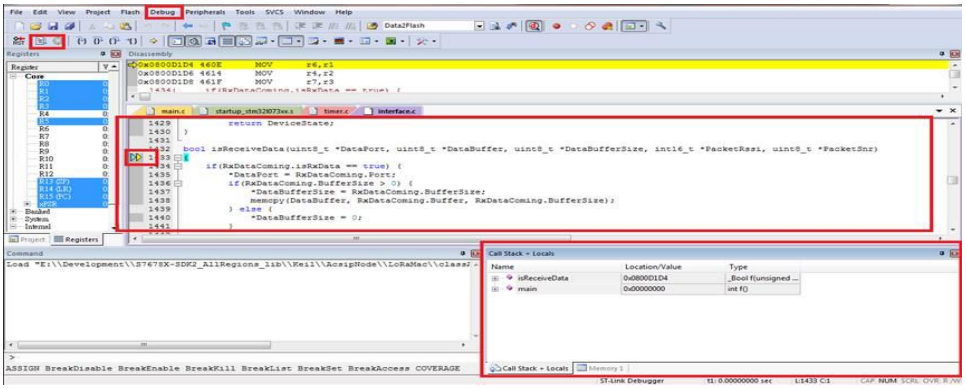
If join by OTAA, setting the define “OVER_THE_AIR_ACTIVATION” is 1.

If join by ABP, setting the define “OVER_THE_AIR_ACTIVATION” is 0.

1.2 The other Q&A

1.2.1 How to debug?

Running the MDK Keil IDE tool, build and download, into “Debug” mode, and run the application, if halt after, stop the application, see the “Call Stack - Locals” window, analyze the functions and flow. After can understand that why to halt or crash. As shown in the following figure.



1.2.2 Run-time variables monitoring tool

Tool Name : STMicroelectronics STM Studio.

Demo : https://www.youtube.com/watch?v=eTp-oUD7YwA

Tutorial : https://www.youtube.com/watch?v=UzvIXeRCZw0

2. S76S/S78S SDK2

2.1 LoRaWAN Q&A

2.1.1 Support Regions

AS923-Lib : For Asia 923MHz(about the detail to reference the country rule)

AU915-Lib : For Australia 915~928MHz

CN470-Lib : For China 470~510MHz

CN779-Lib : For China 779~787MHz

EU433-Lib : For Europe 433~434MHz

EU868-Lib : For Europe 863~870MHz

IN865-Lib : For India 865~867MHz

KR920-Lib : For South Korea 920~923MHz

US915-Lib : For United States 902~928MHz

US915_HYBRID-Lib : For United States 902~928MHz HYBRID

2.1.2 Device EUI, Application EUI, Application KEY for OTAA join.

In “main.c” file, in the “LoRaWAN_t LoRaWAN_Set” structure, setting the OTAA.DevEUI, OTAA.AppEUI, OTAA.AppKey.

2.1.3 Network Security KEY, Application Security KEY, Device Address for ABP join.

In “main.c” file, in the “LoRaWAN_t LoRaWAN_Set” structure, setting the Session.NwkSKey, Session.AppSKey, Session.DevAddr.

2.1.4 What is the LoRaMac code base in S7xS SDK2?

The LoRaMac code base is GitHub Lora-net/LoRaMac-node v4.4.0.

2.1.5 What the LoRaWAN stack implements in S7xS SDK2?

This LoRaWAN stack implements all regions defined in "LoRaWAN Regional Parameters v1.0.2rB" document. Class A and Class C endpoint implementation is fully compatible with "LoRaWAN specification 1.0.2".

2.1.6 How to define the class C in the LoRaWAN Node?

In “main.c” file, in the “LoRaWAN_t LoRaWAN_Set” structure, setting the Node_Class is "CLASS_C".

2.1.7 Join by OTAA or ABP?

Join by OTAA, in “main.c” file, in the “LoRaWAN_t LoRaWAN_Set” structure, setting the Join_Method is "otaa".

And after to call the function: mac_Join(LoRaWAN_Set.Join_Method, LoRaWAN_Set.OTAA.DevEUI, LoRaWAN_Set.OTAA.AppEUI, LoRaWAN_Set.OTAA.AppKey, NULL, LoRaWAN_Set.Session.Network_ID).

Join by ABP, in “main.c” file, in the “LoRaWAN_t LoRaWAN_Set” structure, setting the Join_Method is "abp".

And after to call the function: mac_Join(LoRaWAN_Set.Join_Method, LoRaWAN_Set.Session.NwkSKey, LoRaWAN_Set.Session.AppSKey, NULL, LoRaWAN_Set.Session.DevAddr, LoRaWAN_Set.Session.Network_ID);

2.1.8 Where the lib(path)?

in “S7678X-SDK2_AllRegions_lib\src\lib”.

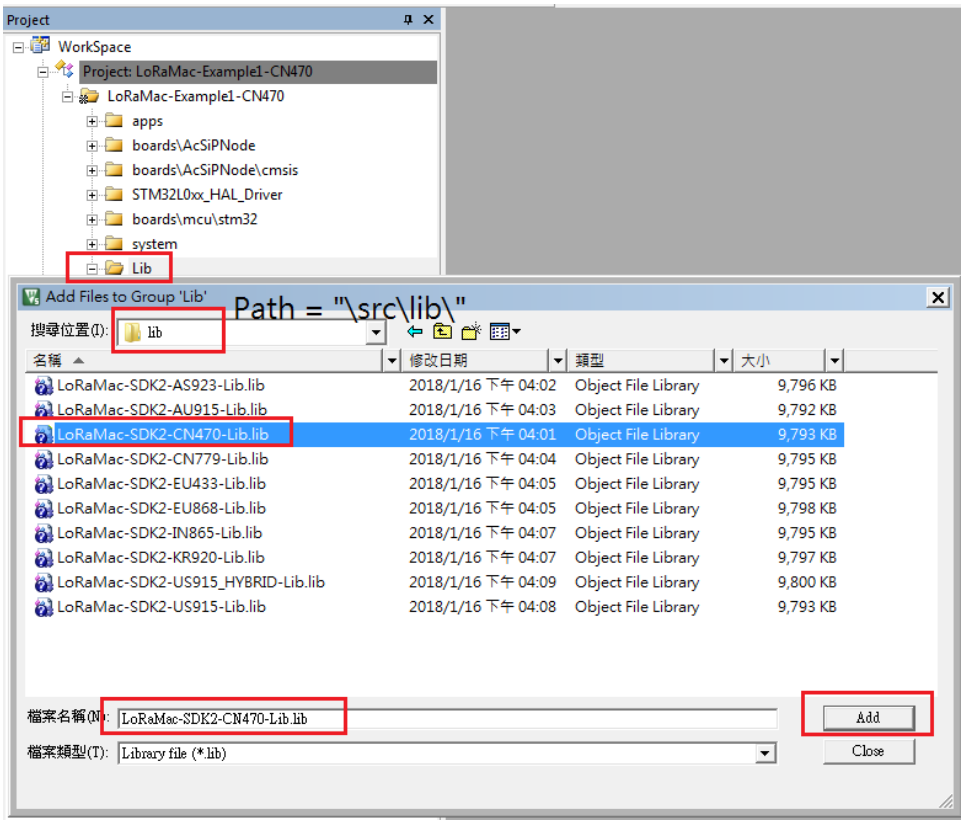
2.1.9 Lib functions?

Please reference the file ‘lorawan_lib.h’.

2.1.10 How to change the region lib in example?

- Remove existing lib in group ‘Lib’ in project.
- Add existing file to group ‘Lib’ in project.
- Go to the path “\src\lib\” to select and add right region lib.
- As shown in the following figure.

What region are you want or build? A : Select the region lib.



2.1.11 Call function mac_Tx() after print the Tx status “>> busy”

When print the status “>> busy”, meaning the LoRaMac in busy status.

Maybe the LoRaMac in Rx mode or Tx mode, please waiting until completely dealt with.

2.1.12 We can send the data packets by mac_Tx(), but after cannot, then how long we have to wait till we can?

About this, need to see what the region, what the setting. Like duty cycle, dwell, LBT, data length, DR etc. How long time need to wait, All about the setting.

2.2 MCU Q&A

2.2.1 In the default, the function Data2Flash(), what the area occupied in data memory?

Occupied the 0x08080000 ~ 0x08080BFF.

0x08080C00 ~ 0x080817FF for free to use.

2.2.2 How to erase the data memory?

In the file “eeprom-board.c”, have the function EraseAllDataEEPROM().

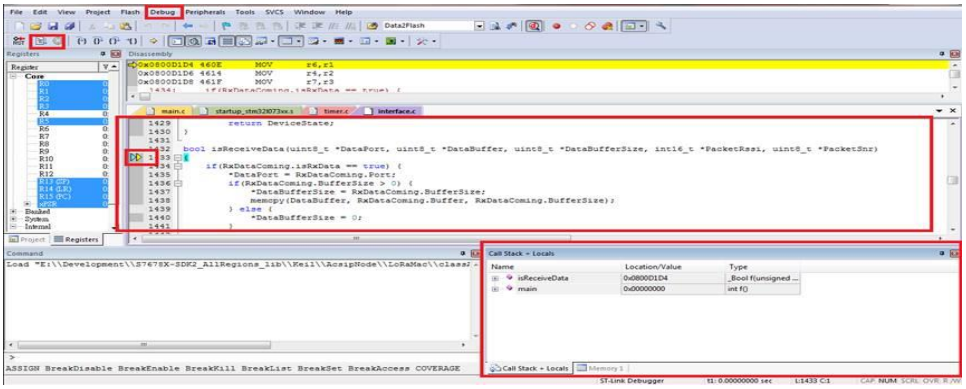
2.3 The other Q&A

2.3.1 Is the Lib for OS, example porting the lib in freeRTOS or the other OS/RTOS?

All the developed libraries have not researched the OS/RTOS so that not support the OS/RTOS.

2.3.2 How to debug?

Running the MDK Keil IDE tool, build and download, into “Debug” mode, and run the application, if halt after, stop the application, see the “Call Stack - Locals” window, analyze the functions and flow. After can understand that why to halt or crash. As shown in the following figure.



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