

Quick Start Guide Manual

**Sigfox Access Station Nano
NAP-Series**

The Nano Access Point (NAP) is the perfect solution for Sigfox radio indoor coverage extension. It is a standard performance base station supporting uplink with -105dBm sensitivity and downlink with 99% success rate up to 1000 meters in free path loss conditions, assuming Sigfox Ready devices with 14dBm ERP.

Remote solution X sigfox



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General Information

NAP is a gateway equipment that comes in three versions. These are categorized by the capability of internet connection. NAP3 connects the Sigfox cloud platform to an wired Ethernet cable or through Wi-Fi connection.

NAP5 features a built-in Cellular module which supports LTE Cat M1 as a default capability. (LTE Cat1 is a customized option for user). NAP5 doesn't support a wired network or Wi-Fi. (only LTE support)

NAP7 connects to Sigfox Cloud via an existing LAN infrastructure (Ethernet or Wi-Fi) or cellular network.

It features the ability to automatically switch networks if encountering an issue on the network, as well as checking network backhaul to support seamless data service.

Improve Sigfox Device Coverage Indoor

With the multiple backhaul capability, NAP can be installed at customer premises where Ethernet, Wi-Fi and LTE are available. This can be installed for indoor or rural outdoor with IP61 enclosure such as attics, underground, warehouses, buildings, shops, farms, offices and etc.

It can be installed in a Sigfox radio-shaded area that is out of signal range of existing access stations to further increase coverage.



Before You Start

This quick start guide will take you through the few steps required to connect and start using your station.

Prepare the following to Access Station Micro System

- Internet connection: either by Ethernet port or compatible LTE Cat-M1
- In case of using Ethernet network: Ethernet cable
CAT5e or above, shielded F/FTP, SF/UTP, SF/FTP
- In case of using LTE M1 : Micro SIM card registered with mobile operator
- Indoor 220 / 110 V AC power outlet
- Antennas come attached. *Sim cards are not provided

This guide is based on NAP-7.

NAP-3 / NAP-5 have different number of antennae.

Please refer to “Interface” in this guide.

This “Before you start” is a session for the physical installation of the NAP device to the Ethernet and LTE environment.

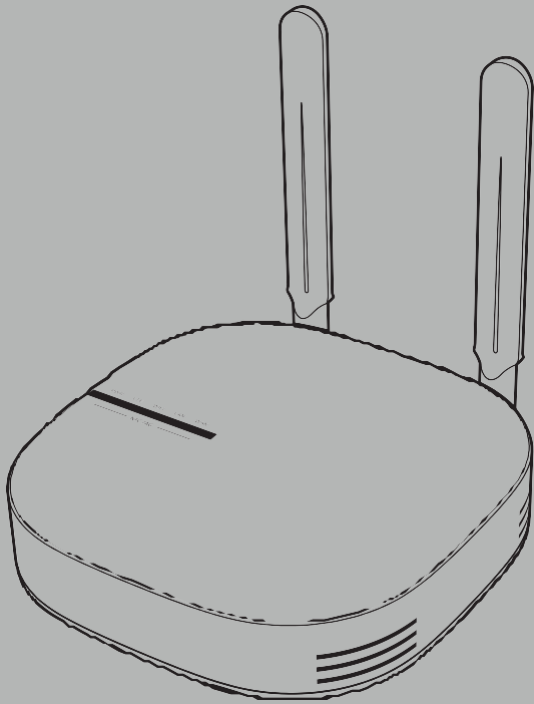
Regarding the Wi-Fi configuration or the other connection process, please refer to the session “Activation / Configuration”.

The locational information including GNSS coordinates MUST be entered during the configuration.

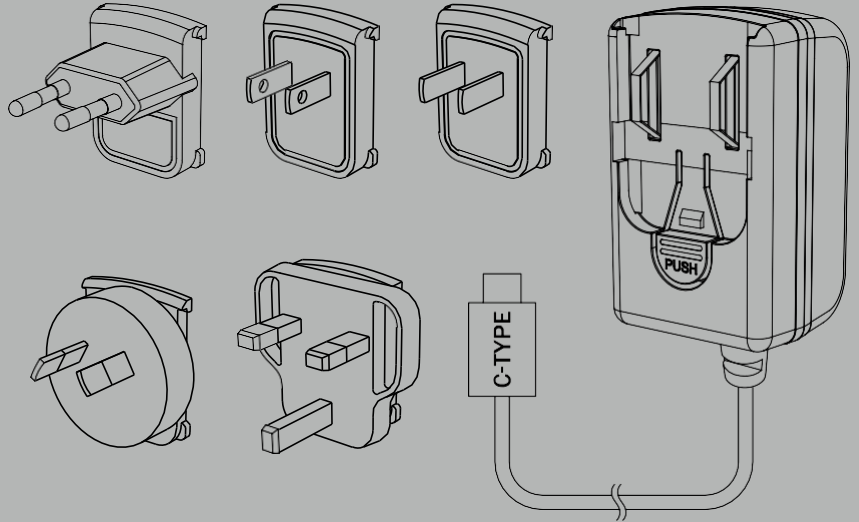
For further details, please visit <https://service.rs-aiot.com/>



Package Contents



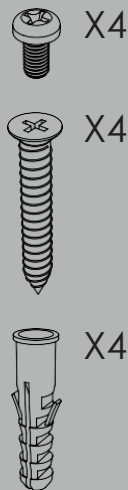
Device



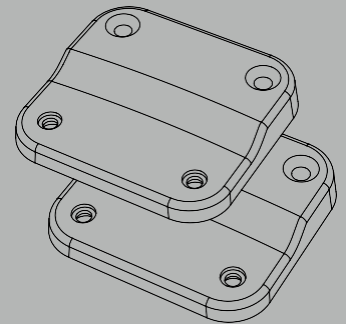
USB-C Power Adapter
& Transform Plugs



Gift Box



Screw



Wall-mount
Bracket

- 4 Taptite & 4 Tapping Screws are included.
- 4 Wall-Plugs are included.
- Ethernet cables are not provided.
- Screwdrivers are not included; regular size is required.

Interface

Sigfox Antenna

LTE Antenna

USB C Power port

Reset Button

Ethernet WAN port

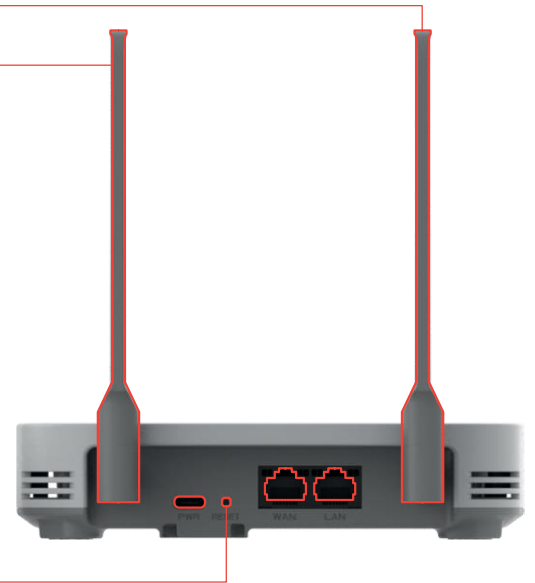
Ethernet LAN port

Power line breakaway prevention groove

SIM Card port

(*Unscrew the SIM card access door)

LED Display



- 2 antennas* for NAP-5 and NAP-7
- 1 antenna for NAP-3

*Two antenna config, includes one for Sigfox, the other for LTE

External Antenna Config

- 2 antennas* for NAP-5 and NAP-7
- 1 antenna for NAP-3

*Two antenna config, includes one for Sigfox, the other for LTE

LED Description

Name	Status	Meaning
PWR	On	Power is normal
	Off	No power or abnormal condition
CLOUD LED	On	Connected to Sigfox Cloud successfully
	Off	Failed to connect to Sigfox Cloud
LTE	Flashing 1.8s on/0.2s off	LTE Connected to peer
	Flashing 0.2s on/1.8s off	Trying to connect to peer
	Flashing quickly 0.1s on/0.1s off	Data transfer is on going
WIFI	On	WiFi On
	Off	WiFi Off
WAN	On	WAN Link up
	Off	WAN Link down
LAN	On	LAN Link up
	Off	LAN Link down



Powering the Station

- 1) Connect the USB C Power port to the power adapter and plug the adapter to a power outlet.
- 2) Insert the electric wire into the power cord separation prevention groove to prevent the power cord from being easily disconnected from the USB port during use.
- 3) Station will boot up automatically.
- 4) To reboot the station, press the Reset button and it will automatically reboot.



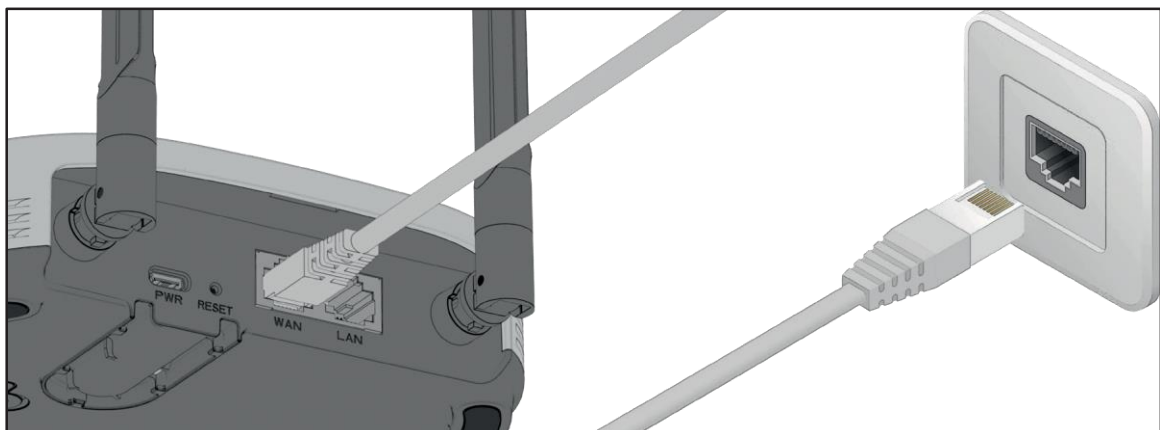
Ethernet Connection

Step 1 Installation Location

Place or fix the Access Station Nano at the desired location. Make sure you leave enough space to access the ports and you can see the side to check the LED display.

Step 2 Connect the Station to the Internet

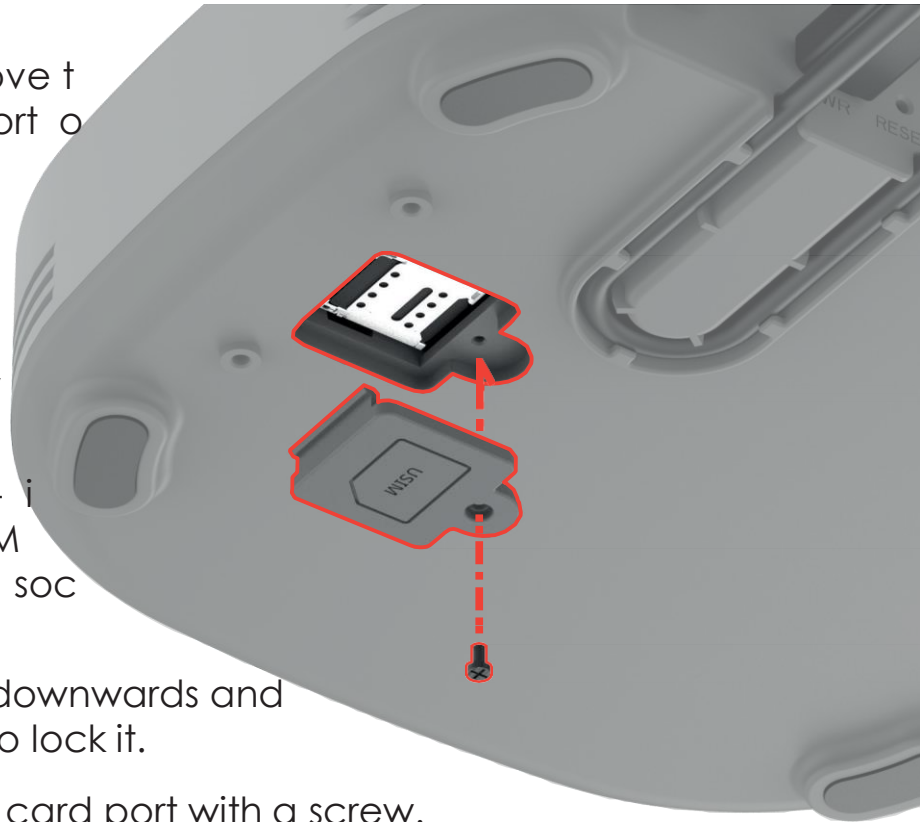
- 1) In case of using Ethernet connect the Ethernet cable to the station's Ethernet WAN port.
- 2) Connect the other end of the Ethernet cable to the Ethernet wall socket or router.



LTE Connection

For NAP-5 / NAP-7

- 1) In case of using LTE M1 remove the cover of the SIM card port on the bottom of the station.
- 2) Unscrew SIM card port.
- 3) Slide the SIM socket cover in the Open direction, and then lift the socket cover upwards.
- 4) Place the SIM card by aligning the cut edge of the SIM card with the edge of the socket.
- 5) Close the SIM socket cover downwards and slide it in the Lock direction to lock it.
- 6) Tighten the cover of the SIM card port with a screw.



Place the station upside down carefully



Open the USIM slot on the bottom of the NAP. Insert the USIM according to the shape of the corner as shown in the figure below, close the iron lid, and Slide it to the right to lock it in place.

Activation / Configuration

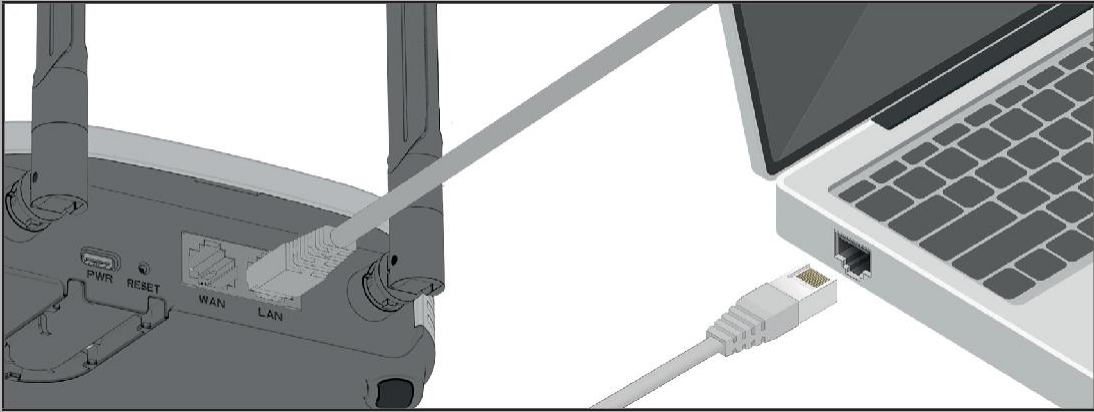
- 1) By default, the station is setup for automatic DHCP connection.
- 2) Check the Support Section of this guide if you need to reconfigure the Ethernet or LTE network settings.
- 3) The Access Station NAP is ready and operational as soon as the boot up is done, the connectivity established. This should take less than 1 minutes in normal temperature conditions.
- 4) To activate the device, the GNSS coordinates must be manually inputted by the user via the Android App or Web UI. Please refer to “NAP Settings” for more information.
- 5) Check the Support Section of this guide if you need to reconfigure the Ethernet.



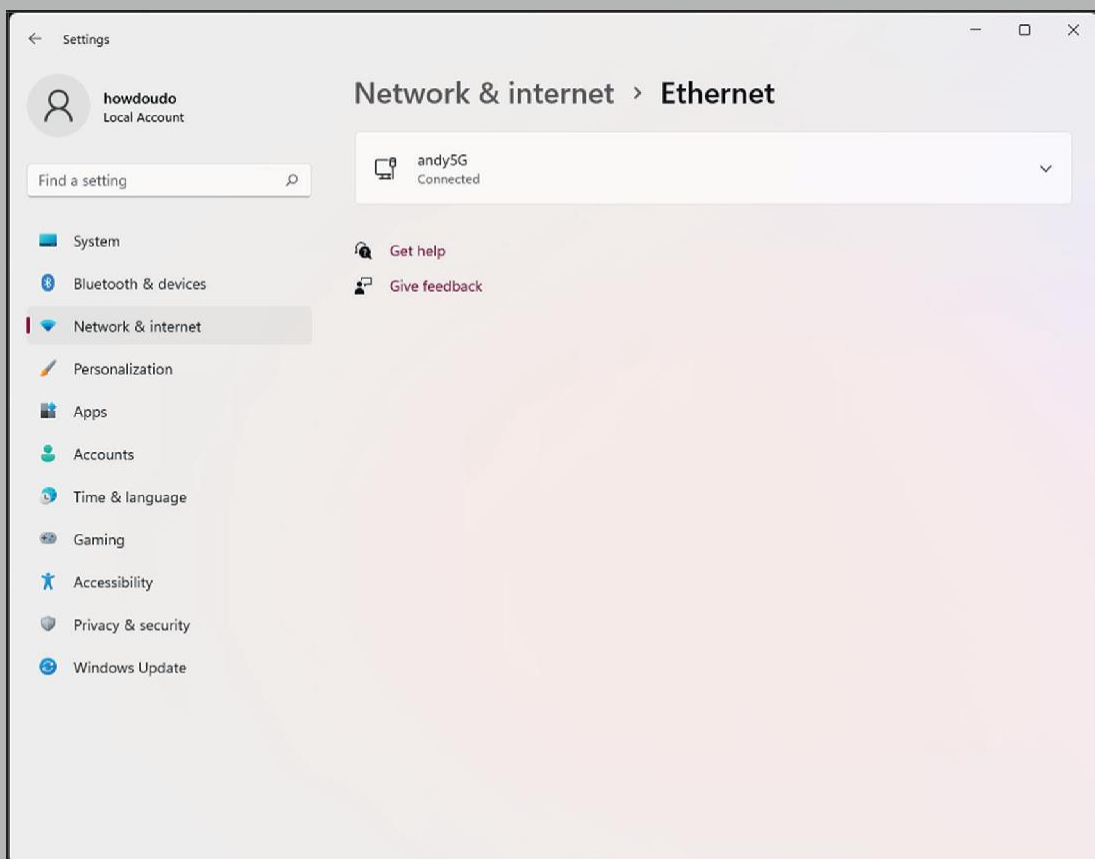
How to Configure the Web

Step 1. Connect the station to PC

- 1) Connect the Ethernet cable to the station's Ethernet LAN port. Connect the other end of the Ethernet cable to PC.

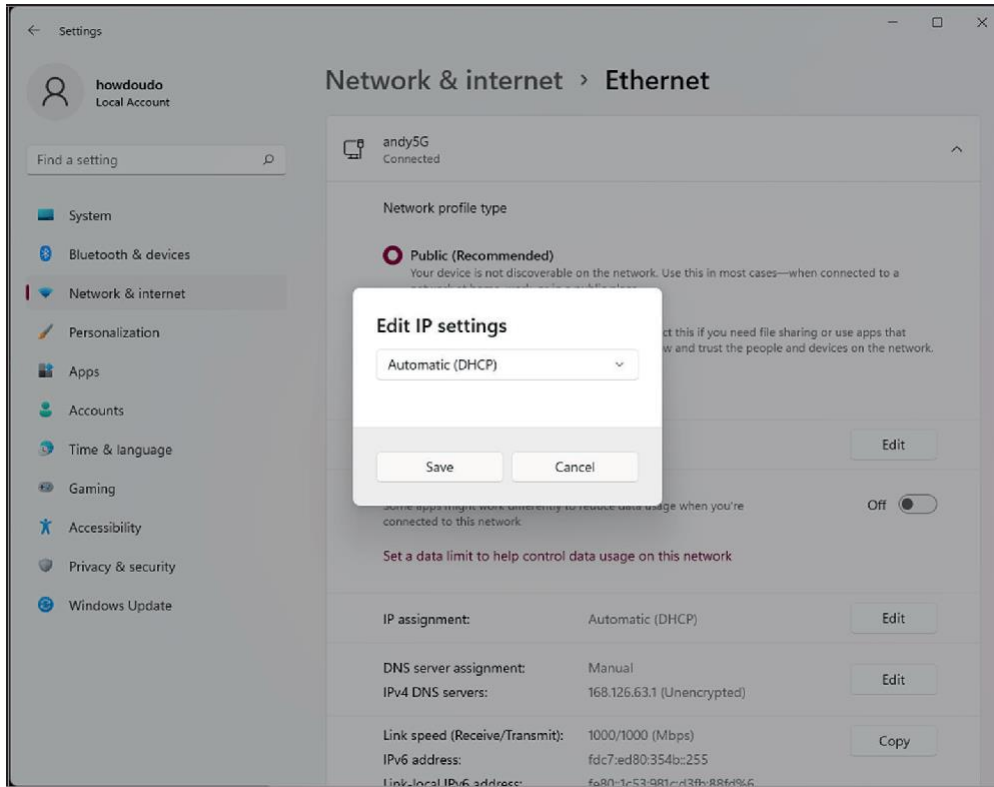


- 2) In Windows 11,
go to Start > Settings > Network & internet > Ethernet
- 3) Choose your Ethernet adapter and
click **V** to show detail options.



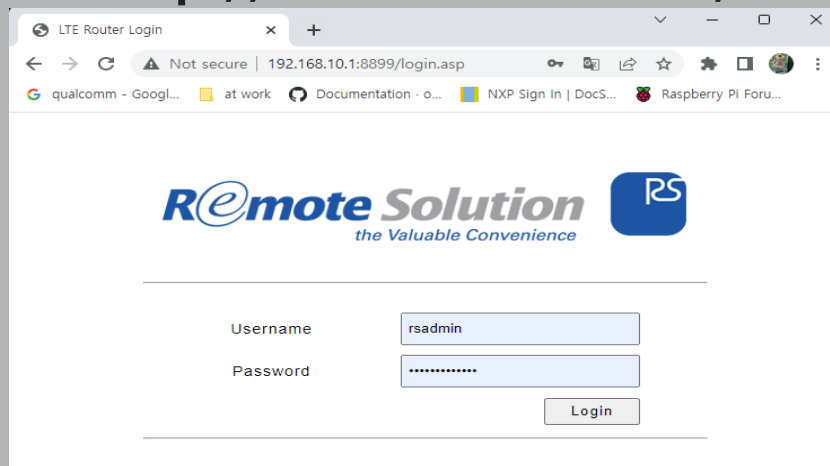
Step 2. Find IP assignment and click Edit

1) Select "Automatic (DHCP)" and Save



Regular Installation

Step 1. Run Web browser and connect to <http://192.168.10.1:8899/>



Step 2. Enter Username & Password

- Default Username : **rsadmin**
- Default Password : **rsadmin0000!!**
- Default Username & Password is the same for all the NAP Devices
- Recommend to change them for your security
- You can change them in Administration → Management menu



How to use Web UI

After successfully connecting to the Web the below will appear. You can get NAP status information, and also configure NAP through the Web UI.



The screenshot shows a web browser window displaying the SigFox NAP Web UI. The browser address bar shows the URL `192.168.10.1:8899/home.asp`. The page header includes the "Remote Solution" logo and "SigFox NAP". A left sidebar contains navigation links for "Sigfox NAP", "NAP Settings", "LTE Settings", "Internet Settings", "Wi-Fi Settings", and "Administration", along with a "Logout" button. The main content area is divided into four sections, each with a table of information:

System Information	
SSID	Sigfox_NAP
H/W Version	1.0
S/W Version	1.0.3
Modem Version	01.012.01.012
Connection Status	Connected
System Up Time	4 mins, 10 secs
USIM Status	USIM ready
IMEI	864200054264198
Telephone Number	+467191017591770

NAP Information	
NAP Version	1.0.3
Module F/W Version	1.0.3pre
Serial Number	SN7M000036
NAP ID	00060000003D

Internet Information	
Connected Type	DHCP
WAN IP Address	192.168.0.27
MAC Address	00:1F:96:46:6A:D2
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1
Primary DNS	168.126.63.1
Secondary DNS	8.8.8.8


Local Network	
Local IP Address	192.168.10.1
Local Netmask	255.255.255.0
MAC Address	02:1F:96:46:6A:D2
DHCP Server	Enable



NAP Configuration

■ NAP Status Information :

Shows various information for Sigfox service



The screenshot shows a web browser interface for an LTE Router. The address bar indicates the URL is 192.168.10.1:8899/home.asp. The page header features the 'Remote Solution' logo and 'SigFox NAP'. A left sidebar contains navigation links for 'Sigfox NAP', 'NAP Settings', 'LTE Settings', 'Internet Settings', 'Wi-Fi Settings', and 'Administration', along with a 'Logout' button. The main content area is divided into four sections, each with a table of key-value pairs:

System Information	
SSID	Sigfox_NAP
H/W Version	1.0
S/W Version	1.0.3
Modem Version	01.012.01.012
Connection Status	Connected
System Up Time	4 mins, 10 secs
USIM Status	USIM ready
IMEI	864200054264198
Telephone Number	+467191017591770

NAP Information	
NAP Version	1.0.3
Module F/W Version	1.0.3pre
Serial Number	SN7M000036
NAP ID	00060000003D

Internet Information	
Connected Type	DHCP
WAN IP Address	192.168.0.27
MAC Address	00:1F:96:46:6A:D2
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.1
Primary DNS	168.126.63.1
Secondary DNS	8.8.8.8

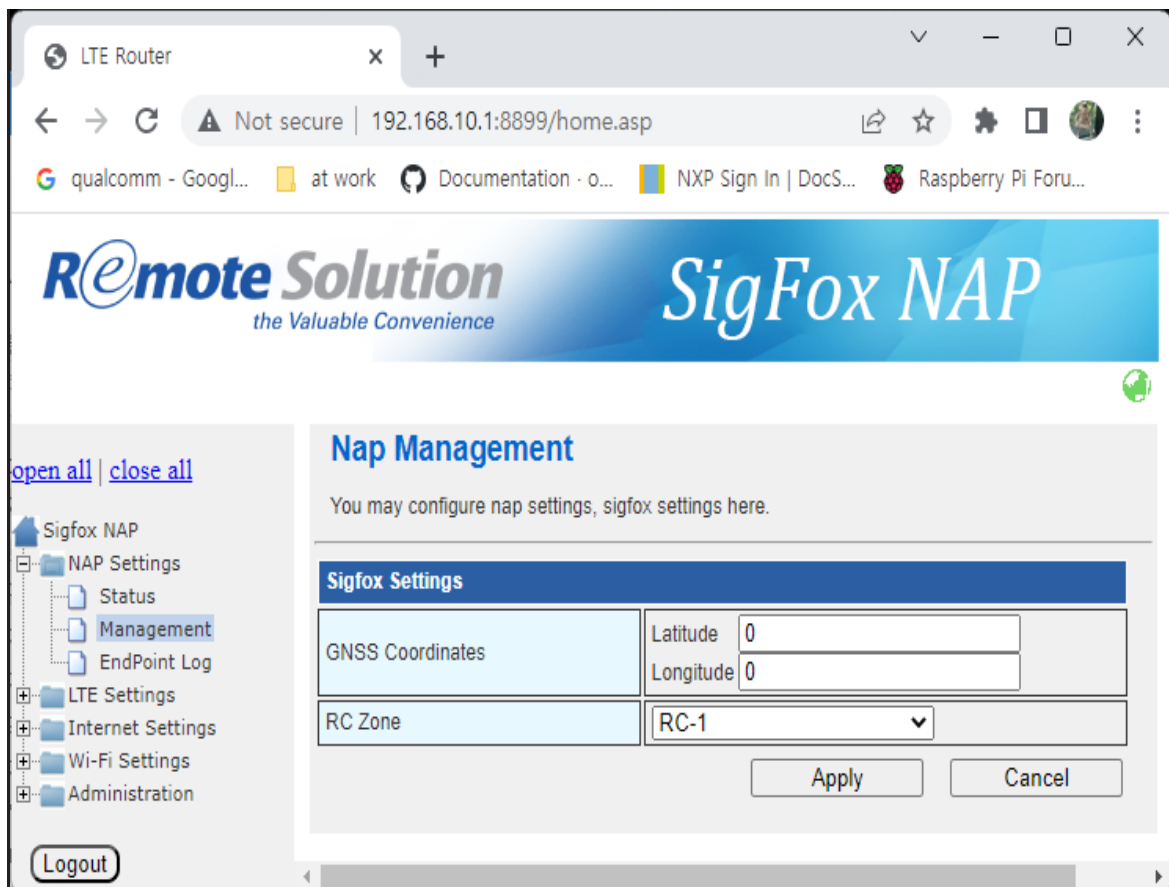
Local Network	
Local IP Address	192.168.10.1
Local Netmask	255.255.255.0
MAC Address	02:1F:96:46:6A:D2
DHCP Server	Enable



■ GNSS Coordinates

Specify the latitude & longitude value of GNSS

Coordinate value can be obtained from the mobile application provided by Remote Solution or google map by user.



The screenshot shows a web browser window with the URL `192.168.10.1:8899/home.asp`. The page header features the **Remote Solution** logo with the tagline "the Valuable Convenience" and the **SigFox NAP** title. A left sidebar contains a navigation menu with items like "Sigfox NAP", "NAP Settings", "Management", "EndPoint Log", "LTE Settings", "Internet Settings", "Wi-Fi Settings", and "Administration". The main content area is titled "Nap Management" and includes the instruction "You may configure nap settings, sigfox settings here." Below this is a "Sigfox Settings" section with a table:

Sigfox Settings	
GNSS Coordinates	Latitude <input type="text" value="0"/>
	Longitude <input type="text" value="0"/>
RC Zone	<input type="text" value="RC-1"/>

At the bottom of the settings section are "Apply" and "Cancel" buttons. A "Logout" button is located in the bottom left corner of the page.

■ End Point Log

NAP shows recent 50 message logs from end point

Log show end point's device ID, rssi, frequency and received time in UTC

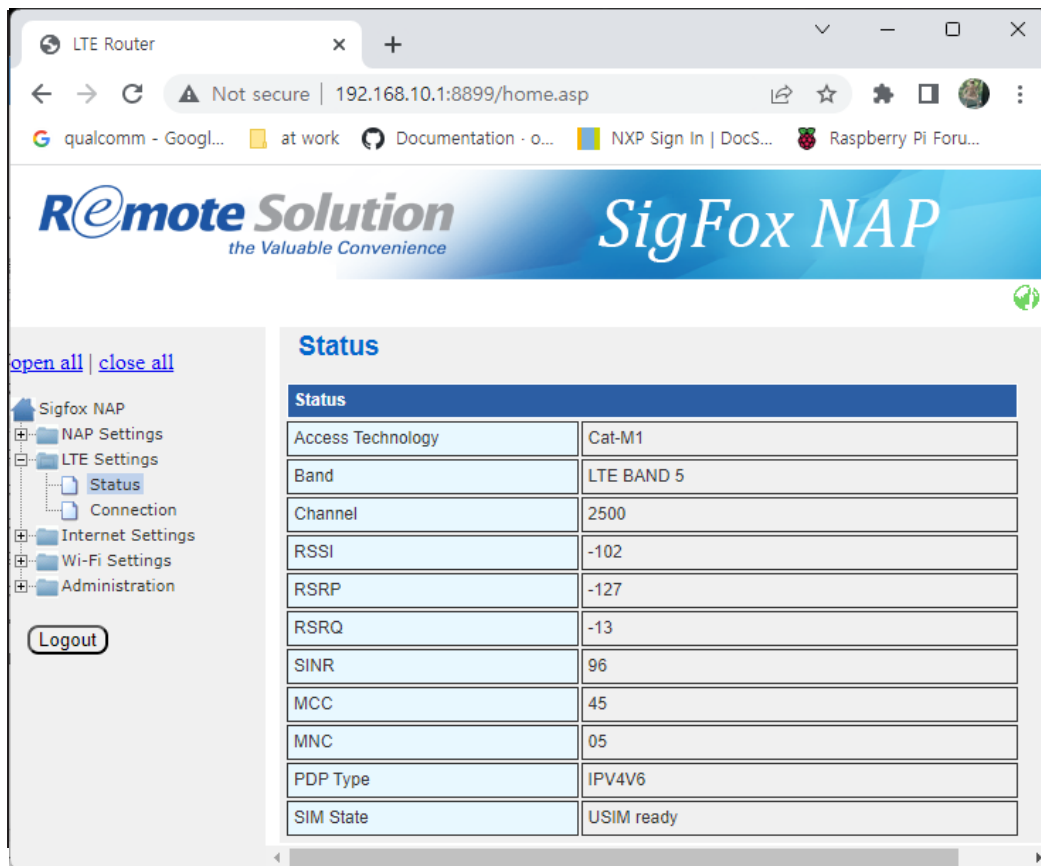
Note) Log don't show end point's encrypted payload data, you can read it in the Sigfox backend

rank	oob	id	rssi	freq	timestamp
rank[1]	oob[0]	id[0020F7B6]	rssi[-68]	freq[923327808.000000]	timestamp[2023-03-28 05:59:20]
rank[2]	oob[0]	id[0020F7B6]	rssi[-86]	freq[923353600.000000]	timestamp[2023-03-28 06:00:22]
rank[3]	oob[0]	id[0020F7B6]	rssi[-93]	freq[923329344.000000]	timestamp[2023-03-28 06:00:24]
rank[1]	oob[0]	id[0020F7B6]	rssi[-81]	freq[923356544.000000]	timestamp[2023-03-28 06:00:40]
rank[2]	oob[0]	id[0020F7B6]	rssi[-104]	freq[923328768.000000]	timestamp[2023-03-28 06:00:41]
rank[1]	oob[0]	id[00B43947]	rssi[-32]	freq[923348032.000000]	timestamp[2023-03-28 07:19:28]
rank[2]	oob[0]	id[00B43947]	rssi[-32]	freq[923289728.000000]	timestamp[2023-03-28 07:19:30]
rank[3]	oob[0]	id[00B43947]	rssi[-32]	freq[923348992.000000]	timestamp[2023-03-28 07:19:31]
rank[1]	oob[0]	id[00B43947]	rssi[-32]	freq[923291648.000000]	timestamp[2023-03-28 07:20:37]
rank[2]	oob[0]	id[00B43947]	rssi[-32]	freq[923357696.000000]	timestamp[2023-03-28 07:20:38]
rank[3]	oob[0]	id[00B43947]	rssi[-32]	freq[923309184.000000]	timestamp[2023-03-28 07:20:40]
rank[1]	oob[0]	id[00B43947]	rssi[-28]	freq[923339776.000000]	timestamp[2023-03-28 07:46:23]
rank[2]	oob[0]	id[00B43947]	rssi[-29]	freq[923273152.000000]	timestamp[2023-03-28 07:46:24]
rank[3]	oob[0]	id[00B43947]	rssi[-29]	freq[923344960.000000]	timestamp[2023-03-28 07:46:26]
rank[2]	oob[0]	id[00B43947]	rssi[-30]	freq[923266304.000000]	timestamp[2023-03-28 08:41:51]
rank[3]	oob[0]	id[00B43947]	rssi[-28]	freq[923261312.000000]	timestamp[2023-03-28 08:42:22]
rank[1]	oob[0]	id[00B43947]	rssi[-28]	freq[923216384.000000]	timestamp[2023-03-28 08:53:08]



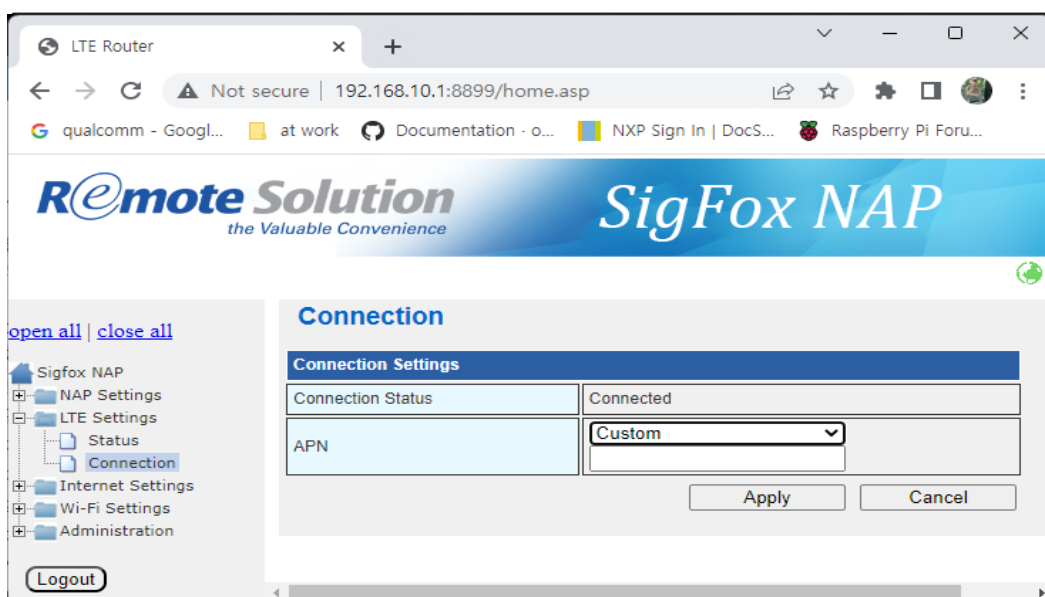
LTE Configuration

Here shows the current status of LTE modem



■ APN Settings(LTE setting)

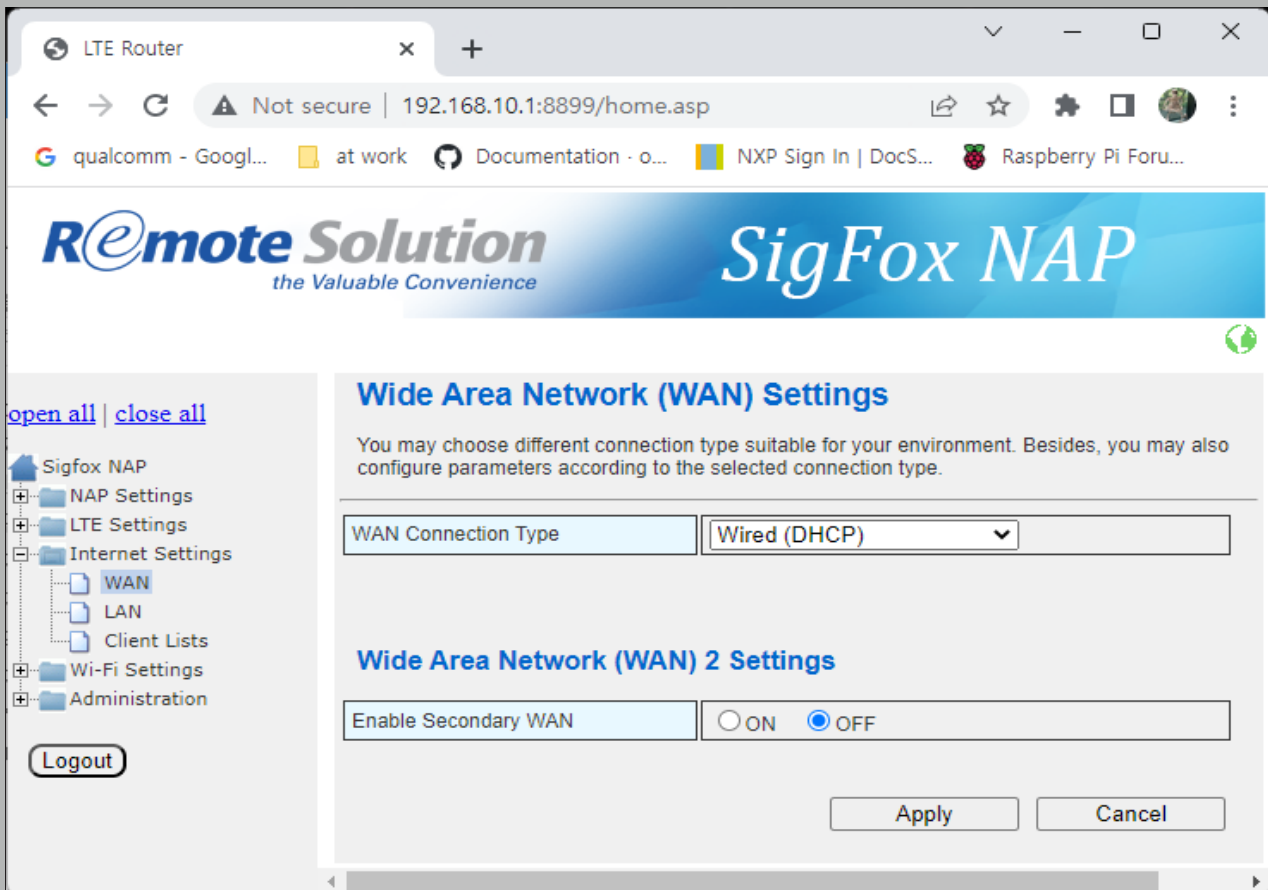
- 1) In LTE settings -> Connection menu
- 2) Select pre-defined APN or Enter custom APN



WAN Setup Primary

■ DHCP configuration.

In case of using DHCP Select WAN Connection Type: Wired(DHCP)



Click Apply

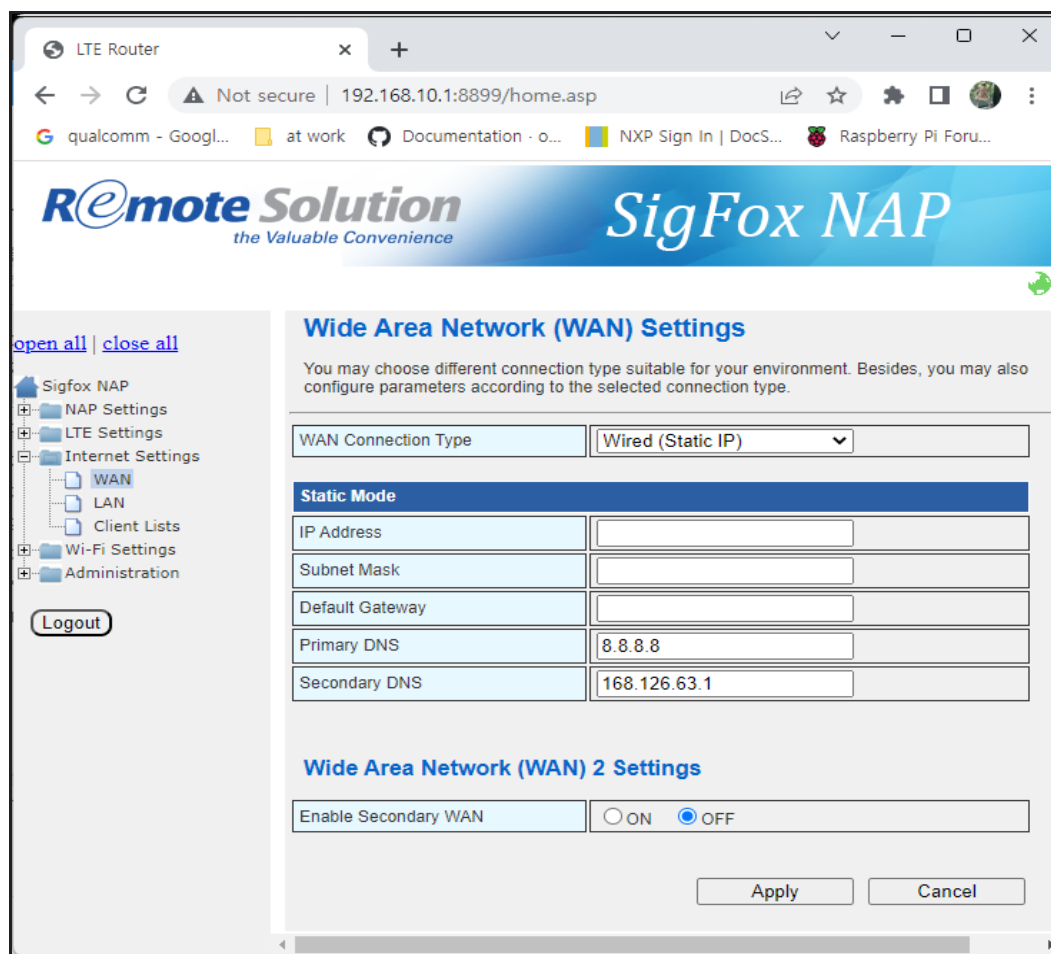
“In the case of NAP-7, Multi-Backhaul (LTE, Ethernet, Wi-Fi) function is provided, but if you want to connect two or more backhauls at the same time, you need to set up primary and secondary backhaul.

At this time, basic Internet communication is performed with the backhaul set as the primary, and if the primary backhaul becomes unable to communicate, it operates as the secondary backhaul as the backup backhaul.

After that, when the primary backhaul returns to normal, communication is resumed as the primary backhaul.”

■ Static IP configuration

WAN Connection Type: Wired (Static IP)



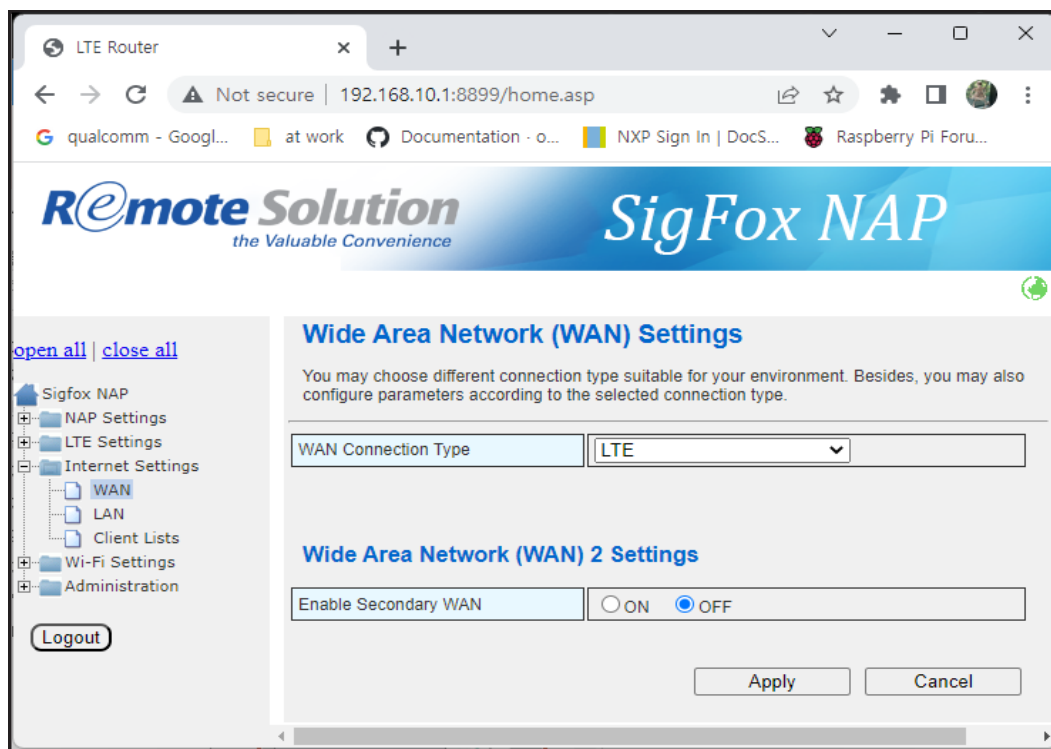
The screenshot shows the SigFox NAP web interface for an LTE Router. The browser address bar shows the URL 192.168.10.1:8899/home.asp. The page title is "Wide Area Network (WAN) Settings". The "WAN Connection Type" is set to "Wired (Static IP)". Below this, the "Static Mode" section contains the following fields:

Static Mode	
IP Address	
Subnet Mask	
Default Gateway	
Primary DNS	8.8.8.8
Secondary DNS	168.126.63.1

Below the static mode fields, the "Wide Area Network (WAN) 2 Settings" section has an "Enable Secondary WAN" option set to "OFF". At the bottom right, there are "Apply" and "Cancel" buttons.

Enter IP address, Subnet Mask, Default Gateway, DNS address
Click Apply

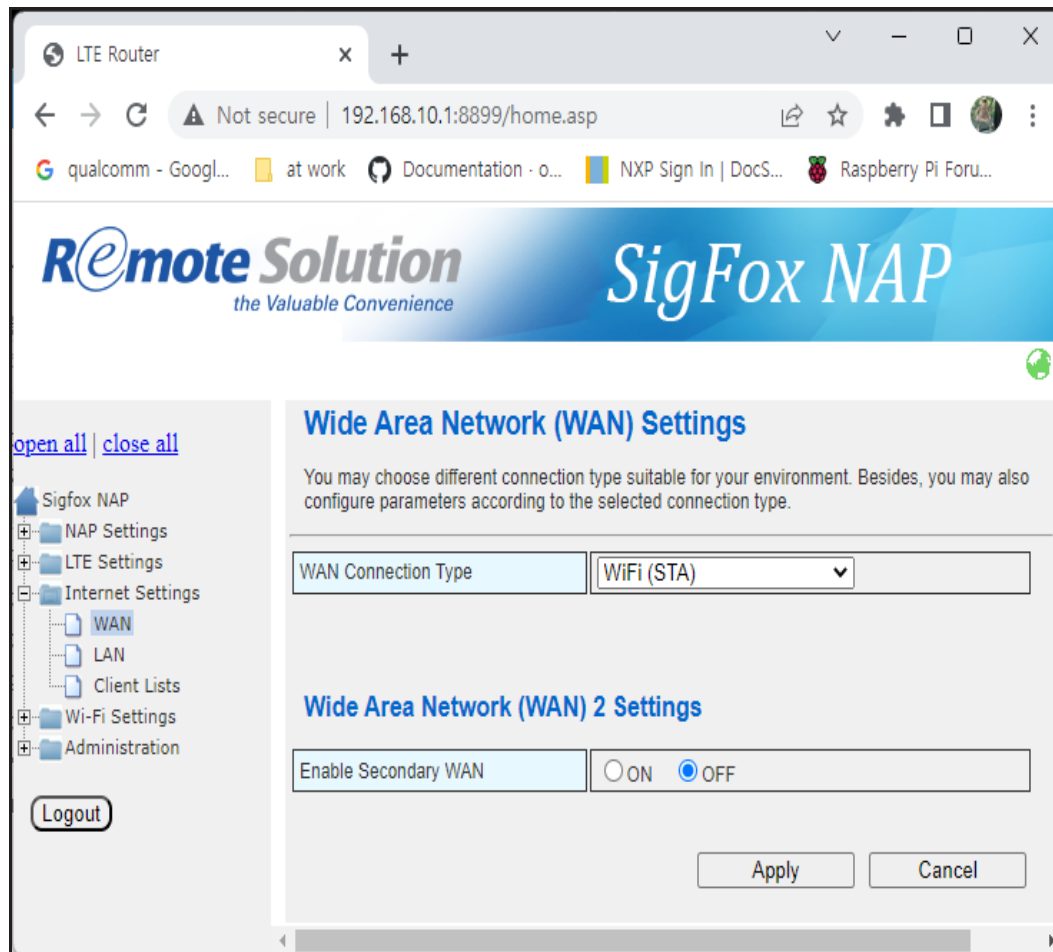
WAN Connection Type: LTE



The screenshot shows the SigFox NAP web interface for an LTE Router. The browser address bar shows the URL 192.168.10.1:8899/home.asp. The page title is "Wide Area Network (WAN) Settings". The "WAN Connection Type" is set to "LTE". Below this, the "Wide Area Network (WAN) 2 Settings" section has an "Enable Secondary WAN" option set to "OFF". At the bottom right, there are "Apply" and "Cancel" buttons.

Click Apply

WAN Connection Type: WiFi(STA)



Click Apply

“Before selecting WiFi(STA), you have to configure STA mode first in the Wi-Fi Settings -> STA menu.”

WAN Setup Secondary

Select Enables Secondary WAN: ON

Select WAN Connection type: DHCP/Static/LTE/WiFi(STA)

**Note: You have to select different type with above (LTE or WiFi(STA))*

If you enable secondary WAN,

NAP will monitor network status with check period & IP1/IP2 address

When primary or secondary WAN communication failure,

NAP will switch to alternative WAN

The screenshot shows the SigFox NAP web interface in a browser window. The address bar shows '192.168.10.1:8899/home.asp'. The page title is 'Wide Area Network (WAN) Settings'. The interface includes a navigation menu on the left with options like 'Sigfox NAP', 'NAP Settings', 'LTE Settings', 'Internet Settings', 'WAN', 'LAN', 'Client Lists', 'Wi-Fi Settings', and 'Administration'. The main content area has two sections: 'Wide Area Network (WAN) Settings' and 'Wide Area Network (WAN) 2 Settings'. The first section has a 'WAN Connection Type' dropdown set to 'Wired (DHCP)'. The second section has 'Enable Secondary WAN' set to 'ON', 'WAN Connection Type' set to 'LTE', and various check periods and IP addresses for connection confirmation.

Wide Area Network (WAN) Settings	
WAN Connection Type	Wired (DHCP)

Wide Area Network (WAN) 2 Settings	
Enable Secondary WAN	<input checked="" type="radio"/> ON <input type="radio"/> OFF
WAN Connection Type	LTE
Wired/WiFi Connection Check Period (secs.)	15
LTE Connection Check Period (secs.)	80
IP1 for connection confirmation	168.126.63.1
IP2 for connection confirmation	8.8.8.8

Apply Cancel

Click Apply

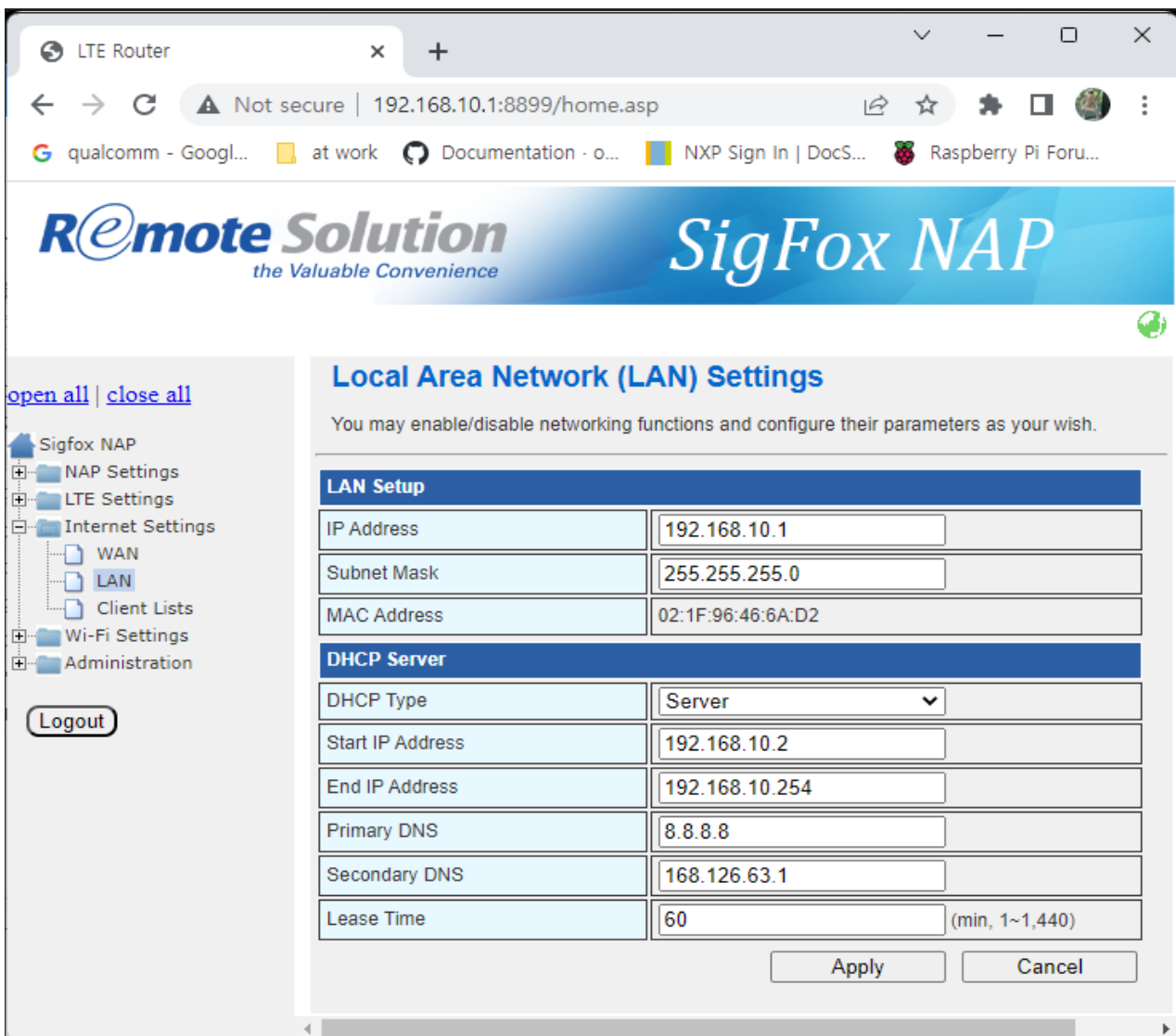


LAN Configuration

- 1) If LAN IP address and WAN IP address have the same subnet you need to change LAN IP address and DHCP server settings
- 2) Default LAN IP address is 192.168.10.1
- 3) Enter new LAN IP address and DHCP Server settings.
- 4) LAN IP address and DHCP Server's Start IP Address & End IP address have to be same subnet

Eg.) IP address: 192.168.20.1
Start IP Address: 192.168.20.2
End IP Address: 192.168.20.254
Primary DNS: 8.8.8.8(google) or other DNS address
Secondary DNS: any DNS address
Lease Time: value in minutes

- 5) Click Apply



The screenshot shows a web browser window with the URL 192.168.10.1:8899/home.asp. The page title is "Local Area Network (LAN) Settings". The interface includes a navigation menu on the left with options like "Sigfox NAP", "NAP Settings", "LTE Settings", "Internet Settings", "WAN", "LAN", "Client Lists", "Wi-Fi Settings", and "Administration". The main content area contains a table for LAN Setup and DHCP Server settings.

LAN Setup	
IP Address	192.168.10.1
Subnet Mask	255.255.255.0
MAC Address	02:1F:96:46:6A:D2

DHCP Server	
DHCP Type	Server
Start IP Address	192.168.10.2
End IP Address	192.168.10.254
Primary DNS	8.8.8.8
Secondary DNS	168.126.63.1
Lease Time	60 (min, 1~1,440)

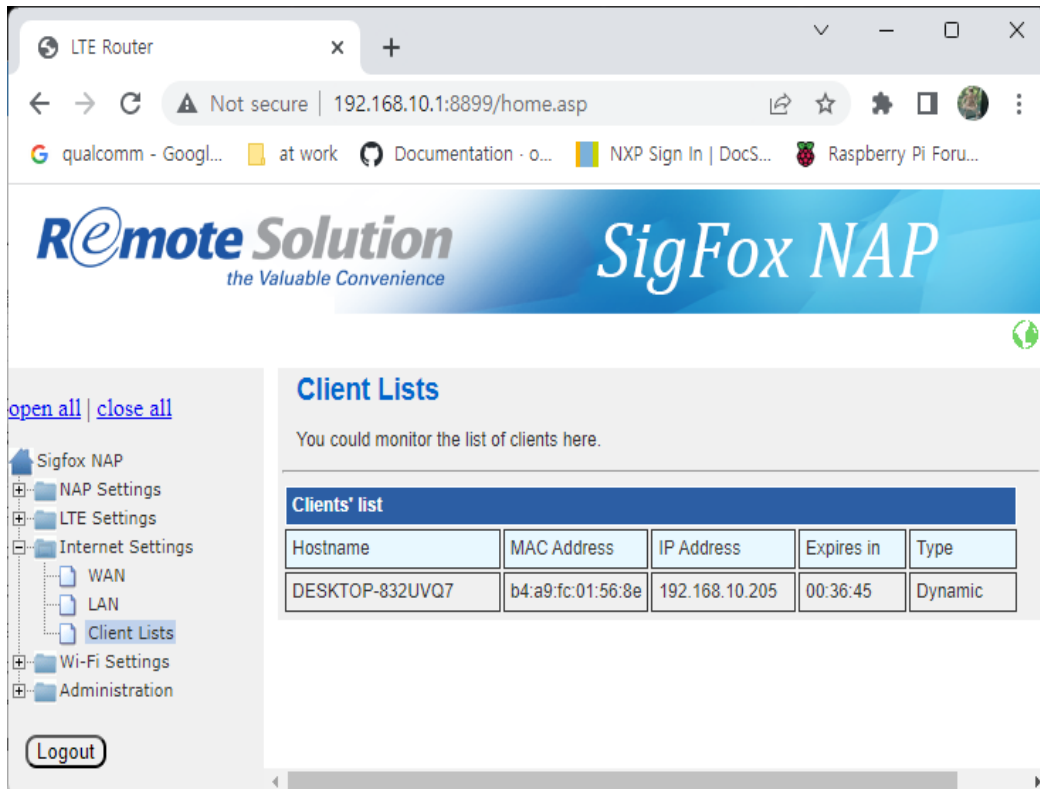
Buttons: Apply, Cancel



NAP Client List

■ Client list connected to NAP

NAP shows the list of the client which is connected to NAP through the LAN or WiFi



The screenshot shows a web browser window with the URL `192.168.10.1:8899/home.asp`. The page header features the **Remote Solution** logo with the tagline "the Valuable Convenience" and the **SigFox NAP** branding. A left sidebar contains a navigation menu with items like "Sigfox NAP", "NAP Settings", "LTE Settings", "Internet Settings" (subdivided into WAN, LAN, and Client Lists), "Wi-Fi Settings", and "Administration". A "Logout" button is located at the bottom of the sidebar. The main content area is titled "Client Lists" and includes the text "You could monitor the list of clients here." Below this is a table with the following data:

Clients' list				
Hostname	MAC Address	IP Address	Expires in	Type
DESKTOP-832UVQ7	b4:a9:fc:01:56:8e	192.168.10.205	00:36:45	Dynamic



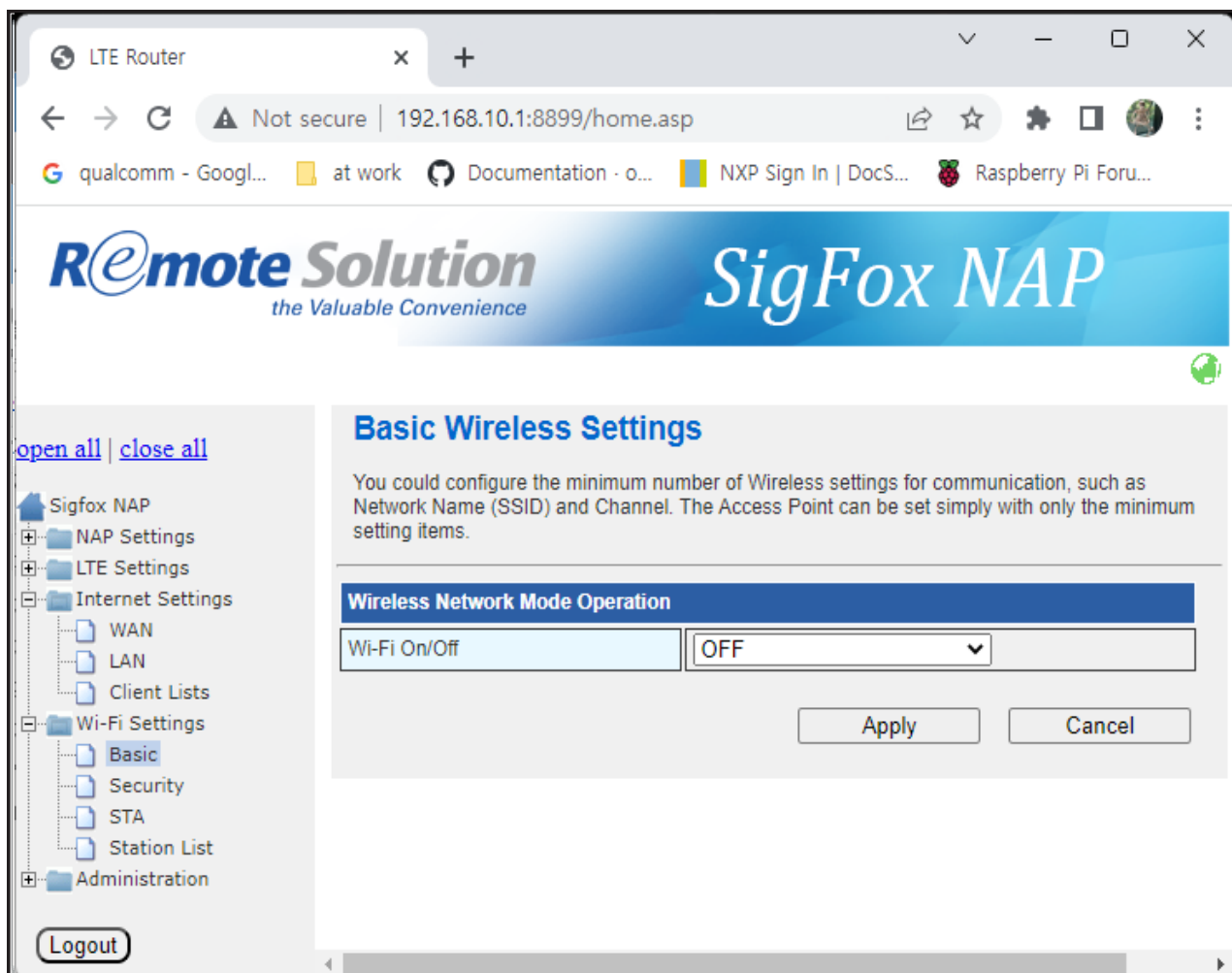
Wi-Fi Configuration

■ Select Wi-Fi On/Off: Wi-Fi AP mode On or Off

Note) Default WiFi AP function is “OFF”
you can change “ON” to use WiFi AP function

To improve security for WiFi AP, you have to change default Pass Phrase more complex in Wi-Fi Settings -> Security menu

Recommend to create new pass phrase with combination of upper case, lower case, number and special characters



Wi-Fi Configuration

■ Select Wi-Fi On/Off: Wi-Fi AP mode On or Off

- 1) Network Mode: 11b/g/n or mixed mode
- 2) Network Name(SSID): Enter SSID of AP mode, Default is "Sigfox_NAP"
- 3) Check Hidden to hide SSID
- 4) Frequency (Channel) :
Select specific channel number or Auto Select
- 5) Click Apply

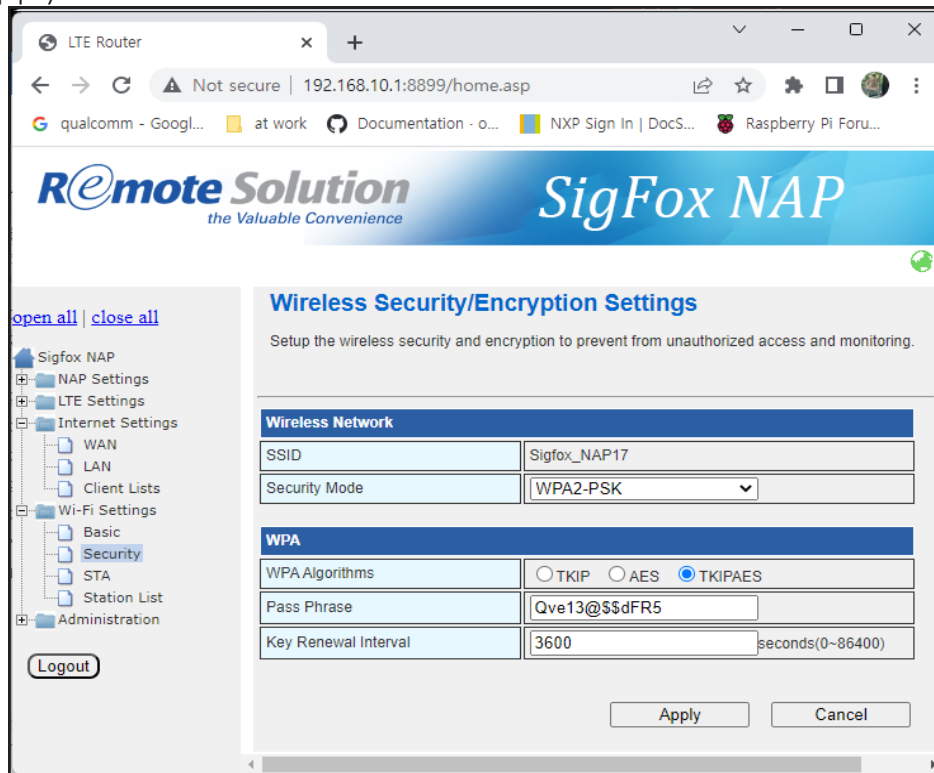
The screenshot shows a web browser window with the URL 192.168.10.1:8899/home.asp. The page title is "SigFox NAP" and the logo "Remote Solution the Valuable Convenience" is visible. The main content area is titled "Basic Wireless Settings" and contains a table of configuration options. The "Wi-Fi On/Off" dropdown is set to "ON". The "Network Mode" dropdown is set to "11b/g/n mixed mode". The "Network Name(SSID)" is "Sigfox_NAP17" and the "Hidden" checkbox is checked. The "BSSID" is "00:1F:96:FF:35:50" and the "Frequency (Channel)" dropdown is set to "AutoSelect". There are "Apply" and "Cancel" buttons at the bottom right of the settings table.

Wireless Network Mode Operation	
Wi-Fi On/Off	ON

Wireless Network	
Driver Version	4.1.2.2
Network Mode	11b/g/n mixed mode
Network Name(SSID)	Sigfox_NAP17 <input checked="" type="checkbox"/> Hidden
BSSID	00:1F:96:FF:35:50
Frequency (Channel)	AutoSelect

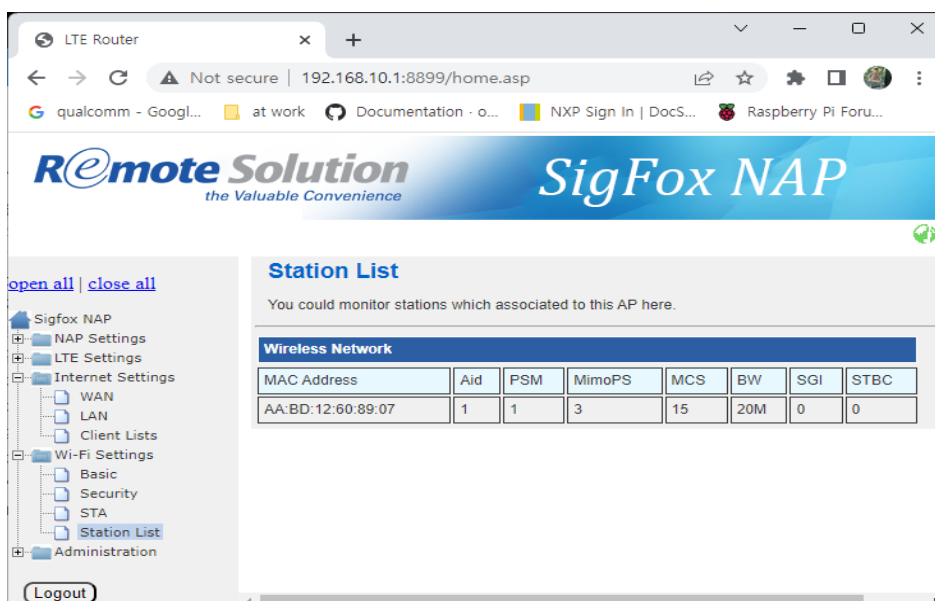
Wi-Fi Configuration Security

- 1) Select Security Mode
- 2) Disable: Open, No security (not recommended)
- 3) WPA-PSK/WPA2-PSK/WPA2PSK : WiFi Protected Access
- 4) WPA Algorithm: TKIP/AES/TKIPAES, TKIPAES means support TKIP or AES
- 5) Pass Phrase: Enter password to access Wi-Fi
- 6) Key Renewal Interval: WPA group rekey interval, default is 3600 sec
- 7) Click Apply



■ Station List

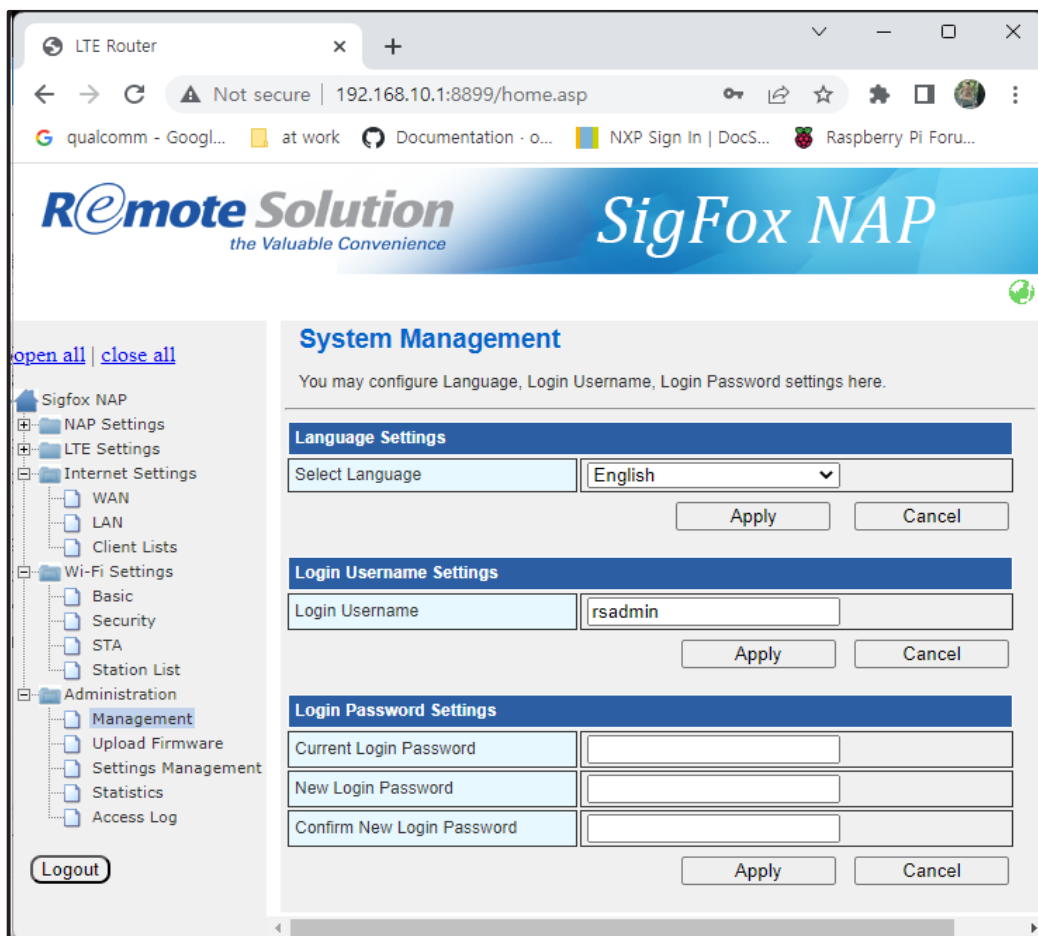
NAP shows the list of STAs which are connected to NAP through Wi-Fi



Administration Menu

■ Login Information

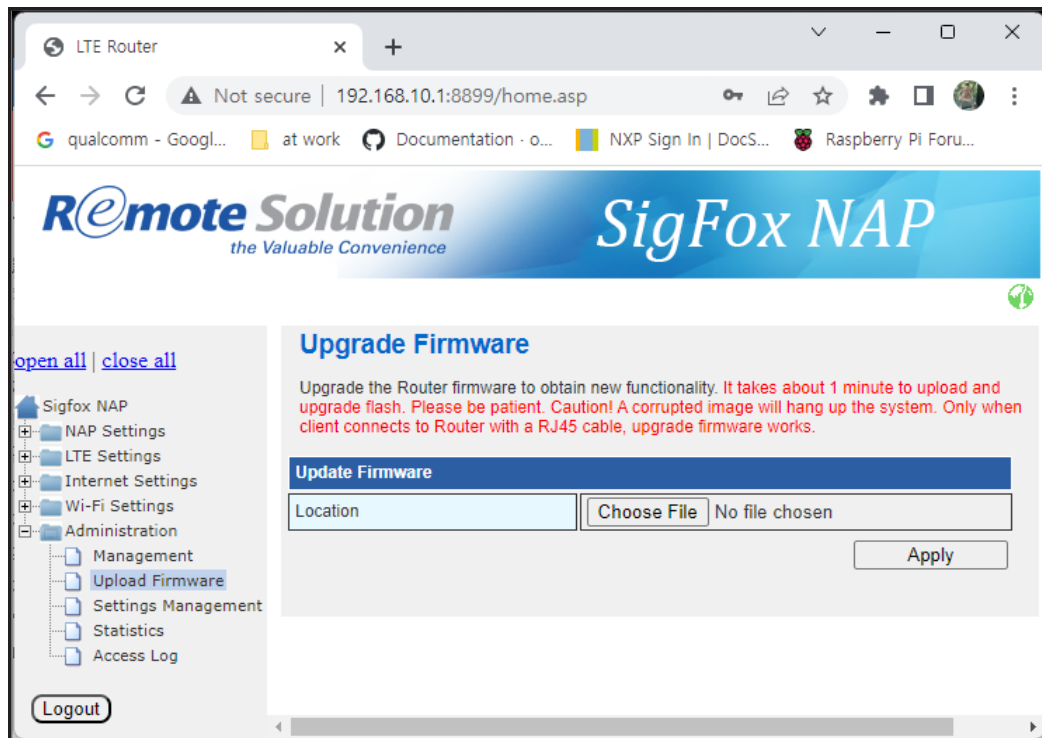
- 1) Management, Language: Select English or Korean
- 2) Default Username: rsadmin, Default Password: rsadmin0000!!
- 3) Default Username & Password is the same for all the NAP Devices
- 4) Recommend to change them for your security



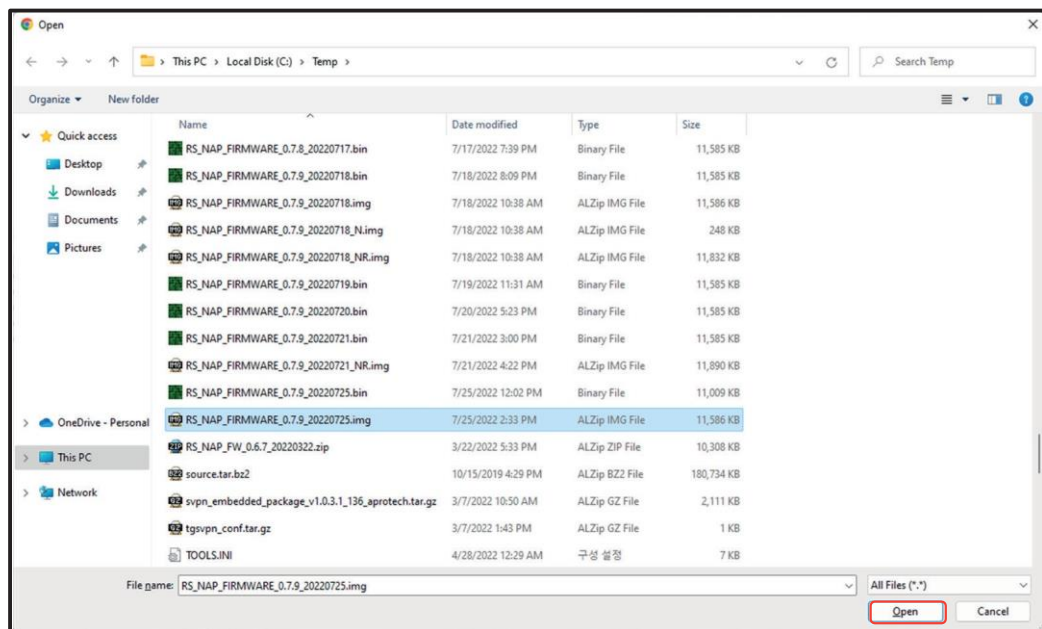
■ Firmware Upgrade

Upload Firmware, NAP support firmware update in Web UI
For updating new firmware

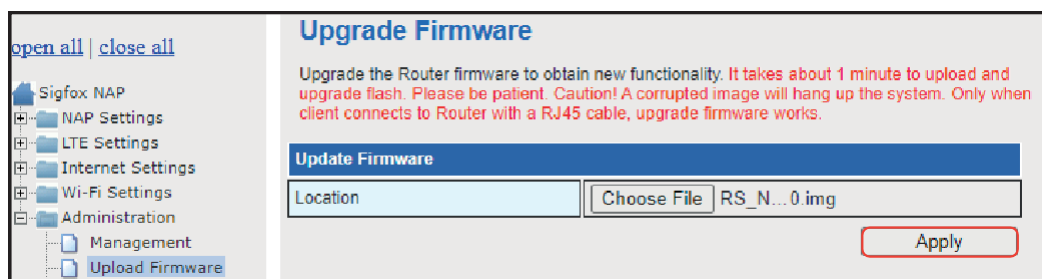
1) Click "Choose File" button



2) Select firmware image file and open it



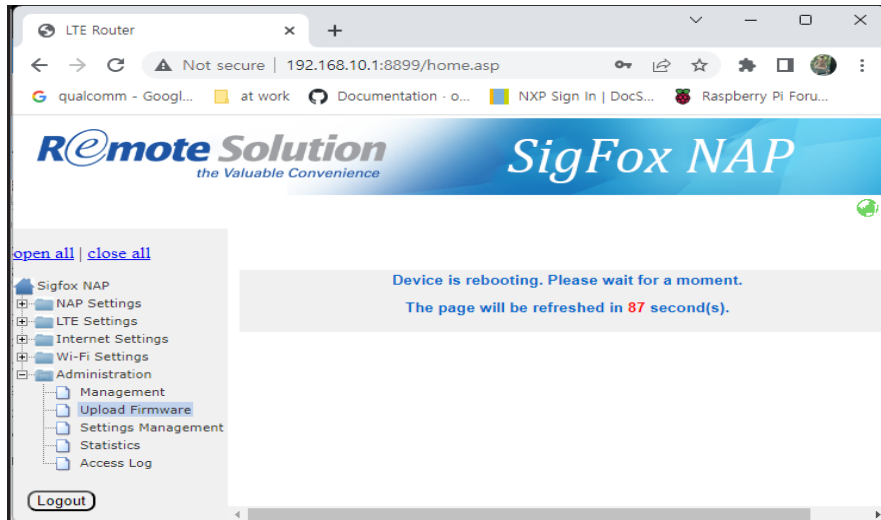
3) Click Open



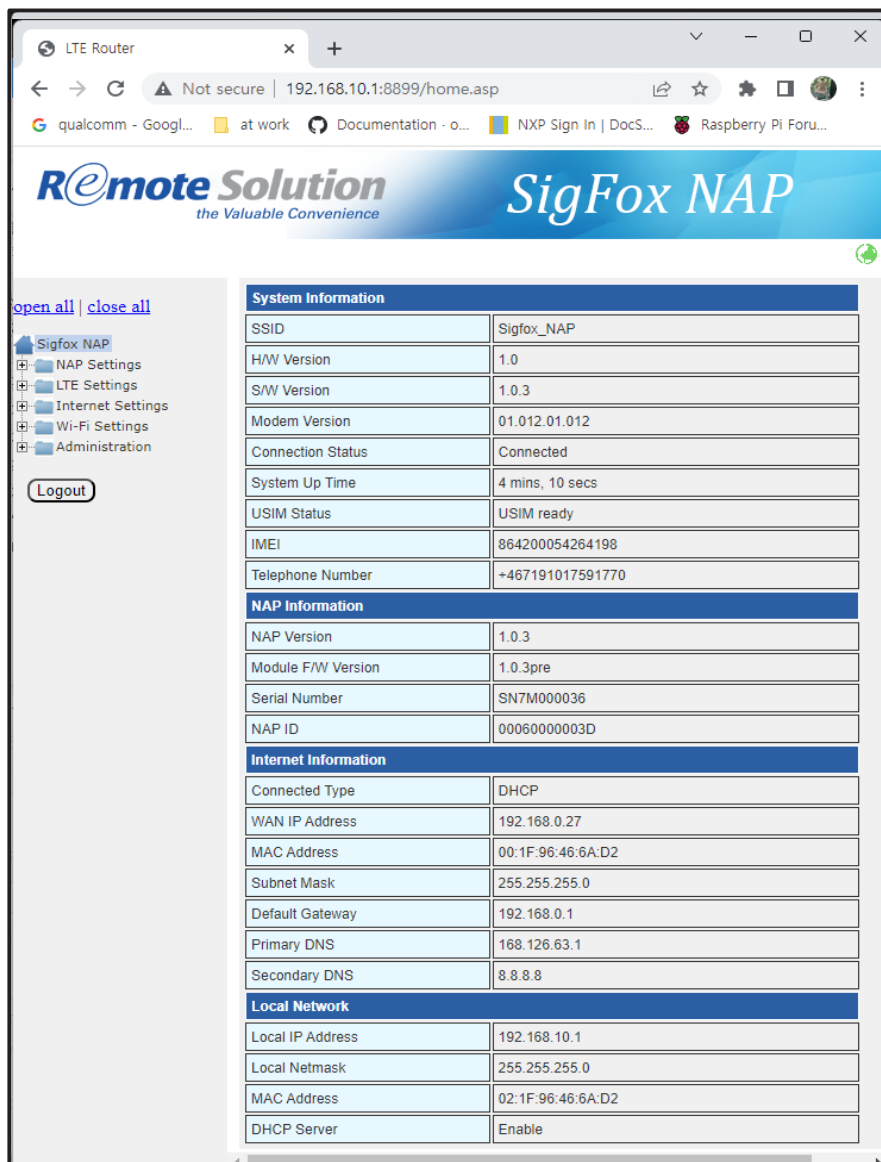
4) Click Apply



5) Upload Firmware

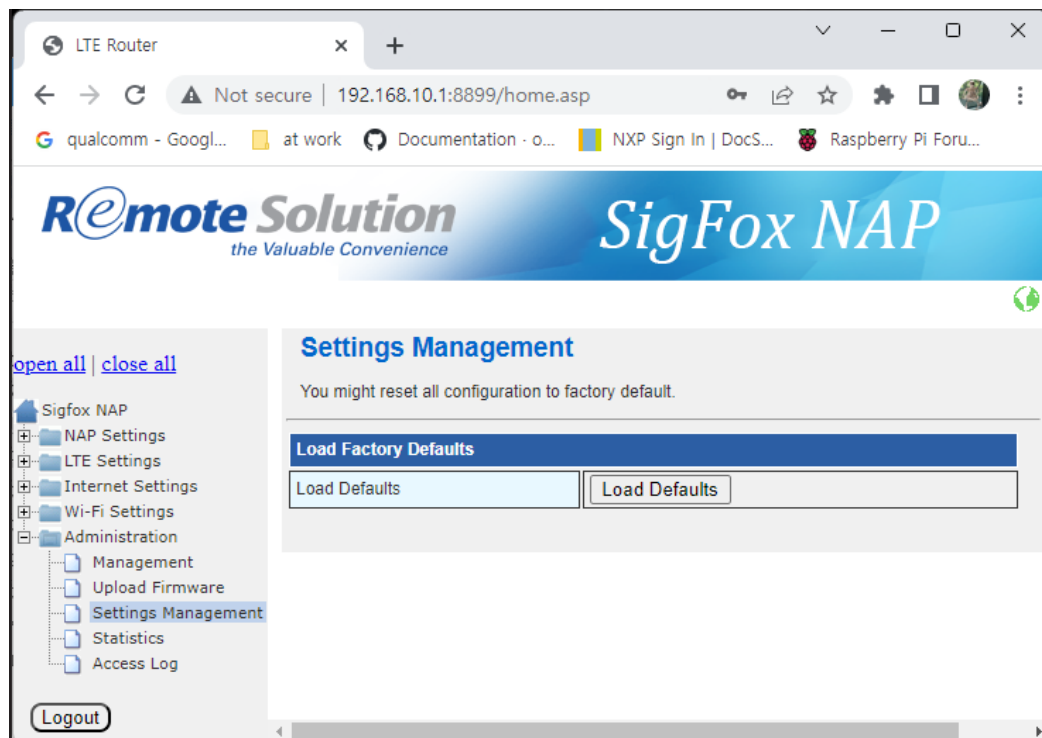


- 6) After writing firmware image to internal flash memory, NAP will reboot automatically
- 7) Wait for 2 ~ 3 mins to reboot and reconnect to Web UI
- 8) Check the S/W Version in System Information to confirm firmware update success



■ Load Factory Defaults

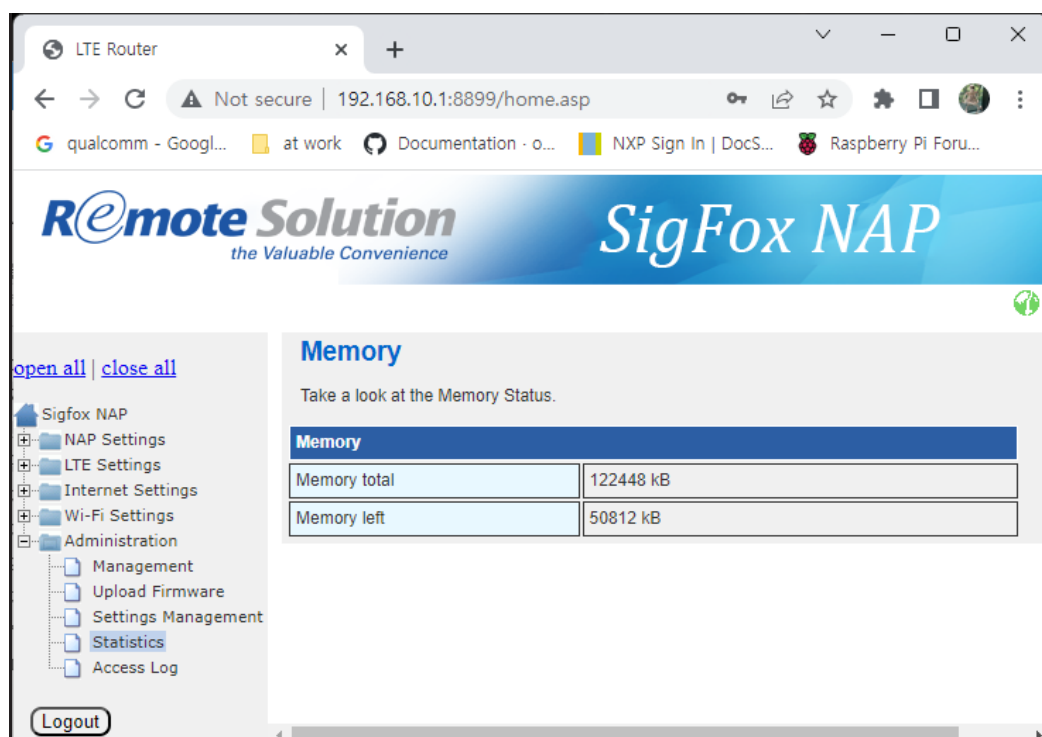
All configurations are restored to factory default settings



- 1) NAP will reboot automatically,
- 2) Wait for 2 ~ 3 mins to reboot and reconnect to Web UI

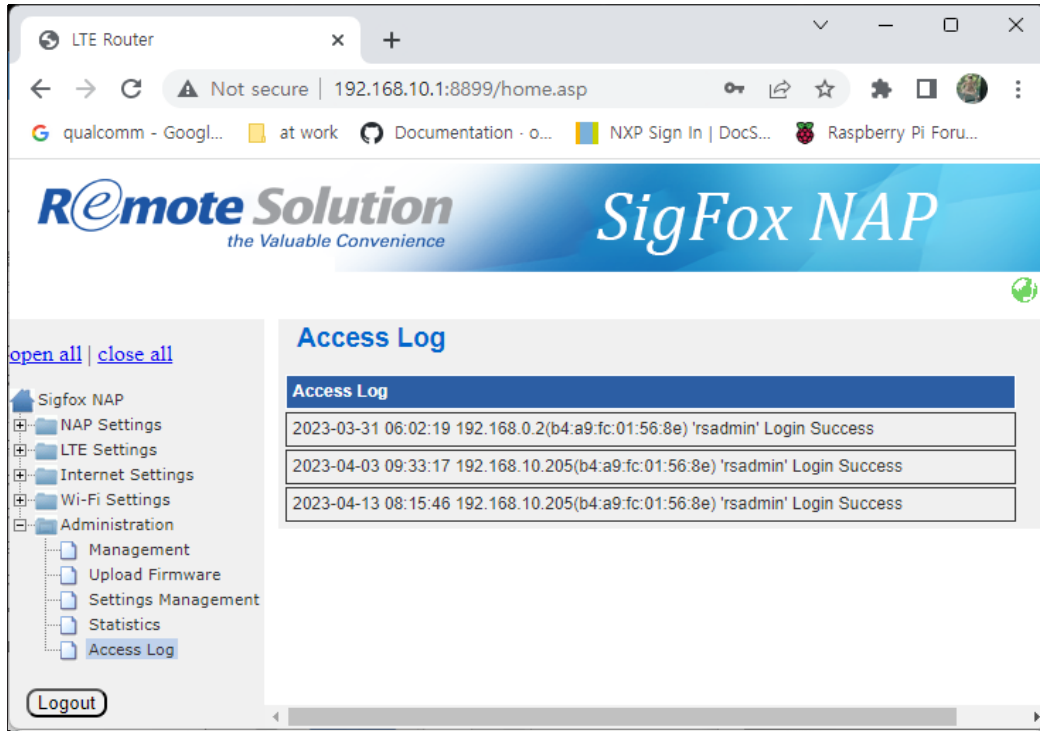
■ Statistics

NAP shows memory usage



■ Debugging Mode – Access Log

- 1) NAP shows access log for Web UI
- 2) Access Log



The screenshot shows a web browser window titled "LTE Router" with the address bar displaying "192.168.10.1:8899/home.asp". The page header features the "Remote Solution" logo with the tagline "the Valuable Convenience" and the "SigFox NAP" logo. A navigation menu on the left includes "Sigfox NAP", "NAP Settings", "LTE Settings", "Internet Settings", "Wi-Fi Settings", and "Administration" (with sub-items: Management, Upload Firmware, Settings Management, Statistics, and Access Log). A "Logout" button is located at the bottom left. The main content area is titled "Access Log" and contains a table with three entries:

Access Log		
2023-03-31 06:02:19	192.168.0.2(b4:a9:fc:01:56:8e)	'rsadmin' Login Success
2023-04-03 09:33:17	192.168.10.205(b4:a9:fc:01:56:8e)	'rsadmin' Login Success
2023-04-13 08:15:46	192.168.10.205(b4:a9:fc:01:56:8e)	'rsadmin' Login Success

Thank you

Remote solution X sigfox

