

Document Number	
Created By	Eric

# GloT Femto Cell User Guide

## Modification History

Date	Change log	Author	Revision
2017/ 3/ 23	1st version	Eric, Joey	001

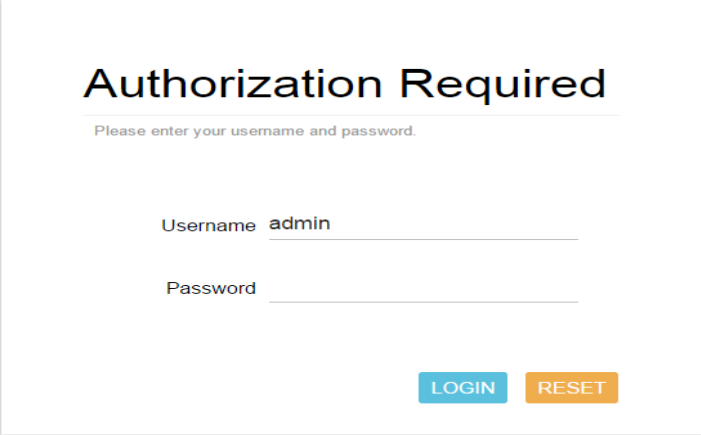
This GloT Femto Cell User Guide will assist you in navigating the system with the

following comprehensive guidelines.

## 1. Open Admin GUI

Connect to Femto Cell via wifi (SSID: AP-last 6 numbers of mac address)  
Access Femto Cell WebUI via IP address "192.168.55.1".  
Default username is "admin" and password is "admin".

**Figure 1**



The screenshot shows a web page titled "Authorization Required". Below the title, it says "Please enter your username and password." There are two input fields: "Username" with the text "admin" entered, and "Password" which is empty. At the bottom right, there are two buttons: "LOGIN" in blue and "RESET" in orange.

## 2. Status

The Status menu consists of the following categories: Overview, Routes, System Log, Kernel Log, Processes and Realtime Graphs. An introduction of each category will be distinctly stated in individual paragraphs.

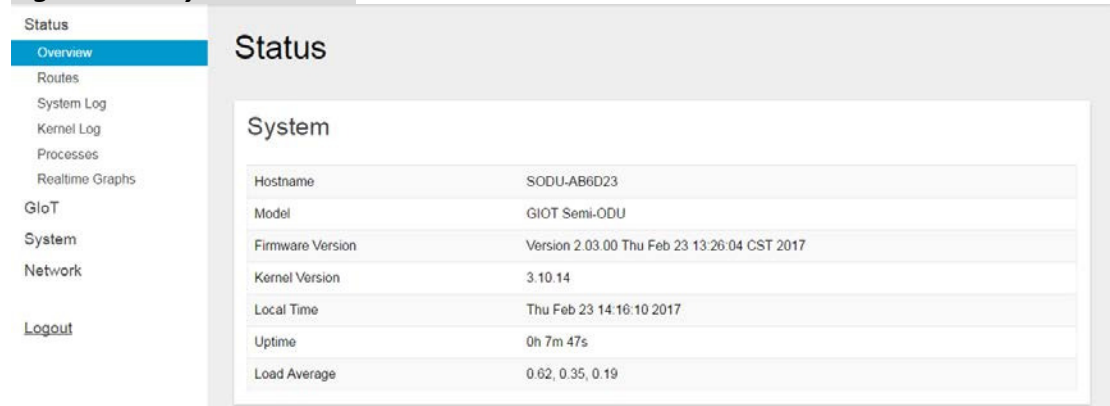
### 2.1 Status - Overview

The purpose of this category is to view the following contents: system status, memory usage and network settings.

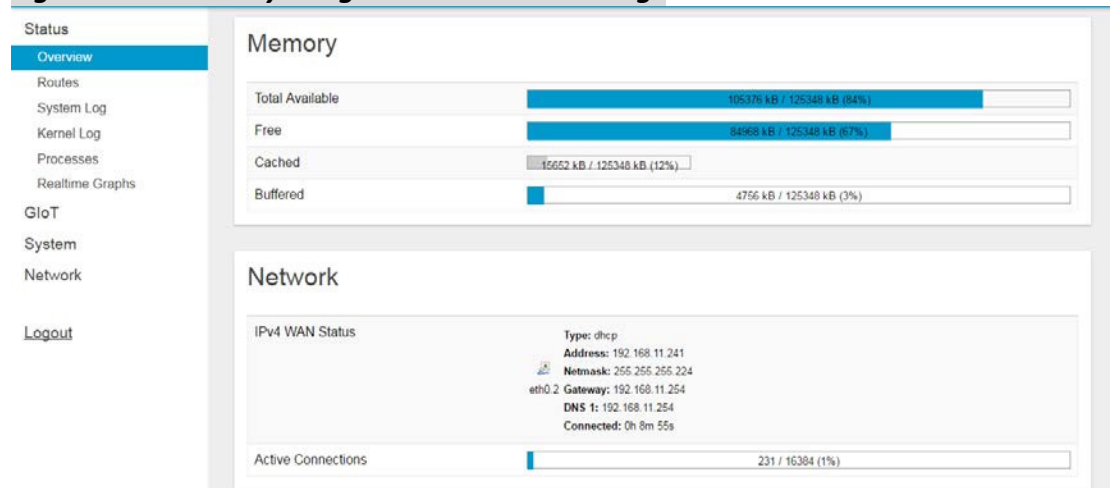
The contents are exhibited in one single page. Please scroll down the Status page to obtain an overall view. (figure2.A & figure 2.B & figure 2.C)

An "AUTO REFRESH ON/OFF" button is lodged on the top right of the panel. This function enables the status data to be refreshed every 5 seconds. (figure3.A & figure3.B)

**Figure 2.A - System Status**



**Figure 2.B - Memory Usage and Network Settings**



**Figure 3.A - Status will auto refresh in 5 secs if "Auto Refresh ON" button is on**

Femto-0f0708 UNSAVED CHANGES: 2 **AUTO REFRESH ON**

Status

- Overview**
- Routes
- System Log
- Kernel Log
- Processes
- Realtime Graphs

GloT

System

Network

Logout

## Status

### System

Hostname	Femto-0f0708
Model	GIOT InDoor FemtoCell
Firmware Version	Version 2.03.02 Thu Mar 16 21:26:53 CST 2017
Kernel Version	3.10.14
Local Time	Thu Mar 23 13:11:49 2017
Uptime	0h 7m 55s
Load Average	0.82, 1.22, 0.69

**Figure 3.B - Click "AUTO REFRESH ON/OFF" button to enable/ disable auto refresh.**

Femto-0f0708 UNSAVED CHANGES: 2 **AUTO REFRESH OFF**

Status

- Overview**
- Routes
- System Log
- Kernel Log
- Processes
- Realtime Graphs

GloT

System

Network

Logout

## Status

### System

Hostname	Femto-0f0708
Model	GIOT InDoor FemtoCell
Firmware Version	Version 2.03.02 Thu Mar 16 21:26:53 CST 2017
Kernel Version	3.10.14
Local Time	Thu Mar 23 13:12:09 2017
Uptime	0h 8m 15s
Load Average	0.59, 1.14, 0.67

## 2.2 Status - Routes

The purpose of this category is to view the ARP table and active IPv4 routes information.

**Figure 4 - ARP table and Active IPv4 Routes**

Femto-0f0708

UNSAVED CHANGES: 2

- Status
- Overview
- Routes**
- System Log
- Kernel Log
- Processes
- Realtime Graphs
- GloT
- System
- Network
- Logout

## Routes

The following rules are currently active on this system.

### ARP

IPv4-Address	MAC-Address	Interface
192.168.55.197	bc:77:37:e7:ff:04	br-lan
192.168.1.1	00:50:43:15:07:06	eth0.2

### Active IPv4-Routes

Network	Target	IPv4-Gateway	Metric
wan	0.0.0.0/0	192.168.1.1	0

## 2.3 Status - System Log

This category is to view system log information.

**Figure 5 - System Log**

- Status
- Overview
- Routes
- System Log**
- Kernel Log
- Processes
- Realtime Graphs
- GloT
- System
- Network
- Logout

## System Log

```
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2004, value=ff0003
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2104, value=ff0003
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2204, value=ff0003
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2304, value=ff0003
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2404, value=ff0003
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2504, value=ff0003
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2610, value=01000000
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2110, value=01000000
Thu Feb 23 13:28:49 2017 user.emerg syslog: switch reg write offset=2210, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2310, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2410, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2510, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2610, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2710, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2600, value=20ff0003
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2700, value=20ff0003
Thu Feb 23 13:28:50 2017 user.emerg syslog: Special Tag Disabled
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2610, value=01000000
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2014, value=100001
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2114, value=100001
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2214, value=100001
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2314, value=100001
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2414, value=100002
Thu Feb 23 13:28:50 2017 user.emerg syslog: switch reg write offset=2514, value=100002
Thu Feb 23 13:28:50 2017 user.emerg syslog: REG_E59c_Mc_ATC is 0x7f9002
Thu Feb 23 13:28:50 2017 user.emerg syslog: done.
```

## 2.4 Status - Kernel log

This category is to view kernel log information.

**Figure 6 - Kernel Log**

The screenshot shows the 'Kernel Log' section of a system status page. On the left is a navigation menu with 'Kernel Log' selected. The main area displays a scrollable log of system boot messages, including kernel version, CPU frequency, PCIe settings, and memory initialization details.

```

[ 0.000000] Linux version 3.10.14 (sui@Polaris) (gcc version 4.8.3 (OpenMPT/Linaro GCC 4.8-2014.04 unknown) ) #8 Thu Feb 23 13:27:00 CST 2017
[ 0.000000] The CPU frequency set to 500 Mhz
[ 0.000000] PCI: bypass PCIe DLL.
[ 0.000000] PCI: Elastic buffer control: Addr:0x68 -> 0x84
[ 0.000000] disable all power about PCIe
[ 0.000000] CPU0 revision is: 00019650 (MIPS 24Kc)
[ 0.000000] Software DPA cache coherency
[ 0.000000] Determined physical RAM map:
[ 0.000000] memory: 00000000 @ 00000000 (usable)
[ 0.000000] Initrd not found or empty - disabling initrd
[ 0.000000] Zone ranges:
[ 0.000000] Normal [mem 0x00000000-0x07ffffff]
[ 0.000000] Movable zone start for each node
[ 0.000000] Early memory node ranges
[ 0.000000] node 0: [mem 0x00000000-0x07ffffff]
[ 0.000000] Dm node 0 totalpages: 32768
[ 0.000000] free_area_init_node: node 0, pgdat 80430a80, node_mem_map 81000000
[ 0.000000] Normal zone: 356 pages used for memmap
[ 0.000000] Normal zone: 0 pages reserved
[ 0.000000] Normal zone: 32768 pages, LIFO batch:7
[ 0.000000] Primary instruction cache 64kB, 4-way, VIPT, linesize 32 bytes.
[ 0.000000] Primary data cache 32kB, 4-way, VIPT, no aliases, linesize 32 bytes
[ 0.000000] pcpu-alloc: s0 r0 d32768 u32768 alloc=1*32768
[ 0.000000] pcpu-alloc: [0] 0
[ 0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 32512
[ 0.000000] Kernel command line: console=ttyS1,57600n8 root=/dev/mtdnlock5 rootfstype=squashfs,iffa2 running_firmware=areal
[ 0.000000] PID hash table entries: 512 (order: -1, 2048 bytes)
    
```

## 2.5 Status - Processes

The purpose of this category is to view the system processes that are in progress. Processes can be hung up, terminated, and killed for each individual Femto Cell item.

**Figure 7 - Processes**

The screenshot shows the 'Processes' section of a system status page. On the left is a navigation menu with 'Processes' selected. The main area displays a table of currently running system processes with columns for PID, Owner, Command, CPU usage, Memory usage, Hang Up, Terminate, and Kill. Each row has corresponding action buttons.

PID	Owner	Command	CPU usage (%)	Memory usage (%)	Hang Up	Terminate	Kill
1	root	/sbin/procd	0%	1%	HANG UP	TERMINATE	KILL
2	root	[kthreadd]	0%	0%	HANG UP	TERMINATE	KILL
3	root	[ksoftirqd/0]	0%	0%	HANG UP	TERMINATE	KILL
4	root	[kworker/0:0]	0%	0%	HANG UP	TERMINATE	KILL
5	root	[kworker/0:0H]	0%	0%	HANG UP	TERMINATE	KILL
6	root	[kworker/u2:0]	0%	0%	HANG UP	TERMINATE	KILL
7	root	[watchdog/0]	0%	0%	HANG UP	TERMINATE	KILL
8	root	[khelper]	0%	0%	HANG UP	TERMINATE	KILL

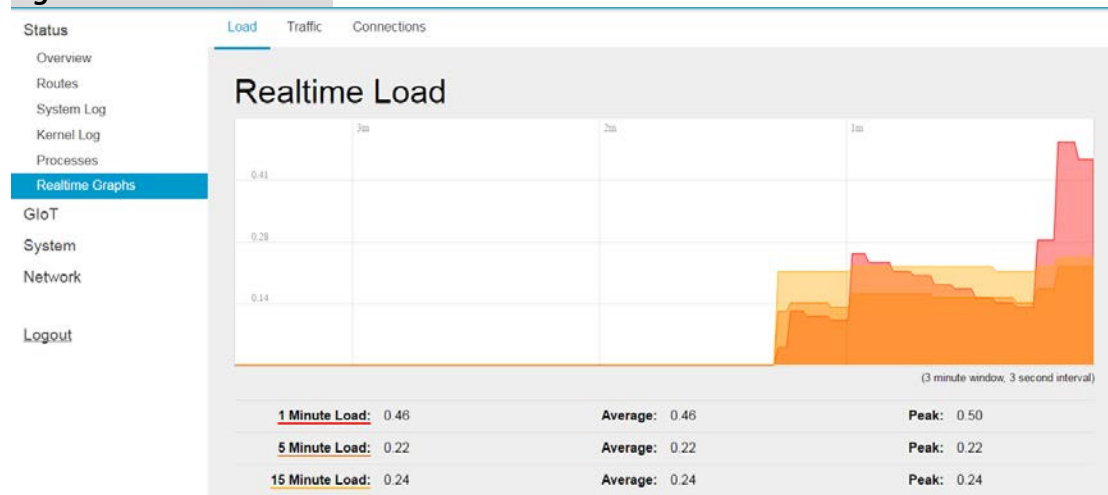
## 2.6 Status - Realtime Graphs

This category is further divided into the following sectors: Load, Traffic, and Connections. These options are lodged and labeled above the graph.

### 2.6.1 Load

To view the current load value and average of different time intervals.

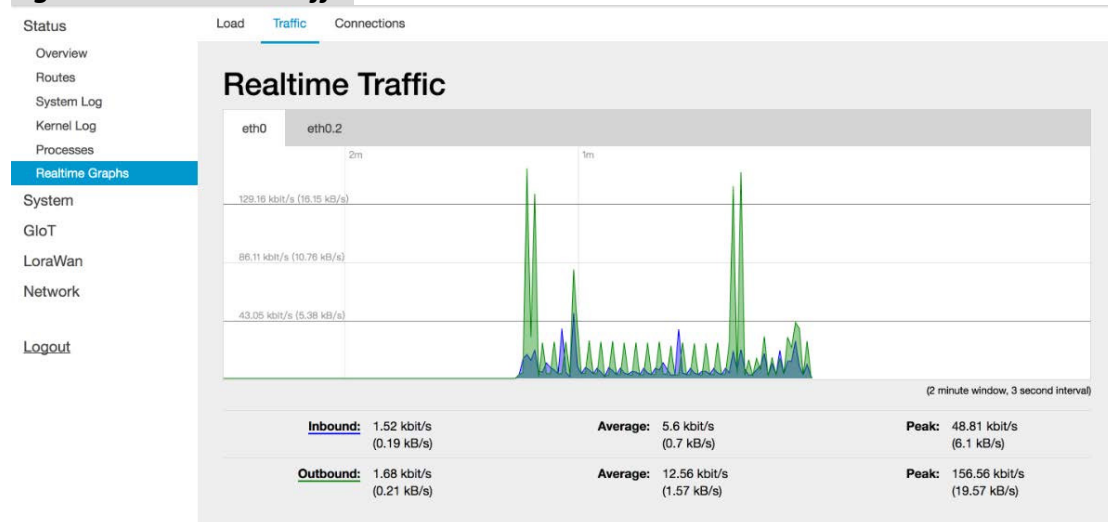
**Figure 8 - Realtime Load**



### 2.6.2 Traffic

To view the network traffic of each interface.

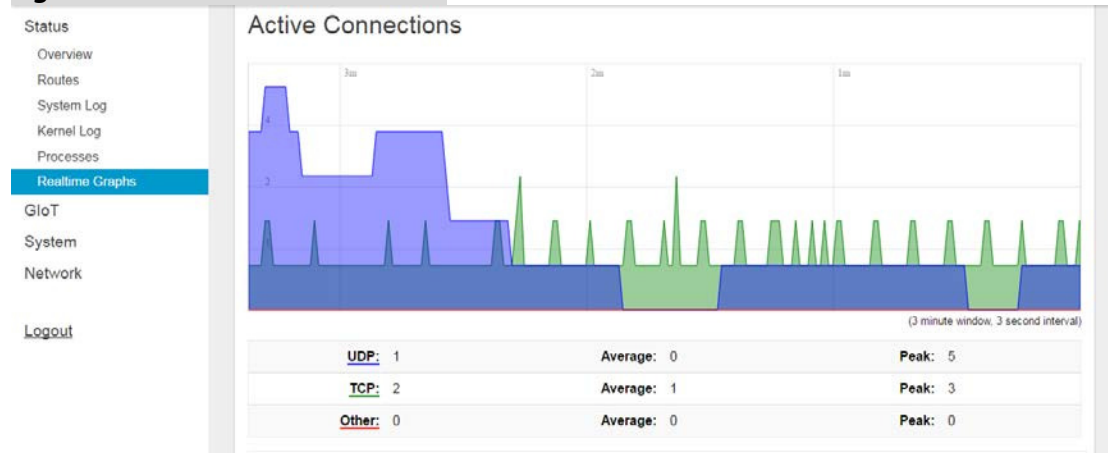
**Figure 9 - Realtime Traffic**



### 2.6.3 Connections

To view the currently active network connections.

**Figure 10 - Realtime Connections**



## 3. GloT

The GloT menu consists of the following categories: Status, Provision, Configuration and GPS MAP.

### 3.1 GloT - Status

The purpose of this category is to view GloT information as in its provision code, gateway type, gateway ID or LoRa modules, channels, spreading factor, and GPS status.

**Figure 11 - GloT Info**



- Status
- GloT
- Status**
- Provision
- Configuration
- GPS MAP
- System
- Network
- Logout

## GloT Status

### GloT Info

Provisioning Code	00001158 (Provision)
Area Code	00001158
Gateway Type	Semi-ODU
LoRa Module	ON
Gateway ID	1c497b9628d2
Radio 0	Ch0: ON 922.625MHz Ch1: ON 922.875MHz Ch2: ON 923.125MHz Ch3: ON 923.375MHz
Radio 1	Ch4: ON 923.625MHz Ch5: ON 923.875MHz Ch6: ON 924.125MHz

### 3.2 GloT - Provision

GloT provision code can be setup on this page.

**Figure 12 - Provision Code**

- Status
- GloT
- Status
- Provision**
- Configuration
- GPS MAP
- System
- Network
- Logout

### Provision Code

System will reboot if activate Provision Code succeed

Code 00001158

SAVE

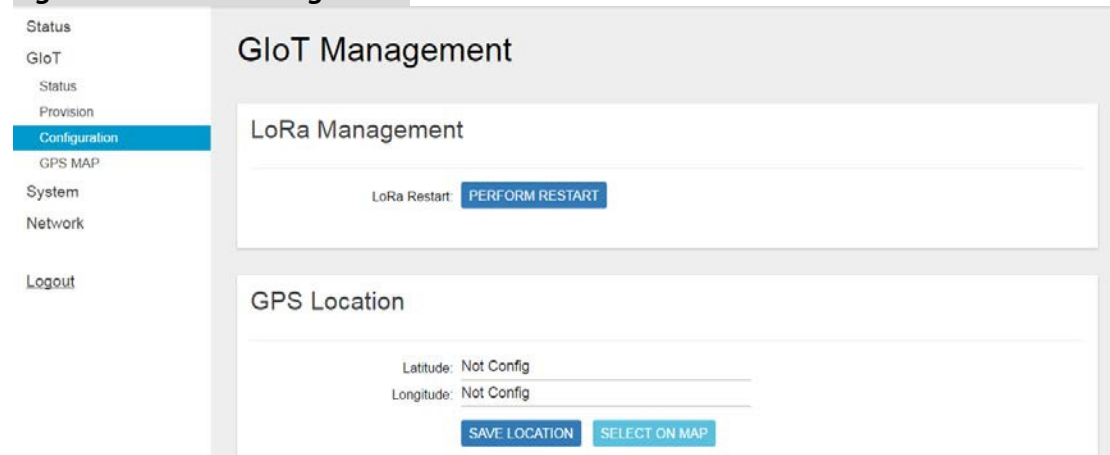
Powered by LuCI Trunk (git-860b4cc) / OpenWRT Barrier Breaker unknown

### 3.3 GloT - Configuration

Click “*PERFORM RESTART*” button to restart LoRa server.

The latitude and longitude coordinates can be manually embedded in this page. Click “*SAVE LOCATION*” button after inserting the coordinates or click “*SELECT ON MAP*” button to be redirected to the map in GPS Settings.

**Figure 13 - GloT Management**



### 3.4 GloT - GPS MAP

To setup the GPS location, simply input your address location in the “Location” text field above the map or pinpoint your location on the map by dragging the red marker📍 to the correct spot.

Once the location is confirmed, the system will verify and apply the new Latitude/Longitude coordinates into its GPS setting.

**Figure 14 - GPS Setting**

- Status
- GloT
  - Status
  - Provision
  - Configuration
  - GPS MAP**
- System
- Network
- Logout

## GPS

Here you can configure the GPS setting of your device. Please input the 'Location' or drag the location marker to change the setting.

Location: 303台灣新竹縣湖口鄉中華路15-1號



## 4. LoRaWan

The LoRaWan menu consists of the following categories: OTAA Status, OTAA, ABP and Network Server. The proper provision code has to be in place to reveal and access the LoRaWan features on the system menu. Please contact GIoT personnel if needed.

### 4.1 LoRaWan - OTAA Status

The purpose of this feature is to view the process status of a node joining Femto Cell via OTAA.

**Figure 15 - OTAA Status**

DevAddr	Device EUI	App EUI	Group Index	Latest Update Time
00fffc0	1122334455667788	383531385a347e19	0	2016.11.16.20:59:39

### 4.2 LoRaWan - OTAA

Click “ADD” button to create an OTAA rule entry.

To delete entries, select one or more OTAA rule entries and click “DELETE” button.

To edit an entry, select a rule entry and click “EDIT” button to proceed.

Please note that

1. The OTAA settings will be cleared after Femto Cell is reset to default.

2. The Aging Out Time must be at least 60 minutes.

**Figure 16.A - OTAA - Add**

Status  
System  
GloT  
LoraWan  
OTAA Status  
**OTAA**  
ABP  
Network Server  
Network  
Logout

## OTAA-Add/Edit

The description for the OTAA.

Parameter	Format	
Group Index	INT	0
AppEUI Start	16 HEX digits	1122334455667788
AppEUI Counts	Digit	5
DevEUI Start	16 HEX digits	383531385a347e19
DevEUI Counts	Digit	4
DevAddr Start	8 HEX digits	04ffff0
DevAddr Counts	Digit	5
AppKey	32 HEX digits	53A6B13B1E372D384C57F76B429C
Again Out Time	Minute	60

192.168.88.1/cgi-bin/lorawan/OTAA

SAVE CANCEL

**Figure 16.B - OTAA**

Status  
System  
GloT  
LoraWan  
OTAA Status  
**OTAA**  
ABP  
Network Server  
Network  
Logout

## OTAA

The description for the OTAA. 1 / 1

Group Index	AppEUI Start	App Counts	DevEUI Start	DevEUI Counts	DevAddr Start	DevAddr Counts	AppKey	Again Out Time (Minutes)
0	11223344 56667788	10	38353138 5a347e15	10	00ff ffc0	5	53A6B13B 1E372D38 4C577BA3 F76B429C	60 <a href="#">EDIT</a>

**Figure 16.C - OTAA - Edit**

InDoor

Status  
System  
GloT  
LoraWan  
OTAA Status  
**OTAA**  
ABP  
Network Server  
Network  
Logout

## OTAA

The description for the OTAA. 1 / 1

Group Index	AppEUI Start	App Counts	DevEUI Start	DevEUI Counts	DevAddr Start	DevAddr Counts	AppKey	Again Out Time (Minutes)
0	11223344 56667788	10	38353138 5a347e15	10	00ff ffb1	10	53A6B13B 1E372D38 4C577BA3 F76B429C	70 <a href="#">EDIT</a>

DELETE ADD

### 4.3 LoRaWan - ABP

The main function of this feature is to add/delete/edit ABP rule entries on this page. The ABP menu consists of the following categories: Individual and NetID Group.

#### **4.3.1 INDIVIDUAL**

Click "**INDIVIDUAL**" button to enter the INDIVIDUAL function page.

Click "**ADD**" button to create an ABP (INDIVIDUAL) rule entry.

To delete rule entries, select one or more ABP (INDIVIDUAL) rule entries and click "**DELETE**" button.

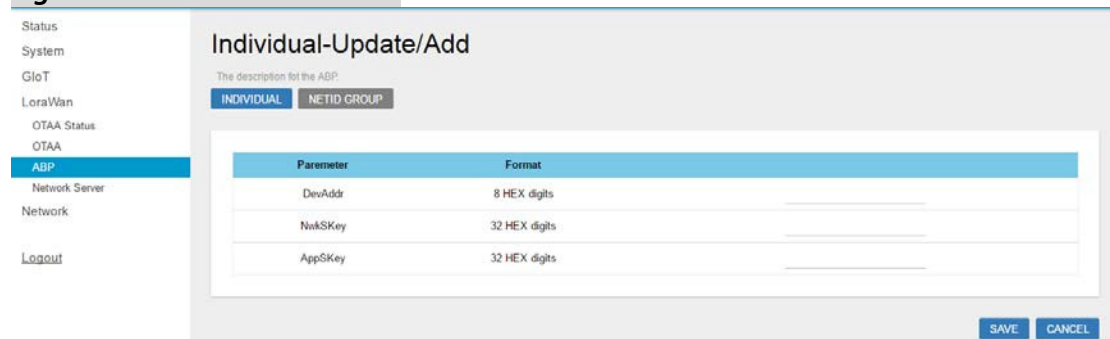
To edit a rule entry , select an ABP (INDIVIDUAL) rule entry and click "**EDIT**" button to proceed.

Please note that the ABP (INDIVIDUAL) settings will be cleared after Femto Cell is reset to default.

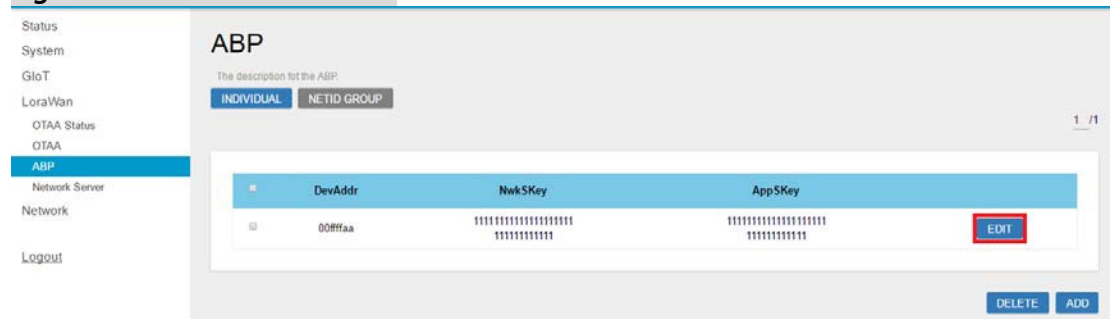
**Figure 17.A - Individual**



**Figure 17.B - Individual – Add**



**Figure 17.C - Individual – Edit**



### 4.3.2 NETID GROUP

Click “**NETID GROUP**” button to enter NETID GROUP function page.

Click “**ADD**” button to create a ABP (NETID GROUP) rule entry.

To delete rule entries, select one or more ABP (NETID GROUP) rules and click “**DELETE**” button.

To edit a rule entry, select a ABP (NETID GROUP) rule entry and click “EDIT” button to proceed.  
Please note that the ABP (NETID GROUP) settings will be cleared after Femto Cell is reset to default.



**Figure 18.A - NETID GROUP**



**Figure 18.B - NETID GROUP - ADD**



**Figure 18.C - NETID GROUP - EDIT**



**4.4 LoRaWan - Network Server**

The user can configure Network Server settings on this page.  
 The Femto Cell connects to the lora data center via CURL or MQTT.  
 Note that the node data will be sent to Gemtek lora data center if you select CURL.

**Figure 19 - Network Server**

- Status
- System
- GIoT
- LoraWan
- OTAA Status
- OTAA
- ABP
- Network Server**
- Network
- [Logout](#)

## Network Server

The description for the Network Server

Protocol:	<input type="text" value="MQTTs"/>
Hostname:	<input type="text" value="https"/>
Username:	<input type="text" value="admin"/>
Password:	<input type="text" value=""/>
Publish topic:	<input type="text" value="GIOT-GW/DL"/>
Subscribe topic:	<input type="text" value="GIOT-GW/UL"/>
Downlink ACK:	<input type="text" value="GIOT-GW/DL-report"/>
Port:	<input type="text" value="1883"/>

APPLY

## 5. System

The System menu consists of the following categories: System, Administration, Backup, System Firmware, Reboot. Introduction and input procedures for each category are described in the following paragraphs.

### 5.1 System - System

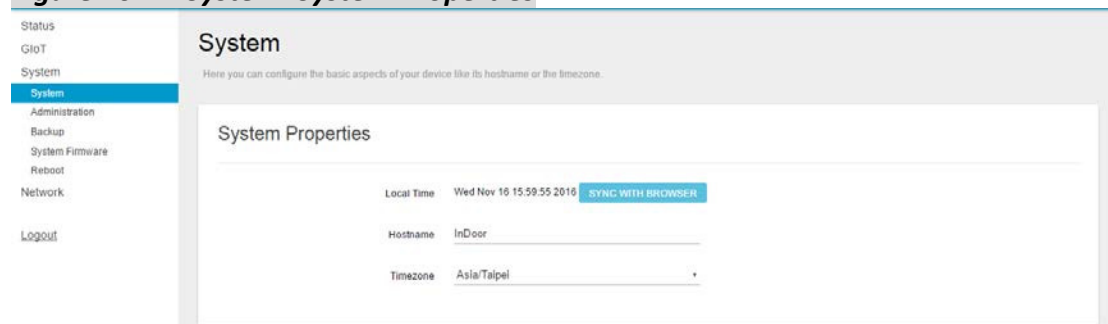
Hostname and Timezone can be customized in the system properties.

Click “*Sync with Browser*” button (figure20.A) to adjust the local time.

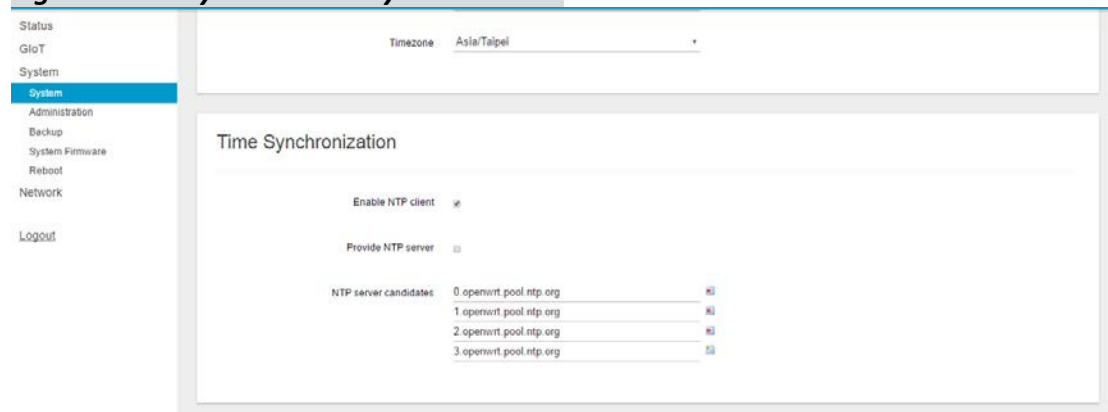
Place a checkmark next to “*Enable NTP Client*” (figure20.B) to synchronize the time with NTP server.

If you choose to use another NTP server, please place a checkmark next to “*Provide NTP server*” and fill out the “NTP server candidates” text field.

**Figure 20.A - System: System Properties**



**Figure 20.B - System: Time Synchronization**





## 5.2 System - Administration

Gateway login password and SSH accessibility can be configured in this page.

**Figure 21.A - Administration: Router Password**

The screenshot shows the 'Router Password' configuration page. On the left is a navigation menu with items: Status, GloT, System, System, Administration (highlighted), Backup, System Firmware, Reboot, Network, and Logout. The main content area has the title 'Router Password' and a subtitle 'Changes the administrator password for accessing the device'. Below this are two input fields: 'Password' and 'Confirmation', each with a green checkmark icon to its right.

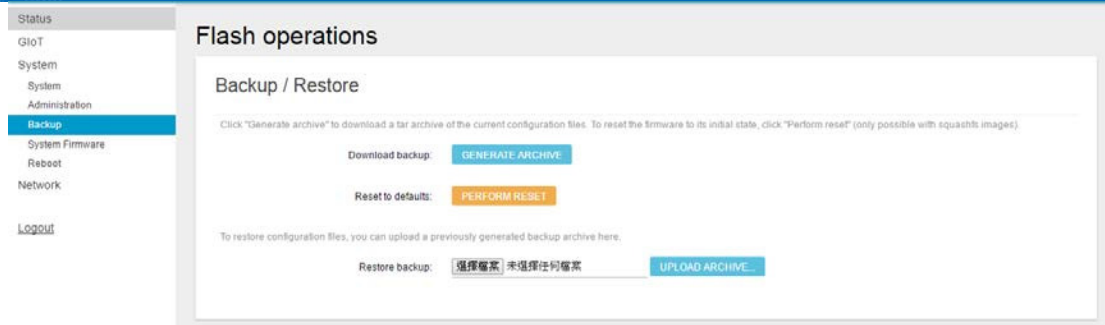
**Figure 21.B - Administration: SSH Access**

The screenshot shows the 'SSH Access' configuration page. On the left is a navigation menu with items: Status, GloT, System, System, Administration (highlighted), Backup, System Firmware, Reboot, Network, and Logout. The main content area has the title 'SSH Access' and a subtitle 'Dropbear offers SSH network shell access and an integrated SCP server'. Below this is a section titled 'Dropbear Instance' with a 'DELETE' button in the top right. The configuration includes: 'Port' set to '22' with a 'DELETED' icon and a description 'Specifies the listening port of this Dropbear instance'; 'Allow root logins with password' checked with a 'DELETED' icon and a description 'Allow the root user to login with password'; and 'Gateway ports' checked with a 'DELETED' icon and a description 'Allow remote hosts to connect to local SSH forwarded ports'. An 'ADD' button is located at the bottom left.

## 5.3 System - Backup

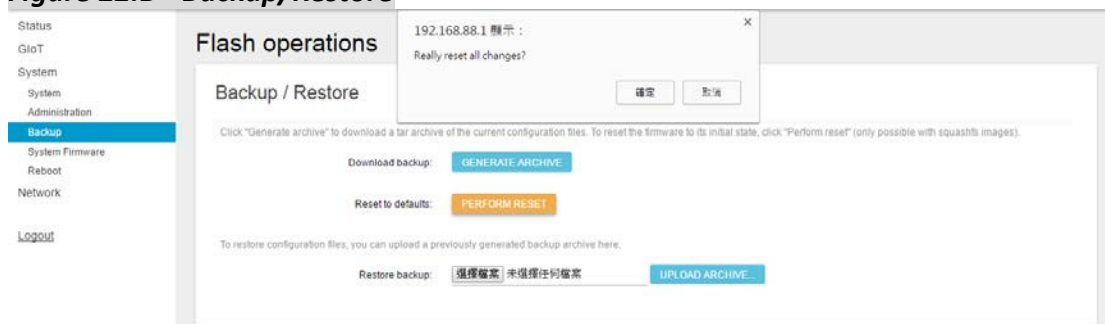
Click "GENERATE ARCHIVE" button to download the configuration file with the current gateway settings.

**Figure 22.A - Backup/Restore**



Click “*PERFORM RESET*” button to reset the firmware to its initial state. Please note that the LoRa provision settings will NOT be reset by this action.

**Figure 22.B - Backup/Restore**

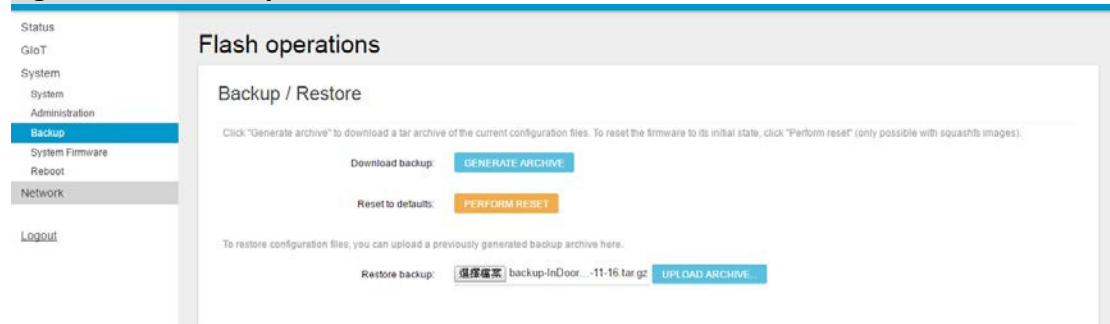


Choose the most recent backup file and click “*UPLOAD ARCHIVE*” to restore the configuration file. (figure 22.C & figure 22.D)

**Figure 22.C - Backup/Restore**



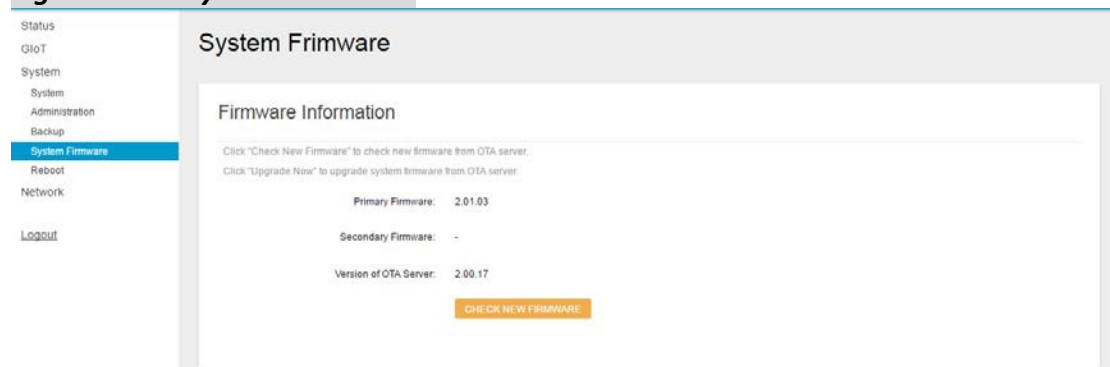
**Figure 22.D - Backup/Restore**



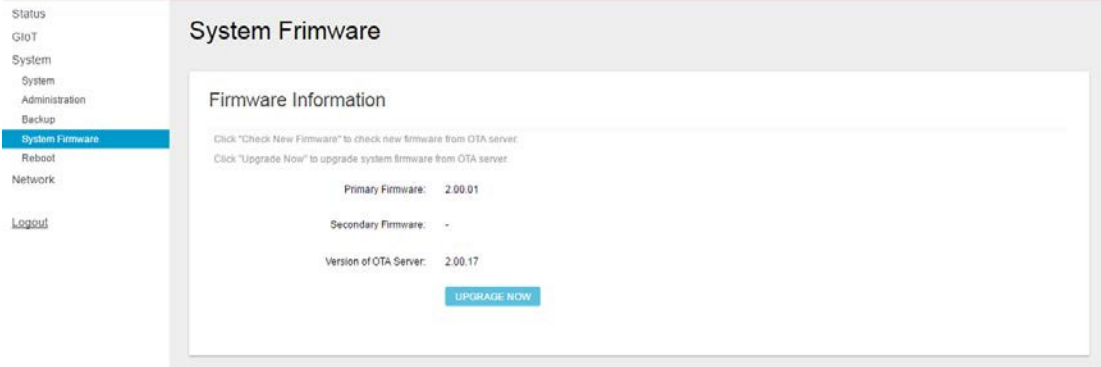
### 5.4 System - System Firmware

Click **"CHECK NEW FIRMWARE"** button to search the OTA server for the latest version of the new system firmware. Once a new system firmware version is detected on the OTA server, click **"UPGRADE NOW"** button to upgrade the newest system firmware from OTA server.

**Figure 23.A - System Firmware**



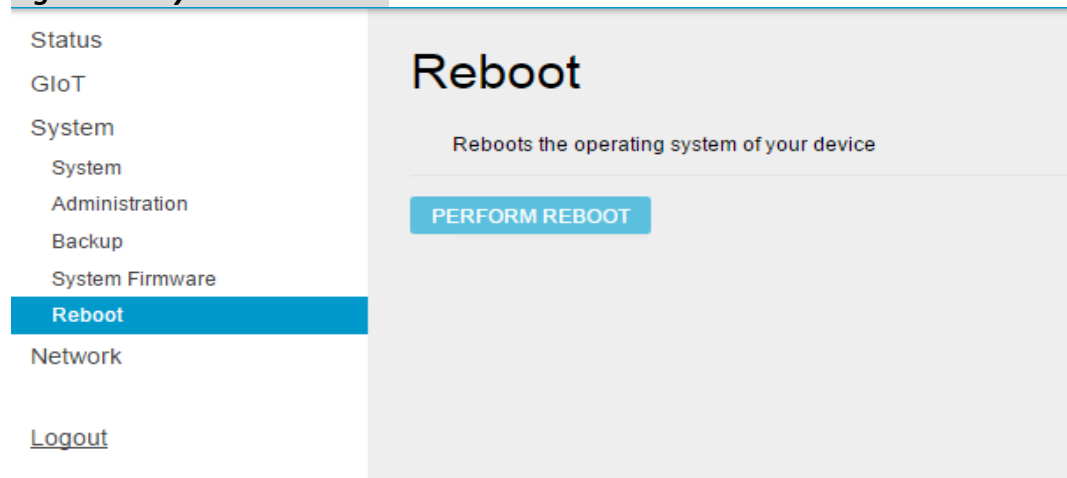
**Figure 23.B - System Firmware**



### 5.5 System - Reboot

Click "**PERFORM REBOOT**" to reboot your gateway.

**Figure 24 - System Firmware**





## 6 Network

The System menu consists of the following categories: WAN, Wireless, LAN, DHCP, Static Routes and Diagnostics. Introduction and input procedures for each category are described in the following paragraphs.

### 6.1 Network - WAN

The purpose of this category is to view current WAN settings.

This category is further divided into three sectors: Ethernet Wan, 3G/4G LTE and Wireless Extender. These individual options are lodged and labeled above the main content panel.

**Figure 25 - WAN**

The screenshot shows the WAN configuration page. At the top, there are three tabs: 'Ethernet Wan', '3G/4G LTE', and 'Wireless Extender'. The 'Ethernet Wan' tab is active. Below the tabs, the page title is 'WAN'. On the left, there is a navigation menu with the following items: Status, GloT, System, Network, WAN (highlighted), Wireless, LAN, DHCP, Static Routes, Diagnostics, and Logout. The main content area contains a table with two columns: 'Wan Type' and 'DHCP'. The 'Wan Type' column has two rows: 'WAN' and 'eth0.2'. The 'DHCP' column has the following text: 'Uptime: 0h 15m 20s', 'MAC-Address: 00:49:06:0F:07:09', 'RX: 494.59 KB (5054 Pkts.)', 'TX: 546.28 KB (4566 Pkts.)', and 'IPv4: 192.168.1.127/24'. At the bottom right of the page, there is a small text: 'Powered by LuCI Trunk (git-ddabd58) / OpenWrt Barrier Breaker unknown'.

#### 6.1.1 Ethernet WAN

This page is to setup the connection type in terms of Static IP, DHCP client or PPPoE. The three different options can be selected in the drop-down menu in “wantype”. Please fill in the respective fields exhibited under each selection. Please make sure the Ethernet cable is connected to a WAN port.

**Figure 26.A - WAN: Static IP**

Status   Ethernet Wan   3G/4G LTE   Wireless Extender

GloT

System

Network

**WAN**

Wireless

LAN

DHCP

Static Routes

Diagnostics

Logout

wantype Static IP

IP Address

Subnet Mask 255.255.255.0

Gateway

DNS Server

MAC Address 00:49:06:0f:07:09

**Figure 26.B - WAN: DHCP Client**

Status   Ethernet Wan   3G/4G LTE   Wireless Extender

GloT

System

Network

**WAN**

Wireless

LAN

DHCP

Static Routes

Diagnostics

Logout

wantype: DHCP Client

MAC Address: 00:49:06:0f:07:09

SAVE   RESET

Powered by LuCI Trunk (git-ddabd95) / OpenWrt Barrier Breaker unknown

**Figure 26.C - WAN: PPPoE**

Status   Ethernet Wan   3G/4G LTE   Wireless Extender

GloT

System

Network

**WAN**

Wireless

LAN

DHCP

Static Routes

Diagnostics

Logout

wantype: PPPoE

Username

Password

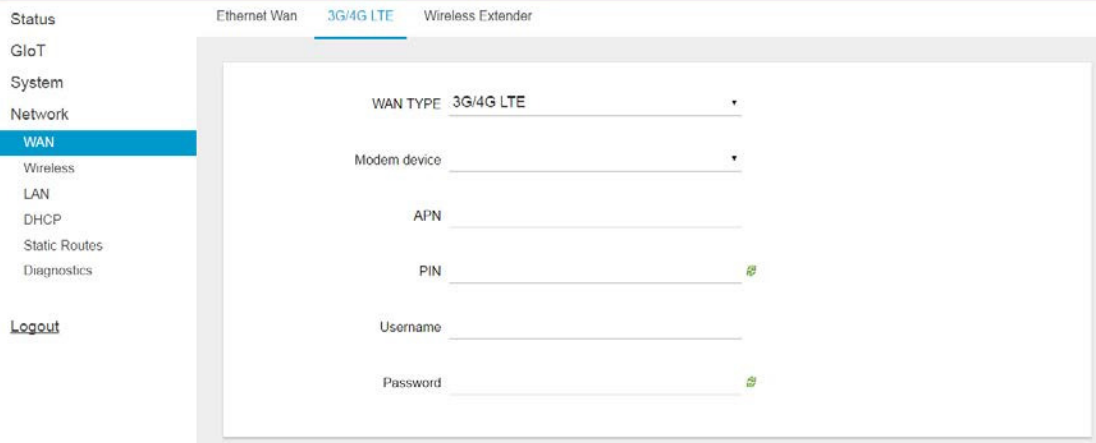
MAC Address: 00:49:06:0f:07:09

Powered by LuCI Trunk (git-ddabd95) / OpenWrt Barrier Breaker unknown

### 6.1.2 3G/4G LTE

This page is to setup required information.  
Make sure the SIM card is installed.

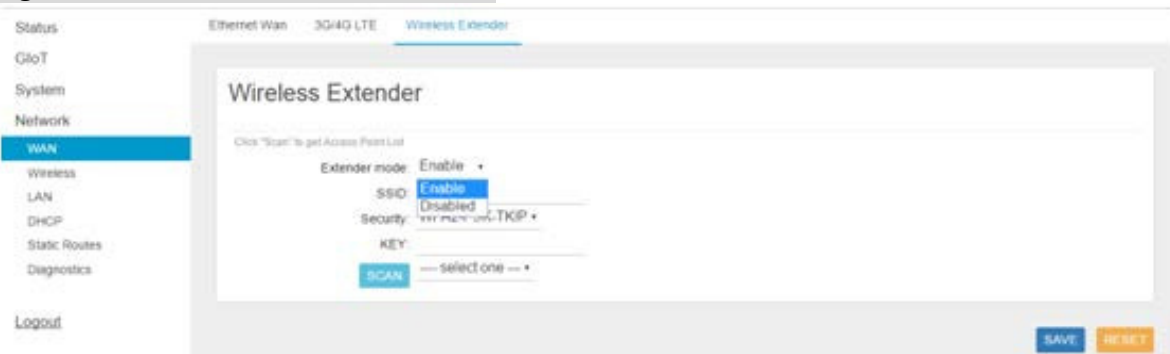
**Figure 27 - WAN: 3G/4G LTE**



### 6.1.3 Wireless Extender

This page is to setup the Wireless Extender Mode for WAN connection. To activate the extended wireless connection, please select “Enable” from the Extender mode drop-down menu (figure 24.A). Click the “SCAN” button to obtain the list of available Access Points within your surrounding vicinity (figure 24.B).

**Figure 28.A - WAN: Wireless Extender**



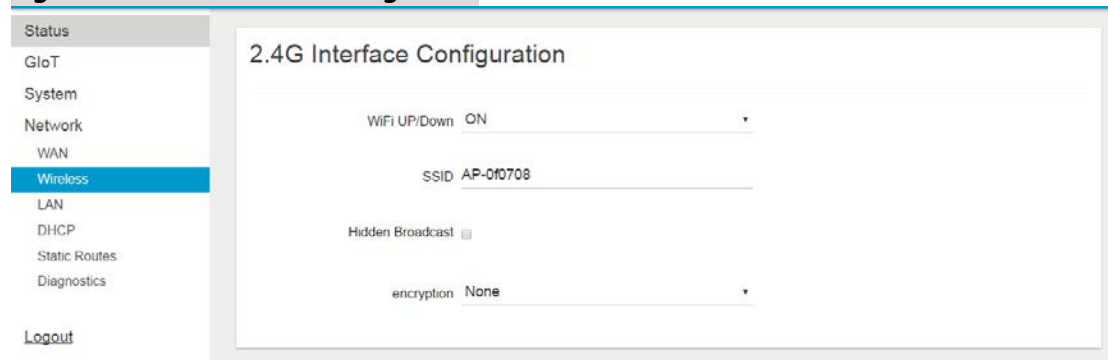
## 6.2 Network - Wireless

The Wireless Setting is divided into two sectors in the same page: 2.4G and 5G.

### 6.2.1 2.4G

2.4G Interface Configuration to setup 2.4G wireless. SSID, encryption type, and channels can be lodged within this sector.

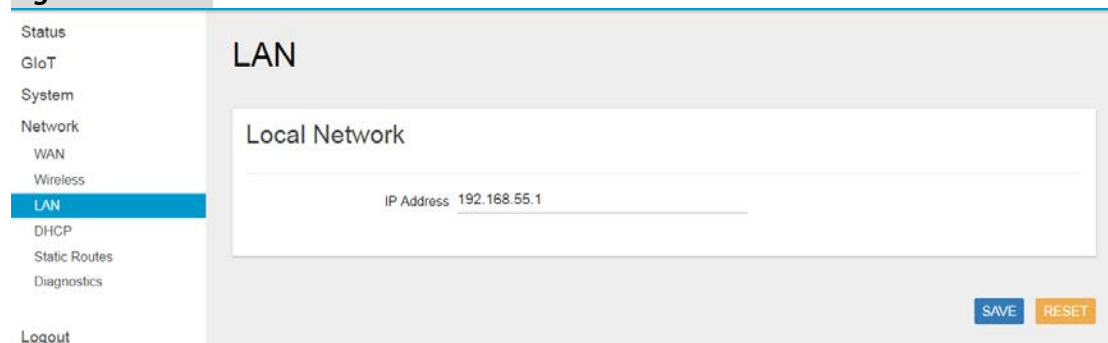
**Figure 29.A - Wireless Setting: 2.4G**



### 6.3 Network - LAN

LAN IP can be setup in this page.

**Figure 30 - LAN**



### 6.4 Network - DHCP

You can manage detailed DHCP server settings, which includes First leased address, the allowed Number of leased addresses and Lease time.

Information on Active Leases can be viewed at the bottom of this page.

**Figure 31 - DHCP**

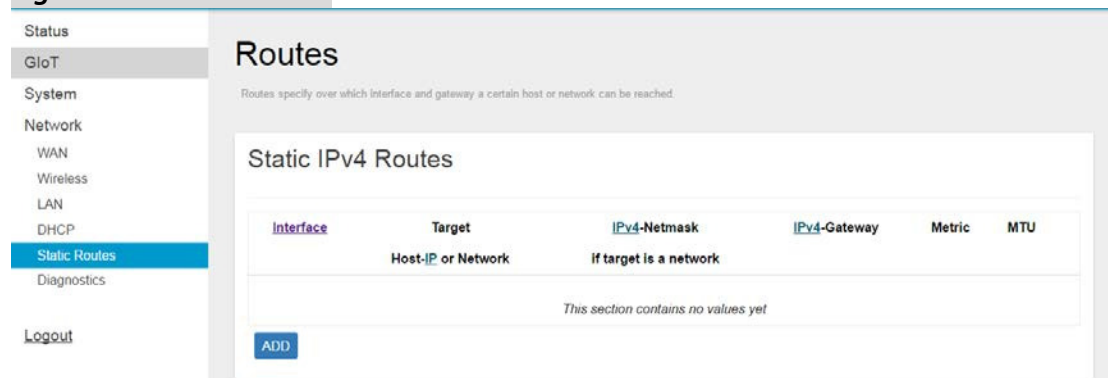


### 6.5 Network - Static Routes

Static routes can be established by clicking the “ADD” button to enter proper settings. Click “Delete” to erase the entry.

Always click the “SAVE” button to apply your settings.

**Figure 32 - Static Routes**



### 6.6 Network - Diagnostic

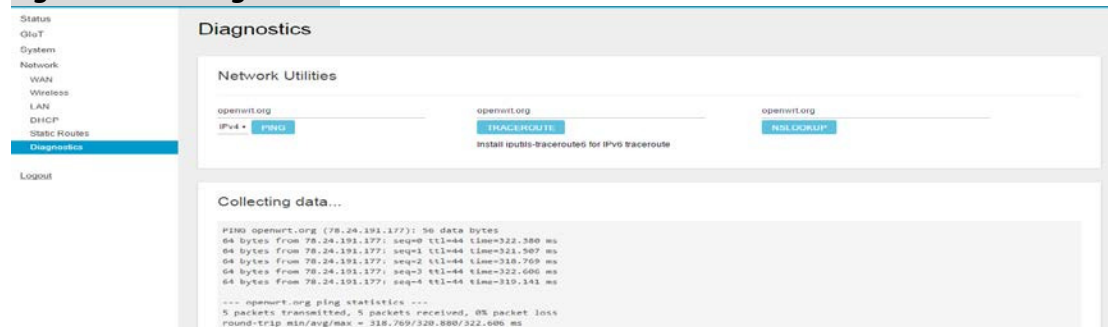
Diagnostics is divided into three parts on the same page: PING, TRACEROUTE and NSLOOKUP. Please see the following for input guidelines.

#### 6.6.1 PING

Input a specific IP address in the text field above “PING”.

Click the “PING” button to ping the IP you have specified.

**Figure 33.A - Diagnostics**

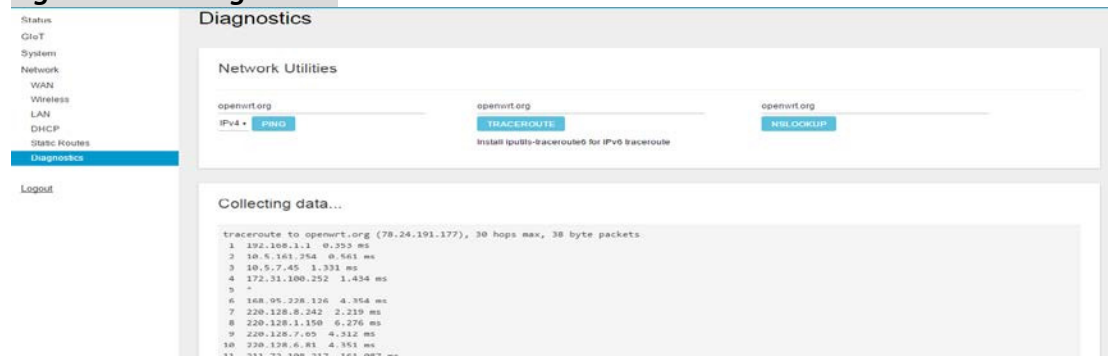


### 6.6.2 TRACEROUTE

Input a specific URL or IP address above “TRACEROUTE”.

Click the “TRACEROUTE” button to trace the URL or IP address you have specified.

**Figure 33.B - Diagnostics**



### 6.6.3 NSLOOKUP

Input a specific URL or IP address above “NSLOOKUP”.

Click the “NSLOOKUP” button to view the DNS server of the URL or IP address you have specified.

**Figure 33.C - Diagnostics**

- Status
- GloT
- System
- Network
- WAN
- Wireless
- LAN
- DHCP
- Static Routes
- Diagnostics**
- Logout

## Diagnostics

### Network Utilities

openurl.org

IPv4 • **PING**

openurl.org

**TRACEROUTE**

Install iputils-traceroute6 for IPv6 traceroute

openurl.org

**NSLOOKUP**

### Collecting data...

```
Server: 127.0.0.1
Address 1: 127.0.0.1 localhost

Name: openurl.org
Address 1: 78.24.191.177 openurl.org
```



## Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **IMPORTANT NOTE:**

#### **Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

Operation of this device is restricted to indoor use only.

## Professional installation instruction

Please be advised that due to the unique function supplied by this product, the device is intended for use with our interactive entertainment software and licensed third-party only. The product will be distributed through controlled distribution channel and installed by trained professional and will not be sold directly to the general public through retail store.

### 1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

### 2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

### 3. External antenna

Use only the antennas which have been approved by Gemtek Technology Co., Ltd.. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC limit and is prohibited.

### 4. Installation procedure

Please refer to user's manual for the detail.

### 5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.