Advantech AE Technical Share Document

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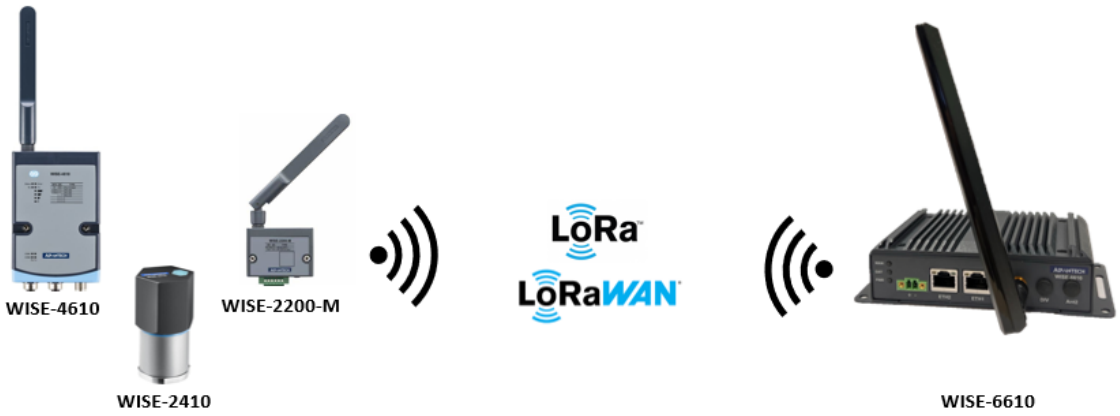
Category	■FAQ □SOP	**Related OS**	N/A
Abstract	How To Connect WISE LoRa Node With WISE-6610v2		
Keyword	Connection, OTAA		
Related Product	WISE-6610v2, WISE-4610, WISE-2410, WISE-2200-M		

■ Brief Description

This document will instruct how to connect WISE LoRa node, including WISE-4610, WISE-2410, and WISE-2200-M, with WISE-6610v2, a LoRa Gateway and Network Server, by using OTAA mode.

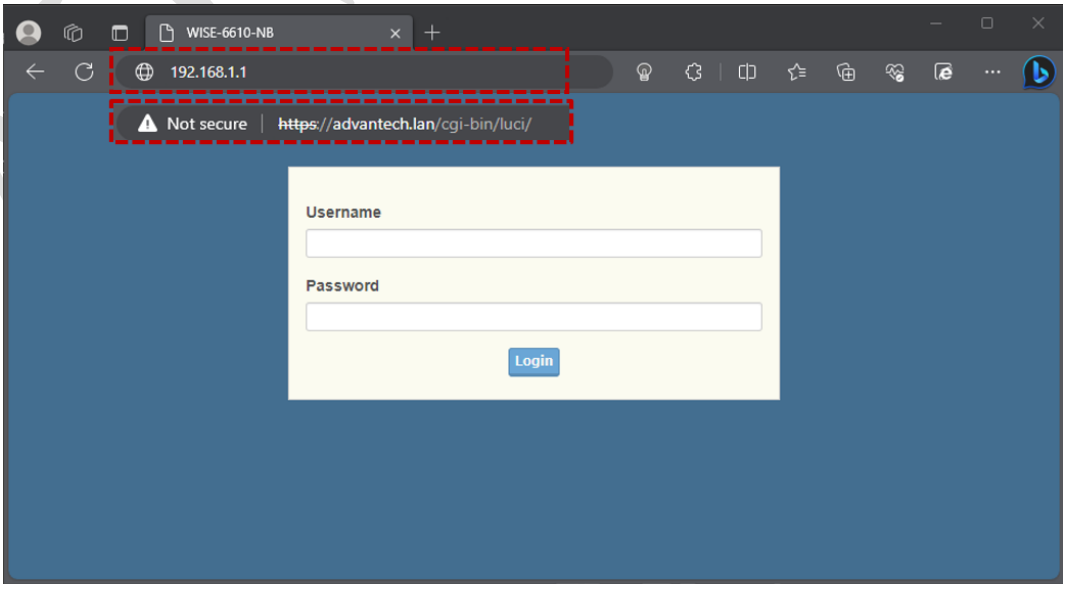


■ Brief Solution

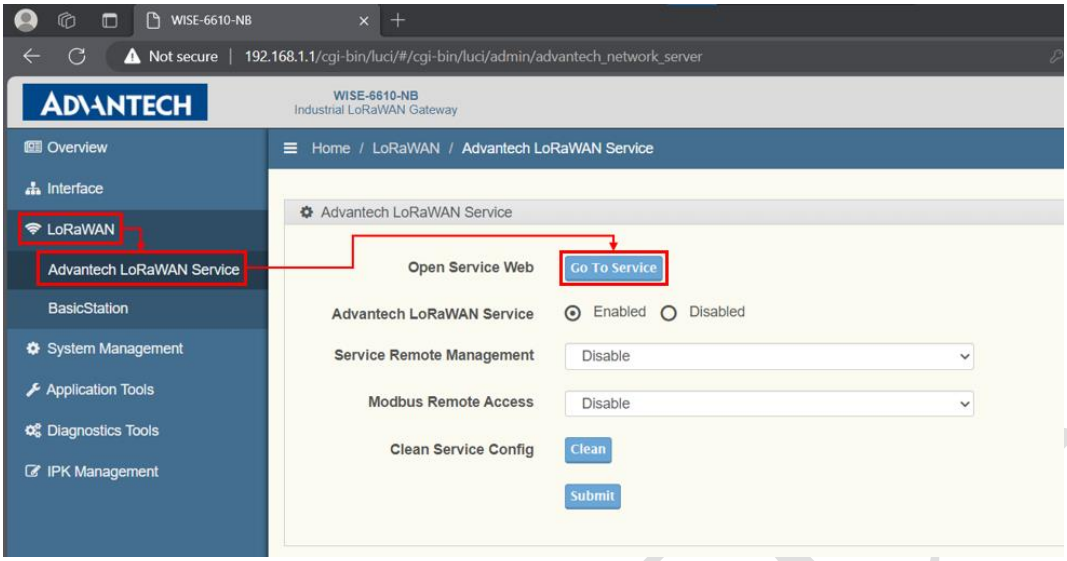
In this document, we use WISE-2410 (LoRa node) as example and connect WISE-2410 to WISE-6610v2. Please follow below **8 steps** to build this LoRa scenario.

Step1: Please use ethernet cable (RJ-45) to connect your PC directly with WISE-6610v2 (ETH2). By default, WISE-6610v2 is DHCP server, so please set your PC as DHCP client and get IP from WISE-6610v2. (Power Input: 9V~36V)

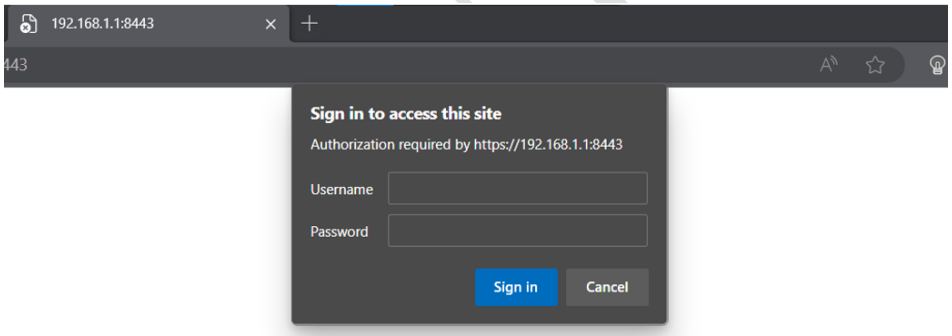
Then, please use browser and go into WISE-6610v2 configuration website, whose IP is **"192.168.1.1"** or URL is **"https://advantech.lan"**, just like below figure.
The default username and password are **"admin"** and **"admin"** respectively.



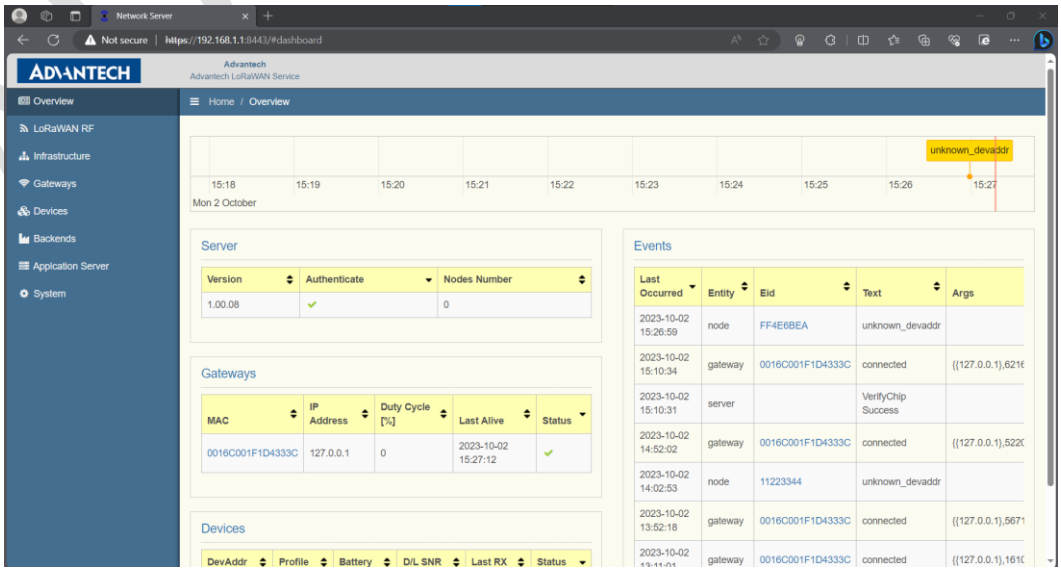
Step2: On WISE-6610v2 webpage, go to **LoRaWAN > Advantech LoRaWAN Service** page, and click **Go To Service** button. Then the user can set for LoRaWAN-related service.



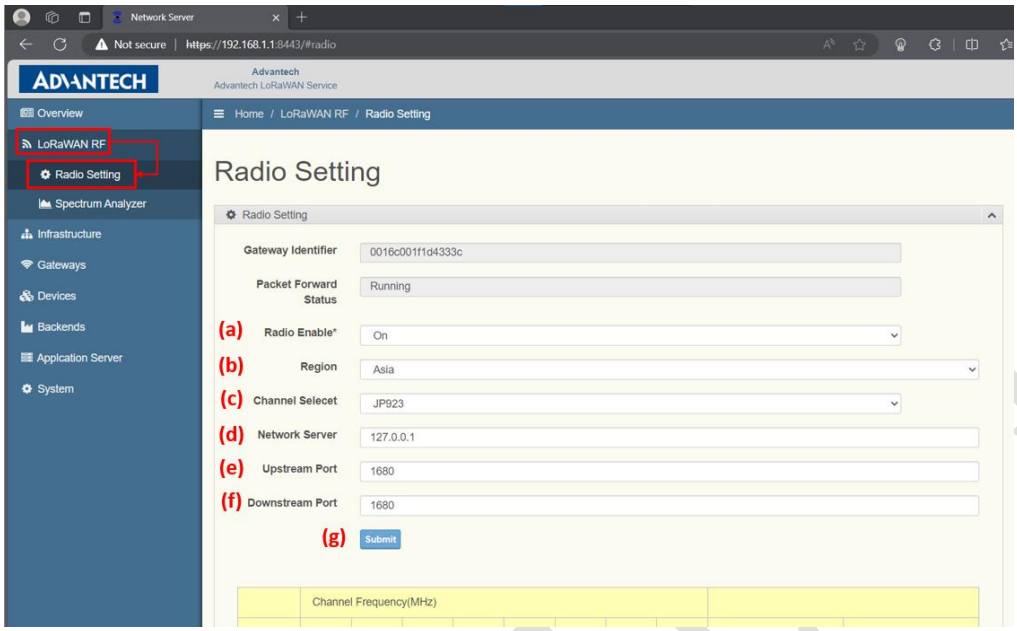
Step3: The user has to login for Network Server and the default username and password are **"admin"** and **"admin"** respectively.



After the user logins Advantech LoRaWAN Service, the page will be like below figure.



Step4: On WISE-660v2 webpage, go to **LoRaWAN RF > Radio Setting** page, the user can modify configuration of RF module (chip), which is also called LoRaWAN gateway. The below is description for each field on this page.



(a) **Radio Enable**: The field is used for set enable or disable for this RF module. In this case, the field is set as **On**.

(b) **Region**: The field is used to choose which region the RF module uses. In this case, the field is set as **Asia**.

(c) **Channel Select**: The field is used to set specific channel plan based on certain Region. In this case, the field is set as **JP923**.

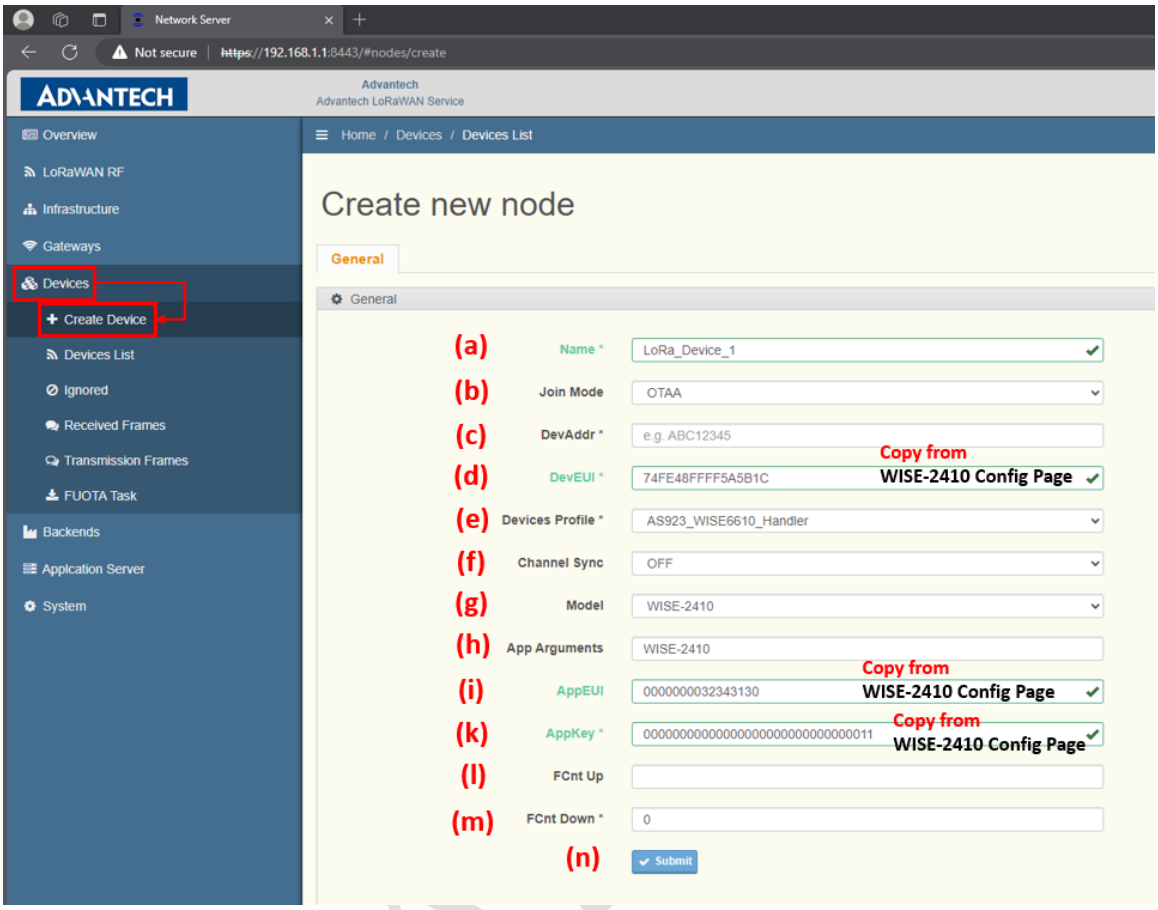
(d) **Network Server**: The field should be filled in **IP** or **URL** of corresponding Network Server, then RF module will send received LoRa package to this Network Server. In this case, the field is set as **"127.0.0.1"** because the Network Server is WISE-6610v2 itself.

(e) **Upstream Port**: The field stands for **UDP port** of Network Server to get uplink data from RF module (LoRaWAN gateway) to Network Server. In this case, the field is set as **"1680"**.

(f) **Downstream Port**: The field stands for **UDP port** of RF module to get downlink data from Network Server to RF module (LoRaWAN gateway). In this case, the field is set as **"1680"**.

(g) **Submit**: The field is used for saving above settings.

Step5: On WISE-660v2 webpage, go to **Devices > Create Device** page, the user can conveniently add a new LoRa device on WISE-6610v2. The below is description for each field on this page.



(a) **Name**: The field is user defined. If the field is left blank, WISE-6610v2 will generate a Name depending on the LoRa node's device address or device EUI. In this case, the field is set as **"LoRa_Device_1".**

(b) **Join Mode**: The field stands for which mode the LoRa node uses. The options include OTAA and ABP mode. In this case, the field is chosen as **OTAA**.

(c) **DevAddr**: The field should be filled with device address of LoRa node. And the field can be blank when LoRa node is OTAA mode. In this case, the field is blank due to OTAA mode of this WISE-2410.

(d) **DevEUI**: The field should be filled with device EUI (Extended Unique Identity) of LoRa node. However, the field is available only when LoRa node is OTAA mode. In this case, the field is set as **"74FE48FFFF5A5B1C"** due to setting of this WISE-2410.

Note: Please keep in mind that the **DevEUI is unique** from node to node, that means different DevEUI will be used according to LoRa node device you use.

(e) **Devices Profile**: The field is used for making WISE-6610v2 know how to basically process header and payload of each uplink package from LoRa node. In this case, the field is chosen as **AS923_WISE6610_Handler**.

(f) **Channel Sync**: The field is used for frequency synchronization when the frequency setting on LoRa node is incomplete or incorrect. In this case, the field is set as **OFF** because, in

OTAA mode, Network Server and LoRa node will originally negotiate frequency setting when LoRa node is joining into Network Server.

(g) **Model**: The field is a dropdown menu to let user conveniently choose which LoRa node model of Advantech. In this case, the field is chosen as **WISE-2410**.

(h) **App Arguments**: The field will be changed based on Model field. In this case, the field is automatically set as **"WISE-2410"** by system because the Model is chosen as WISE-2410.

(i) **AppEUI**: The field should be filled with application EUI (Extended Unique Identity) of LoRa node. However, the field is available only when LoRa node is OTAA mode. In this case, the field is set as **"0000000032343130"** due to OTAA mode of this WISE-2410.

Note: Please keep in mind that the **AppEUI is usually unique** from node to node, that means different DevEUI will be used according to LoRa node device you use.

(j) **AppKey**: The field should be filled with application key of LoRa node. However, the field is available only when LoRa node is OTAA mode. In this case, the field is set as **"00000000000000000000000000000011"** due to setting of this WISE-2410.

Note: Please keep in mind that the **AppKey is usually unique** from node to node, that means different DevEUI will be used according to LoRa node device you use.

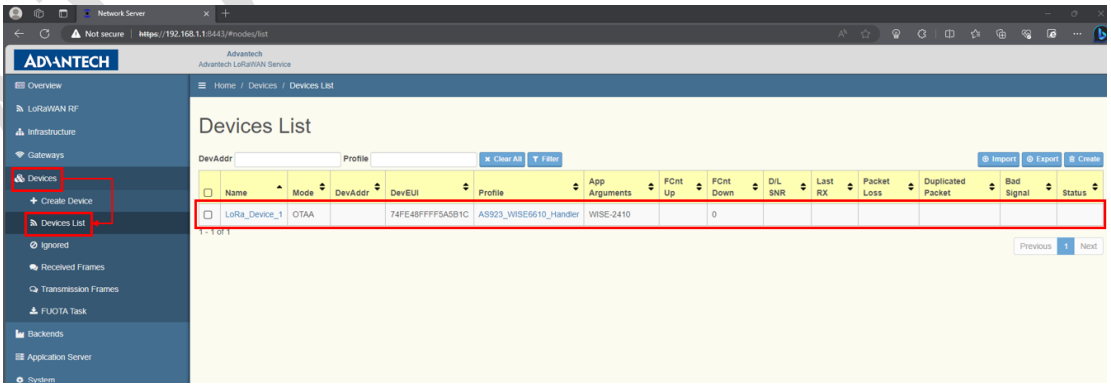
(k) **FCnt Up**: The field stands for first uplink frame count of the LoRa node. In this case, the field is **blank**.

(l) **FCnt Down**: The field stands for first downlink frame count of the LoRa node. In this case, the field is set as **"0"** by default.

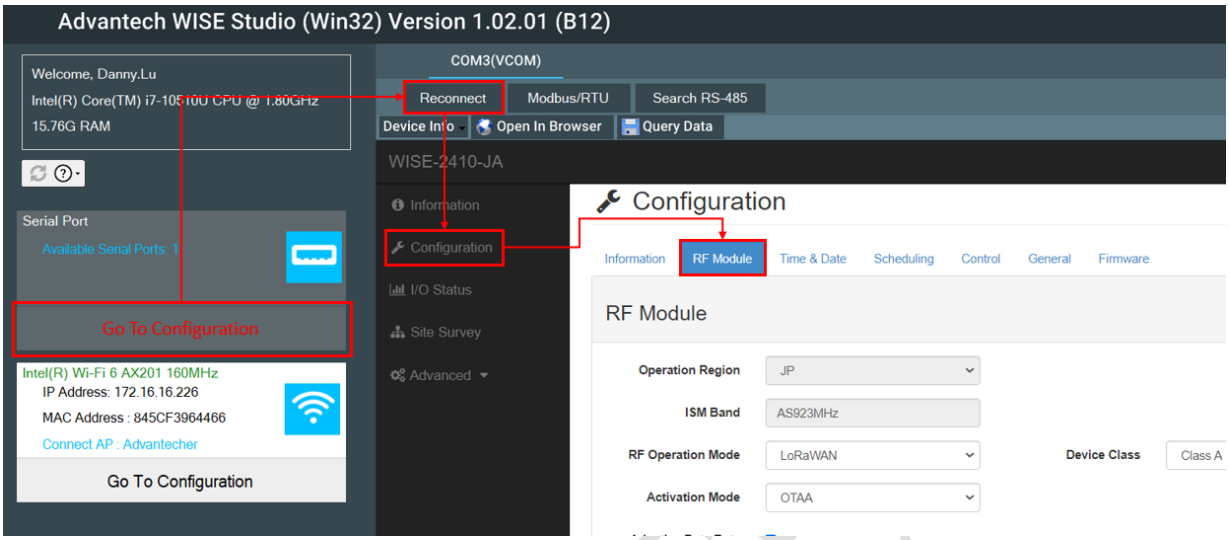
(m)**Submit**: The field is used for saving above settings.

Note: If the LoRa node is in ABP mode, the user should fill in **DevAddr**, **Network Session Key**, **Application Session Key** instead of **DevEUI**, **AppEUI**, and **AppKey**.

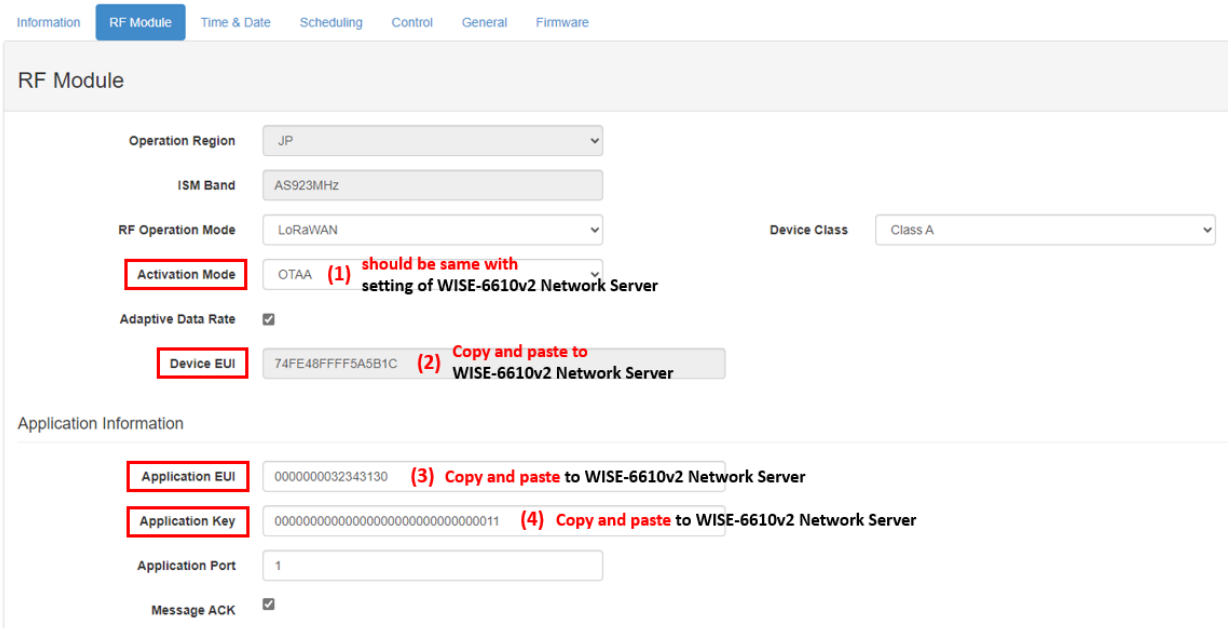
Step6: After adding a new LoRa node on WISE-6610v2, the user can check whether, on **Devices > Devices List** page, the page will display what LoRa node the user adds.



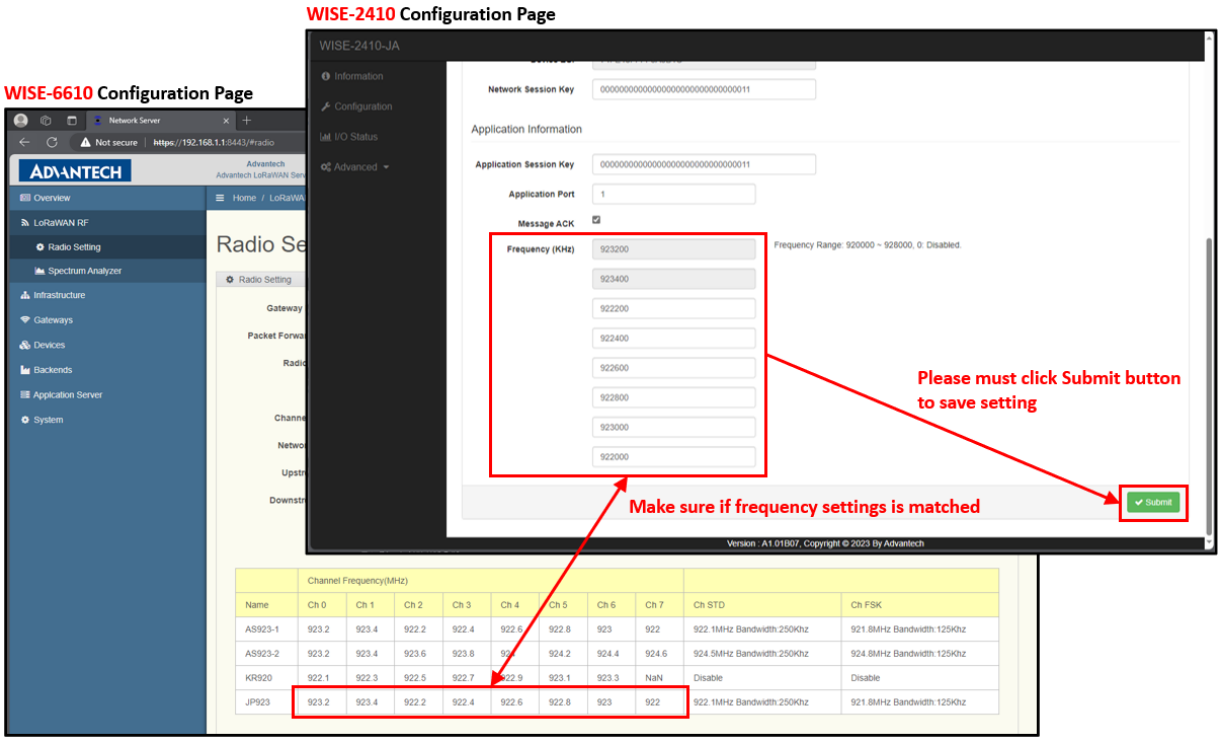
Step7: On the LoRa node side, please use WISE Studio to set configuration for LoRa Node. The user must plug USB directly from PC to WISE LoRa node in advance. In this case, we use WISE-2410 as an example. Then, WISE Studio will show like below picture, please go to **Go To Configuration > Connect > Configuration > RF Module** page for RF setting of LoRa node.



On this page of WISE LoRa node in OTTA mode, there are many parameters, including (1) Activation Mode, (2) Device EUI, (3) Application EUI, and (4) Application Key. Please check whether the setting is same with setting of **Create Device** page of WISE-6610v2 Network Server.



Finally, please scroll down on this LoRa node webpage, please make sure the frequency setting of LoRa node is same with the setting of WISE-6610v2 RF module.



Step8 (Result): The user can check whether LoRa node sends uplink data to WISE-6610v2 successfully. Please go to **Application Server > Advantech Nodes Status > {0151ABE0}** page, and check whether the vibration value is shown like as below picture.