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GloT IDU User Guide

GloT IDU User Guide

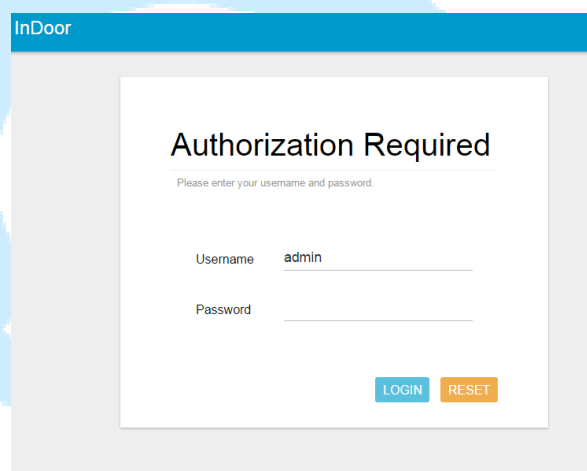
This GloT IDU User Guide will assist you in navigating the system with the following comprehensive guidelines.

1. Open Admin GUI

Default UI : 192.168.88.1

Default username is “admin” and password is “admin”

Figure 1



The screenshot shows a web browser window with the title 'InDoor'. The main content area is titled 'Authorization Required' and contains a form for login. The form has two input fields: 'Username' with the value 'admin' and 'Password'. Below the fields are two buttons: 'LOGIN' and 'RESET'. A small text prompt 'Please enter your username and password.' is located above the input fields.



2. Status

The Status menu consists of the following categories: Overview, Routes, System Log, Kernel Log, Processes, Realtime Graphs and GloT. 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, network settings, DHCP lease status, and wireless 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

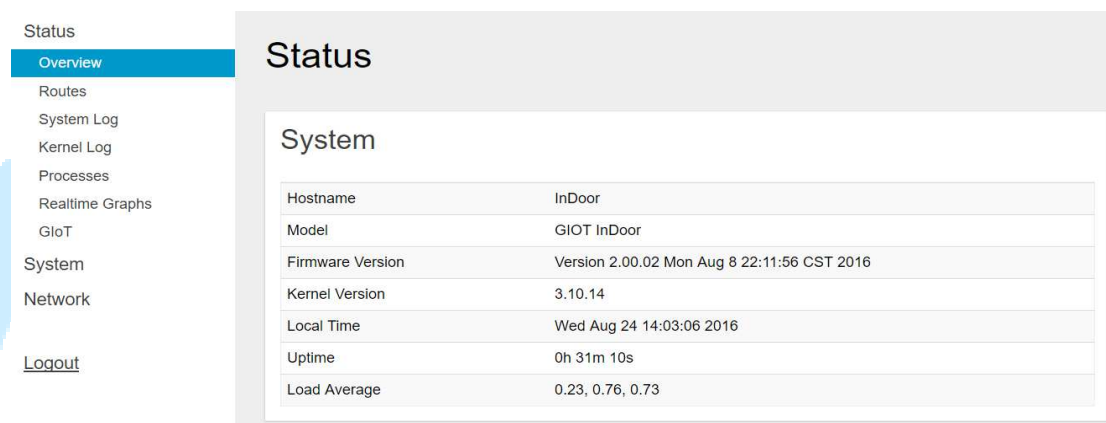


Figure 2.B - Memory Usage and Network Settings

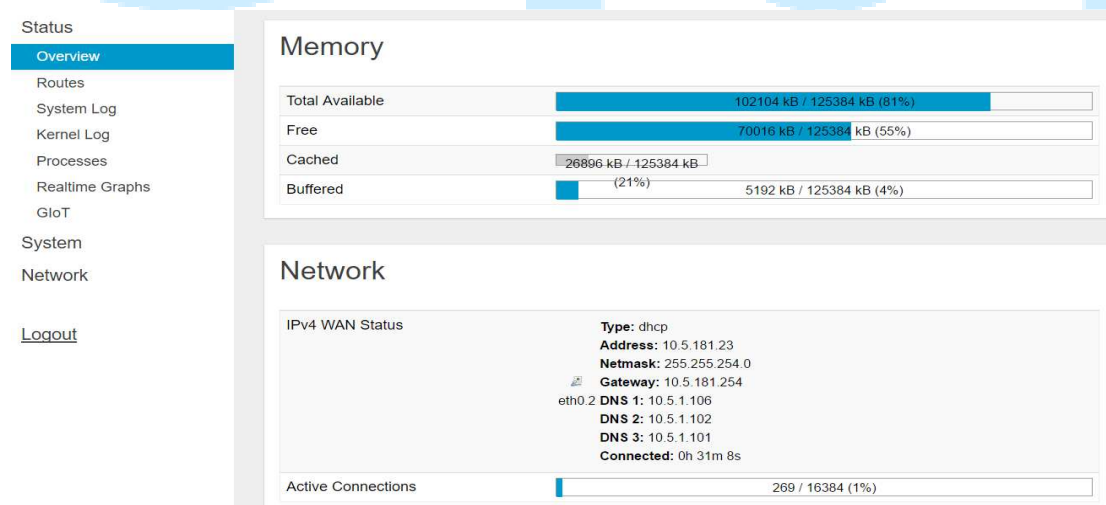


Figure 2.C – DHCP Leases and Wireless Settings

Status

Overview

Routes

System Log

Kernel Log

Processes

Realtime Graphs

Glot

System

Network

[Logout](#)

DHCP Leases

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
DESKTOP-N1UKQO2	192.168.88.128	bc:ae:c5:4a:a4:15	expired

Wireless

Generic 802.11bg Wireless Controller (mt7612e)

SSID: AP-498938-5G
 Mode: ap
 Channel: 0
 Bitrate: ? Mbit/s
 Wireless is disabled or not associated

Generic 802.11bg Wireless Controller (mt7620)

SSID: AP-498938
 Mode: ap
 Channel: 0
 Bitrate: ? Mbit/s
 Wireless is disabled or not associated
 SSID: undefined
 Mode: sta
 Channel: 0
 Bitrate: ? Mbit/s

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

InDoor

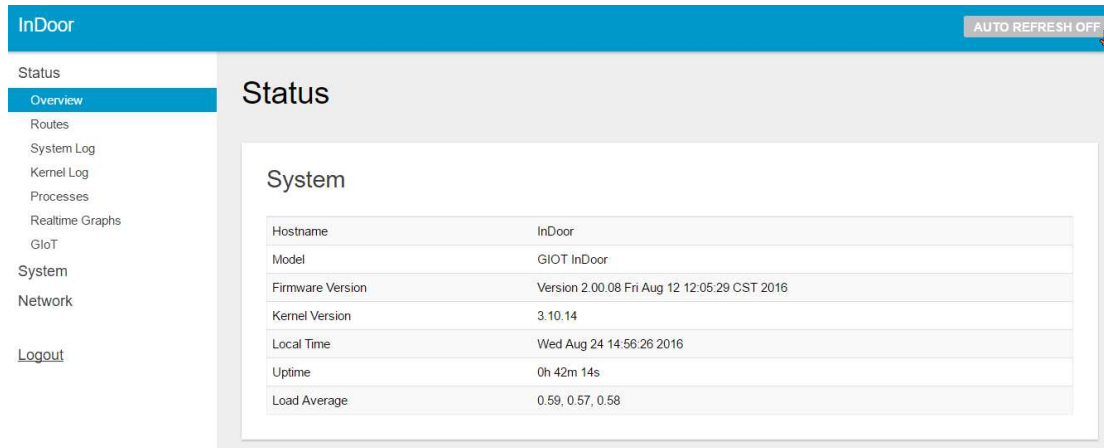
AUTO REFRESH ON

Status

System

Hostname	InDoor
Model	GIOT InDoor
Firmware Version	Version 2.00.08 Fri Aug 12 12:05:29 CST 2016
Kernel Version	3.10.14
Local Time	Wed Aug 24 14:56:16 2016
Uptime	0h 42m 4s
Load Average	0.42, 0.54, 0.57

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



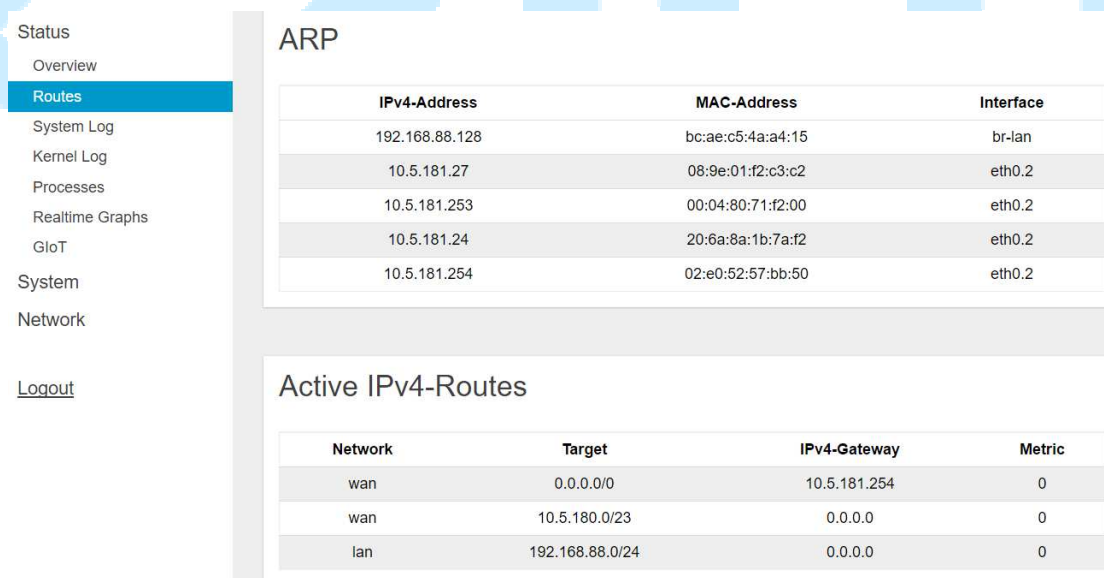
The screenshot shows the InDoor web interface. The top navigation bar includes 'InDoor' and 'AUTO REFRESH OFF' with a red indicator light. The left sidebar lists various menu items: Status, Overview, Routes, System Log, Kernel Log, Processes, Realtime Graphs, GloT, System, Network, and Logout. The main content area is titled 'Status' and contains a 'System' section with a table of system information.

System	
Hostname	InDoor
Model	GIOT InDoor
Firmware Version	Version 2.00.08 Fri Aug 12 12:05:29 CST 2016
Kernel Version	3.10.14
Local Time	Wed Aug 24 14:56:26 2016
Uptime	0h 42m 14s
Load Average	0.59, 0.57, 0.58

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



The screenshot shows the InDoor web interface with the 'Routes' menu item highlighted in the left sidebar. The main content area is titled 'Routes' and contains two tables: 'ARP' and 'Active IPv4-Routes'.

ARP		
IPv4-Address	MAC-Address	Interface
192.168.88.128	bc:ae:c5:4a:a4:15	br-lan
10.5.181.27	08:9e:01:f2:c3:c2	eth0.2
10.5.181.253	00:04:80:71:f2:00	eth0.2
10.5.181.24	20:6a:8a:1b:7a:f2	eth0.2
10.5.181.254	02:e0:52:57:bb:50	eth0.2

Active IPv4-Routes			
Network	Target	IPv4-Gateway	Metric
wan	0.0.0.0/0	10.5.181.254	0
wan	10.5.180.0/23	0.0.0.0	0
lan	192.168.88.0/24	0.0.0.0	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

```

Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2004, value=ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2104, value=ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2204, value=ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2304, value=ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2404, value=ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2504, value=ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2610, value=810000c0
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2110, value=810000c0
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2210, value=810000c0
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2310, value=810000c0
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2410, value=810000c0
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2510, value=810000c0
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2610, value=81000000
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2710, value=81000000
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2604, value=20ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2704, value=20ff0003
Wed Aug 10 12:08:34 2016 user.emerg syslog: Special Tag Disabled
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2610, value=81000000
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2014, value=10001
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2114, value=10001
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2214, value=10001
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2314, value=10001
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2414, value=10002
Wed Aug 10 12:08:34 2016 user.emerg syslog: switch reg write offset=2514, value=10002
Wed Aug 10 12:08:34 2016 user.emerg syslog: REG_ESW_WT_MAC_ATC is 0x7ff0002

```

2.4 Status - Kernel log

This category is to view kernel log.

Figure 6 – Kernel Log

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

Kernel Log

```

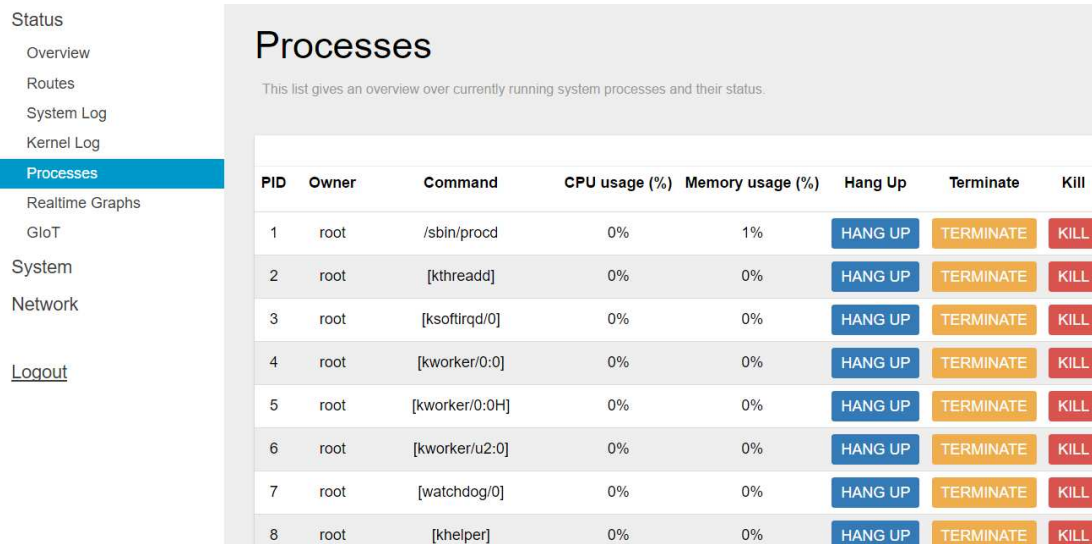
[ 0.000000] Linux version 3.10.14 (kenji@CVS1) (gcc version 4.8.3 (OpenWrt/Linaro GCC 4.8-2014.04 unknown) ) #2 Tue Aug 9 11
[ 0.000000] The CPU fequence set to 500 MHz
[ 0.000000] PCIE: bypass PCIE DLL
[ 0.000000] PCIE: Elastic buffer control: Addr:0x68 -> 0xB4
[ 0.000000] disable all power about PCIE
[ 0.000000] CPU0 revision is: 00019650 (MIPS 24KEc)
[ 0.000000] Software DMA 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] On node 0 totalpages: 32768
[ 0.000000] free_area_init_node: node 0, pgdat 80428800, node_mem_map 81000000
[ 0.000000] Normal Zone: 256 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, PIPT, no aliases, linesize 32 bytes
[ 0.000000] pcpu-alloc: s0 r0 d32768 u32768 alloc=1*32768
[ 0.000000] pcpu-alloc: [0] 0
[ 0.000000] Brought up 1 processor in 0.000000 seconds

```

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 item.

Figure 7 – Processes



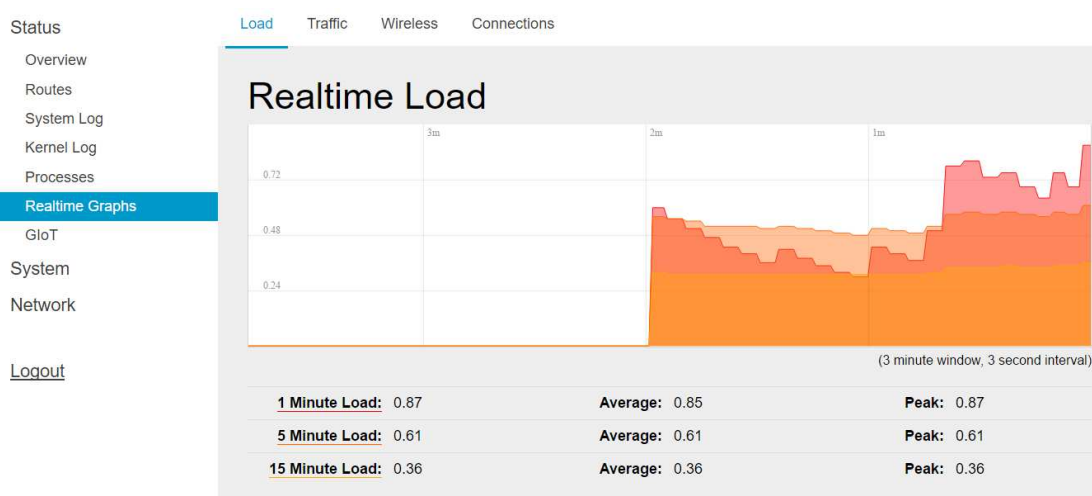
2.6 Status - Realtime Graphs

This category is further divided into four sectors: Load, Traffic, Wireless and Connections. Individual options are lodged above the graph.

2.6.1 Load

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

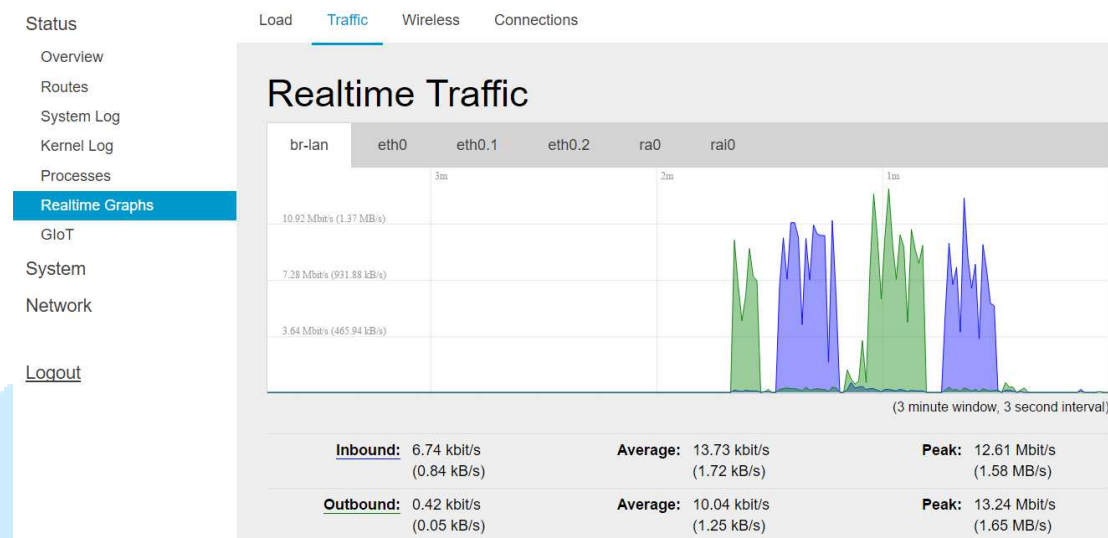
Figure 8 – Realtime Load



2.6.2 Traffic

To view the network traffic of each interface.

Figure 9 – Realtime Traffic



2.6.3 Wireless

To view signal strength and speed.

Figure 10.A – Realtime Wireless

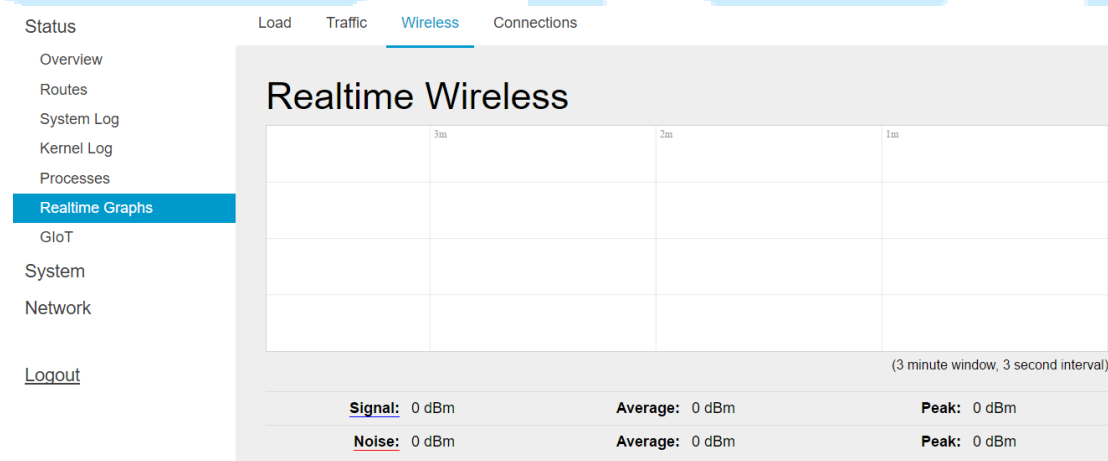
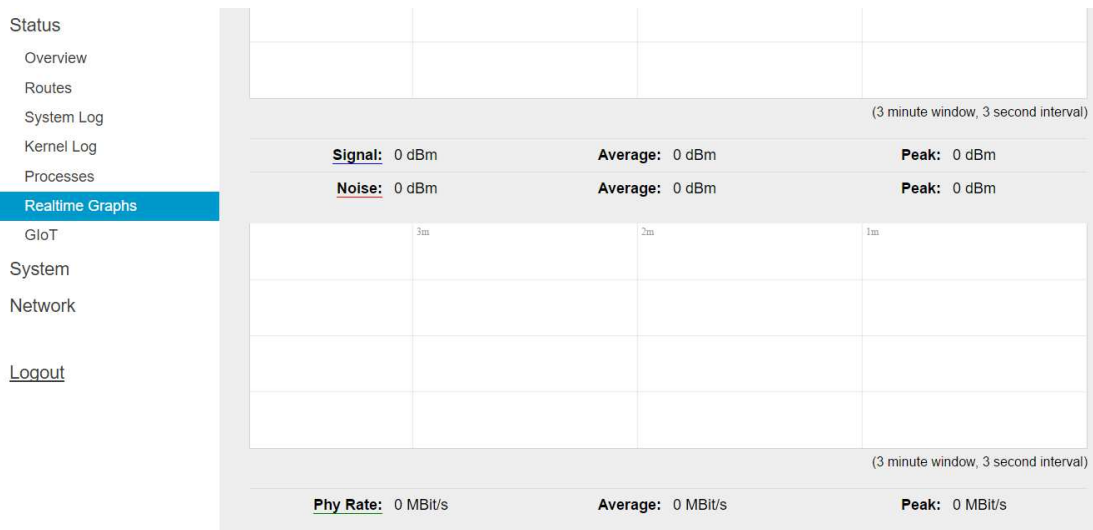


Figure 10.B – Realtime Wireless (continued)



2.6.4 Connections

To view current active network connections.

Figure 11– Realtime Connections



2.7 Status - GloT

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

Figure 12 – GloT Info

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

GloT Info	
Provisioning Code	00005840 (Provision)
Area Code	00005840
Gateway Type	Pico
LoRa Module 1	ON
Gateway ID	1C497B48DC7B
Radio 0	Ch0: ON 902.3MHz
	Ch1: ON 902.5MHz
	Ch2: ON 902.7MHz
	Ch3: ON 902.9MHz
Radio 1	Ch4: ON 903.1MHz
	Ch5: ON 903.3MHz
	Ch6: ON 903.5MHz
	Ch7: ON 903.7MHz
LoRa Module 2	OFF
GloT key Status	0x00 0x01 0x04 0x05 0x0a
GloT Connect	Online
Spreading Factor	Module1: uplink:7 8 9 10 11 12 , downlink: 10 Module2: uplink:7 8 9 10 11 12 , downlink: -
GPS	Latitude:(Not Config), Longitude:(Not Config)

3. System

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

3.1 System - System

Hostname and Timezone can be customized in system properties.

Click “*Sync with Browser*” button (figure13.A) to adjust the local time.

Place a checkmark next to “*Enable NTP Client*” (figure13.B) to synchronize the time with NTP server.

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

Figure 13.A – System: System Properties

Status
System
System
Administration
Provision
GPS Setting
GloT
Backup
System Firmware
Reboot
Lora Wan
Network

[Logout](#)

System

Here you can configure the basic aspects of your device like its hostname or the timezone.

System Properties

Local Time Wed Aug 24 14:29:06 2016 [SYNC WITH BROWSER](#)

Hostname InDoor

Timezone Asia/Taipei

Figure 13.B – System: Time Synchronization

Status
System
System
Administration
Provision
GPS Setting
GloT
Backup
System Firmware
Reboot
Lora Wan
Network

[Logout](#)

Time Synchronization

Enable NTP client ☒

Provide NTP server ☐

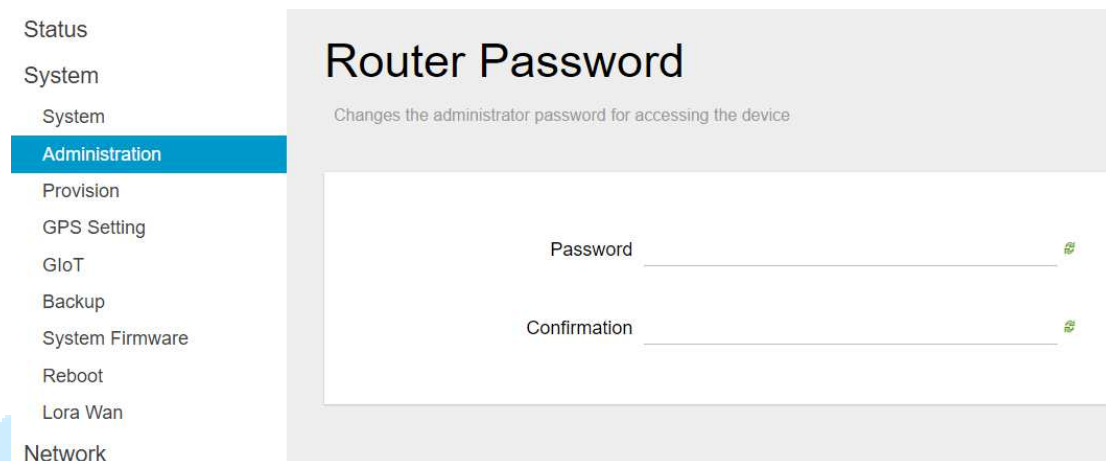
NTP server candidates

0.openwrt.pool.ntp.org	
1.openwrt.pool.ntp.org	
2.openwrt.pool.ntp.org	
3.openwrt.pool.ntp.org	

3.2 System - Administration

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

Figure 14.A – Administration: Router Password



Status

System

System

Administration

Provision

GPS Setting

GloT

Backup

System Firmware

Reboot

Lora Wan

Network

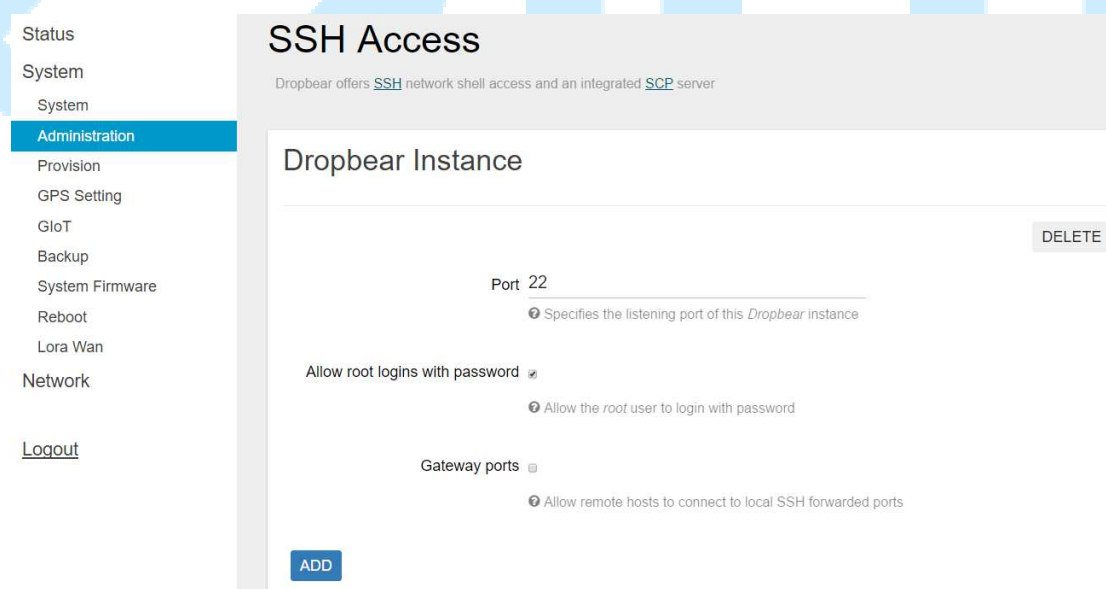
Router Password

Changes the administrator password for accessing the device

Password

Confirmation

Figure 14.B – Administration: SSH Access



Status

System

System

Administration

Provision

GPS Setting

GloT

Backup

System Firmware

Reboot

Lora Wan

Network

[Logout](#)

SSH Access

Dropbear offers [SSH](#) network shell access and an integrated [SCP](#) server

Dropbear Instance

DELETE

Port 22

Specifies the listening port of this Dropbear instance

Allow root logins with password ☒

Allow the root user to login with password

Gateway ports ☐

Allow remote hosts to connect to local SSH forwarded ports

ADD

3.3 System - Provision

GloT provision code can be setup in this page.

Figure 15 – Provision Code

Status

System

System

Administration

Provision

GPS Setting

GloT

Backup

System Firmware

Reboot

Lora Wan

Network

[Logout](#)

Provision Code

System will reboot if activate Provision Code succeed

Code 00005840

SAVE

Powered by LuCI Trunk (git-0f71d1f5) / OpenWrt Barrier Breaker unknown

3.4 System - GPS Setting

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

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

Figure 16 – GPS Setting

Status

System

System

Administration

Provision

GPS Setting

GloT

Backup

System Firmware

Reboot

Lora Wan

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: 123 White Wagon Rd, Waverly, NY 14892美国

Latitude 42.0067228928918

Longitude -76.58371548789063

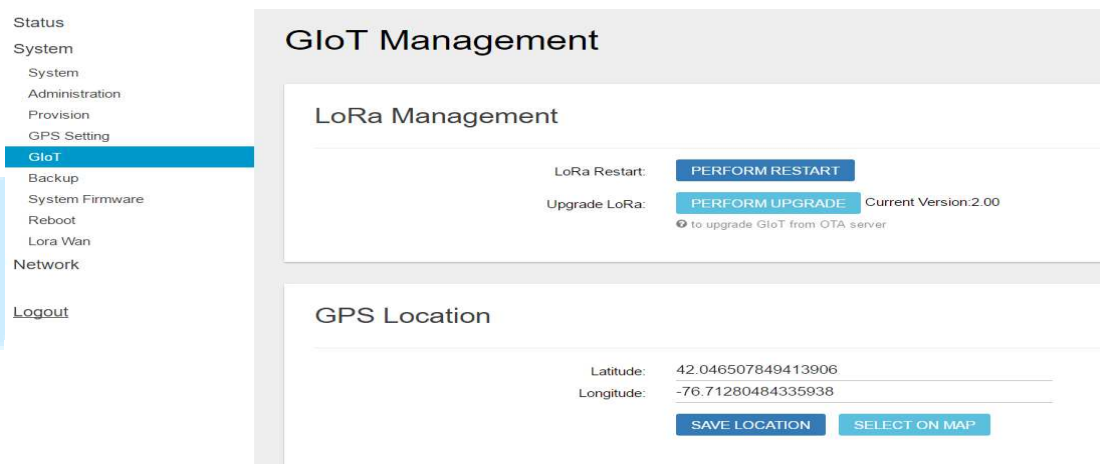
3.5 System - GloT

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

Click “*PERFORM UPGRADE*” button to search the OTA server for the latest version of the LoRa firmware. Once a new LoRa firmware version is detected, LoRa firmware will be automatically upgraded to the newest version.

Latitude and longitude 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.

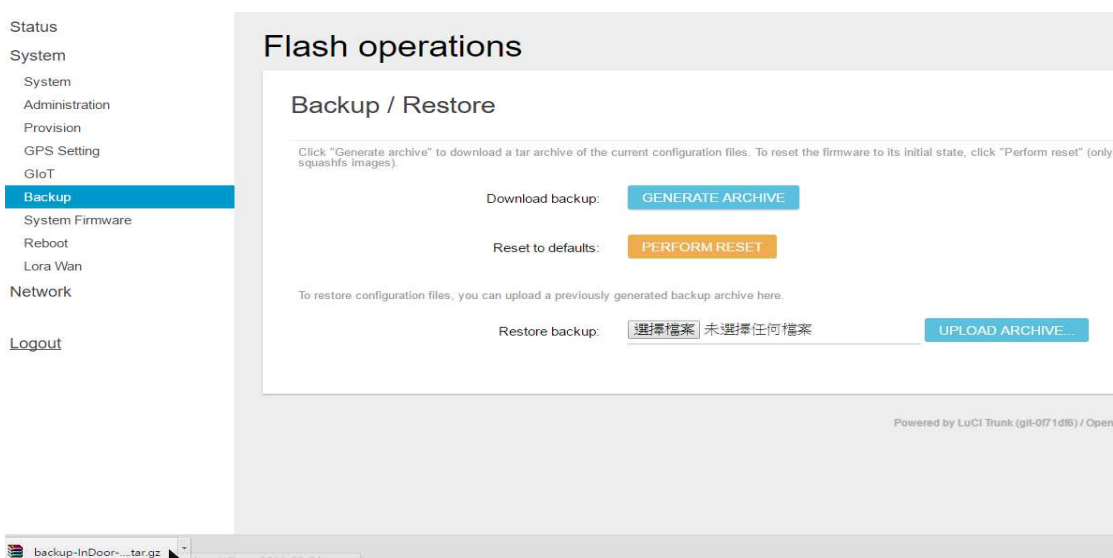
Figure 17 – GloT Management



3.6 System - Backup

Click “*GENERATE ARCHIVE*” button to download configuration file with the current gateway settings.

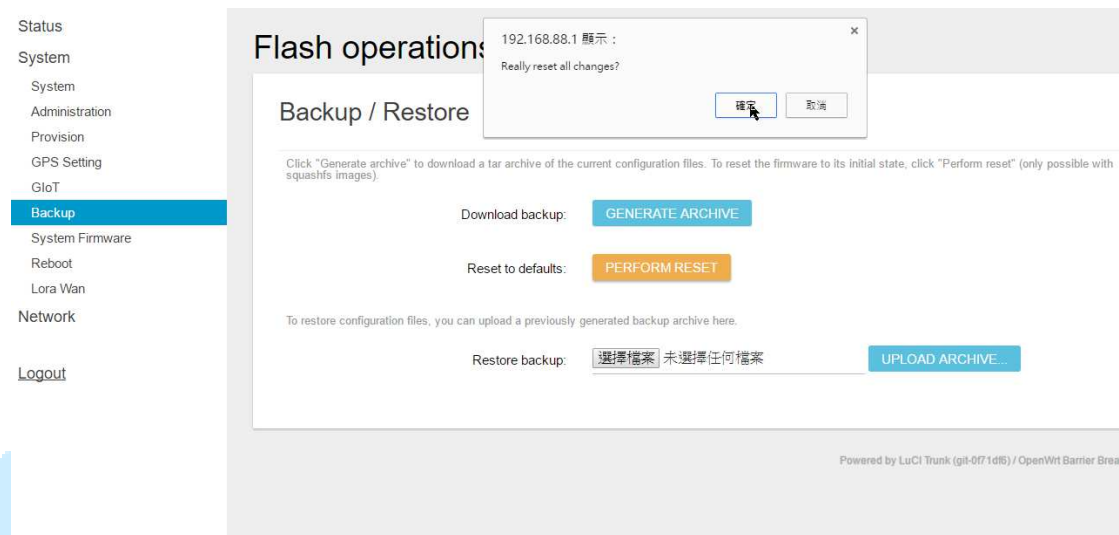
Figure 18.A – Backup/Restore



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 18.B – Backup/Restore



Choose previously generated backup file and click “*UPLOAD ARCHIVE*” to restore the configuration file. (figure 18.C & figure 18.D)

Figure 18.C – Backup/Restore

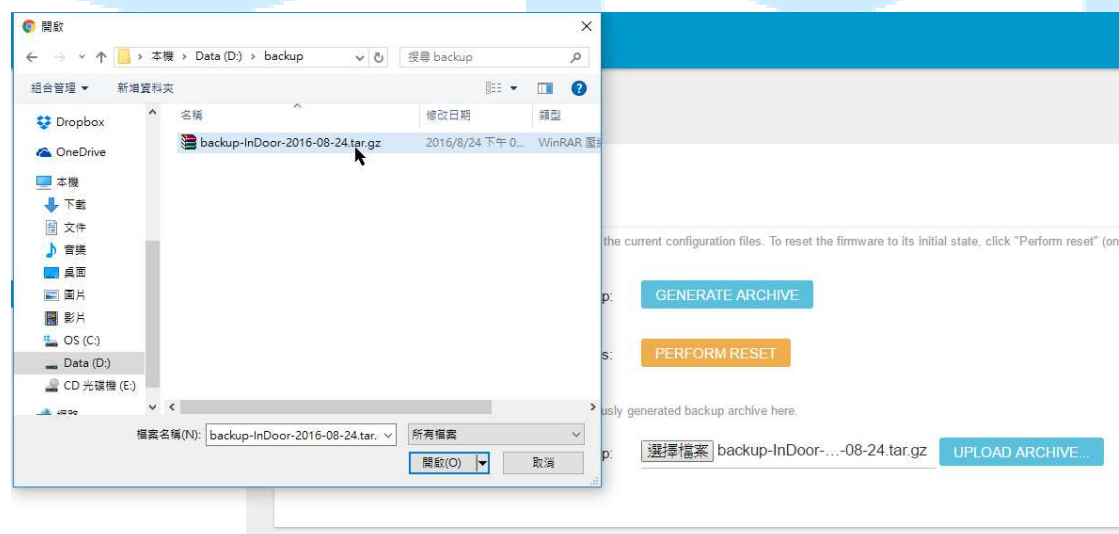
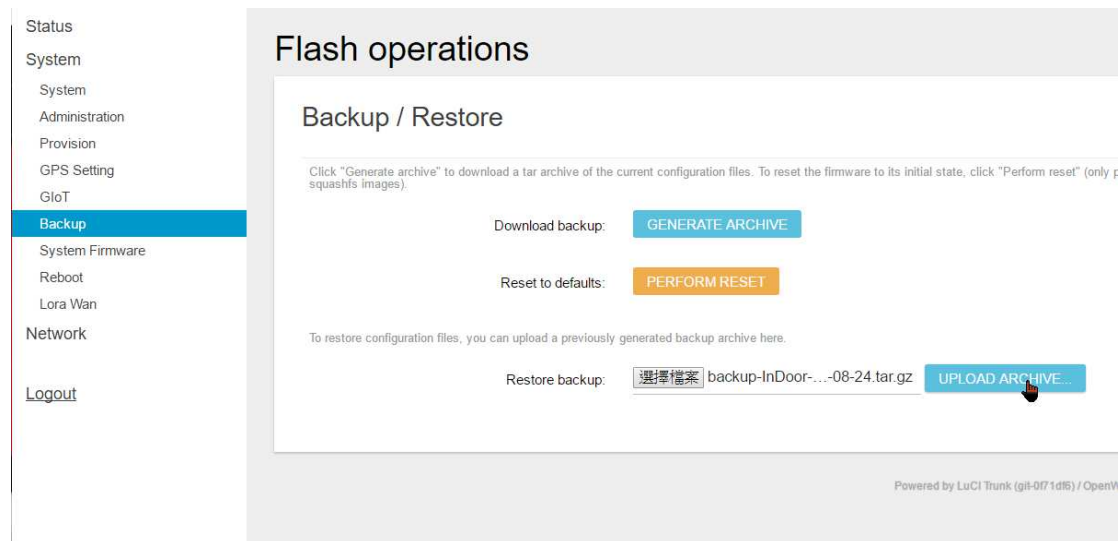


Figure 18.D – Backup/Restore



3.7 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 19.A – System Firmware

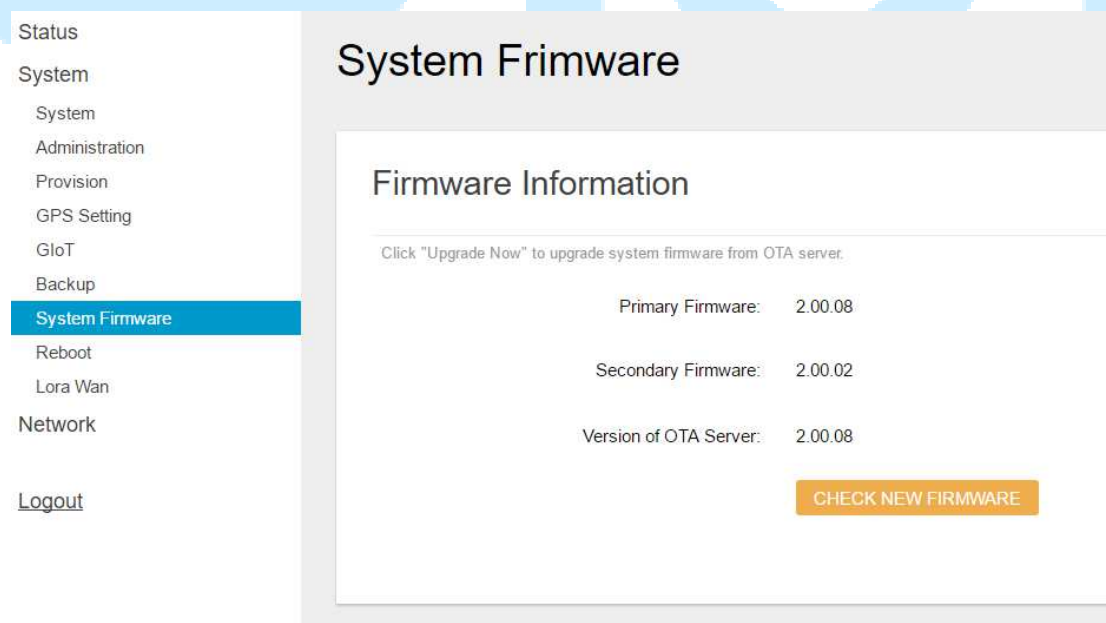
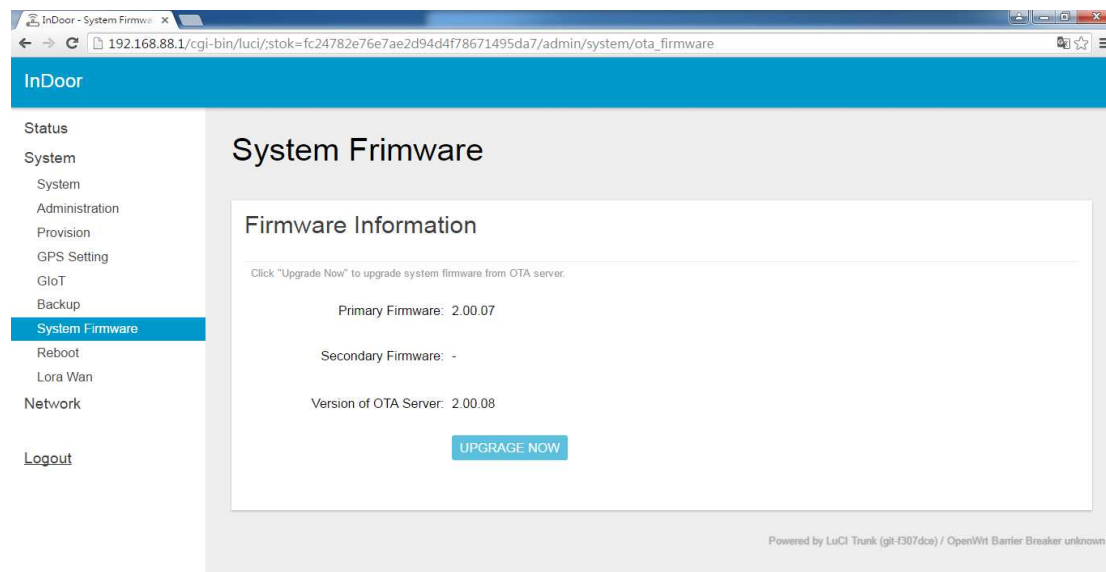


Figure 19.B – System Firmware



3.8 System - Reboot

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

Figure 20 – System Firmware



3.9 System - LoRaWAN

Please view a separate document for the LoRaWAN ABP/OTAA User Guide.

4. Network

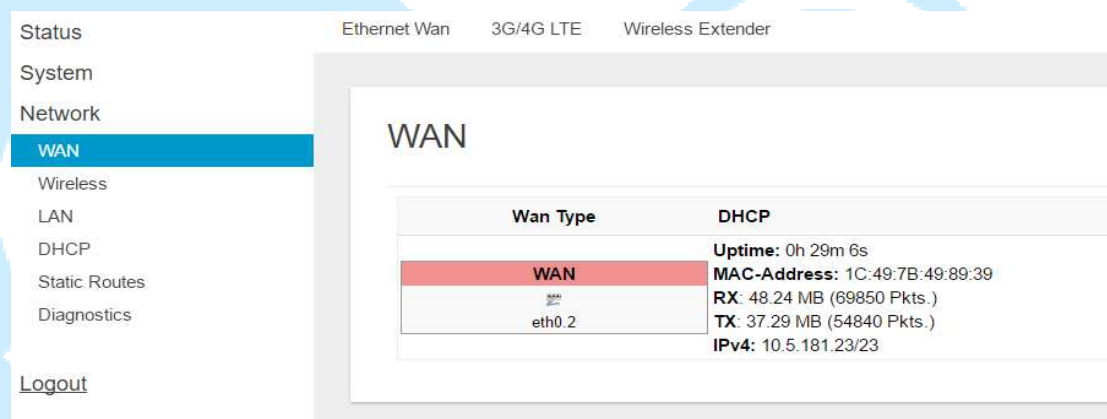
The System menu consists of the following categories: WAN, Wireless, LAN, DHCP, Static Routes and Diagnostics. Introduction and input procedures for each category are described in the following paragraphs.

4.1 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. Individual options are lodged above the main content panel.

Figure 21 – WAN



4.1.1 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 22.A – WAN: Static IP

The screenshot shows the 'Ethernet Wan' configuration page. The left sidebar contains a menu with 'WAN' selected. The main content area has tabs for 'Ethernet Wan', '3G/4G LTE', and 'Wireless Extender'. The 'wantype' is set to 'Static IP'. The 'IP Address' field is empty. The 'Subnet Mask' is set to '255.255.255.0'. The 'Gateway' field is empty. The 'DNS Server' field is empty. The 'MAC Address' is set to '1c:49:7b:49:89:39'.

Field	Value
wantype	Static IP
IP Address	
Subnet Mask	255.255.255.0
Gateway	
DNS Server	
MAC Address	1c:49:7b:49:89:39

Figure 22.B – WAN: DHCP Client

The screenshot shows the 'Ethernet Wan' configuration page. The left sidebar contains a menu with 'WAN' selected. The main content area has tabs for 'Ethernet Wan', '3G/4G LTE', and 'Wireless Extender'. The 'wantype' is set to 'DHCP Client'. The 'MAC Address' is set to '1c:49:7b:49:89:39'. The page is powered by LuCI Trunk.

Field	Value
wantype	DHCP Client
MAC Address	1c:49:7b:49:89:39

Powered by LuCI Trunk

Figure 22.C – WAN: PPPoE

The screenshot shows the 'Ethernet Wan' configuration page. The left sidebar contains a menu with 'WAN' selected. The main content area has tabs for 'Ethernet Wan', '3G/4G LTE', and 'Wireless Extender'. The 'wantype' is set to 'PPPoE'. The 'Username' is set to 'admin'. The 'Password' is masked with dots. The 'MAC Address' is set to '1c:49:7b:49:89:39'.

Field	Value
wantype	PPPoE
Username	admin
Password
MAC Address	1c:49:7b:49:89:39

4.1.2 3G/4G LTE

This page is to setup required information.

Make sure the proper USB device is installed on USB connector.

Figure 23 – WAN: 3G/4G LTE

The screenshot shows the WAN configuration interface. The sidebar on the left includes links for Status, System, Network, WAN (highlighted), Wireless, LAN, DHCP, Static Routes, Diagnostics, and Logout. The main panel has three tabs: Ethernet Wan, 3G/4G LTE (active), and Wireless Extender. Under the 3G/4G LTE tab, the configuration fields are: WAN TYPE set to 3G/4G LTE; Modem device set to USB dongle; APN set to USB dongle with a dropdown menu showing -- custom --; PIN masked with dots; Username and Password fields.

4.1.2 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 location (figure 24.B).

Figure 24.A – WAN: Wireless Extender

Status

System

Network

WAN

Wireless

LAN

DHCP

Static Routes

Diagnostics

[Logout](#)

Ethernet Wan 3G/4G LTE **Wireless Extender**

Wireless Extender

Click "Scan" to get Access Point List

Extender mode: Disabled

SSID: Disabled

Security: WPA2-PSK-TKIP

KEY: *****

[SCAN](#)

---- select one ----

Figure 24.B – WAN: Wireless Extender

Status

System

Network

WAN

Wireless

LAN

DHCP

Static Routes

Diagnostics

[Logout](#)

Ethernet Wan 3G/4G LTE **Wireless Extender**

Wireless Extender

Click "Scan" to get Access Point List

Scanning and Loading...

Extender mode: Enable

SSID: admin

Security: WPA2-PSK-TKIP

KEY: *****

[SCAN](#)

---- select one ----

4.2 Network - Wireless

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

4.2.1 2.4G

2.4G Interface Configuration to setup 2.4G wireless.

SSID, encryption type, and channels can be lodged within this sector.

Figure 25.A – Wireless Setting: 2.4G

The screenshot shows the 'Wireless Setting' page. On the left is a navigation menu with the following items: Status, System, Network, WAN, **Wireless** (highlighted in blue), LAN, DHCP, Static Routes, Diagnostics, and Logout. The main content area is titled 'Wireless Setting' and contains two sections. The first section, '2.4G Interface Configuration', includes four settings: 'WiFi UP/Down' set to 'OFF', 'SSID' set to 'AP-498938', 'Hidden Broadcast' with an unchecked checkbox, and 'encryption' set to 'None'. The second section, '2.4G Interface Channel', includes a 'Channel' dropdown menu currently set to 'auto'.

4.2.2 5G

5G Interface Configuration to setup 5G wireless.

SSID, encryption type, and channels can be lodged within this sector.

Figure 25.B – Wireless Setting: 5G

Status
System
Network
WAN
Wireless
LAN
DHCP
Static Routes
Diagnostics

[Logout](#)

5G Interface Configuration

WiFi UP/Down	OFF
SSID	AP-498938-5G
Hidden Broadcast	<input type="checkbox"/>
encryption	None

5G Interface Channel

Channel	auto
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4.3 Network - LAN

LAN IP can be setup in this page.

Figure 26 – LAN

Status
System
Network
WAN
Wireless
LAN
DHCP
Static Routes
Diagnostics

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LAN

Local Network

IP Address	192.168.88.1
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4.4 Network - DHCP

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

Information in regards to Active Leases can be viewed at the bottom of this page.

Figure 27 – DHCP

DHCP

DHCP-Server

enable enable

First leased address 100

Number of leased addresses 102

Lease time (hr) 12

Active Leases

Hostname	IPv4-Address	MAC-Address	Leasetime remaining
DESKTOP-N1UKQ02	192.168.88.128	bc:ae:c5:4a:a4:15	11h 26min 33s

4.5 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 28– Static Routes

Routes

Routes specify over which interface and gateway a certain host or network can be reached.

Static IPv4 Routes

Interface	Target Host-IP or Network	IPv4-Netmask if target is a network	IPv4-Gateway	Metric	MTU	
lan	255.255.255.255	255.255.255.255	0	1500		DELETE

ADD

SAVE RESET

4.6 Network - Diagnostic

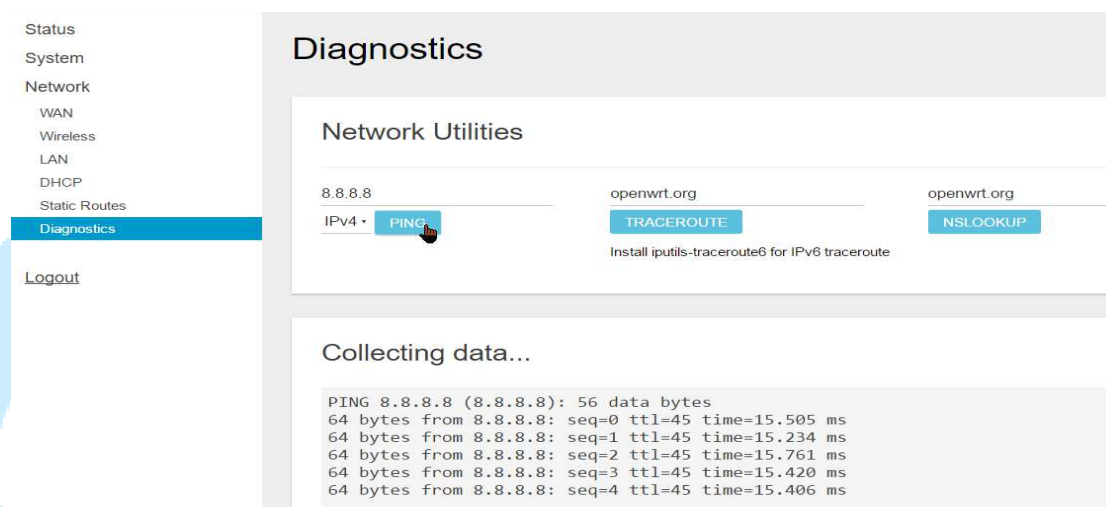
Diagnostics is divided into three parts on the same page: PING, TRACEROUTE and NSLOOKUP. Please see the following for input guidelines.

4.6.1 PING

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

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

Figure 29.A– Diagnostics

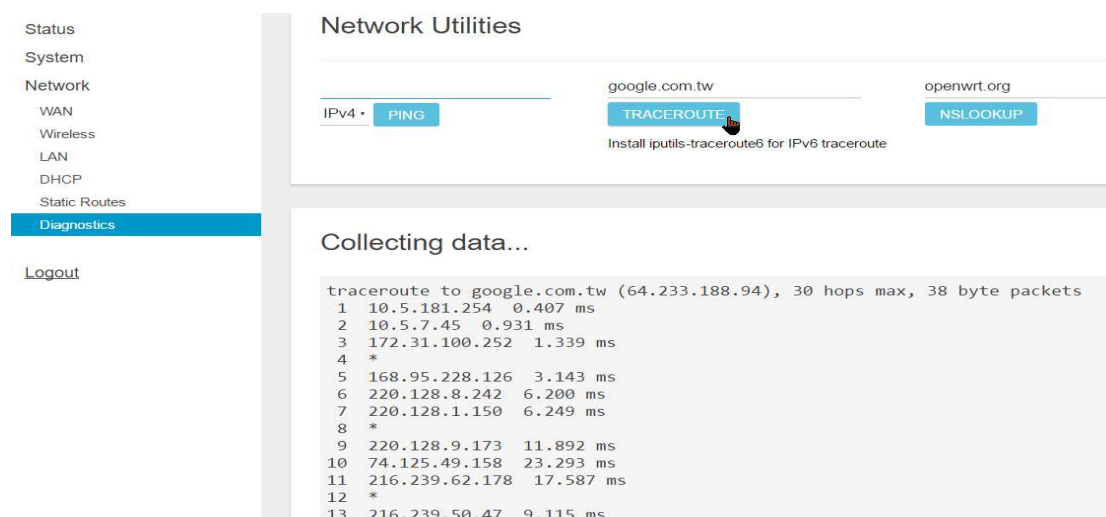


4.6.2 TRACEROUTE

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

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

Figure 29.B– Diagnostics



4.6.3 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 29.C– Diagnostics

