User Guide

2 Gbps Unlicensed Band Radio

HFCL

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1 Introduction

The intent of this document is to provide information for the user to understand and familiarize with the product features of **UBR 2 Gbps**. It guides the user through the functionalities aspect of the Thick GUI Portal.

1.1 Terms and Abbreviations

The different terms and abbreviations used in this document are explained in the following table:

Term	Description
ACS	Automatic Channel selection
ATPC	Adaptive Transmission Power Control
dBm	decibel milliwatts
DCS	Dynamic Channel Selection
DFS	Dynamic Frequency Selection
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
FCC	Federal Communications Commission
GPS	Global Positioning System
IEC	International Electro-technical Commission
IP	Internet Protocol
LAN	Local Area Network
MAC	Media Access Control
Mbps	Megabits Per Second
MCS	Modulation Coding Scheme
MIMO	Multiple-Input Multiple-Output
MTU	Maximum Transmission Unit
NTP	Network Time Protocol
OFDMA	Orthogonal Frequency-Division Multiple access
PoE	Power over Ethernet
QAM	Quadrature Amplitude Modulation
QoS	Quality of service
RF	Radio Frequency
RLS	Redundant link switch
RSL	Received Signal Level
RSSI	Received Signal Strength Indicator
RTT	Round-trip time
SNMP	Simple Network Management Protocol
SNR	Signal to Noise Ratio
TDMA	Time-division multiple access
TWAMP	Two-Way Active Measurement Protocol
UBR	Unlicensed Band Radio
WAN	Wide Area Network
WPA	Wi-Fi Protected Access

Table 1: Terms & Abbreviations

1.2 Federal Communication Commission Certified

The **2 Gbps Unlicensed Band Radio**
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. If not installed and used in accordance with the instructions, it 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 and correct the interference by one or more 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.

1.2.1 FCC Caution

To assure continued compliance, any changes or modifications not expressly approved by the party Responsible for compliance could avoid the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

1.2.2 FCC Radiation Exposure Statement

- This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
- The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.
- These devices complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
    - These devices may not cause harmful interference.
    - These devices must accept any interference received, including interference that may cause undesired operation.

1.3 Make in India

These devices complies with **Make in India** standards.

1.4 Safety

- Do not power the device during installation
- Keep away from high voltage cables
- Keep away from high temperature
- Disconnect the device from power source before cleaning
- Do not use damp cloth for wiping
- Do not power off the unit in the middle of an upgrade process
- The gland should be ground facing all the time
- Do not open the enclosure
- Fasten the device tightly
- Make sure the Earthing wire is connected properly to the Earthing points

2 Product Overview

IO enterprise/carrier grade P2P series is designed to serve highly critical enterprise applications in a wide range of unlicensed 5 GHz spectrum.

2.1 Variants

The following are the different types of variants available in **UBR 2 Gbps**.

- **ion8xle**: IO 5.1 to 5.9 GHz 2 Gbps Dual Radio UBR with option for External Antenna
- **ion8xl3**: IO 5.1 to 5.9 GHz 2 Gbps Dual Radio UBR with Integrated Antenna (25 dBi)
- **ion8xl4**: IO 5.1 to 5.9 GHz 2 Gbps Dual Radio UBR with Integrated Antenna (27 dBi)

2.2 Security and High-Level Features

- **WPA, WPA2, WPA3**, Personal and Enterprise and 256-bit AES PSK.
- **WAN Protocols**, Static IPv4/v6, DHCP client v4/v6 (Dual stack).
- **Management,** Standalone (via GUI) or through appliance-based EMS or cloud based.
- **Smart Spectrum Management,** Active scan; monitors/logs ongoing RF interference across channels (no service impact); Dynamic auto-optimization of channel, Adjustable upstream/downstream bandwidth ratio.
- **QoS**, DSCP priority and VLAN priority based on 802.11e WMM,
- **GPS Location**, GPS + GLONASS + IRNSS Support **(optional)**.
- **Two-Way Active Measurement Protocol (TWAMP)**, Enables measurement of round-trip network performance of links.
- Supports **dying gasp** feature (**optional**).
- In-built **temperature sensor** (**optional**).
- In-built **buzzer** (**optional**).

2.3 Safety and other compliance

- Safety standard as per IEC/EN 62368/IEC60950 & IEC 60215.
- Electrostatic Discharge Immunity as per IEC 61000-4-2, Contact L2 and Air Discharge, L3 Level.
- DC Surge Immunity as per IEC 61000-4-5, Level 2 (power port + signal port).
- Electrical Fast Transient/Burst Immunity as per IEC 61000-4-4, Level 2.
- Radiated susceptibility as per IEC 61000-4-3 Level 2.
- Conducted Susceptibility as per IEC 61000-4-6, Level2.
- Bump and vibration as per QM333.
- Radiated Emission as per CISPR 32 Class A.
- Conducted Emission as per CISPR 32 Class A (power port+signal port).
- Voltage Variation: AC- as per IEC 61000-4-11 and DC- as per IEC 61000-4-29.
- Health Test as per IEC/EN62311

2.4 Product Specification

The following table are the specifications of the **2 Gbps Unlicensed Band Radio**.

Category	Standards	Model and Variants	Parameters
	Dimension	ion8xle	263X175X70 mm
		ion8xl3	465X465X235 mm
		ion8xl4	650X650X294 mm
	Weight	ion8xle	0.3 kg
		ion8xl3	2.6 kg
		ion8xl4	3.5 kg
	Mounting	ion8xle	Pole mounting Weight: 1.6 kg
		ion8xl3	
		ion8xl4	
	Visual Indicators	ion8xle	Link, Alarm, & Power LEDs
		ion8xl3	
		ion8xl4	
	Operating Temperature	ion8xle	-40º C to 55º C
		ion8xl3	
		ion8xl4	
	Operating Humidity	ion8xle	5 to 95% (non-condensing)
		ion8xl3	
		ion8xl4	
	Operating Altitude	ion8xle	As per QM333 (3050 meter/10000 feet)
		ion8xl3	
		ion8xl4	
	Wind Sustainability	ion8xle	180 km/hour (sustained winds)
		ion8xl3	
		ion8xl4	
	Outdoor Ingress Protection Rating	ion8xle	IP67
		ion8xl3	
		ion8xl4	
		ion8xle	OFDMA

Wireless	Access Technology	ion8xl3	
		ion8xl4	
	Radio Mode	ion8xle	5.1 to 5.9 GHz Dual Radio
		ion8xl3	
		ion8xl4	
	Radio Frequency Band	ion8xle	5.1 to 5.9 GHz (Country specific restrictions apply)
		ion8xl3	
		ion8xl4	
	Peak Through-put	ion8xle	Up to 2 Gbps aggregate UL/DL throughput
		ion8xl3	
		ion8xl4	
	Max Transmit Power	ion8xle	5 GHz: 27 dBm Tx power values will depend on country-specific guidelines
		ion8xl3	
		ion8xl4	
	Channel Size	ion8xle	Channel width upto 160 MHZ with channel bonding feature (20+20,20+40,20+80,40+40,40+80,80+80)
		ion8xl3	
		ion8xl4	
	Modulation Schemes	ion8xle	Supports upto 1024 QAM
		ion8xl3	
		ion8xl4	
	Processor	ion8xle	Qualcomm chipset
		ion8xl3	
		ion8xl4	
	Power	ion8xle	IEEE 802.3at 48V
		ion8xl3	
		ion8xl4	
	Max Power Consumption	ion8xle	<23 W
		ion8xl3	
		ion8xl4	
	Interface	ion8xle	1 X 10/100/1000/2500BASE-T Ethernet
		ion8xl3	
		ion8xl4	
	Antenna	ion8xle	N-connector option for external antenna
		ion8xl3	Integrated 25 dBi Dish Antenna
		ion8xl4	Integrated 27 dBi Solid/Split Dish Antenna
	Receiver Sensi-tivity MCS 0	ion8xle	-90 dBm @ 20 MHZ -87 dBm @ 40 MHZ -84 dBm @ 80 MHz
		ion8xl3	
		ion8xl4	

Table 2: Product Specifications

2.5 UBR 2 Gbps Available Models

2.5.1 ion8xle (5.1 to 5.9 GHz, 2 Gbps Dual Radio UBR with options for External Antenna)

An IO enterprise/carrier grade P2P series is designed to serve highly critical enterprise applications in a wide range of unlicensed 5 GHz spectrum.

2.5.2 ion8xl3/ion8xl4 (5.1 to 5.9 GHz, 2 Gbps Dual Radio UBR with Integrated antenna)

IO enterprise/carrier grade P2P series is designed to serve highly critical enterprise applications in a wide range of unlicensed 5 GHz spectrum. It has two variants:

- ion8xl3: IO 5 GHz 2 Gbps Dual Radio UBR with Integrated Antenna (25 dBi)
- ion8xl4: IO 5 GHz 2 Gbps Dual Radio UBR with Integrated Antenna (27 dBi)

3 Connecting UBR-2 Gbps Online

Follow the steps mentioned below, connect the UBR-2 Gbps to power up, and connect online through GUI:

1. Power up the device using AC/DC PoE Injector.

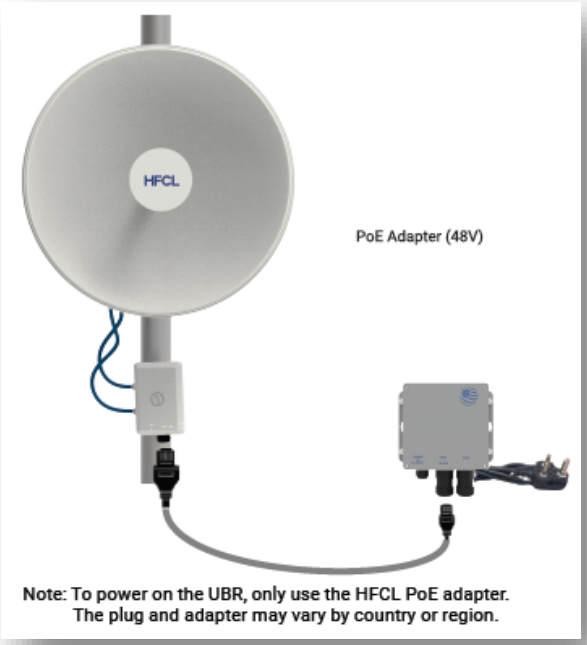


Figure 1: Power up UBR

2. To power on the device, connect the UBR's PoE Uplink port with the PoE injector. (Power + Data port).
3. Connect the LAN port of PoE Injector to the laptop.

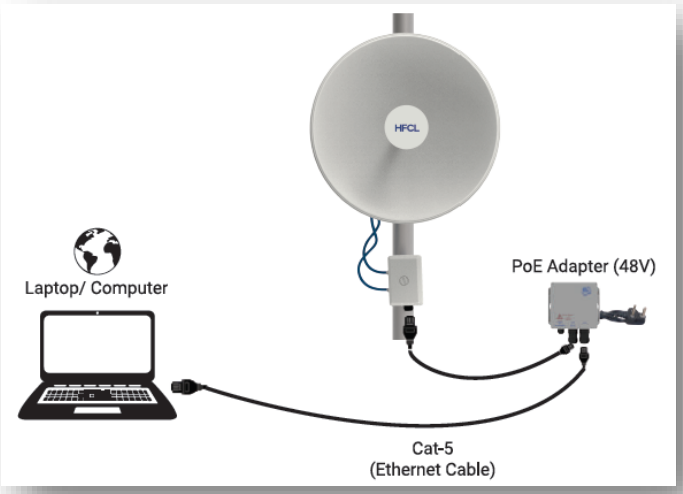


Figure 2: Connecting Ethernet

4. Configure a computer with a 1-domain static IP address e.g. default IP 192.168.1.1 and a subnet mask of 255.255.255.0.

5. Configure a static IP address on your computer.

6. Open any web browser in the laptop and enter the IP address of the Radio.

7. The Login screen will appear. Refer to the login window screen attached below:

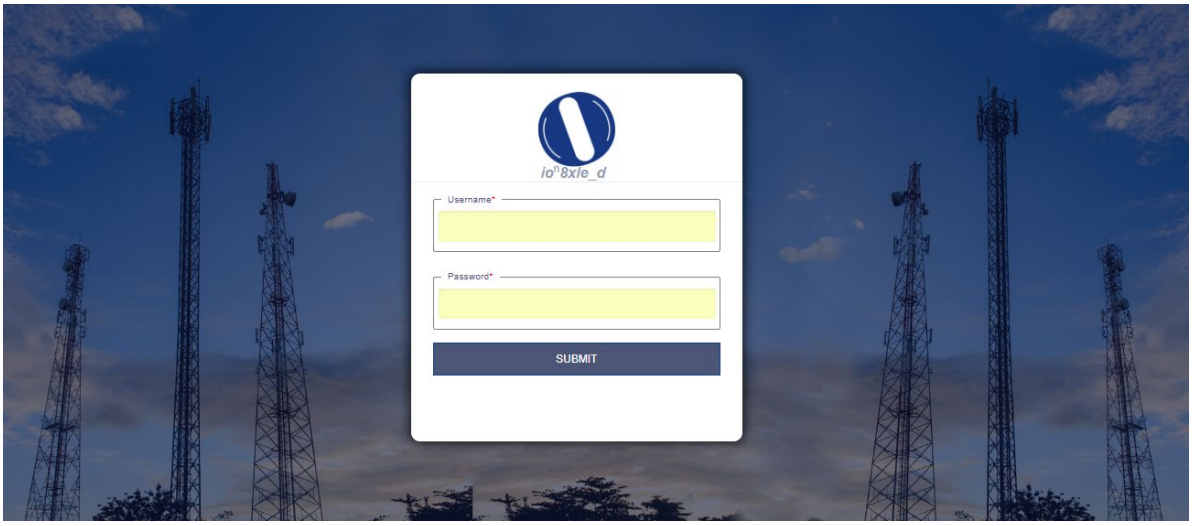


Figure 3: Login screen

8. Enter the login credentials for successful Login.

3.1 UBR LED Indications

Upon powering the UBR, the LED lights indicating implies the following meanings

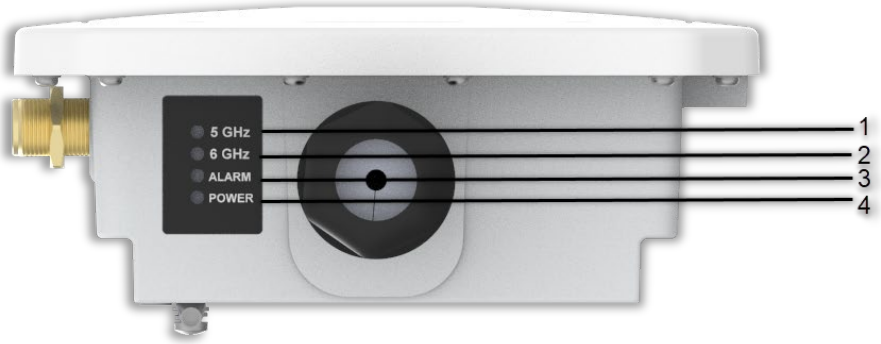


Figure 4: UBR LED Indications

S. No	Name	Color	Case	Status of LED	Buzzer Logic
1.	Radio 1 RSSI	Blue	-1 to -55 dBm	Steady	Buzzer ON
			-56 to -70	Fast Blinking	Fast Beep
			Lower than -70 dBm	Slow Blinking	Slow Beep
			-92 (No Link/Slave)	OFF	OFF
2.	Radio 2 RSSI	Amber	-1 to -55 dBm	Steady	Buzzer ON
			-56 to -70	Fast Blinking	Fast Beep
			Lower than -70 dBm	Slow Blinking	Slow Beep
			-92 (No Link/Slave)	OFF	OFF
3.	Alarm	Red	Critical	Steady	NA
			Major	Fast Blinking	NA
			Minor	Slow Blinking	NA
			No Alarm	OFF	NA
4.	Power	Green	Power ON	Steady	NA
			Power OFF	OFF	NA

Table 3: UBR LED Lights Description

4 Connect to GUI and Log In

The user can connect to the GUI to configure or monitor device settings.

4.1 Login through GUI

This is the first screen of UBR 2 Gbps GUI. It provides access to the users with valid login credentials only. The login credentials will determine the access rights of the user. Refer to the attached screenshot attached below:

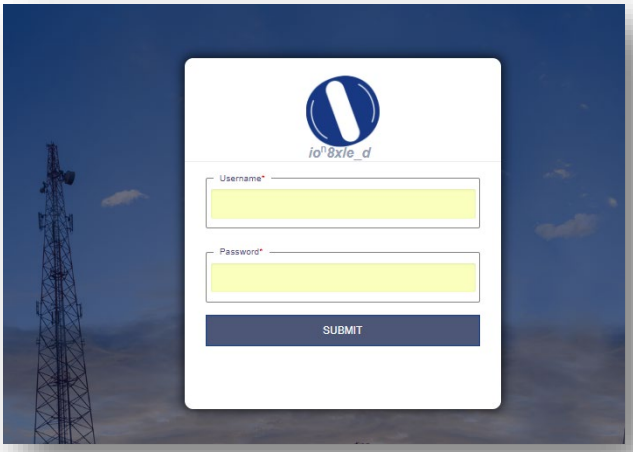


Figure 5: Login screen

4.2 Dashboard

On the successful device set up and login the user can view the **Dashboard** with the following options in the left pane

- Status
  - Overview
- Maintenance
  - Backup/Flash Firmware
  - Reboot
  - Factory Reset
- Configuration
  - System
  - Network
  - Jumbo Frames
  - TDMA
  - Radio
  - ATPC
  - SNMP
  - Alarms
  - Firewall

  - Syslog
  - QoS
  - Spectrum Report
- User Management
  - User Configuration
- Monitor
  - Realtime Graphs
- Diagnostics
  - System Log
  - Kernel Log
  - Diagnostics Tools
  - Throughput Estimation
  - Audit Logs
  - Dcs Logs
  - Debug Logs
- Alarm Summary
  - Active Alarm
  - Historical Alarm
- Logout

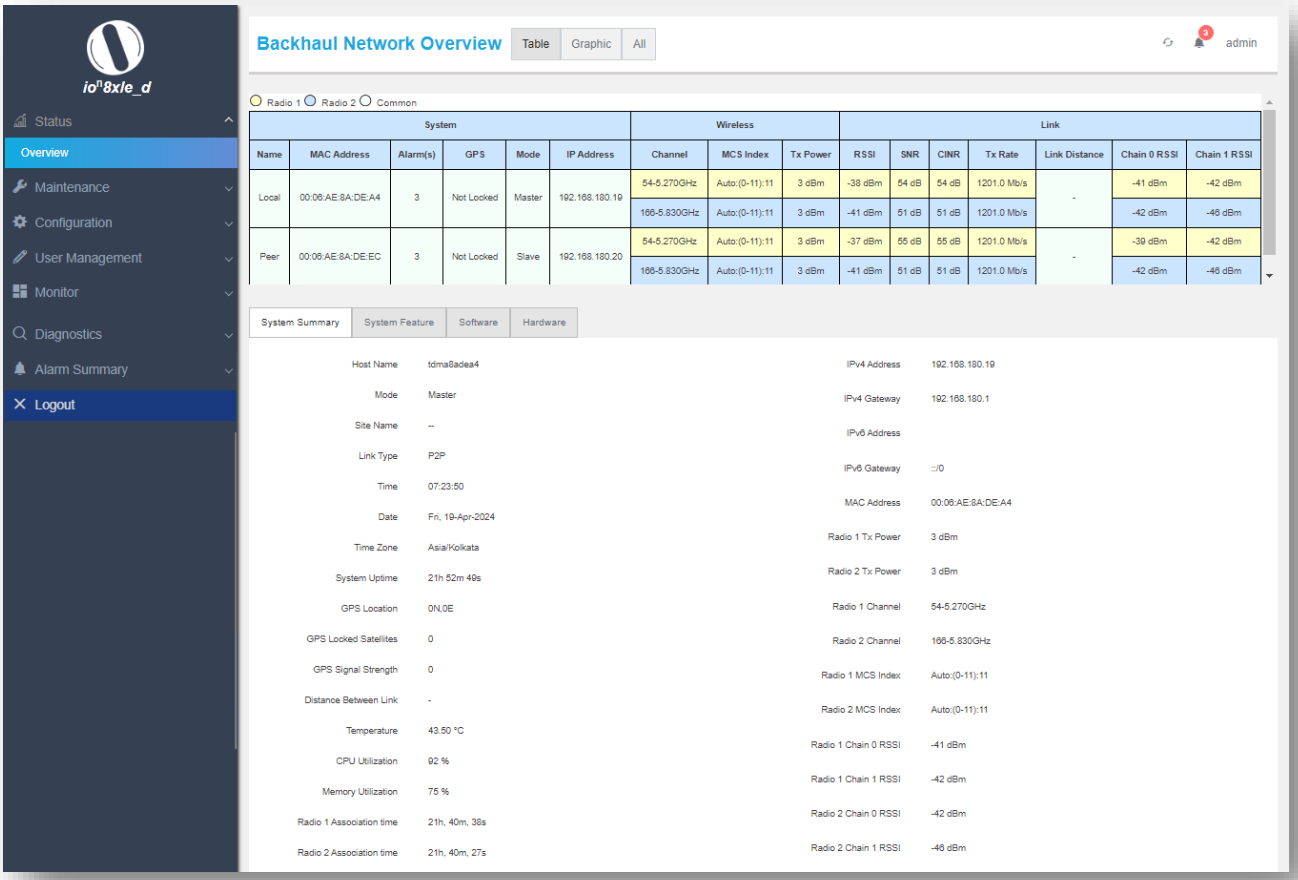


Figure 6: Device Dashboard

4.3 Status

The **Status** page provides a summary of the **System, Software, Hardware, and Feature configurations** option. It can be accessed by clicking on **Status** tab in left side of the portal and click on "**Overview**".

4.3.1 Overview

Radio 1 Radio 2 Common

System						Wireless			Link						
Name	MAC Address	Alarm(s)	GPS	Mode	IP Address	Channel	MCS Index	Tx Power	RSSI	SNR	CINR	Tx Rate	Link Distance	Chain 0 RSSI	Chain 1 RSSI
Local	00:06:AE:8A:DE:A4	2	Not Locked	Master	192.168.180.19	54-5.270GHz	Auto:(0-11):11	3 dBm	-38 dBm	54 dB	54 dB	1201.0 Mb/s	-	-41 dBm	-42 dBm
						166-5.830GHz	Auto:(0-11):11	3 dBm	-41 dBm	51 dB	51 dB	1201.0 Mb/s		-42 dBm	-46 dBm

Figure 7: Overview Screen

S. No	Field	Description
1.	System Summary	Gives a brief overview of both the device and the software settings such as current mode from a bird's eye view.
2.	System Feature	Provide details regarding the features.
3.	Software	Provide details regarding the Software.
4.	Hardware	Provides current hardware configuration details.
5.	Name	Display the name of the site, either local or Peer.
6.	MAC Address	Displays the MAC address of the respective device.
7.	GPS	Displays the status of GPS, whether it is locker or searching.
8.	Mode	Displays the acting mode (Master or slave) of the UBR.
9.	IP Address	Displays the IP address of the respective UBR.
10.	Channel	Displays the current channel configured on the wireless radio.
11.	MCS Index	Displays the MCS modulation index number.
12.	Tx Power	Displays the transmission power at which the wireless radio signal is transmitted.
13.	RSSI	Displays the RSSI value. It determines the received signal strength indicator.
14.	SNR	Displays Signal-to-noise ratio (SNR) value, which is a measure that compares the level of desired signal to the level of Background noise.
15.	CINR	Displays Carrier to Interference+Noise Ratio (CINR) value.
16.	Tx Rate	Tx rate measure the data transmitted in given amount of time.
17.	Chain 0/1 RSSI	Displays Chain 0/1 RSSI value.

Table 4: Overview Description

4.3.1.1 System Summary

System Summary provides details of system specification that are listed below.

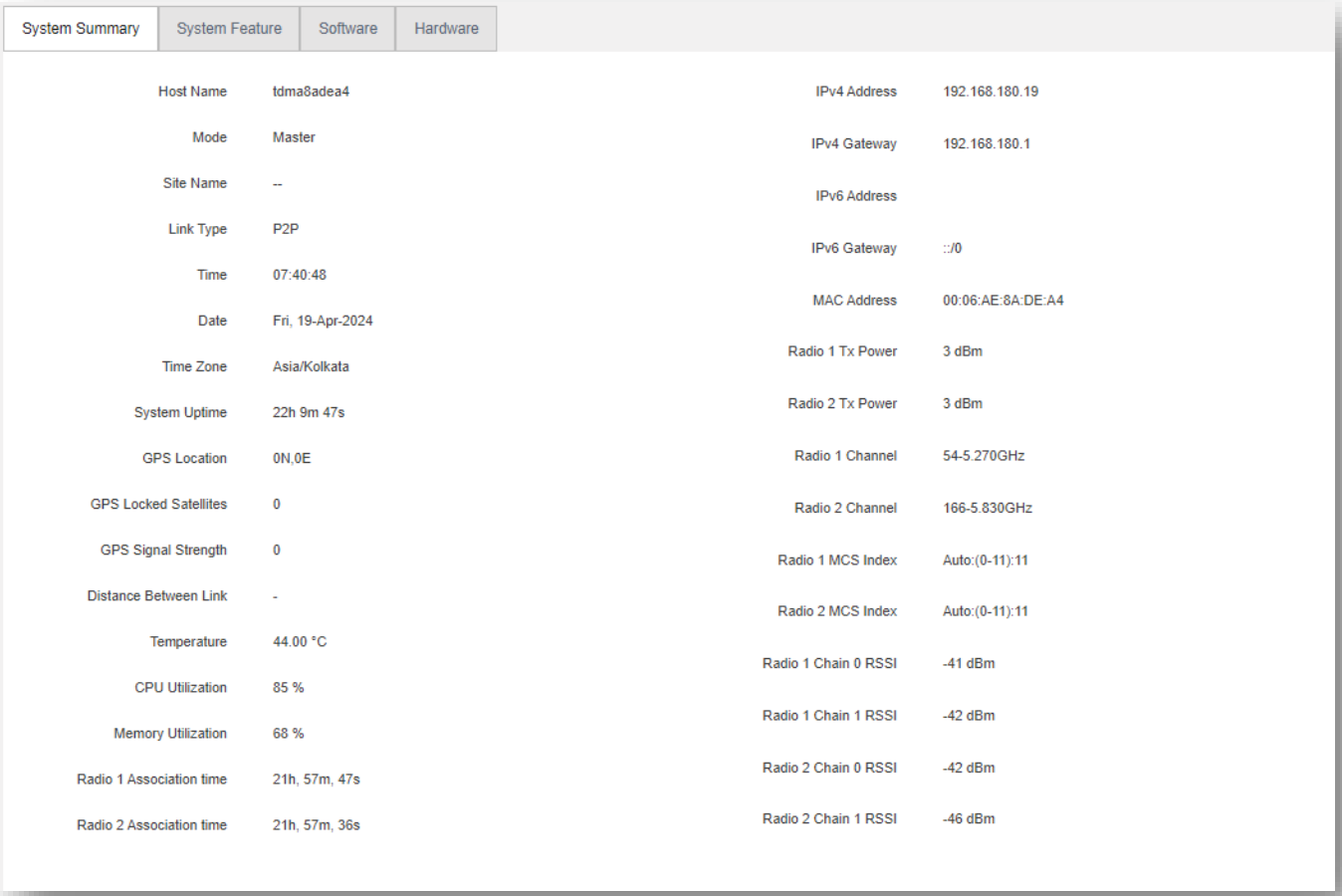


Figure 8: System Summary

S. No	Field	Description
1.	Host Name	Displays the radio name.
2.	Mode	Displays the current Mode (Master/Slave).
3.	Site Name	Displays the site name.
4.	Link Type	Displays the connection type (P2P)
5.	Time	Displays the current time.
6.	Date	Displays the current date along with day.
7.	Timezone	Displays the Timezone.
8.	System Uptime	Displays the duration of the System run time
9.	GPS Location	Displays the GPS location of the device.
10.	GPS Locked Satellite	Displays the number of GPS Locked Satellites
11.	GPS Signal strength	Displays the number of GPS Signal strength
12.	Distance between Link	Displays the distance of transmission between the master and slave.
13.	Temperature	Displays the temperature of the device.
14.	CPU utilization	Displays the amount CPU storage utilization.

15.	Radio 1 Associate time	Displays Radio 1 associated time duration
16.	Radio 2 Associate time	Displays Radio 2 associated time duration
17.	IPv4 Address	Displays the allocated IPv4 address
18.	IPv4 Gateway	Displays the allocated IPv4 Gateway address
19.	IPv6 Address	Displays the allocated IPv6 address
20.	IPv6 Gateway	Displays the allocated IPv6 Gateway address
21.	MAC Address	Displays the MAC Address
22.	Radio 1 Tx Power	Displays the Radio 1 Transmitting power
23.	Radio 2 Tx Power	Displays the Radio 2 Transmitting power
24.	Radio 1 Channel	Displays the operating channel/frequency of Radio 1
25.	Radio 2 Channel	Displays the operating channel/frequency of Radio 2
26.	Radio 1 MCS Index	Displays the operating modulation index value of Radio 1
27.	Radio 2 MCS Index	Displays the operating modulation index value of Radio 2
28.	Radio 1 Chain 0 RSSI	Displays the signal strength of Chain 0
29.	Radio 1 Chain 1 RSSI	Displays the signal strength of Chain 1
30.	Radio 2 Chain 0 RSSI	Displays the signal strength of Chain 0
31.	Radio 2 Chain 1 RSSI	Displays the signal strength of Chain 1

Table 5: System Summary Description

4.3.1.2 System Feature

The system Feature options provides details about **ATPC, Jumbo Frames, QoS, RLS** and **SNMP**.

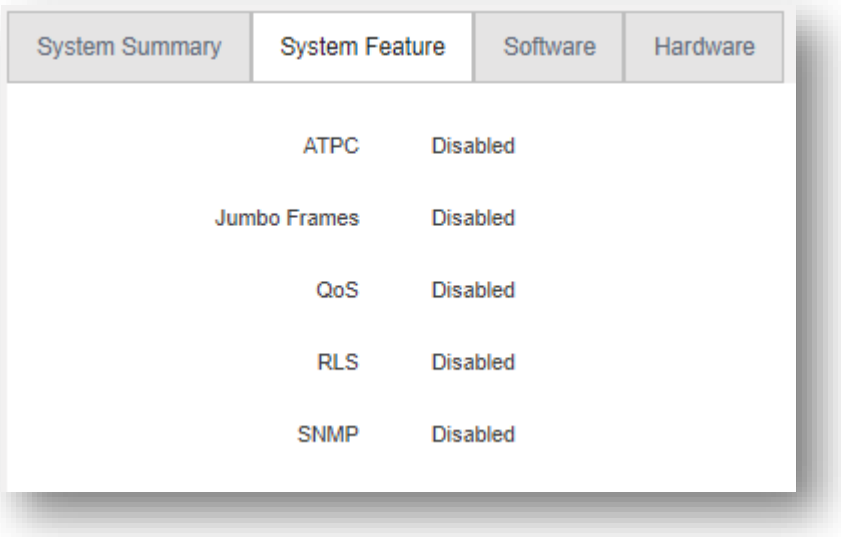


Figure 9: System Feature

S. No	Field	Description
1.	ATPC	Displays "Enabled," If the ATPC is configured in Configuration/ATPC screen. Display "Disabled" if the same is not configured.
2.	Jumbo Frames	Displays "Enabled," If the Jumbo Frames is configured in Configuration/Jumbo frames screen. Display "Disabled" if the same is not configured.
3.	QoS	Displays "Enabled," If the Quality of service is configured in Configuration of traffic Management screen.
4.	RLS	Displays "Enabled," If the RLS setting is configured in Configuration/TDMA screen. Display "Disabled" if the same is not configured.
5.	SNMP	Displays "Enabled," If the SNMP is configured in Configuration/SNMP screen. Display "Disabled" if the same is not configured.

Table 6: System Feature Description

4.3.1.3 Software

The Software option provides details about the **Firmware version, Kernel version** and **Size, Checksum,** and updates of Firmware with respect to **Active Bank** and **Backup bank**. The Active Bank represents the firmware version available in the current drive in respective UBR and the Backup bank represents the alternate drive of respective UBR.

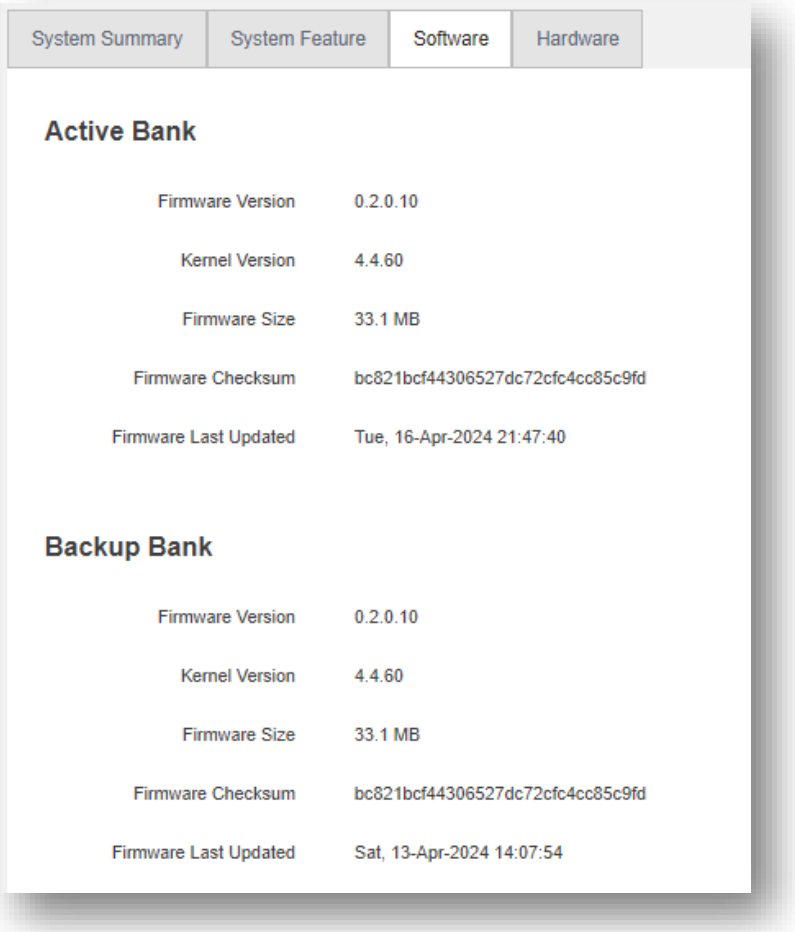


Figure 10: Software

S. No	Field	Description
1.	Firmware Version	Displays the current Firmware version of radio.
2.	Kernel Version	Displays the latest kernel version of the firmware.
3.	Firmware size	Displays the size of the firmware.
4.	Firmware checksum	Displays Hexadecimal number to verify the file source authenticity.
5.	Firmware last update	Displays the last Firmware update details.

Table 7: Software Description

4.3.1.4 Hardware

The Hardware option provides details about the **Revision, Board type, Serial Number, MAC Address, Product ID,** and **Model Name**.

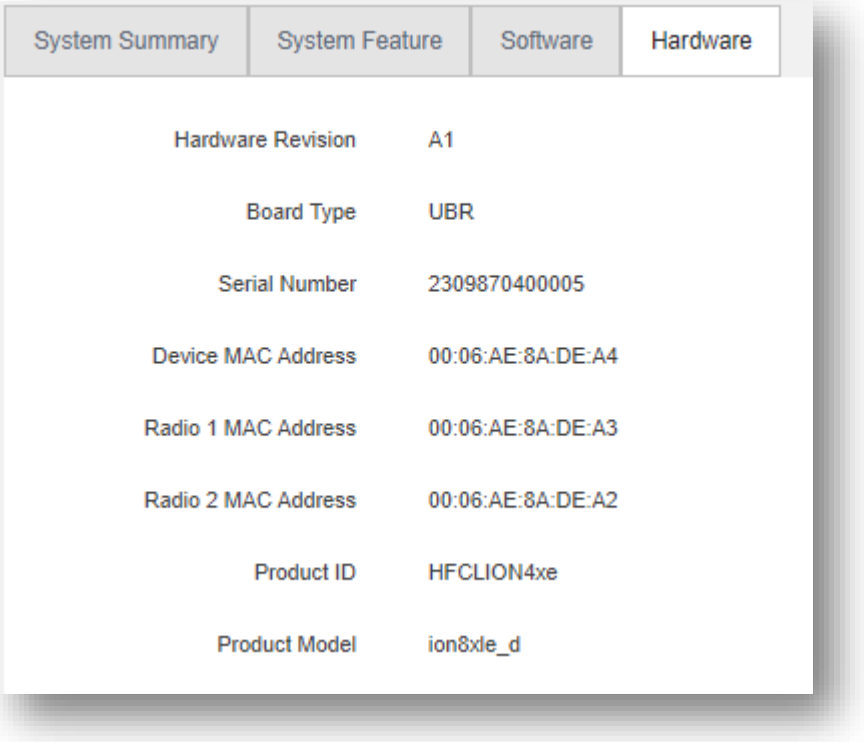


Figure 11: Hardware

S. No	Field	Description
1.	Hardware Version	Displays the current hardware version of the product.
2.	Board type	Displays the board type of the product.
3.	Serial Number	Displays the serial number of the product.
4.	MAC Address	Displays the MAC address assigned to the product.
5.	Radio 1 MAC Address	Displays the MAC address of Radio 1.
6.	Radio 2 MAC Address	Displays the MAC address of Radio 2.
7.	Product ID	Displays the Product ID.
8.	Product Model	Displays the model number of the product.

Table 8: Hardware Description

4.4 Maintenance

The Maintenance tab provides necessary details about the **Backup/Flash firmware**, and **Factory reset** and **Reboot.**

4.4.1 Backup/Flash Firmware

4.4.1.1 Backup / Restore

The Backup Firmware option enables the users perform actions such as restoring configuration files by uploading previously generated backup archives. Users can also create an archive of the current configuration files which can be used to implement backups in case of failovers. The Backup function can be performed by following the below steps;

- Click on the **Generate archive** to download the backup.
- If the downloaded backup file need to be restored, click on **Choose File** button and select the backup file.
- Click on **Upload archive** to upload the backup file.

4.4.1.2 Commit Firmware

The Commit Firmware option enables the users to take back-up from Active bank to Back up bank.

- Click on the **Perform commit** to transfer the data from active bank to backup bank.

4.4.1.3 Flash Firmware

The firmware is stored in flash memory and can be updated with new versions to include new features or to modify the existing one. The Flash firmware function can be performed by following the below steps;

- Click on the “Selection box” to retain the existing device configuration (or) deselect the “Selection box” to discard the same while updating the firmware of the device with new version
- Click on “Choose File” option. A pop-up window will appear on the screen. Select the respective Sys upgrade-compatible image to update the firmware.
- Click on Flash Firmware to upload the file.
- A new window will be opened, and version details will be listed.
- Verify the data and click on “Proceed.”
- The Device will be rebooted successfully.

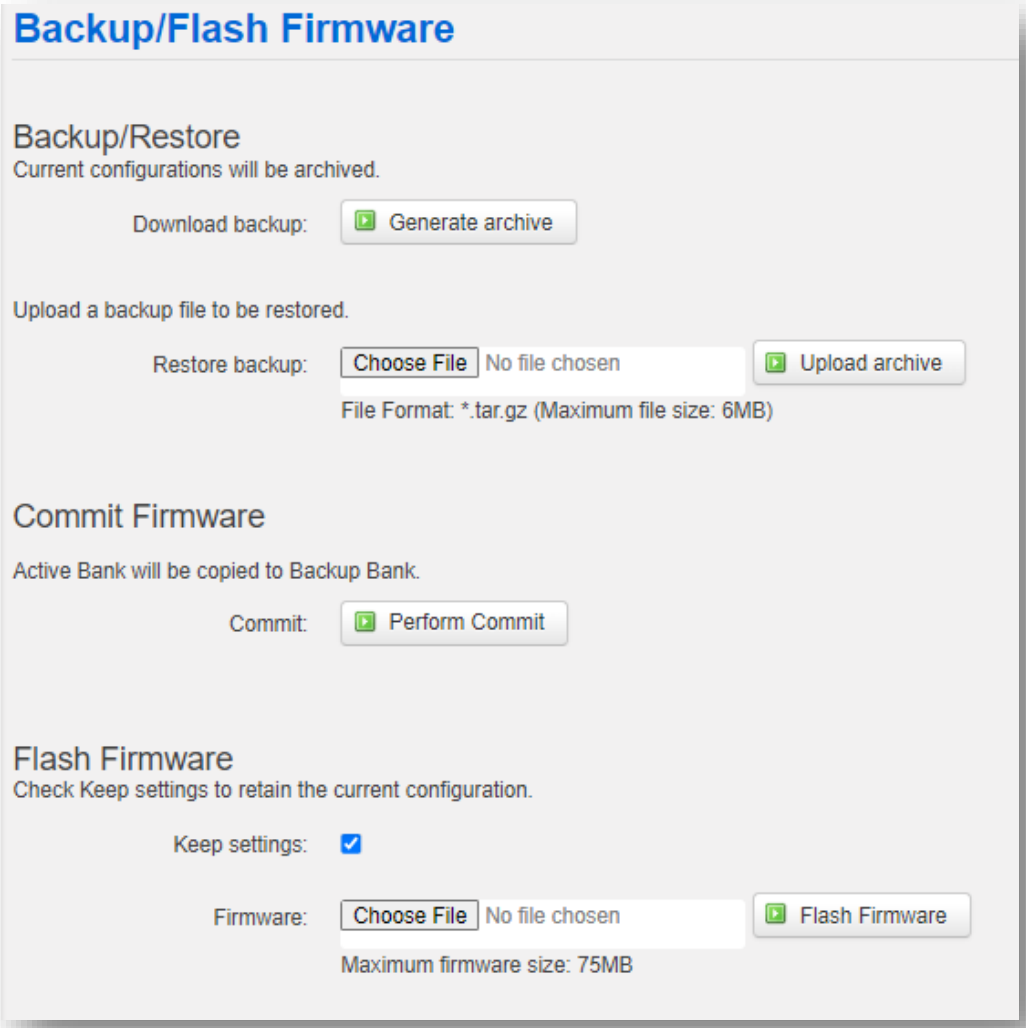


Figure 12: Backup/Flash Firmware

S. No	Field	Description
1.	Backup/Restore	The configurations can be archived and back up file can be uploaded for restoration.
2.	Commit Firmware	Perform commit to copy active bank software in backup bank.
3.	Flash Firmware	The firmware will be updated with new version. The UBR provides option for maintaining existing configuration during the firmware upgrade.

Table 9: Back/Flash Firmware Description

Note: The hard/soft reboot will take approximately three and a half minutes to complete.

4.4.2 Factory Reset

User can perform factory reset by clicking on the **Perform Factory Reset** button. The device has factory assigned settings, configurations on deployment and the device will be configured back to factory settings and all the existing settings, and configurations will be discarded.

Click on **Management/Wireless and TDMA Configuration** check box to retain the existing setting. It is recommended to take backup before setting the device to factory reset.

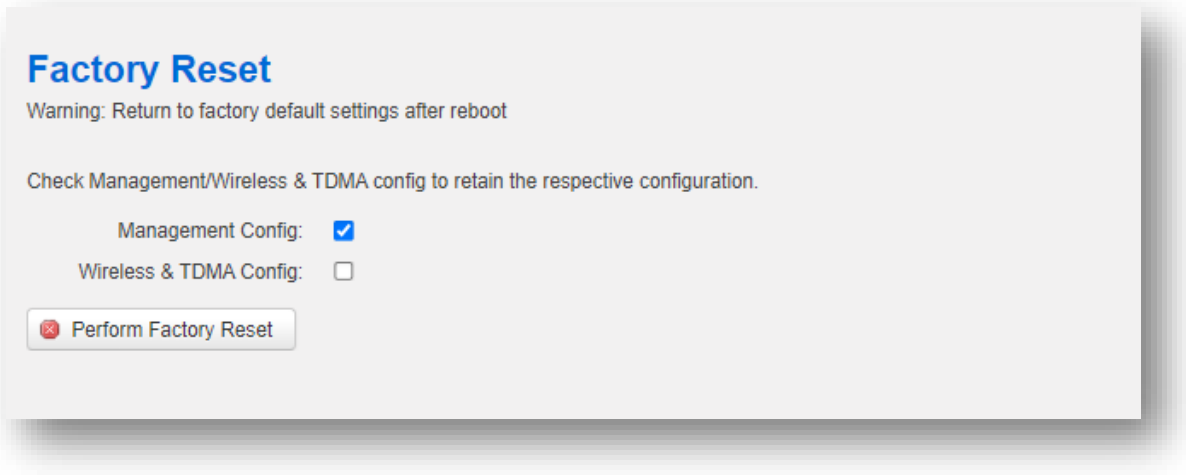


Figure 13: Factory Reset

S. No	Field	Description
1.	Management Config	Click on the "Selection box" to retain the management configuration or Uncheck the selection box to entirely reset.
2.	Wireless & TDMA Config	Click on the "Selection box" to retain the wireless and TDMA configuration or Uncheck the selection box to entirely reset.

Table 10: Factory Reset Description

4.4.3 Reboot

Reboot restarts the device with the existing configuration. The user can change the firmware when the device is rebooted with different software banks. Based on the selected software banks, the corresponding firmware will be loaded into the device as working firmware.

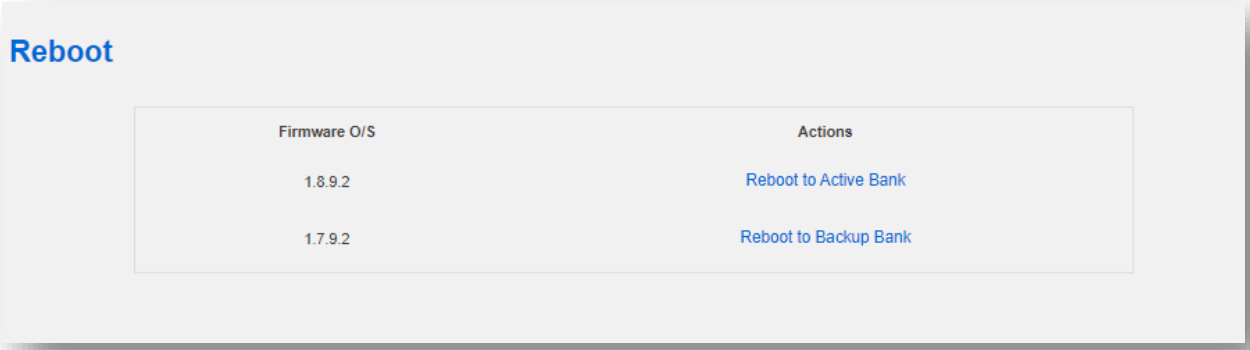


Figure 14: Reboot

S. No	Field	Description
1.	Firmware OS	Display the current Firmware OS versions
2.	Reboot to Active Bank	Device will boot from current partition and the firmware version present in the current partition will be in use.
3.	Reboot to Backup bank	Device will boot from Alternate partition and the firmware version present in the alternate partition will be in use. The firmware upgrade occurred in alternate partition.

Table 11: Reboot Description

Note: If IP is not pinging, do power reboot 6 times in 10 seconds interval

4.5 Configuration

The configuration is an arrangement for various individual functions such as **System, Network, Jumbo frames, TDMA, Backhaul radio, ATPC, SNMP, Alarms, Syslog, Firewall, QoS** and **Spectrum report**. The configuration helps the user to effectively use the functions of the UBR.

4.5.1 System

Allows the end users to configure the system settings for the device. Additionally, the users can re-configure the following data as per requirement.

- Click on **Sync with Browser** to update local time with browser and time zones.
- Enter the **Hostname**.
- Enter the **Site name**.
- Select the **Time zone** from the list of drop-down.
- Select the **Buzzer** option (OFF/ON) from the drop-down.
- Select the **Distance unit** (Kilometer/meter/mile) from the dropdown.

4.5.1.1 Time Synchronization

In Time Synchronization option,

- Enable **NTP Client** checkbox, where two NTP servers (NTP Server 1/NTP Server 2) can be enabled.

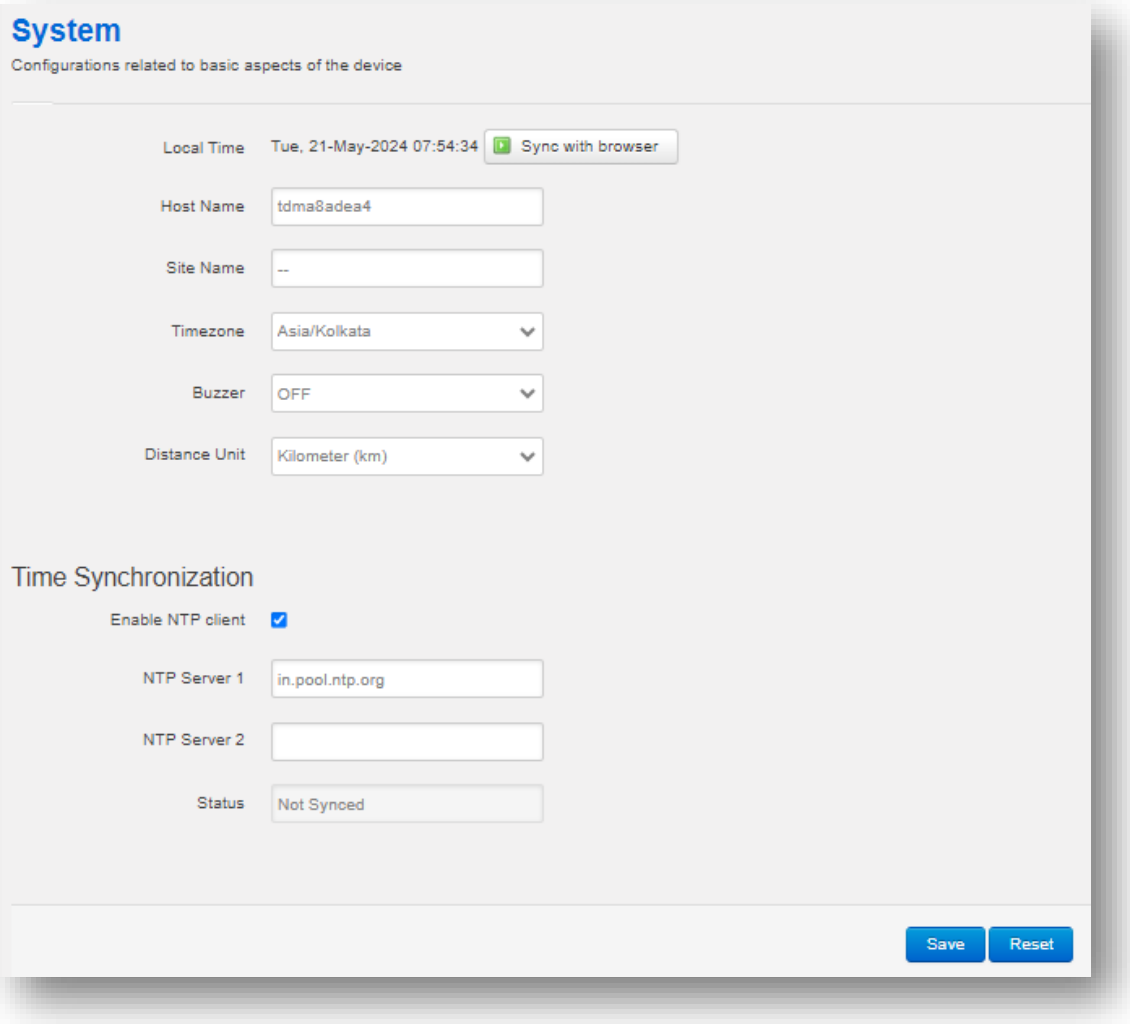


Figure 15: System

S. No	Field	Description
1.	Local Time	Displays the local date and time of the device as per selected "Time zone."
2.	Host name	Enter the desired "Host name." The same will be reflected in system summary of status overview screen.
3.	Site Name	Enter the desired "Site name." The same will be reflected in system summary of status overview screen.
4.	Time Zone	Select the respective "Time zone" from the dropdown list.
5.	Buzzer	Switch the buzzer On/Off with this option. Buzzer is used at the time of link alignment.
6.	NTP Client	Click on the check box to enable the NTP client.
7.	NTP Server	Enter the IP address of NTP server 1 and 2.
8.	Status	Displays the status as synchronized or not synchronized.

Table 12: System Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

Note: There are four states for Buzzer,

- Buzzer ON
- Fast beep (Triple Beep every 500ms)
- Slow beep (Single beep every 500ms)
- Buzzer OFF

This will help the FT (Field Technician/Rigger) to align the link smoothly.

S. No	RSSI Value (dBm)	Beep Logic
1.	-1 to -55	Buzzer ON
2.	-56 to -70	Fast Beep
3.	Lower than -70	Slow Beep
4.	-92 (no Link) or No Slave	Buzzer OFF

Table 13: Buzzer status

4.5.2 Network

The Interface overview tab details the Network and the Ethernet Port status. Additionally, it displays the type of network and status of the interface with multiple parameters.

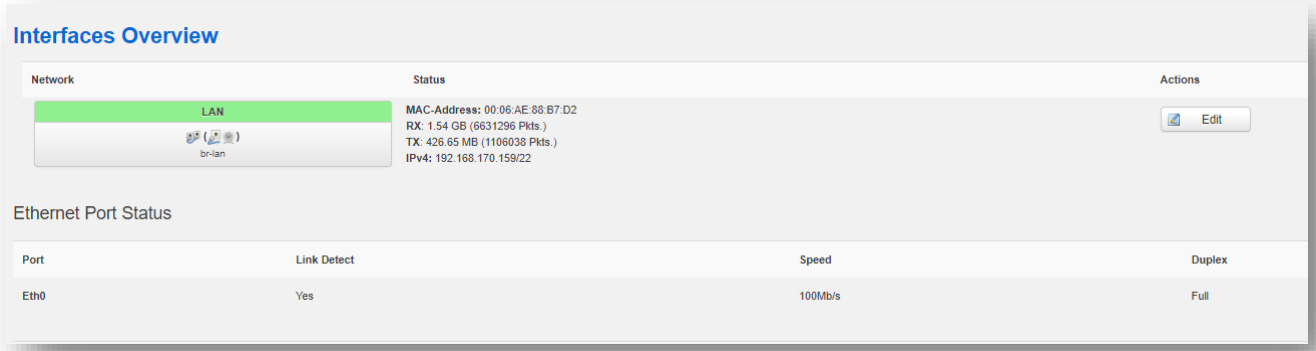


Figure 16: Network

S. No	Field	Description
1.	Network overview	Display the type of network interface.
2.	Status	Displays the status interface with multiple parameters.
3.	Actions	Edit option will be available to update the parameters.
4.	Ethernet port status	Display the status of Ethernet port with respect to link status, speed, and Duplex mode.

Table 14: Network Description

Additionally, users can edit the network interface, click on **Edit** option in Action. The following are the tabs listed with various parameters shown.

- General Setup
- VLAN Setting
- Advanced setting
- Bandwidth setting (Slave mode only)

4.5.2.1 General Setup

User can switch between **Static Address**, **DHCPv4 client** and **DHCPv6 client** from the **Protocol** drop-down.

User should click on Switch Protocol button when switching from Static address to DHCPv4 client and DHCPv6 client.

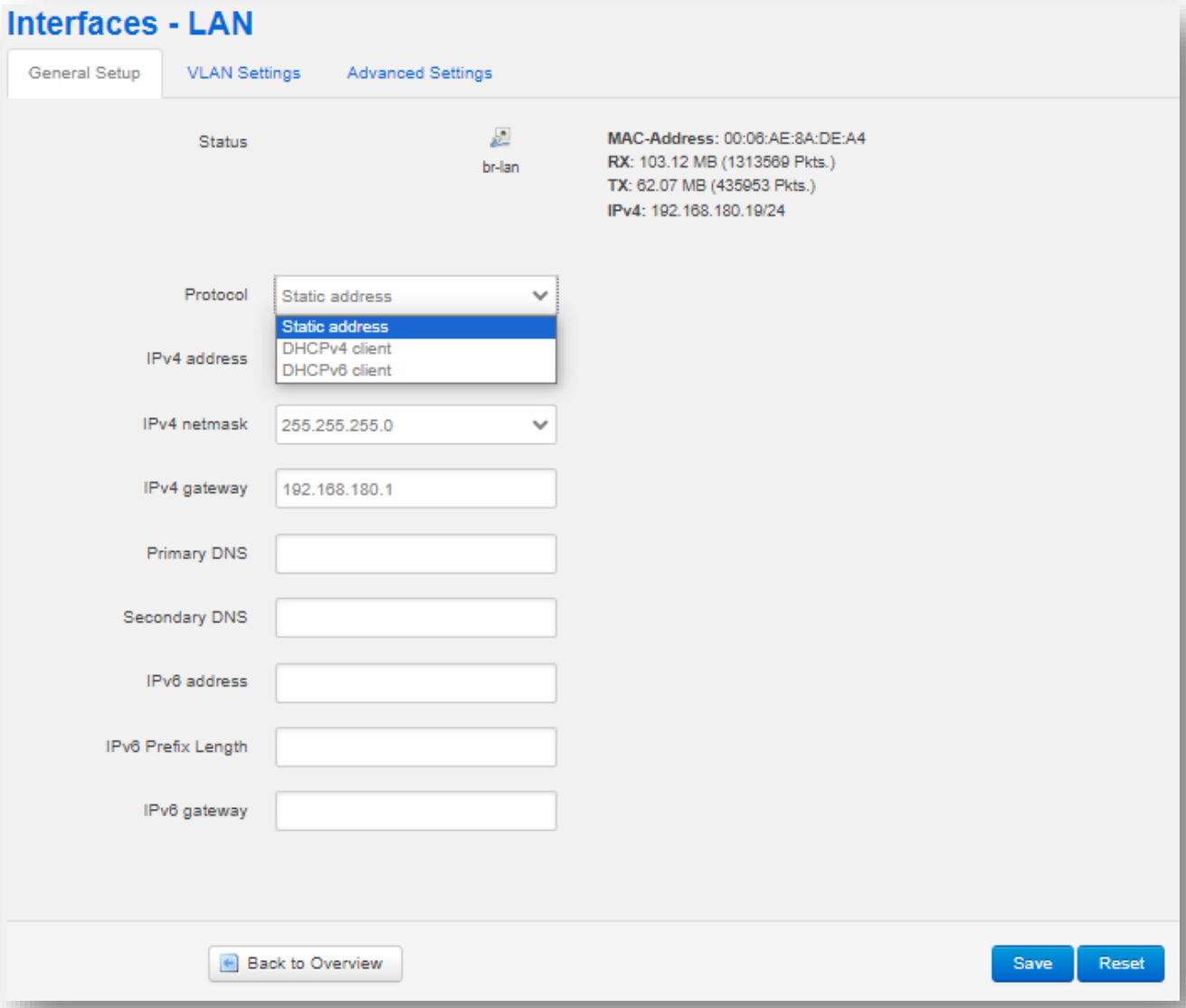


Figure 17: General Setup

S. No	Field	Description
1.	Protocol	Select the protocols from the drop-down list (Static address/DHCPv4 Client/DHCPv6 Client)
2.	IPv4 address	Displays/configures the allocated IPv4 address
3.	IPv4 netmask	Displays/configures the allocated IPv4 netmask in dropdown
4.	IPv4 gateway	Displays/configures the allocated IPv4 Gateway address
5.	Primary DNS	Displays/configures the Primary DNS server address
6.	Secondary DNS	Displays/configures the Secondary DNS server address
7.	IPv6 address	Displays/configures the allocated IPv6 address
8.	IPv6 Prefix Length	Displays/configures the value equivalent subnet mask of IPv4 integer ranging from 1 to 128
9.	IPv6 Gateway	Displays/configures the allocated IPv6 Gateway address

Table 15: General Setup Description

Click on **Save** to save the data entered or click **Reset** to remove all the data. Click on **Back to Overview** to re-direct to the Interface page.

4.5.2.2 VLAN Settings

4.5.2.2.1 VLAN (Master Mode)

If the Management VLAN option is **enabled**, User should enter the **VLAN ID** value ranging 2 to 4094 (Exclude 1002 – 1005).

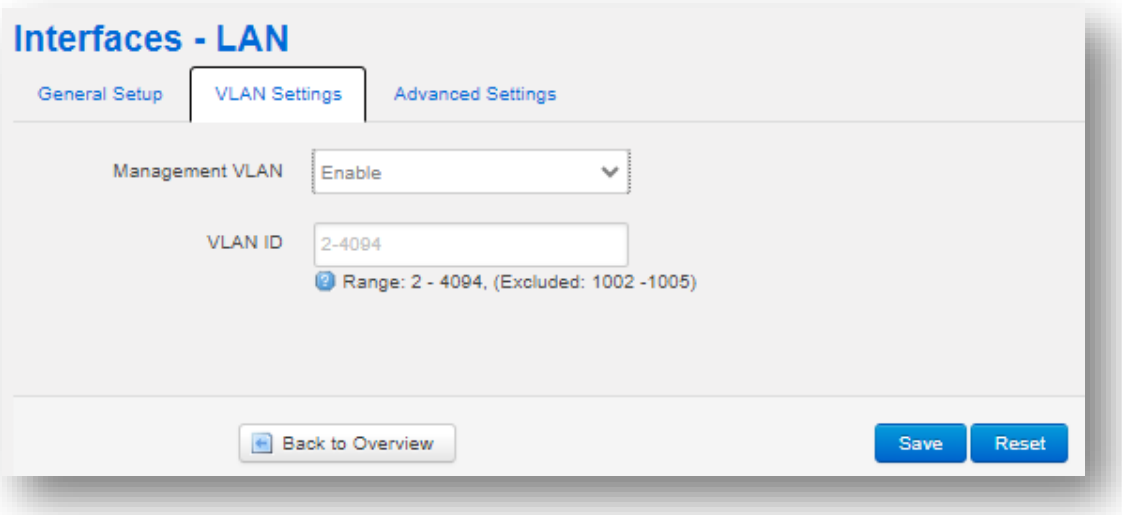


Figure 18: VLAN Setting

S. No	Field	Description
1.	Management VLAN	Select Enable or Disable option from dropdown list.
2.	VLAN ID	Enter the values ranging from 2 to 4094.

Table 16: VLAN Setting Description

4.5.2.2.2 VLAN (Slave Mode)

User can select the **Basic** and **Advanced VLAN** setting in Slave mode.

Basic VLAN:

- If **Management VLAN** option is enabled, User should enter the **VLAN ID** value ranging 2 to 4094 (Exclude 1002 – 1005).
- If **Data VLAN** option is enabled, User should enter the **VLAN ID** value ranging 2 to 4094 (Exclude 1002 – 1005).

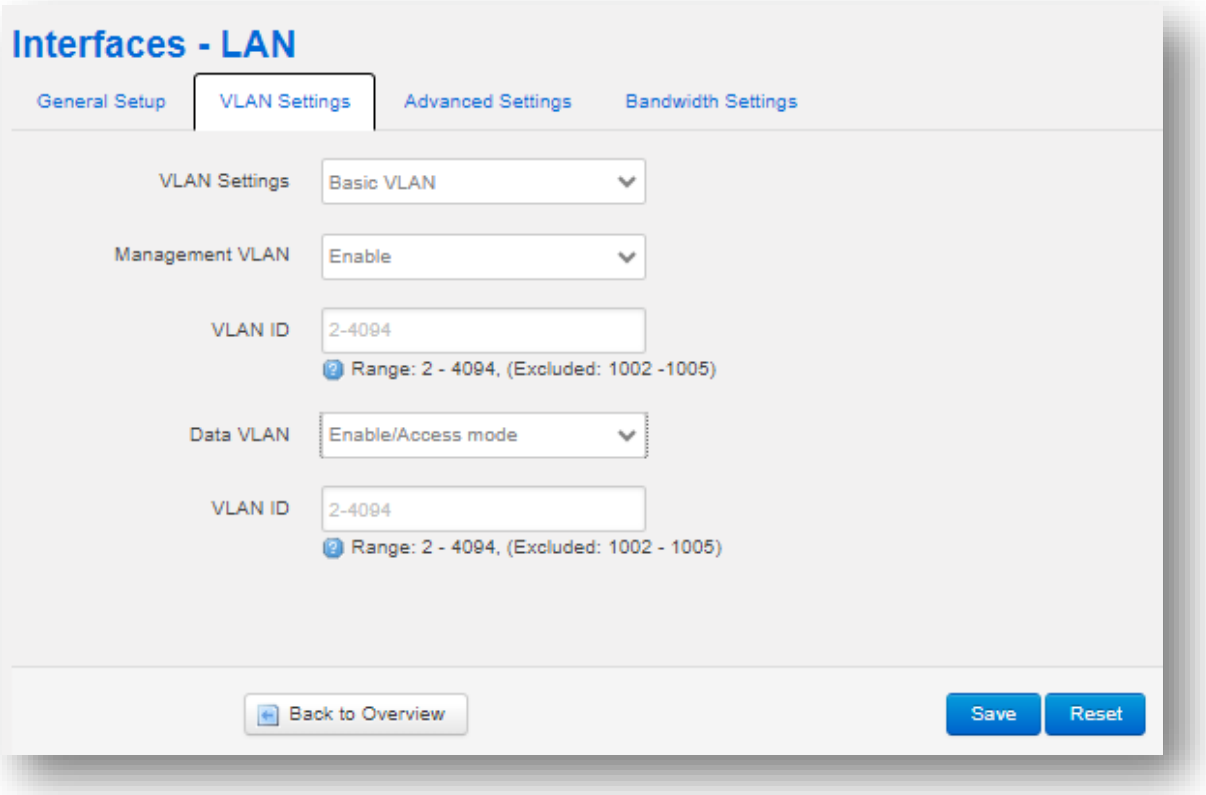


Figure 19: Slave VLAN Setting Basic

Advanced VLAN:

- If Advanced VLAN option is enabled, User can select **Disable, Enable/Access Mode, Trunk mode** and **Q-in-Q Mode** from the Data VLAN drop-down.
    - If **Enable/Access Mode** option is selected, User should enter the VLAN ID value ranging 2 to 4094 (Exclude 1002 – 1005).
    - If **Trunk mode** option is selected, User can select **All** or **Multiple VLAN** option from the drop-down. Additionally, If **Multiple VLAN** option is selected, User should enter the VLAN ID value ranging 2 to 4094 (Exclude 1002 – 1005).
    - If **Q in Q** option is selected, User should enter the **S-Tag ID** value ranging 2 to 4094 (Exclude 1002 – 1005) Additionally, if the user select **Multiple VLAN** option in **C-Tag** option, User should enter the VLAN ID value ranging 2 to 4094 (Exclude 1002 – 1005).

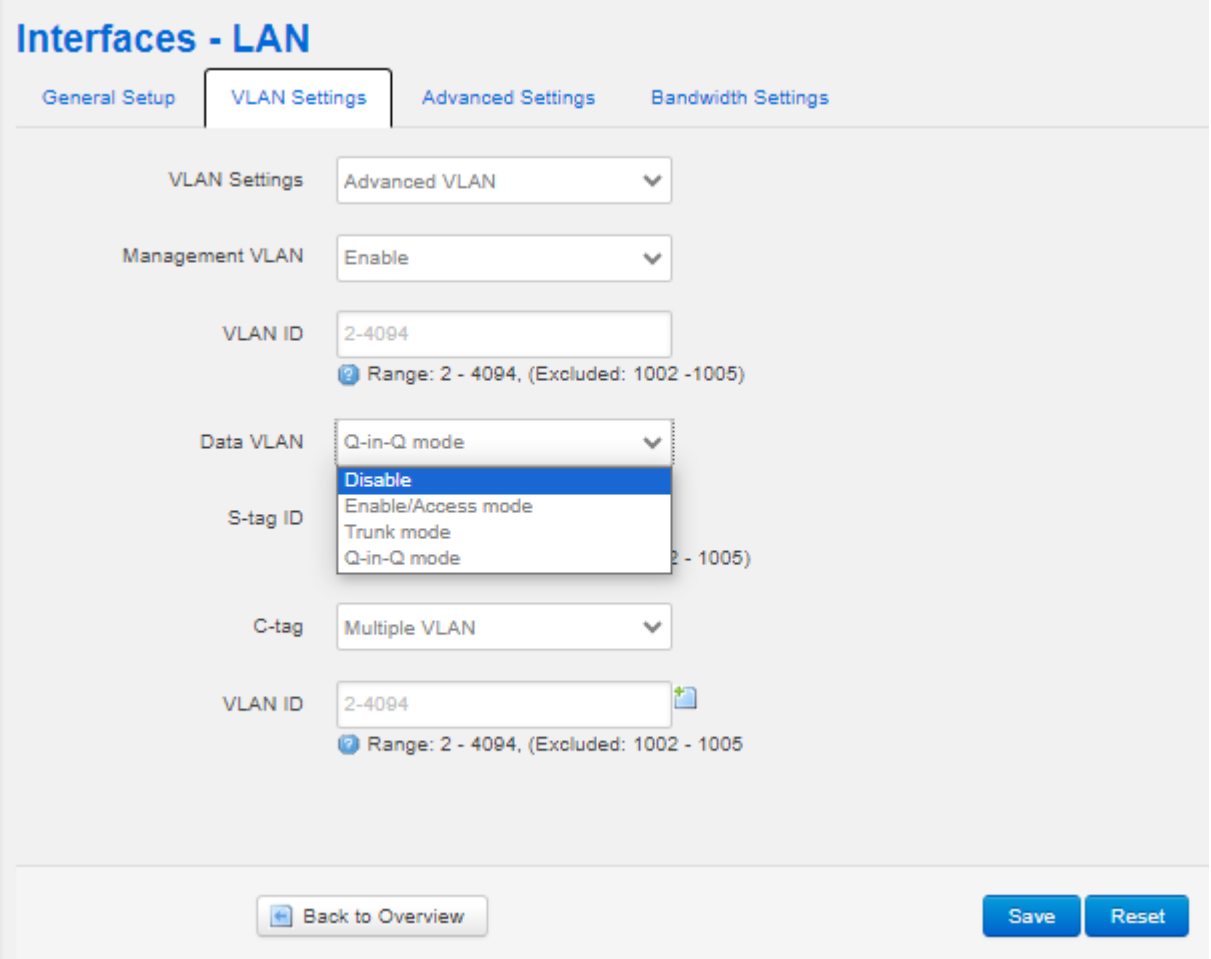


Figure 20: Slave VLAN setting Advanced

S. No	Field	Description
1.	VLAN setting	Select VLAN setting option (Basic/Advanced) from the drop-down.
2.	Management VLAN	Configuration pertaining to Management VLAN settings. Select Enable or Disable option from dropdown list.
3.	VLAN ID	Enter the values ranging from 2 to 4094 (Exclude 1002 – 1005).
4.	Data VLAN	Select the Data VLAN option (Disable, Enable/Access mode, Trunk mode, Q-in-Q mode) from the drop-down list.

Table 17: VLAN Setting Description

Click on **Save** to save the data entered or click **Reset** to remove all the data. Click on **Back to Overview** to re-direct to the Interface page.

4.5.2.3 Advanced Setting

User can switch between **Auto Negotiation (10/100/1000/2500 Mbps), 100 Mbps Full, 1000 Mbps Full and 2500 Mbps Full** from the **eth1 Interface Speed** drop-down.

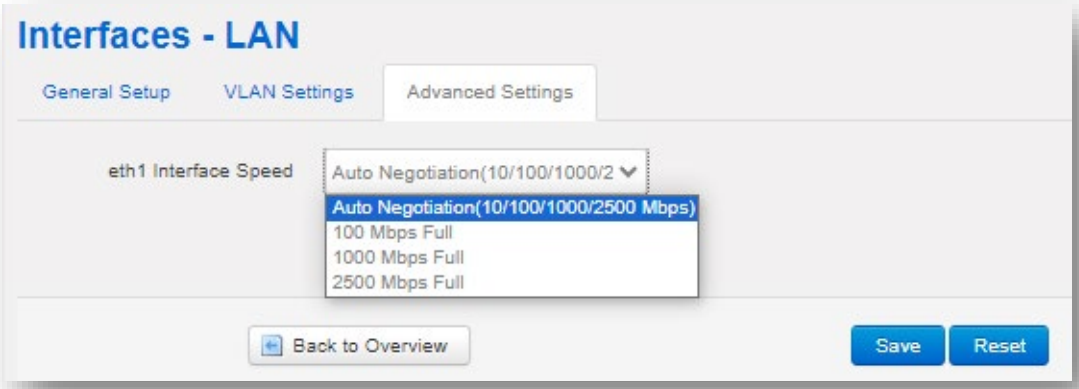


Figure 21: Advanced Setting

S. No	Field	Description
1.	eth1 Interface Speed	Select Interface speed from the dropdown.

Table 18: Advanced Setting Description

Click on **Save** to save the data entered or click **Reset** to remove all the data. Click on **Back to Overview** to re-direct to the Interface page.

4.5.2.4 Bandwidth Setting (Slave mode only)

Bandwidth setting can be **Enabled/Disabled** from drop-down option and it is only available in Slave mode. If bandwidth setting is enabled, user should enter **Tx Rate limit** and **Rx Rate limit** values ranging from 128 kbps - 2500 Mbps.

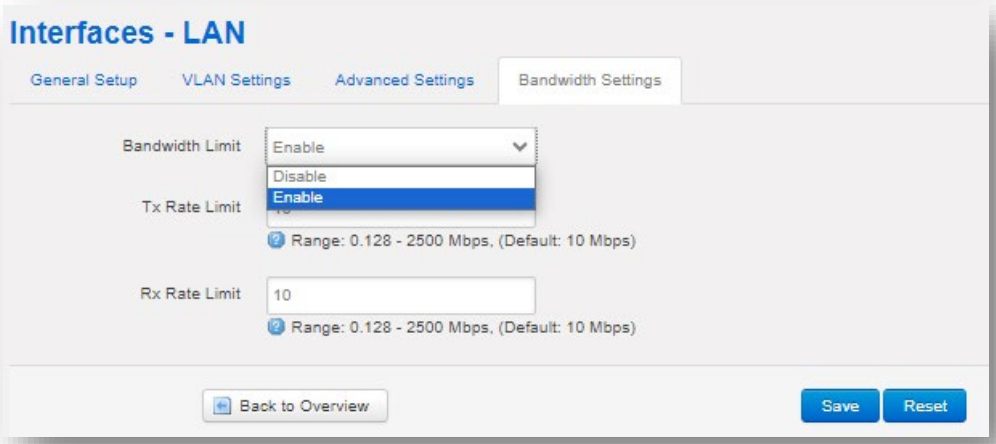


Figure 22: Bandwidth setting (Slave mode)

S. No	Field	Description
1.	Bandwidth Limit	Select Enable/Disable from the drop-down.
2.	Tx Rate Limit	Enter the values ranging from 128 kbps - 2500 Mbps.
3.	Rx Rate Limit	Enter the values ranging from 128 kbps -2500 Mbps.

Table 19: Bandwidth setting description

4.5.3 Jumbo Frames

A jumbo frame is an Ethernet frame, or data packet, with a payload greater than the standard size of 2251 bytes. Jumbo frames are larger than the normal maximum transmission unit (MTU) established in the Ethernet specification.

If the Jumbo Frames option is **enabled**, enter the **MTU** value ranging 2251 – 9000.

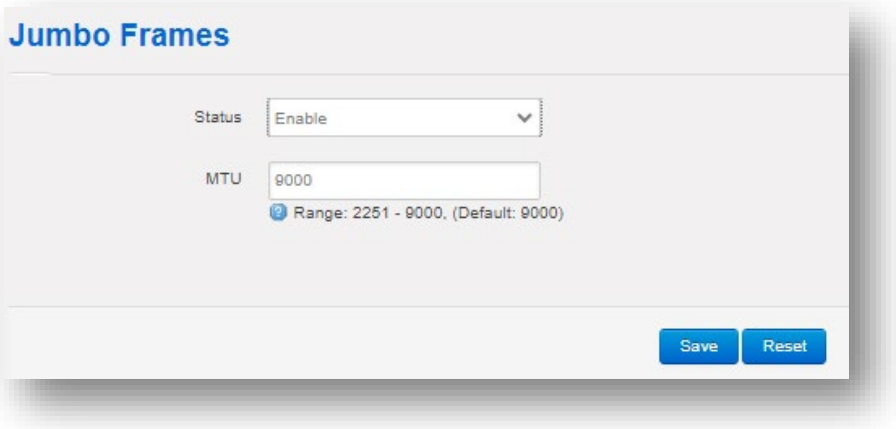


Figure 23: Jumbo Frames

S. No	Field	Description
1.	Status	Select the status from the dropdown.
2.	MTU	Enter the desired MTU range between 2251-9000.

Table 20: Jumbo Frame Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.4 TDMA

TDMA is digital transmission technology that allows a number of users to access a single radio frequency (RF) channel without interference by allocating unique time slots to each user within each channel. The TDMA has the following are the tabs listed with various parameters shown.

- Link Setting
- Link Security Settings
- Advanced setting
- Slave DHCP setting
- Redundant Link Switching

4.5.4.1 Link Setting

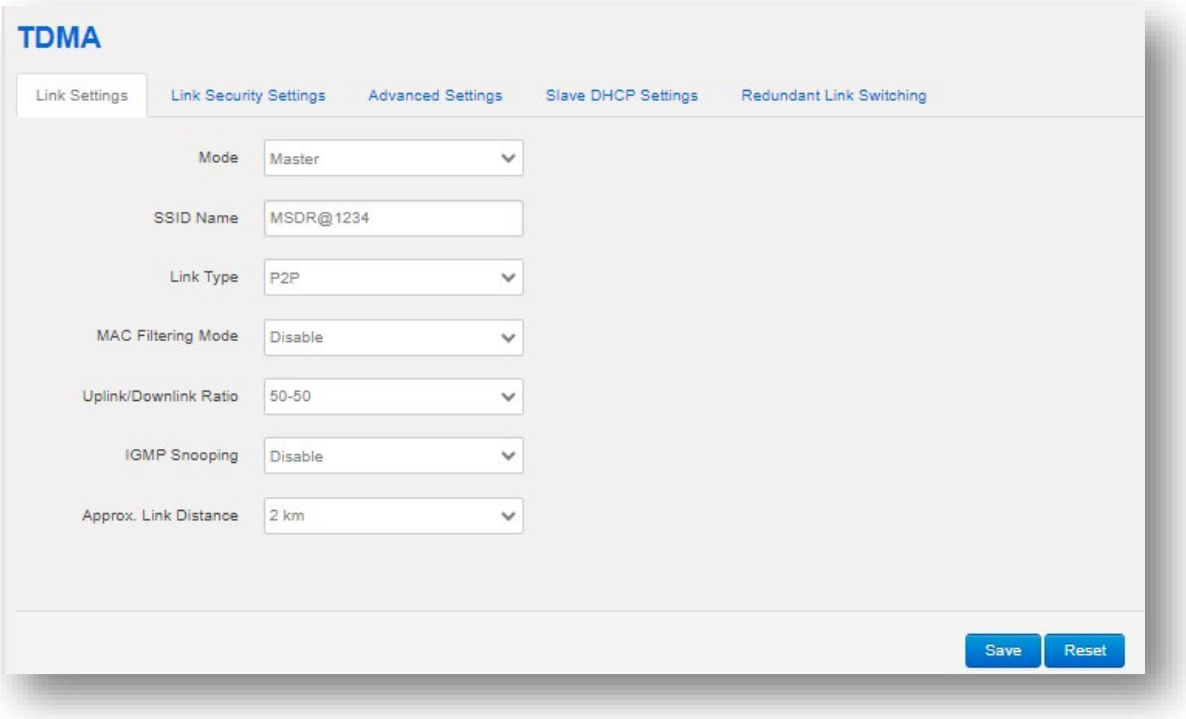


Figure 24: Link Setting Specification (Master)

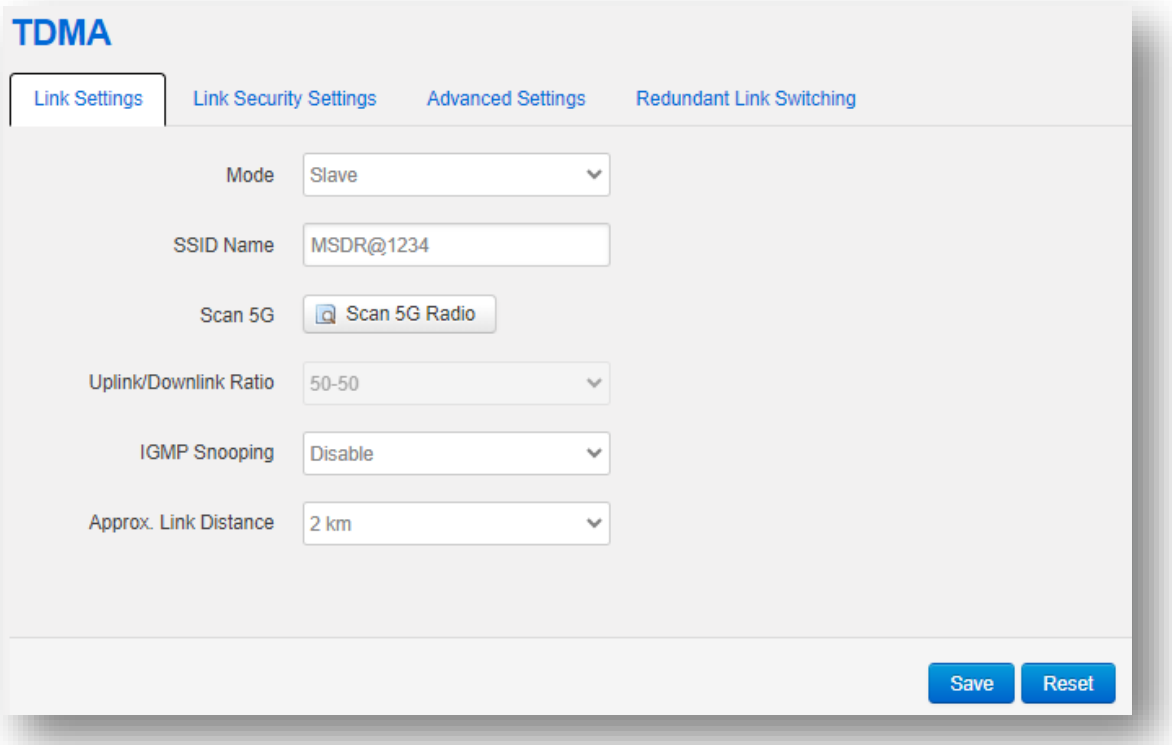


Figure 25: Link Setting (Slave)

S. No	Field	Description
1.	Mode	Select the Mode from the dropdown (Master/Slave).
2.	SSID Name	Displays the Network ID
3.	Link Type	Select the Link type (P2P) from the dropdown.
4.	MAC Filtering Mode	Select the MAC Filtering mode (Disable/Allow/Deny) from drop-down.
5.	Uplink/Downlink Ratio	Displays the uplink-downlink ratio from drop-down
6.	IGMP Snooping	Displays the option to Enable/Disable.
7.	Scan 5G Radio	Click on the scan 5G Radio button to scan the radio.
8.	Approx. Link Distance	Display/Configure the link distance between master and slave. User need to enter the link distance based on the link budget planning.

Table 21: Link Setting Description

Link Type and **MAC Filtering mode** will not be available when the **Slave** mode is selected from the drop down.

4.5.4.2 Link Security Settings

Allows user to select **Open**, **WPA - Personal**, **and WPA2 – Personal, WPA2 - Personal + AES -256, WPA2 - Enterprise, WPA3 - Personal WPA3 – Enterprise and WPA2 - WPA3 Mixed mode** option from the **Security type** drop-down.

User must enter the pre-shared key in the password when **WPA – Personal**, **WPA2/3 – Personal, WPA2 - Personal + AES -256 and WPA2 - WPA3 Mixed mode** is selected. Additionally, User must enter **Server IP** when **WPA2/3 – Enterprise** is selected.

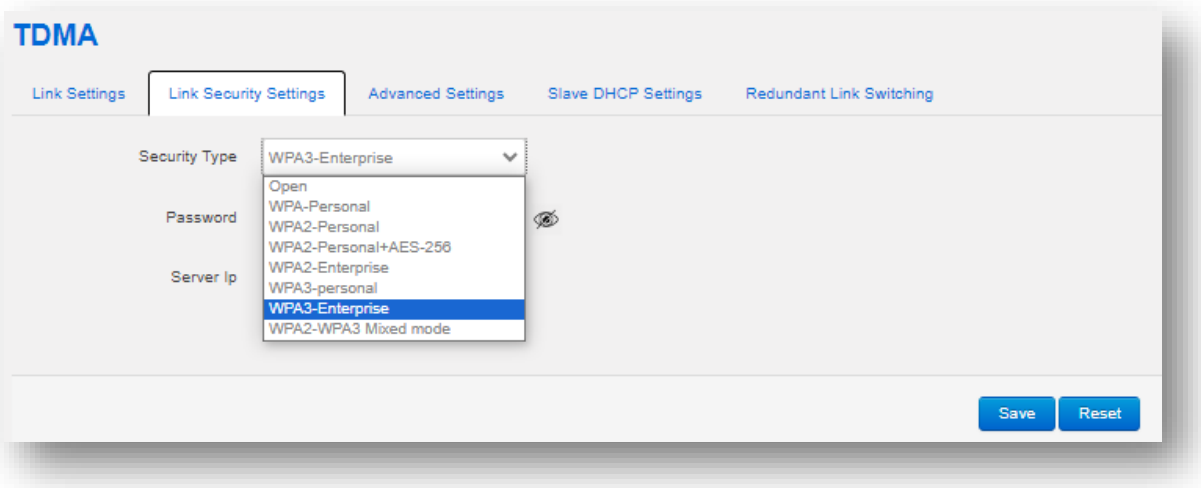


Figure 26: Link Security Setting

S. No	Field	Description
1.	Security Type	Displays/configure the security types (Open, WPA - Personal, and WPA2 – Personal, WPA2 - Personal + AES, WPA2 - Enterprise, WPA3 - Personal and WPA3 – Enterprise) from the drop-down.
2.	Password	User must enter the pre-shared key in the password.
3.	Server ip	User must enter the server IP address.

Table 22: Link Security Setting Description

Click on **"Save"** to save the data entered or click "**Reset**" to remove all the data.

4.5.4.3 Advanced Setting

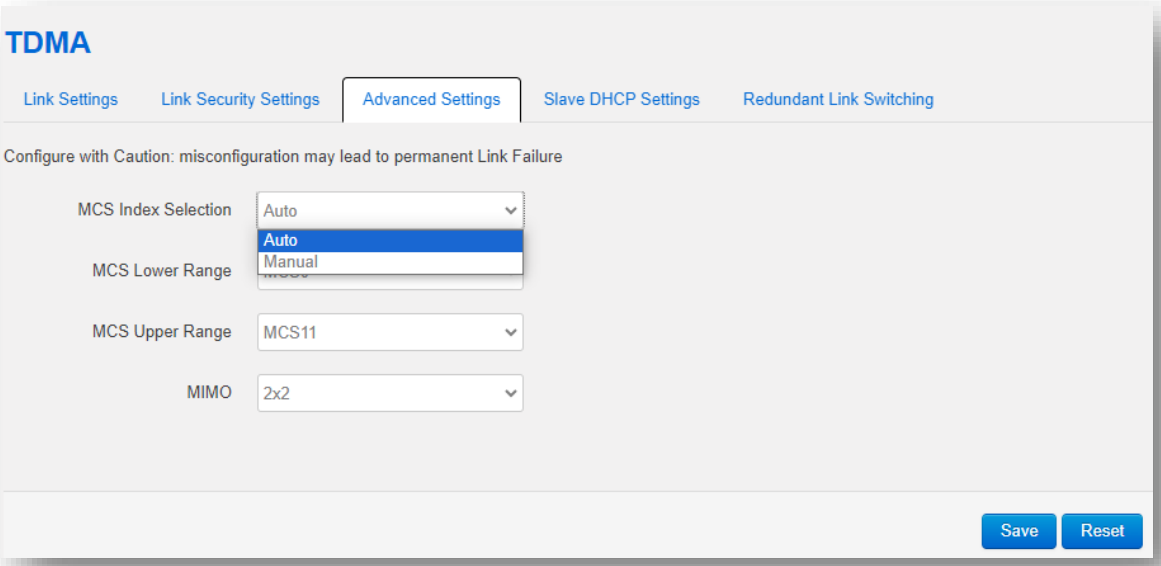


Figure 27: Advance Setting

S. No	Field	Description
1.	MCS Index Selection	Select the MCS index option (Auto/Manual) from the dropdown.
2.	MCS Lower range	Select the MCS Lower range from the dropdown.
3.	MCS Upper range	Select the MCS Upper range from the dropdown.
4.	MCS Manual Range	Select the MCS value from the dropdown (MCS Index – manual option)
5.	MIMO	Select the MIMO from the dropdown (1x1, 2x2).

Table 23: Advance Setting Description

4.5.4.4 Slave DHCP Setting

DHCP slave devices are identified either by their DHCP device name. The DHCP server configuration table defines the relation between addresses and identified slave devices. The DHCP server addresses are given with an infinite lease time.

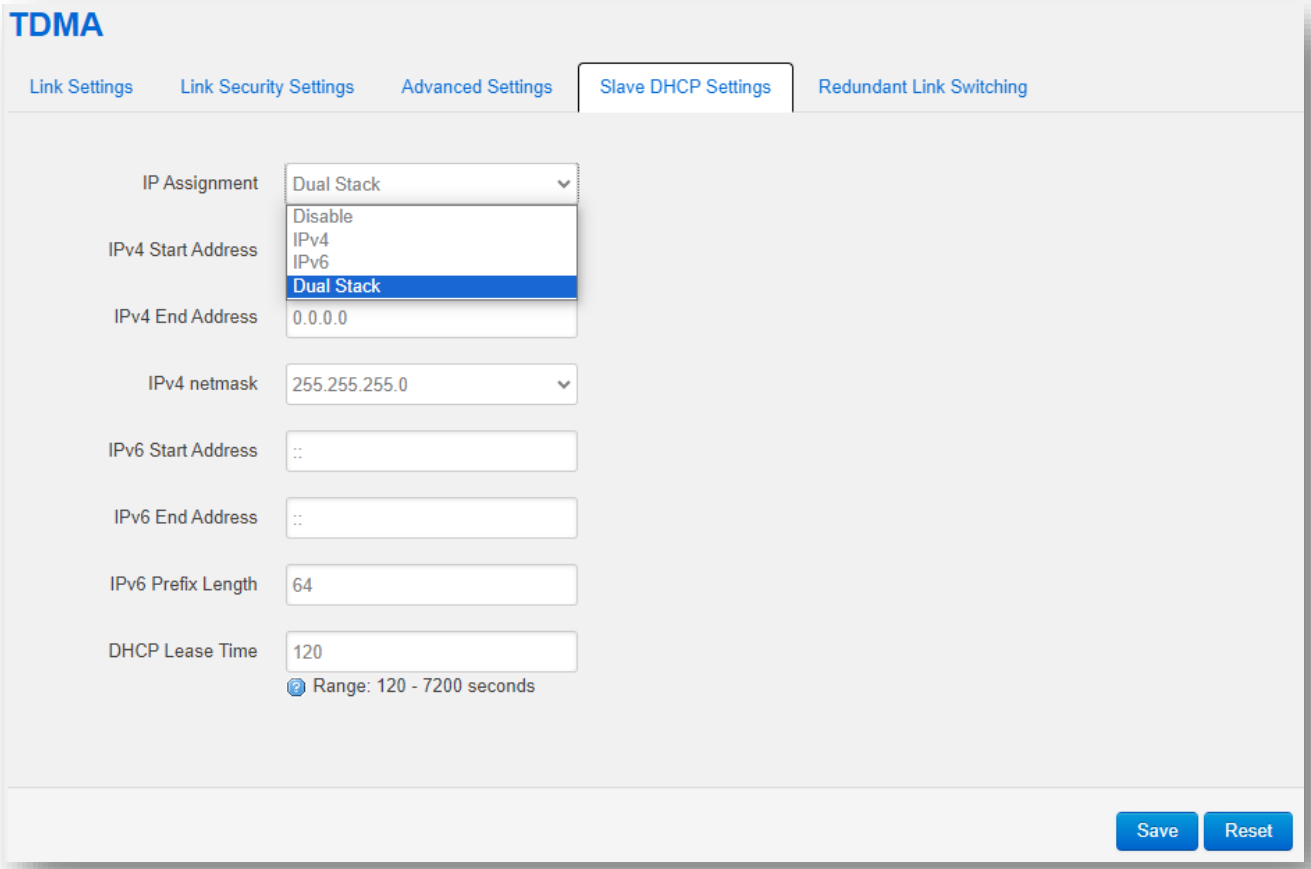


Figure 28: Slave DHCP setting

S. No	Field	Description
1.	IP assignment	Displays/configure the IP assignments from the drop- down
2.	IPv4 Start address	Displays/configures the allocated IPv4 start address
3.	IPv4 end address	Displays/configures the allocated IPv4 end address
4.	IPv4 netmask	Displays/configures the allocated IPv4 netmask in dropdown
5.	IPv6 Start address	Displays/configures the allocated IPv6 start address
6.	IPv6 end address	Displays/configures the allocated IPv6 end address
7.	IPv6 Prefix Length	Displays/configures the value equivalent subnet mask of IPv4 integer ranging from 1 to 128
8.	DHCP Lease Time	Displays/configures the DHCP Lease time ranging from 120 to 7200 seconds.

Table 24: Slave DHCP description

4.5.4.5 Redundant Link Switching

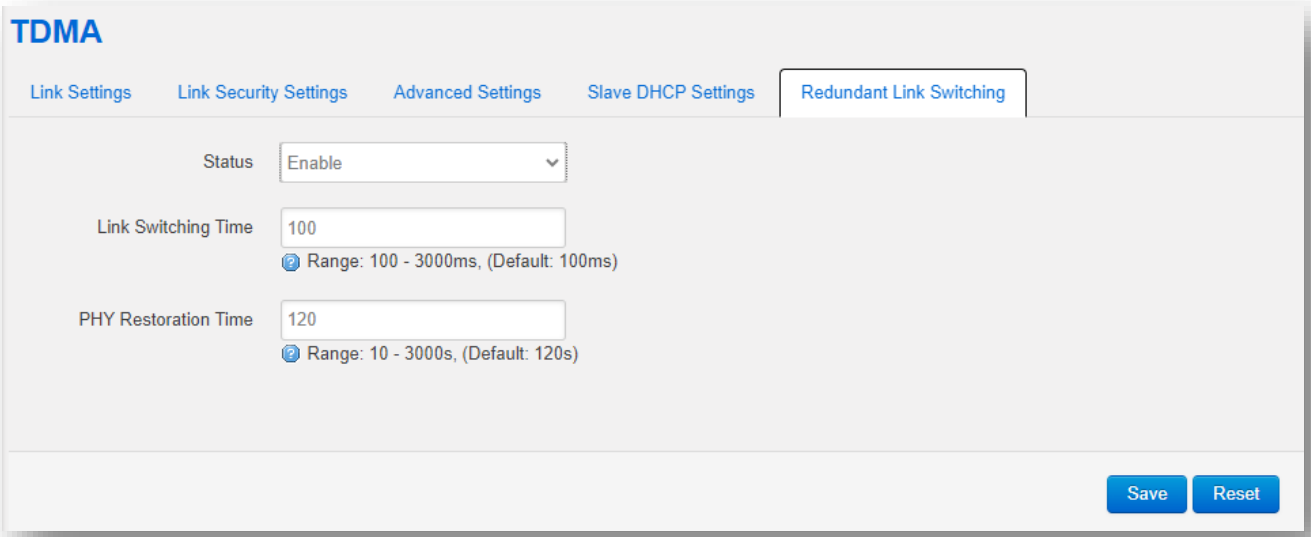


Figure 29: Redundant Link Switching

S. No	Field	Description
1.	Status	Select the option Enable/Disable from the Dropdown.
2.	Link Switching Time	Displays/configures the Link Switching time ranging from 100 to 3000 ms.
3.	PHY Restoration time	Displays/configures the PHY Restoration time ranging from 10 to 3000 seconds.

Table 25: Redundant Link Switching Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.5 Radio

Radio refers to transmitting a radio signal from a remote site or network to another site, usually a central one. User can choose between Single Band mode and Dual Band mode from the Band mode dropdown

4.5.5.1 General Configuration

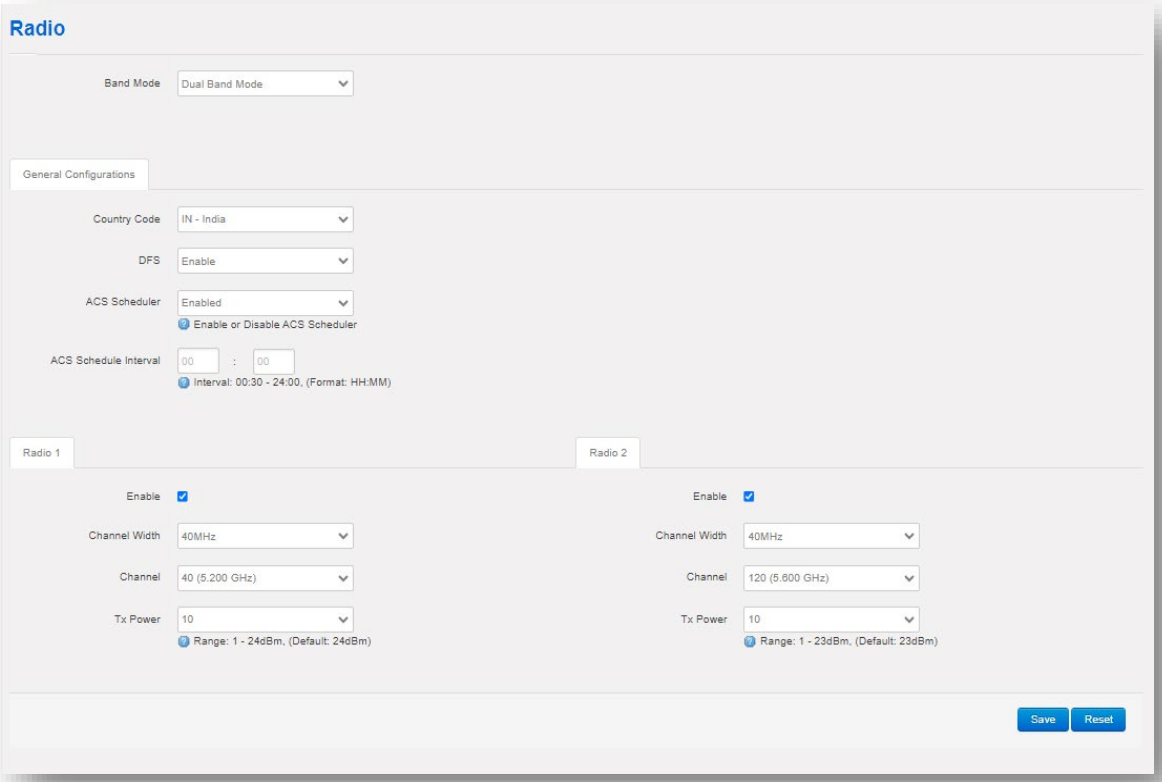


Figure 30: Radio

S. No	Field	Description
1.	Band Mode	Select the band mode from the drop-down list.
2.	Country Code	Select the current country code from the drop-down.
3.	DFS	Enable or Disable DFS (Dynamic Frequency Selection). DFS helps in the "channel scanning" or "channel availability check."
4.	DCS	Enable or Disable DCS (Dynamic Channel Selection)
5.	ACS Scheduler	Enable or Disable ACS Scheduler from drop-down. ACS dynamically assigns and optimizes Wi-Fi channels to minimize interference and enhance network performance
6.	ACS Scheduler Interval	Display/Configure the ACS scheduler interval time.
7.	Channel Width	Select the channel width from the drop-down.
8.	Channel	Displays/configure the mode of Operating channel.

8.	Tx Power	Users can enter the Tx power. The value ranges from 1 dBm to 24 dBm. The maximum EIRP value must be adhered to the configured country regulatory domain limit. For automatic EIRP controls and operation within defined limits based on country selection, management via EMS is compulsory.

Table 26: Radio Description

If the **DFS** option is **enabled**, user should click on **Confirm changing DFS** button to acknowledge the change.

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.6 ATPC

Automatic Transmit Power Control (ATPC) automatically adjusts Transmit power based on the link distance. This feature will provide a transmit power controlling mechanism to the transmitter with respect to the receiving end. Both master and slave will share their RSSI values at specific intervals. ATPC algorithm will make the device to alter its own transmit power with respect to the received RSSI value of the other end. User can Enable or Disable **ATPC** from the status drop-down.

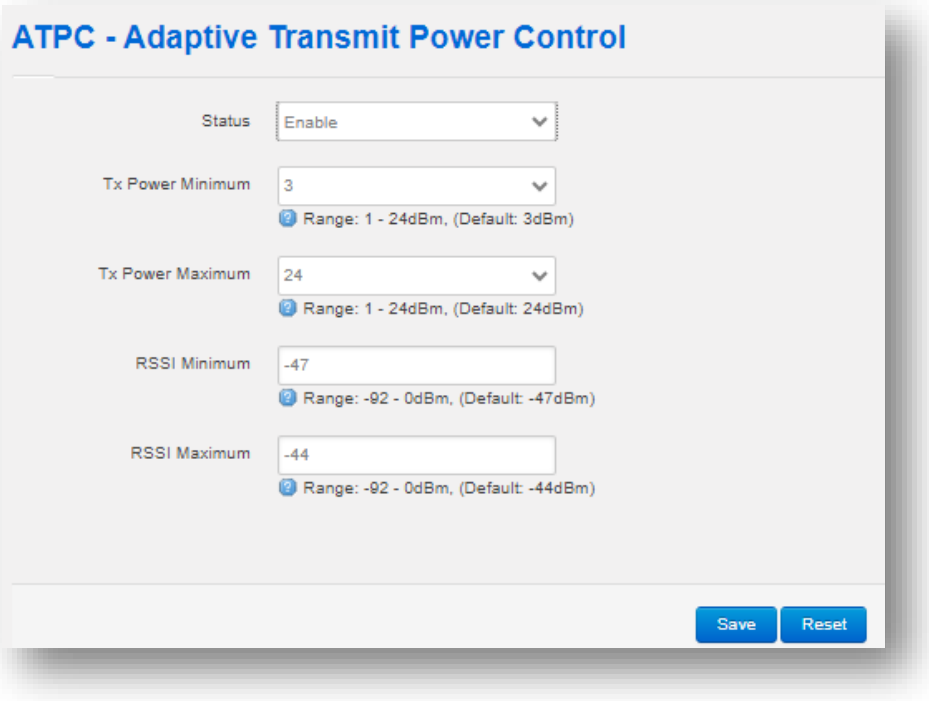


Figure 31: ATPC

S. No	Field	Description
1.	Status	User can Enable/Disable ATPC.
2.	Tx Power Minimum	Select the value from the dropdown ranging from 1 -24 dBm.
3.	Tx Power Maximum	Select the value from the dropdown ranging from 1 -24 dBm.

4.	RSSI Minimum	Displays/Configure the value ranging from -92 to 0 dBm. Default value is considered as -47 dBm.
5.	RSSI Maximum	Displays/Configure the value ranging from -95 to 0 dBm. Default value is considered as -44 dBm.

Table 27: ATPC Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.7 SNMP

Simple Network Management Protocol (SNMP) is an internet standard protocol used to monitor and manage network devices connected over an IP. The design of SNMP lets network administrators manage applications and systems.

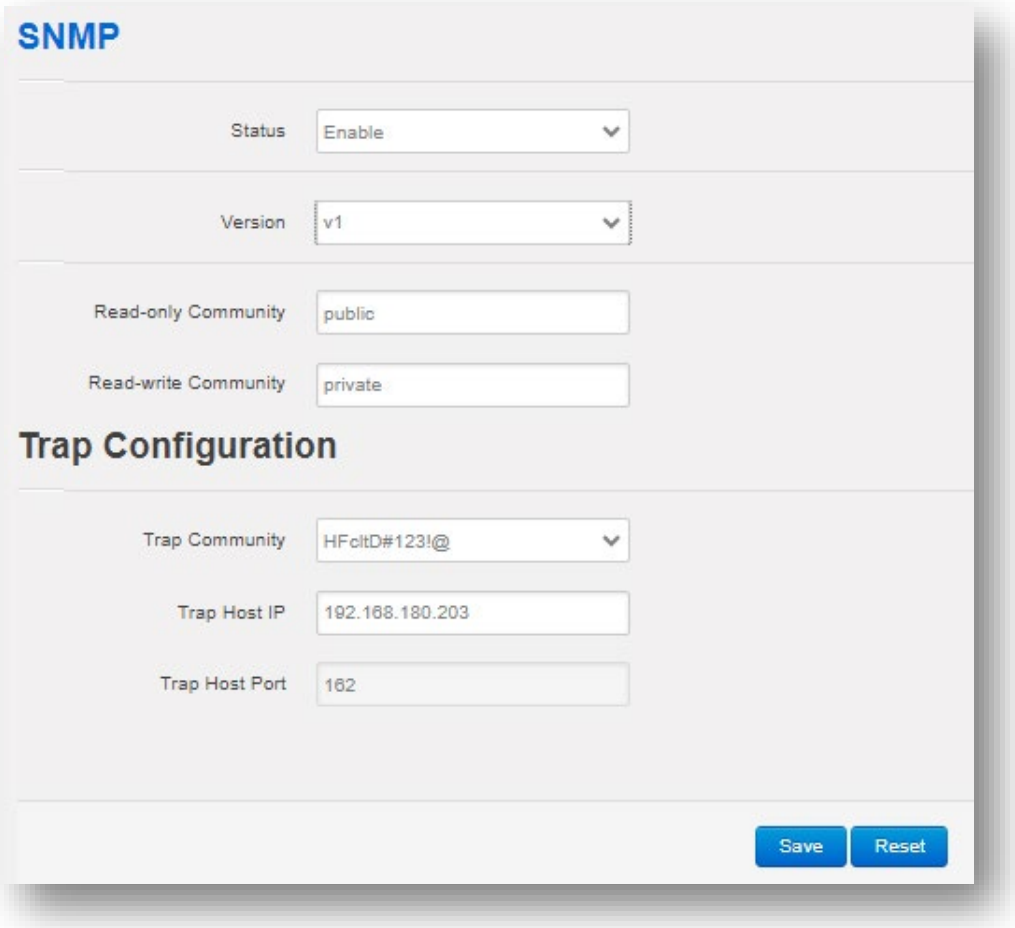


Figure 32: SNMP

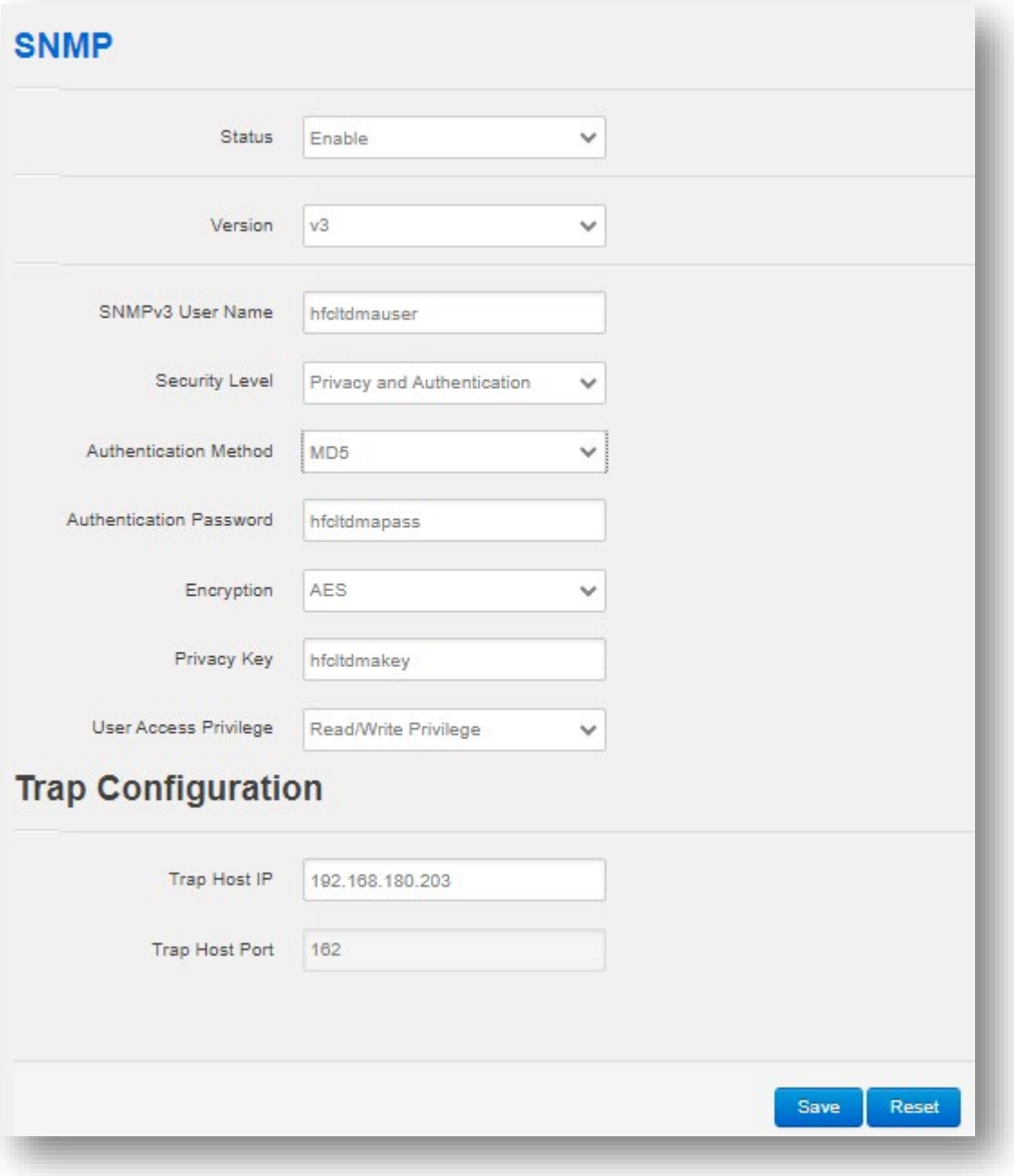


Figure 33: SNMP_Privacy and Authentication v3

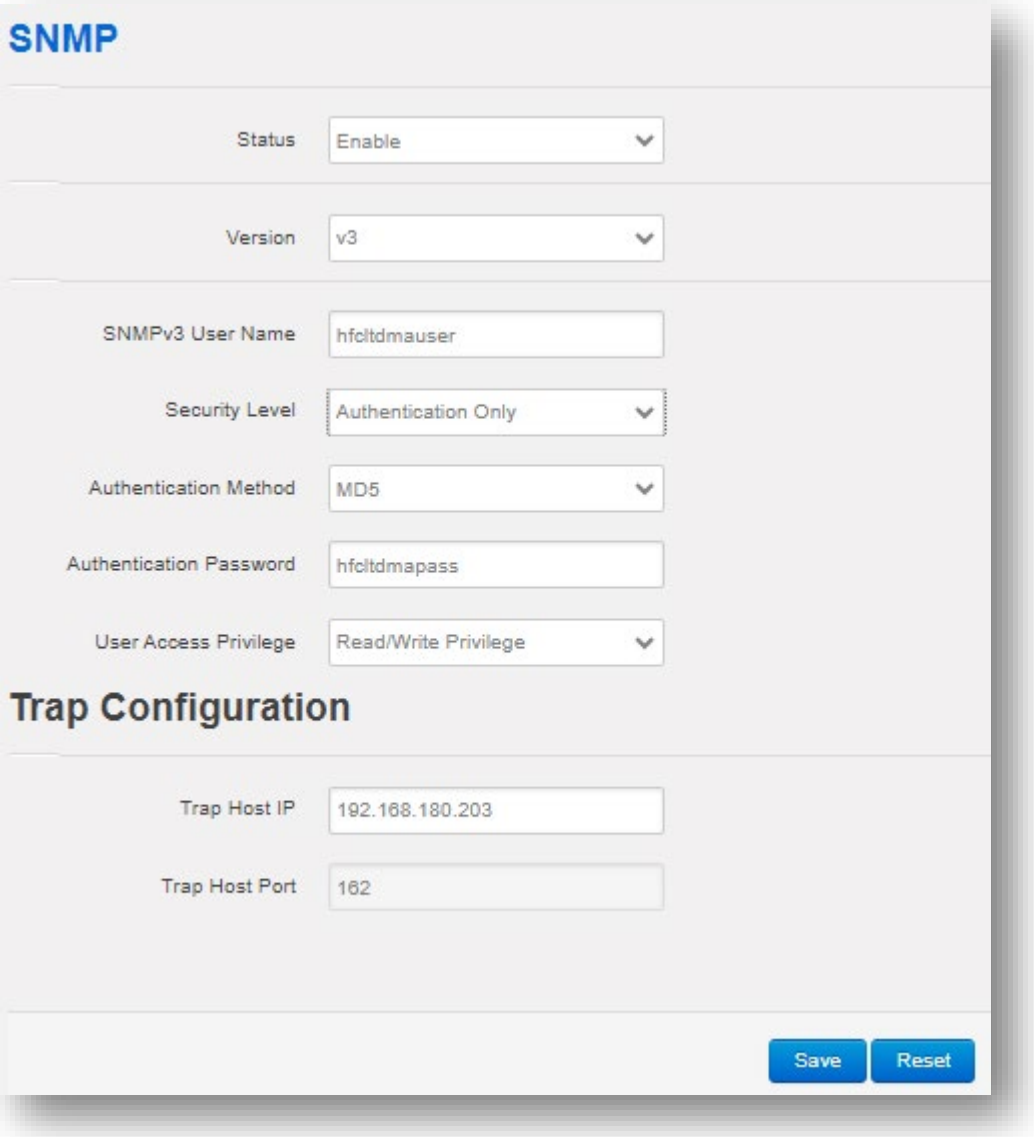


Figure 34: SNMP_Authentication only v3

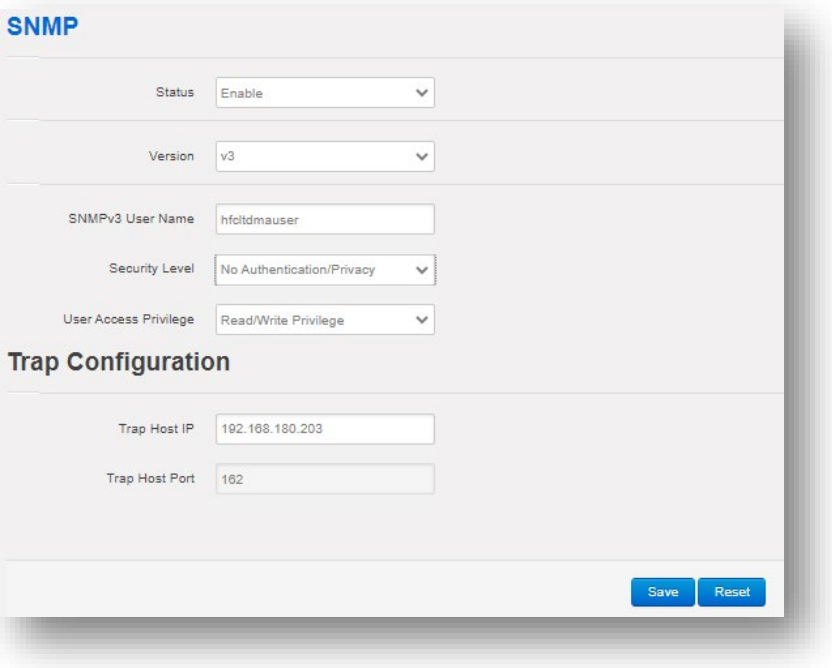


Figure 35: SNMP_No Authentication v3

S. No	Field	Description
1.	Status	Select the option from the dropdown (Enable/Disable)
2.	Version	Select the option from the dropdown (v1/v2c/v3)
3.	Read-Only Community	User can setup password for Get-Request to access the device for read function.
4.	Read-write community	User can setup password for Get-Request to access the device for write function.
5.	Trap Community	Displays/configure the SNMP read only and read/write community (password).
6.	Trap Host IP	Displays/configure the SNMP trap server IP.
7.	Trap Host Port	Displays/configure the SNMP trap server port.
8.	SNMPv3 User Name	Enter the SNMPv3 user name.
9.	Security Level	Select the security level (Privacy and Authentication, Authentication only and No authentication privacy)
10.	Authentication Method	Select the Authentication method from the drop-down (MD5/SHA).
11.	Authentication password	Enter the authentication password.
12.	Encryption	Select the Encryption from the drop-down (AES/DES).
13.	Privacy key	Enter the privacy key.
14.	User Access Privilege	Select the user privilege from the drop-down.

Table 28: SNMP Description

Click on **"Save"** to save the data entered or click "**Reset**" to remove all the data.

4.5.8 Alarms

The user can configure Alarm to high Priority to low priority. The Alarm are having different following tabs;

- Link/Interface
- System
- EMS

4.5.8.1 Link/Interface

Allows user to Enable or Disable the **Link/Interface alarm** by clicking on **Enable** check box. Additionally, user can select the **Severity** (Critical, Major, Minor and Info) from the drop-down.

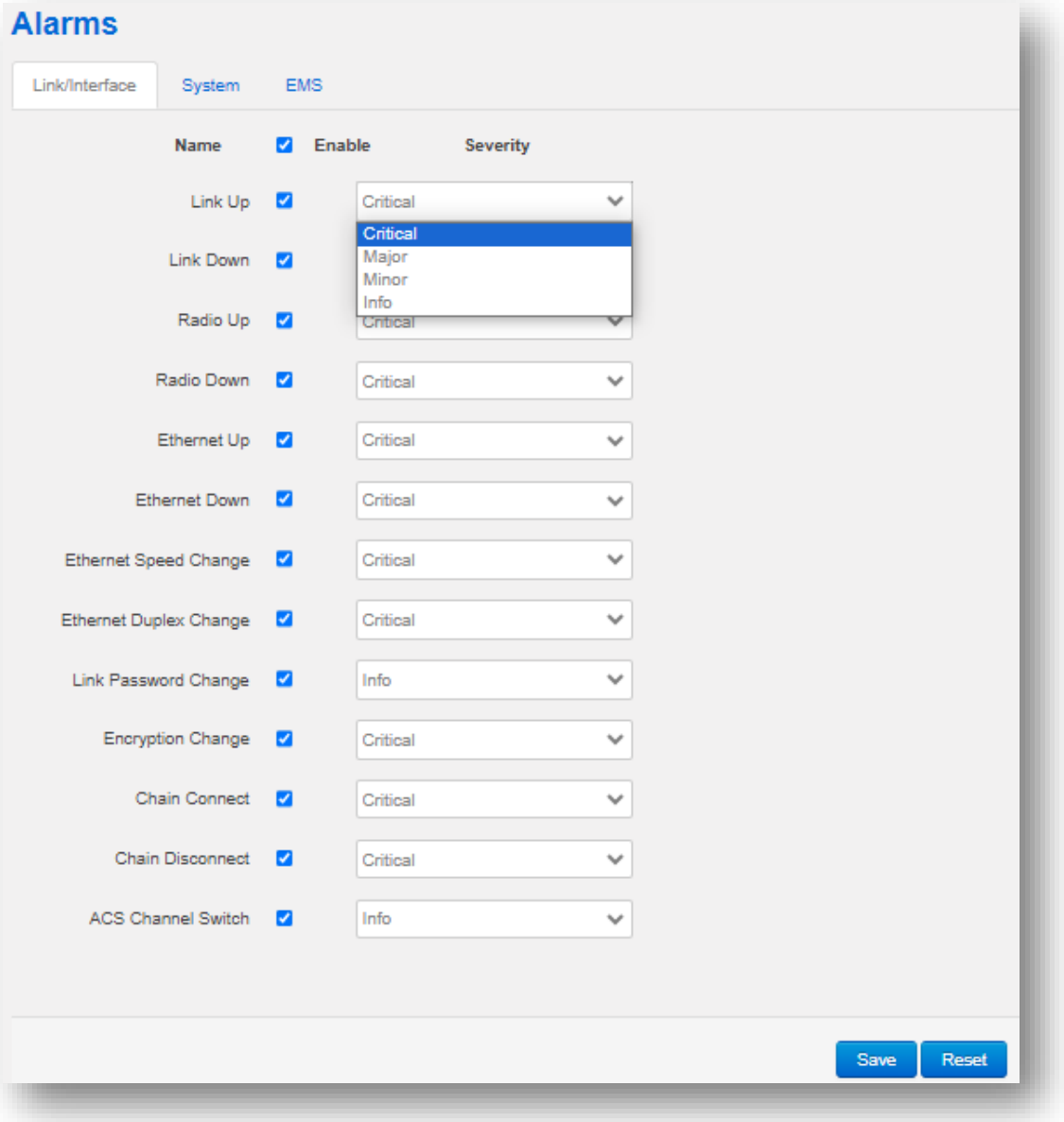


Figure 36: Link/Interface Alarm

4.5.8.2 System

Allows user to Enable or Disable the **System alarm** by clicking on **Enable** check box. Additionally, user can select the **Severity** (Critical, Major, Minor and Info) from the drop-down.

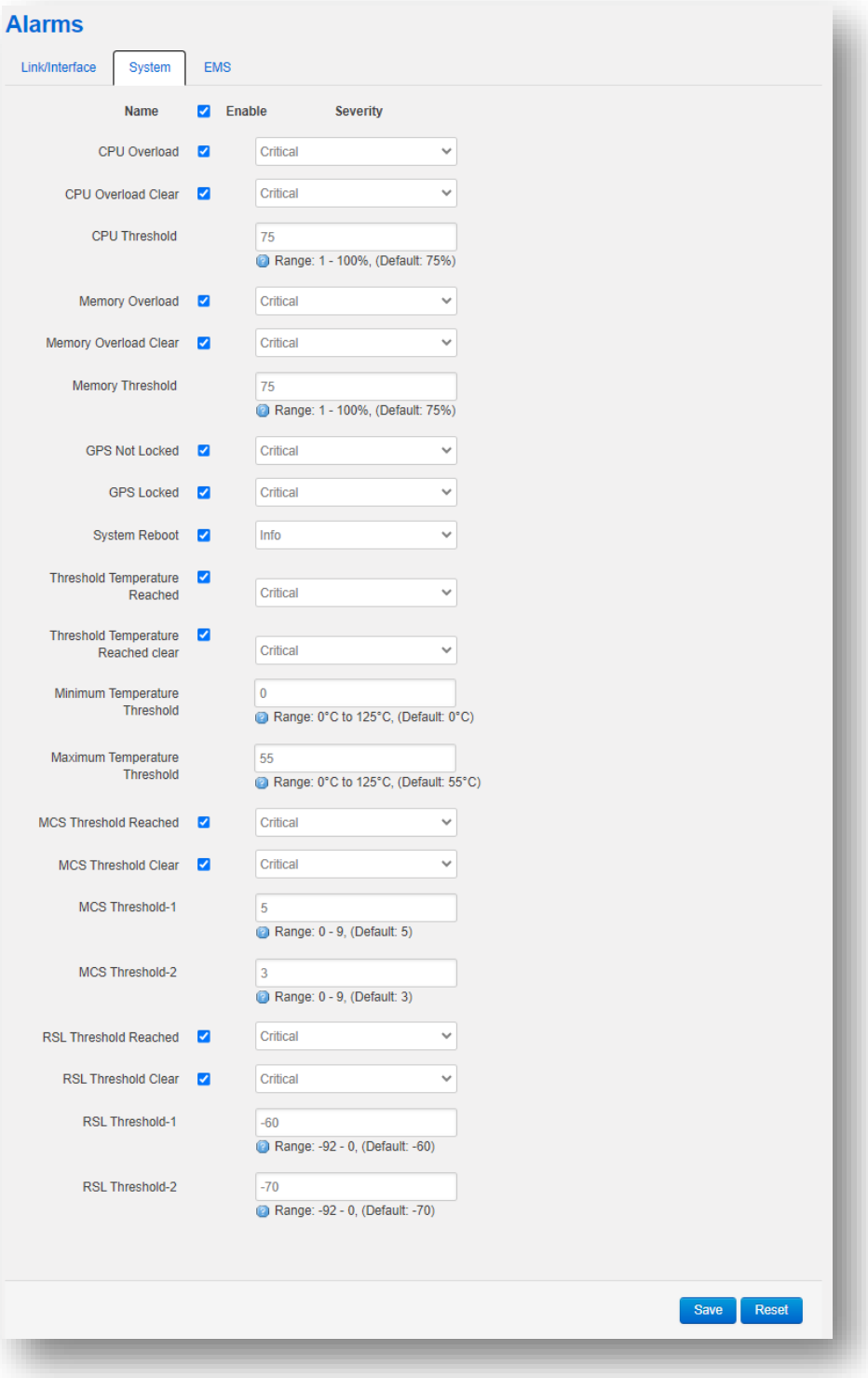


Figure 37: System

4.5.8.3 EMS

Allows user to Enable or Disable the **EMS alarm** by clicking on **Enable** check box. Additionally, user can select the **Severity** (Critical, Major, Minor and Info) from the drop-down.

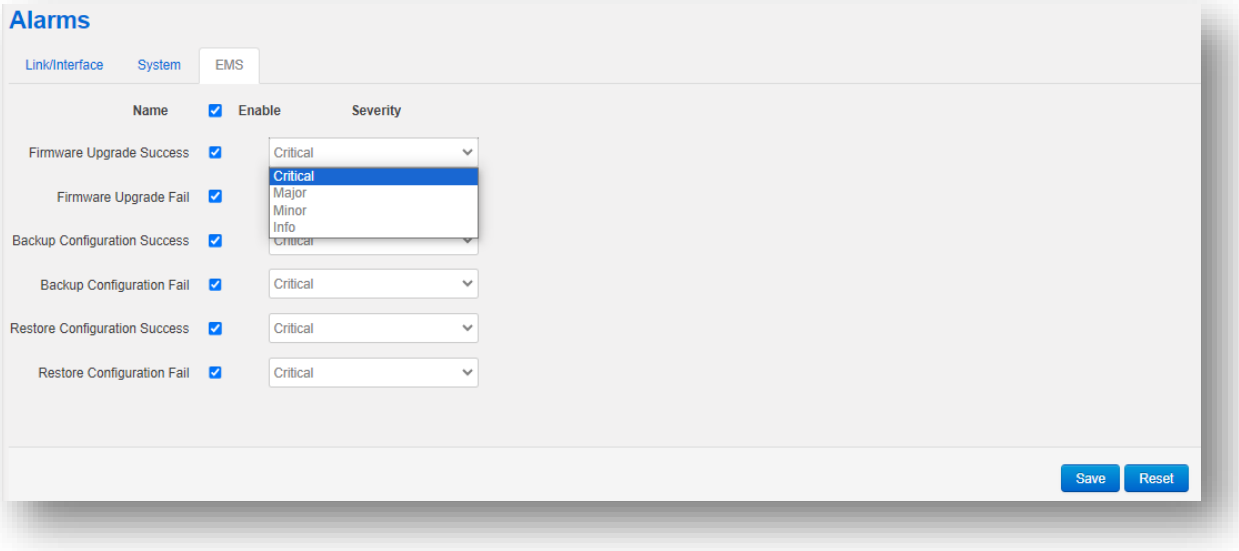


Figure 38: EMS

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.9 Syslog

System Logging Protocol facilitates the transfer of information from network devices to a central server, known as syslog server, in a particular message format.

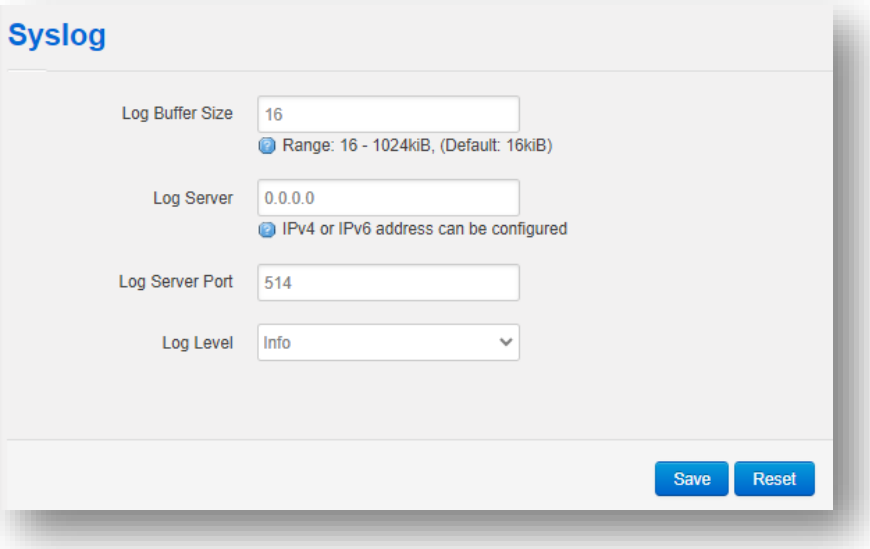


Figure 39: Syslog

S. No	Field	Description
1.	Log Buffer Size	Log buffer size determines how many log entries are stored in the buffer.
2.	Log Server	Displays/configure the external syslog server IP.
3.	Log Server Port	Displays/configure the external syslog server port.
4.	Log Level	Displays Debug, Info, Notice, Warning, Error, Critical, Alert, and Emergency information about the radio.

Table 29: Syslog Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.10 Firewall

The user can configure Firewall. The Firewall are having different following tabs;

- Mac Filtering
- IP Filtering
- Port/Protocol Filtering
- Traffic Filtering

4.5.10.1 MAC Filtering

If the MAC Filter option is **enabled**, user should click on **Switch MAC Policy** button to acknowledge the change.

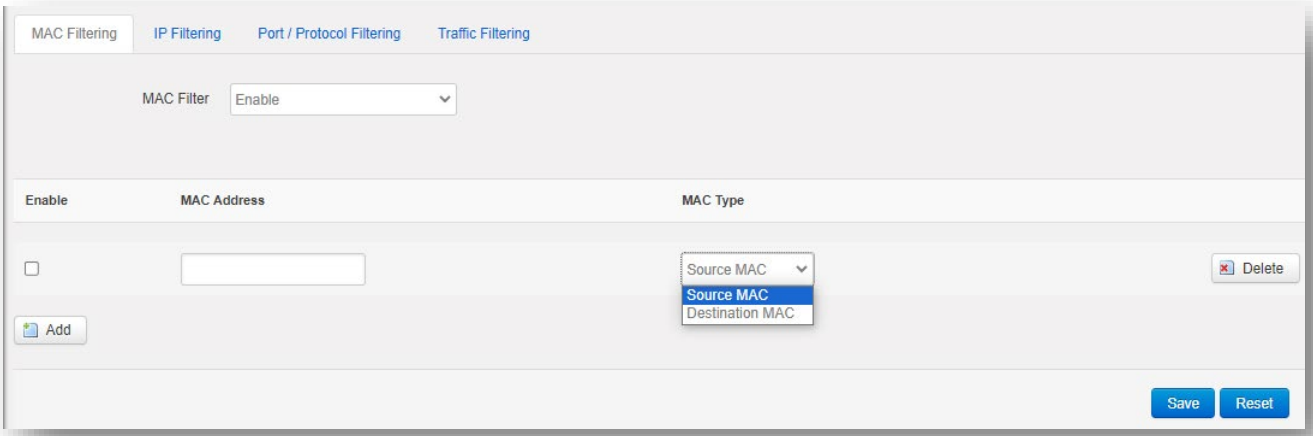


Figure 40: MAC Filtering

S. No	Field	Description
1.	MAC Filter	User can do the White/Black Listing based on the source/Destination MAC address.

Table 30: Mac Filtering Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.10.2 IP Filtering

If the IP Filter option is **enabled**, user should click on **Switch IP Policy** button to acknowledge the change.

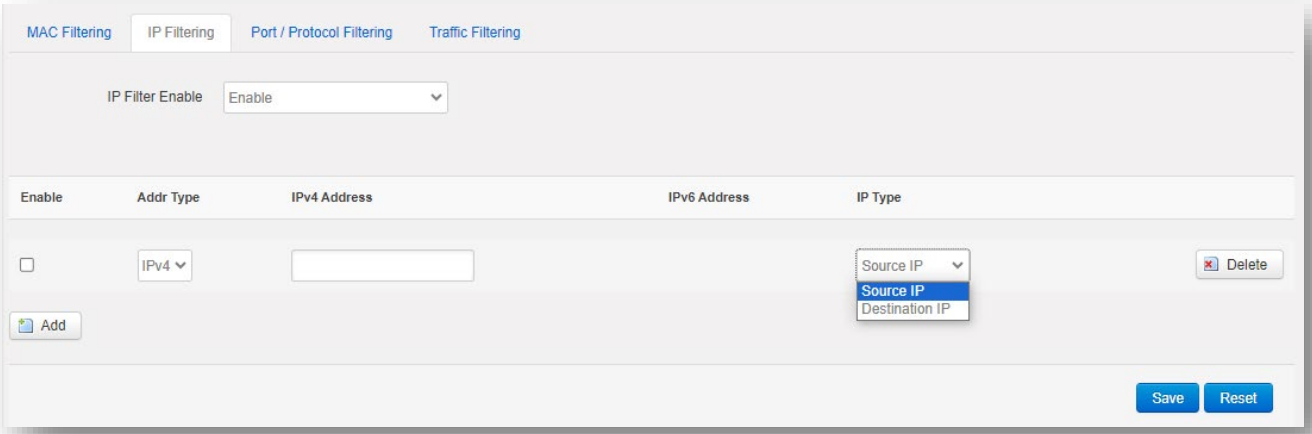


Figure 41: IP Filtering

S. No	Field	Description
1.	IP Filter Enable	User can do the White/Black Listing based on the source/Destination IP address (IPv4/IPv6).

Table 31: IP Filtering Description

4.5.10.3 Port/Protocol Filtering

If the Port/Protocol option is **enabled**, user should click on **Switch Port/Protocol Policy** button to acknowledge the change.

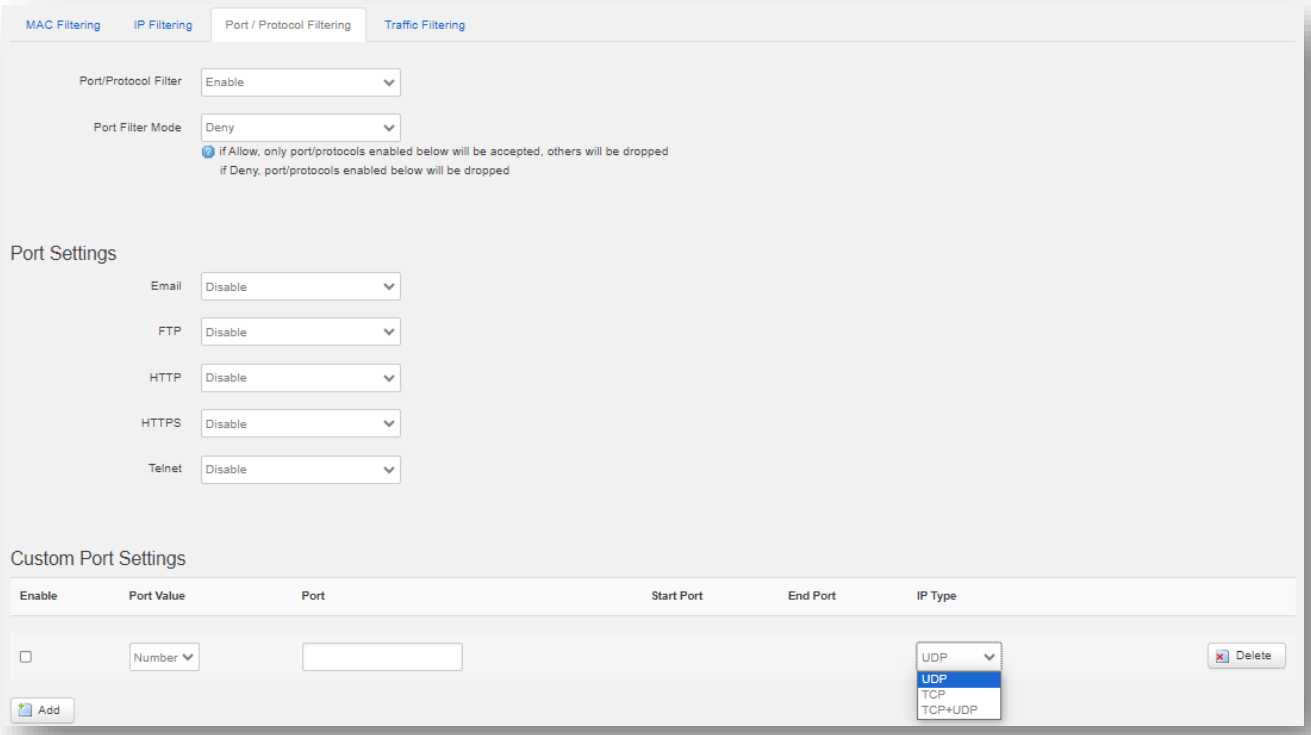


Figure 42: Port/Protocol Filtering

S. No	Field	Description
1.	Port/Protocol Filter	User can do the White/Blacklisting based on the Port number and protocol type (UDP, TCP and UDP + TCP). Additionally, user can Enable/Disable standard port (Email, FTP, HTTP, HTTPS, Telnet).

Table 32: Port/Protocol Filtering Description

Click on **Save** to save the data entered or click **Reset** to remove all the data.

4.5.10.4 Traffic Filtering

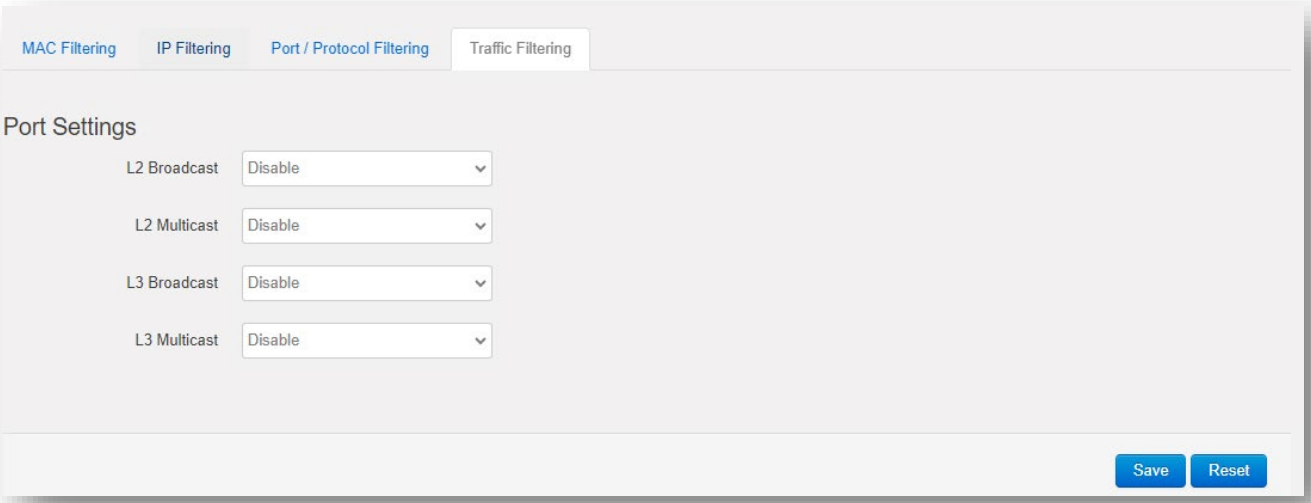


Figure 43: Traffic Filtering

S. No	Field	Description
1.	L2 Broadcast	User can Enable/Disable option from the dropdown.
2.	L2 Multicast	User can Enable/Disable option from the dropdown.
3.	L3 Broadcast	User can Enable/Disable option from the dropdown.
4.	L3 Multicast	User can Enable/Disable option from the dropdown.

Table 33: IP Filtering Description

Click on **"Save"** to save the data entered or click "**Reset**" to remove all the data.

4.5.11 QoS

Quality of service (QoS) is the use of mechanisms or technologies that work on a network to control traffic and ensure the performance of critical applications with limited network capacity.

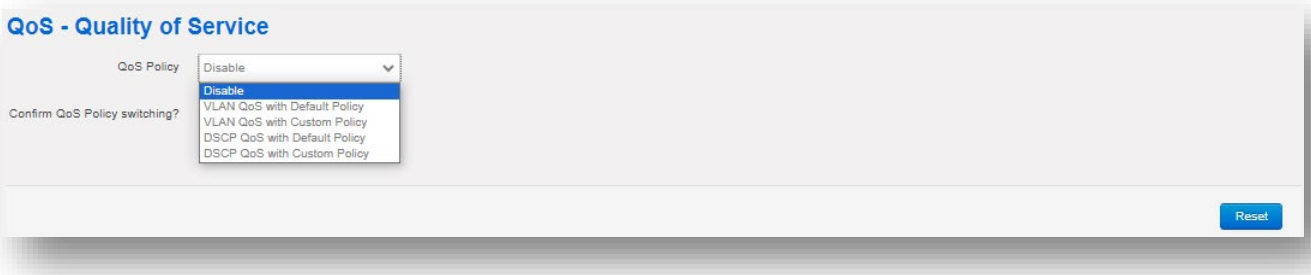


Figure 44: QoS

User will get the default values with VLAN QoS Default Policy.

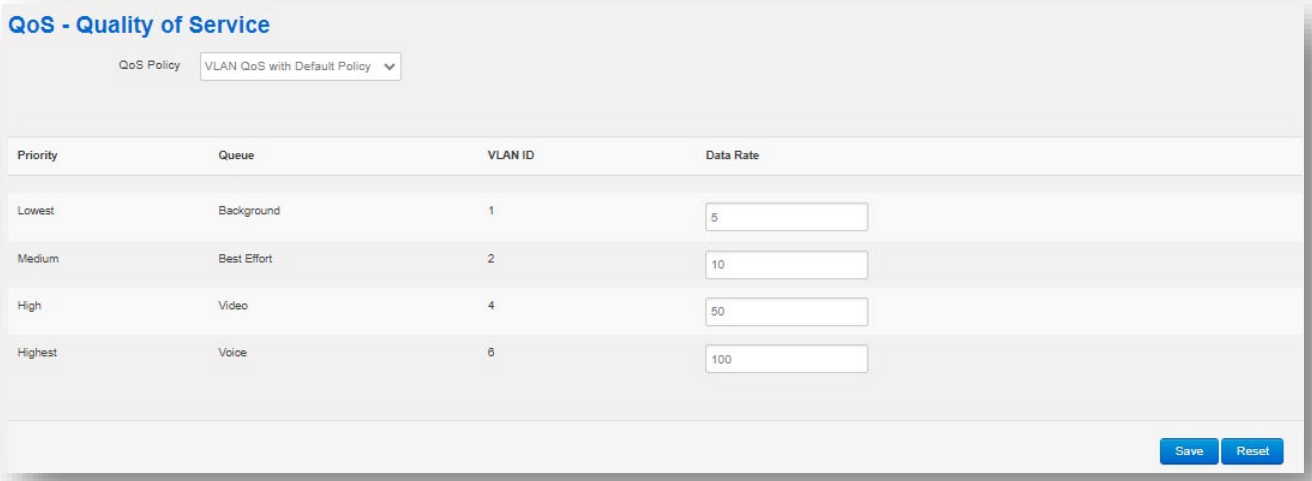


Figure 45: VLAN QoS Default policy

Note: User can change the default values with VLAN QoS Custom Policy.

User will get the default values with DSCP QoS Default Policy.

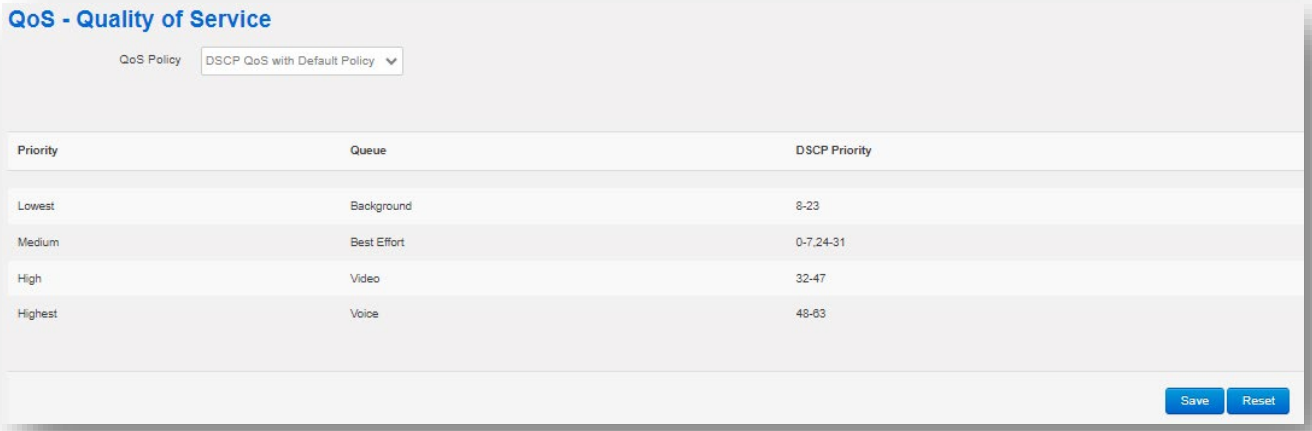


Figure 46: DSCP QoS with Default priority

Note: User can change the default values with DSCP QoS Custom Policy.

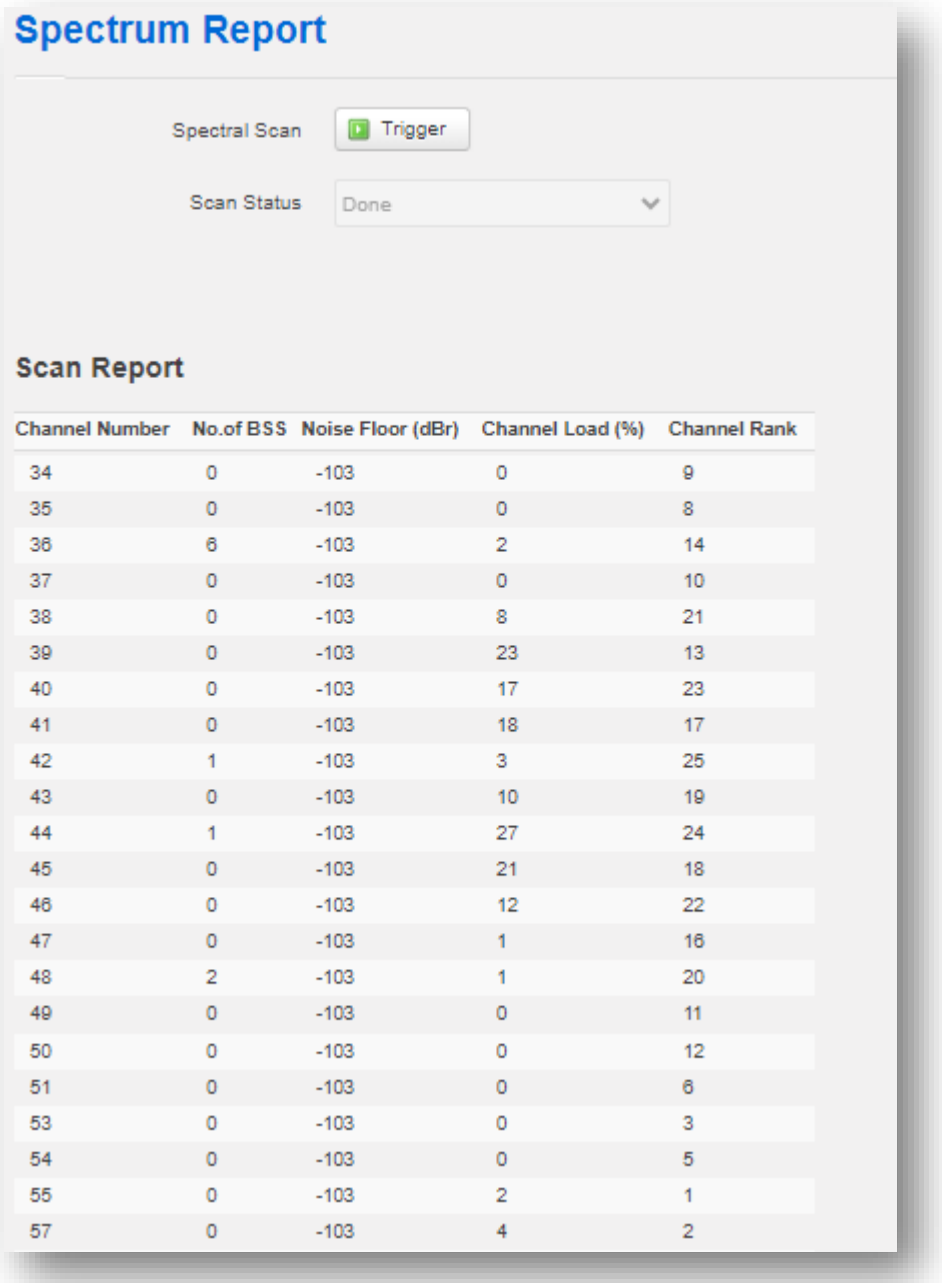
S. No	Field	Description
1.	QoS Policy	User can Enable/Disable option from the dropdown.

Table 34: QoS Description

Click on **"Save"** to save the data entered or click "**Reset**" to remove all the data.

4.5.12 Spectrum Report

Spectrum scan is used to analyze the interference in the 5 GHz Spectrum. After spectrum scan user will get below spectrum report. Channel ranking is based on number of BSS found, Noise floor and Channel Load. User can select the best non-interference channel based on the channel rank. Rank 1 is least interference channel and Rank 100 is highest interference channel.



Channel Number	No.of BSS	Noise Floor (dBr)	Channel Load (%)	Channel Rank
34	0	-103	0	9
35	0	-103	0	8
36	6	-103	2	14
37	0	-103	0	10
38	0	-103	8	21
39	0	-103	23	13
40	0	-103	17	23
41	0	-103	18	17
42	1	-103	3	25
43	0	-103	10	19
44	1	-103	27	24
45	0	-103	21	18
46	0	-103	12	22
47	0	-103	1	16
48	2	-103	1	20
49	0	-103	0	11
50	0	-103	0	12
51	0	-103	0	6
53	0	-103	0	3
54	0	-103	0	5
55	0	-103	2	1
57	0	-103	4	2

Figure 47: Spectrum

Note: If the DCS Scheduler is enabled, Spectrum scanning is not allowed.

4.6 User Management

4.6.1 User configuration

The User configurations let the user to **add/update/Delete** with new or existing user data.

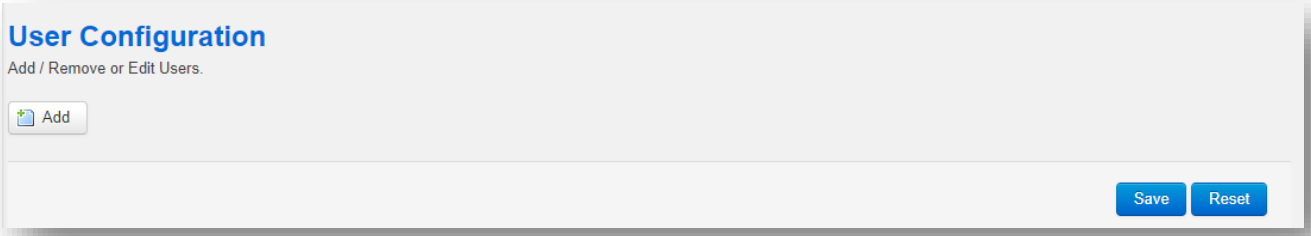


Figure 48: User Configuration

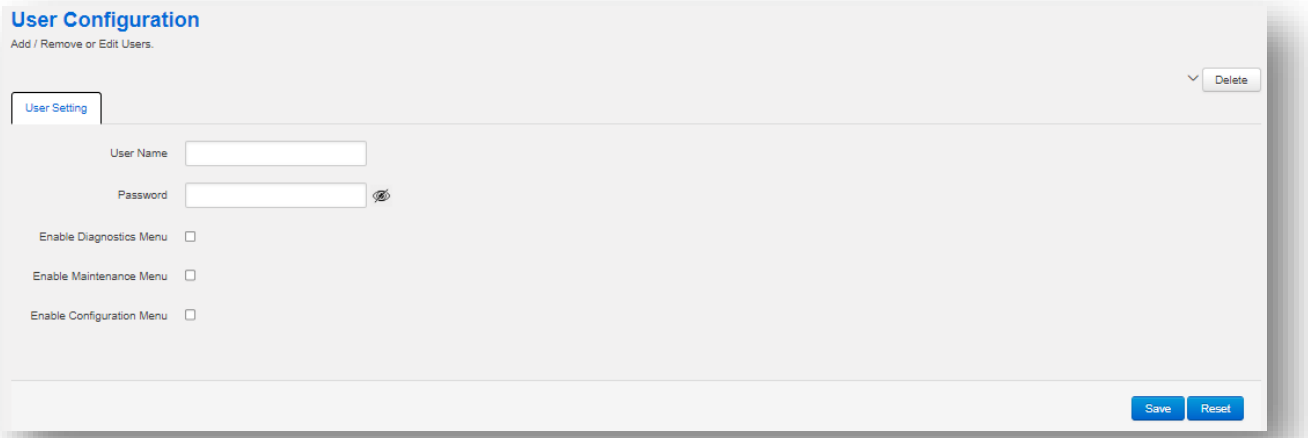


Figure 49: Adding new user

S. No	Field	Description
1.	Username	Enter the Username.
2.	Password	Enter the Password.
3.	Enable Diagnostics Menu	Click on checkbox to Enable.
4.	Enable Maintenance Menu	Click on checkbox to Enable.
5.	Enable Configuration Menu	Click on checkbox to Enable.

Table 35: User Configuration description

Click on **"Save"** to save the data entered or click "**Reset**" to remove all the data.

4.7 Monitor

All statistical information such as reports, and statistical graphs will be rendered to the user. It includes Realtime Graphs & Reports. It has various options which are listed below;

- Realtime Graphics

4.7.1 Realtime Graphs

The real time load graph shows the CPU load of the last 3 min and the graph is refreshed at every 3 sec intervals. In addition to the displayed graph the user can find the average and the peak CPU load values of the respective UBR. The various parameters of the Real-time graphs screen is given below:

- Load
- Traffic
- Signal & Noise
- Channel Interference
- Tx Power

4.7.1.1 Load

Real time load is depicted by the total CPU consumed by all the processes.

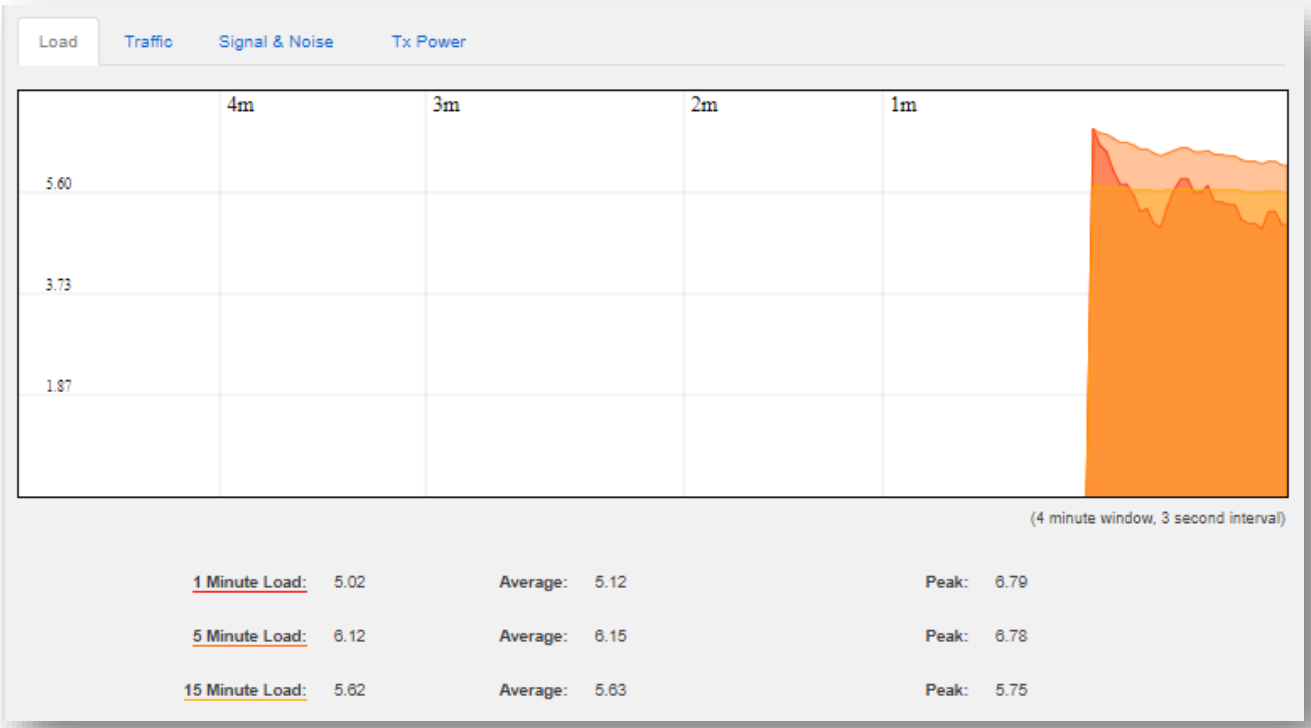


Figure 50: Load Graph

4.7.1.2 Traffic

Real time traffic is rendered to end-users in the form of graphs.

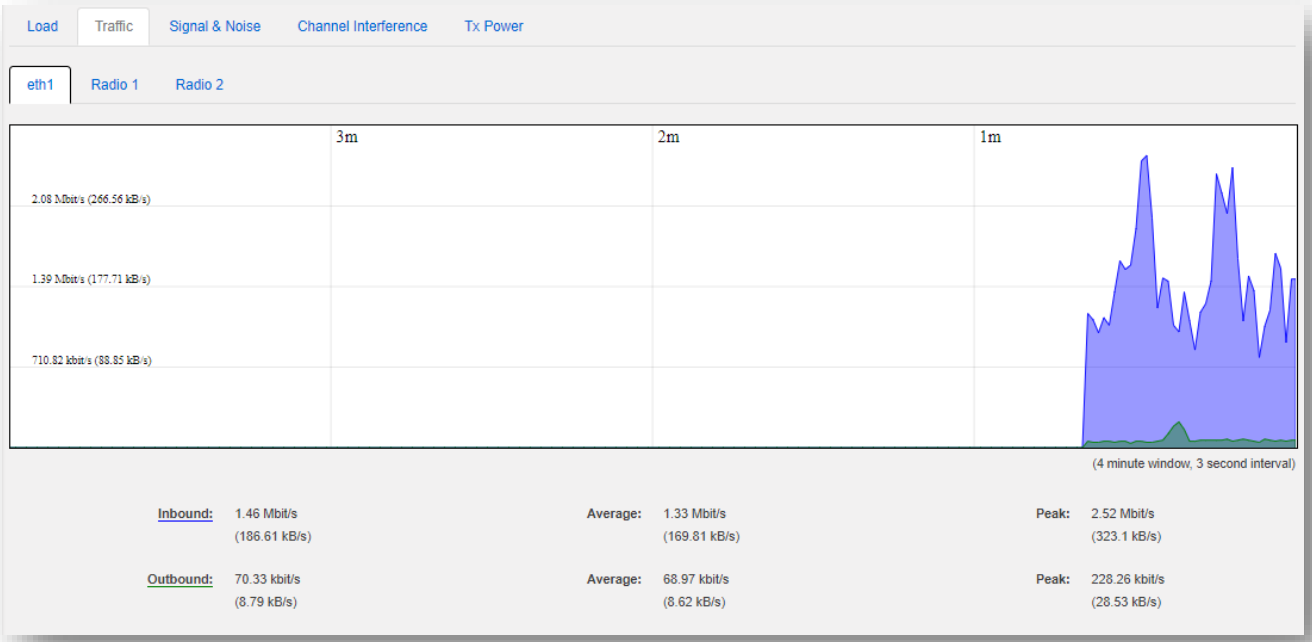


Figure 51: eth1

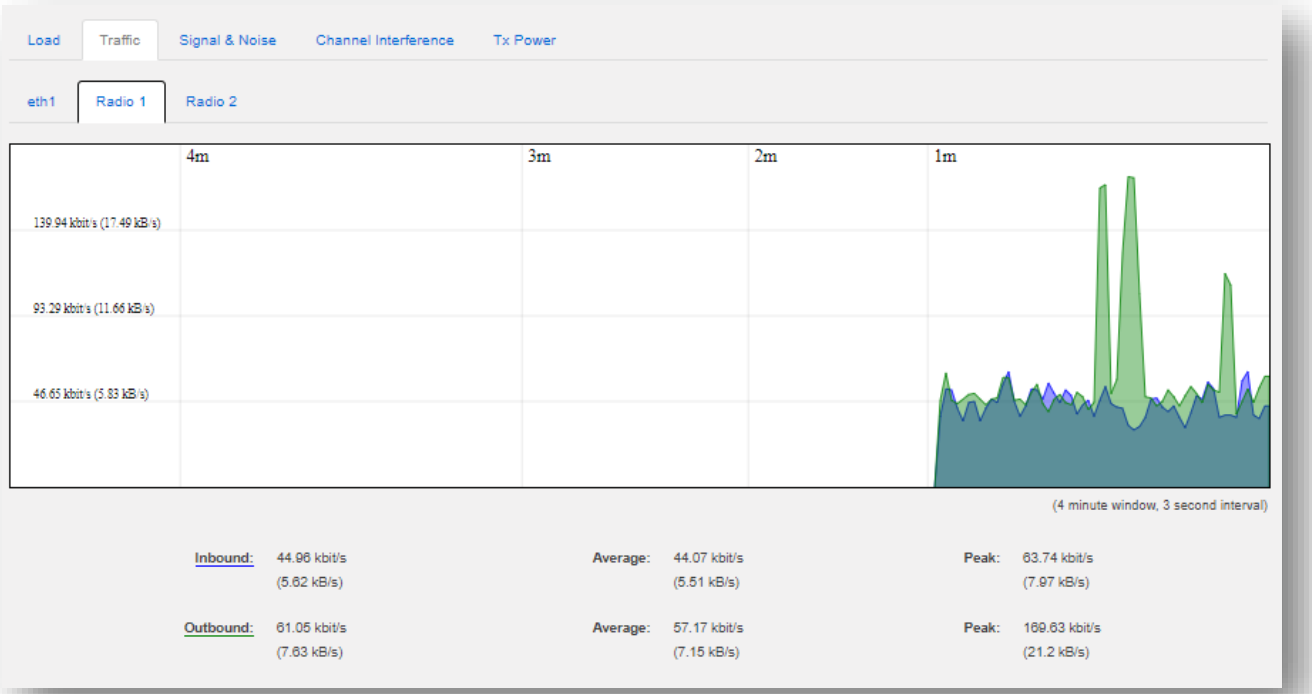


Figure 52: Radio 1

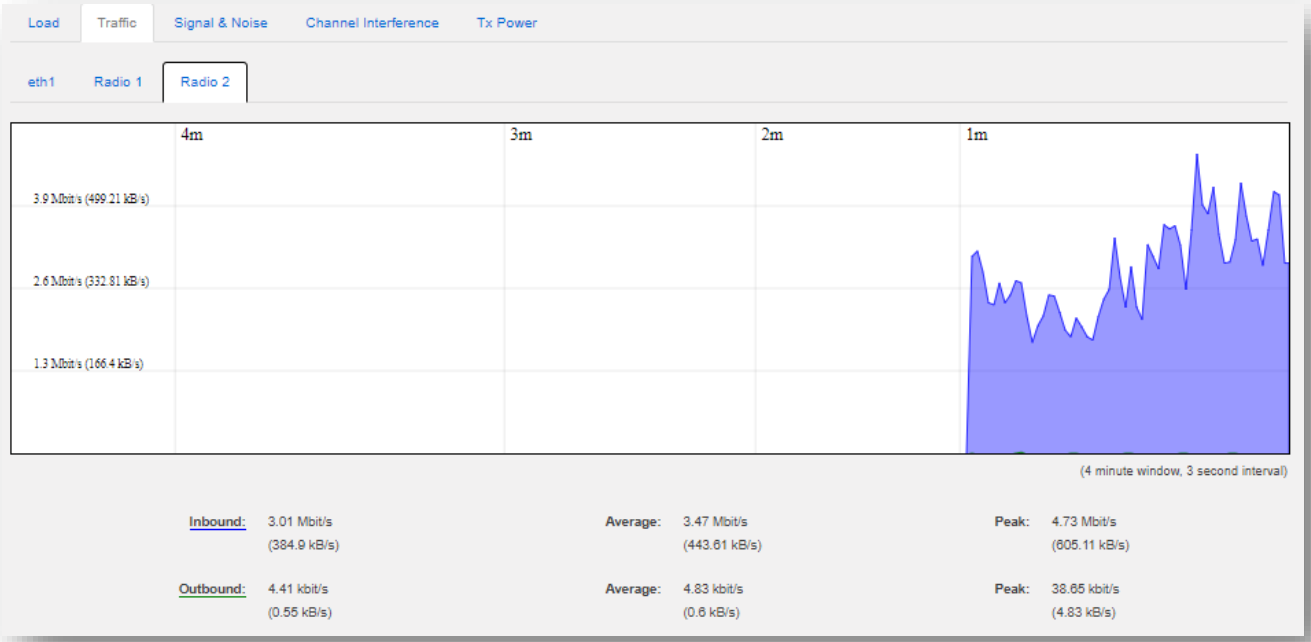


Figure 53: Radio 2

S. No	Field	Description
1.	Eth1	Displays the traffic utilization (Minimum/maximum/average) Ethernet interface downlink/Uplink).
2.	Radio 1	Displays the traffic utilization (Minimum/maximum/average) wireless interface downlink/Uplink).
3.	Radio 2	Displays the traffic utilization (Minimum/maximum/average) wireless interface downlink/Uplink).

Table 36: Traffic Description

4.7.1.3 Signal & Noise

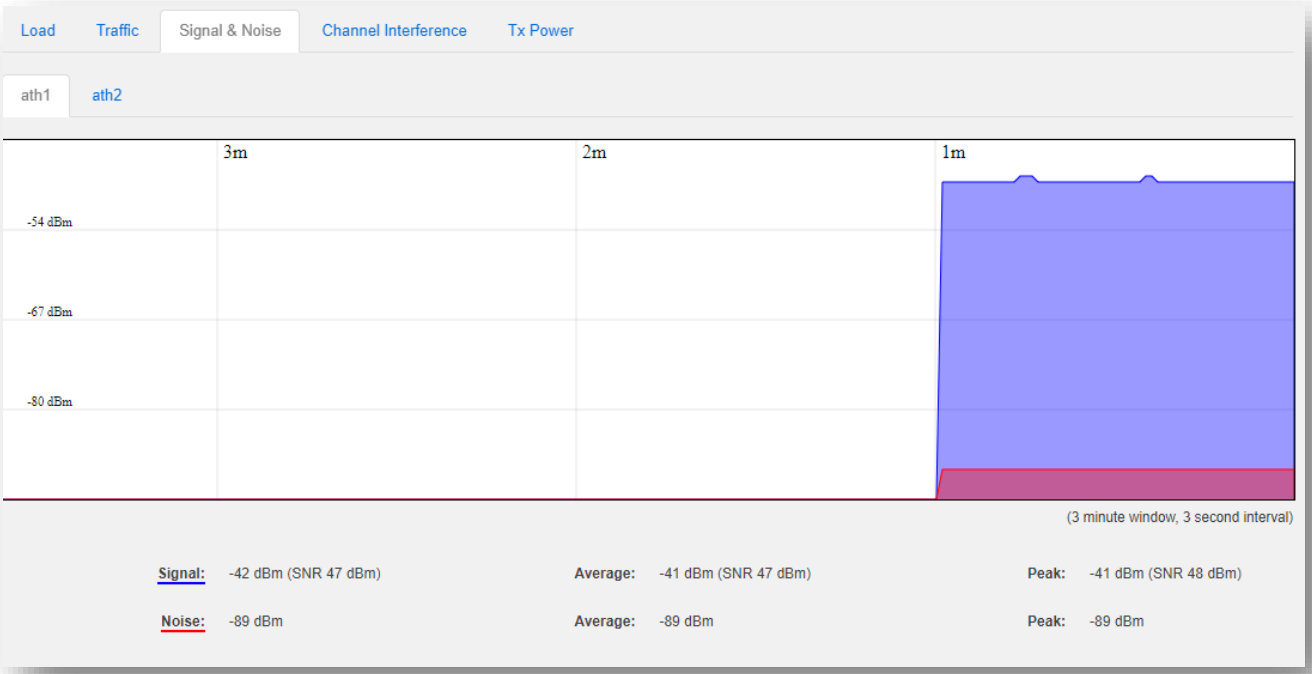


Figure 54: Signal & Noise ath1

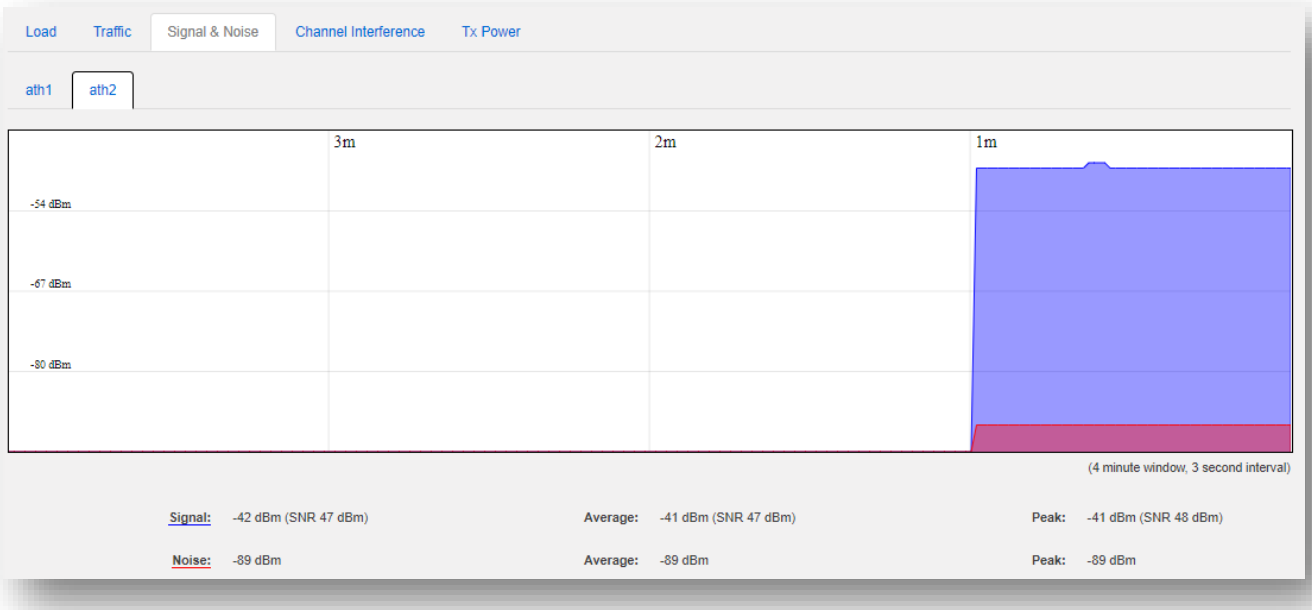


Figure 55: Signal and Noise ath2

4.7.1.4 Channel Interference

Channel interference refers to the phenomenon where multiple communication signals operating on nearby frequencies disrupt each other, leading to a degradation in the quality of communication.

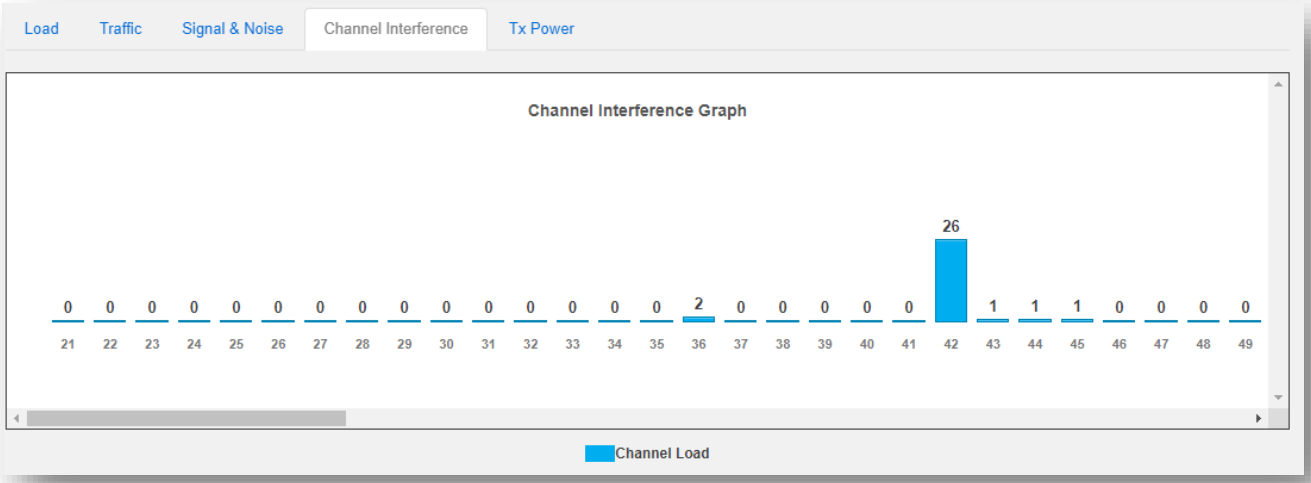


Figure 56: Channel Interference

4.7.1.5 Tx Power

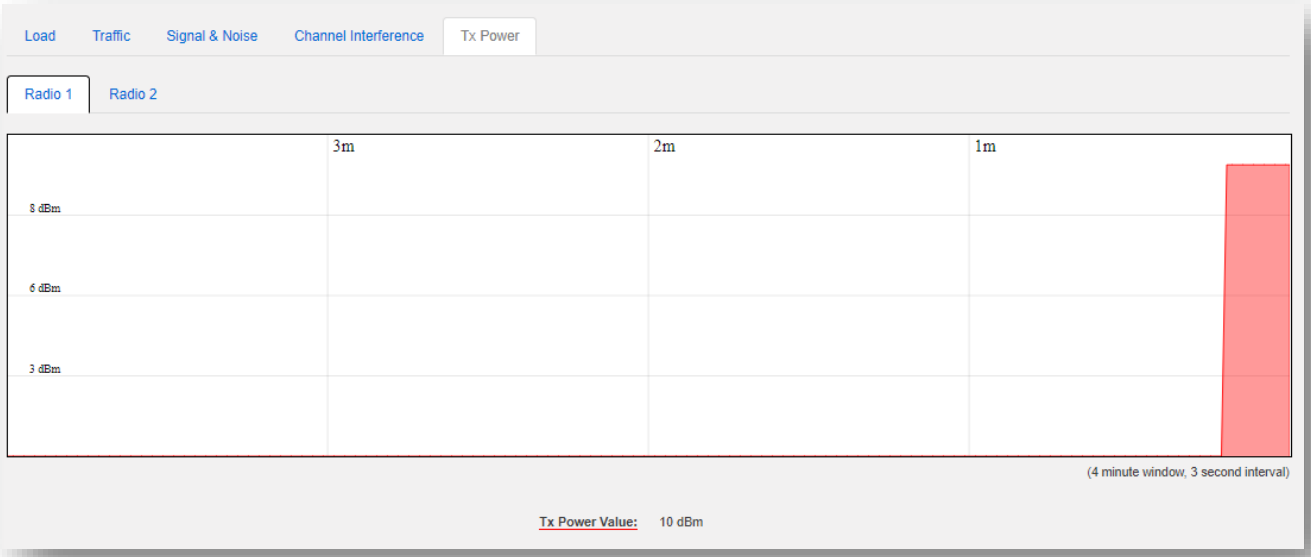


Figure 57: Tx Power Radio 1

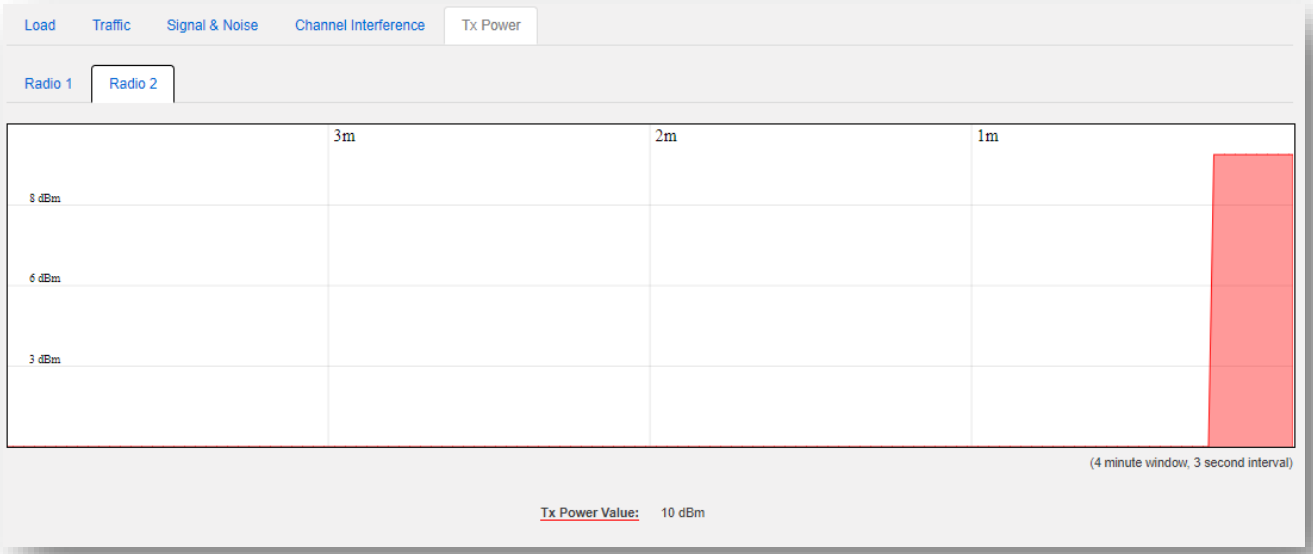


Figure 58: Tx Power Radio 2

4.8 Diagnostics

The Diagnostics has various options for user which are listed below

- System Log
- Kernel Log
- Diagnostics Tools
- Throughput Estimation
- DDRS Logs
- DCS Logs
- Audit Logs
- Debug Logs

4.8.1 System Log

This screen is provided to view the UBR logs if the user faces any issue or wants to view the back-end logs. Only new logs are shown in this screen. However, old logs are stored in the database but will not be shown in this screen.

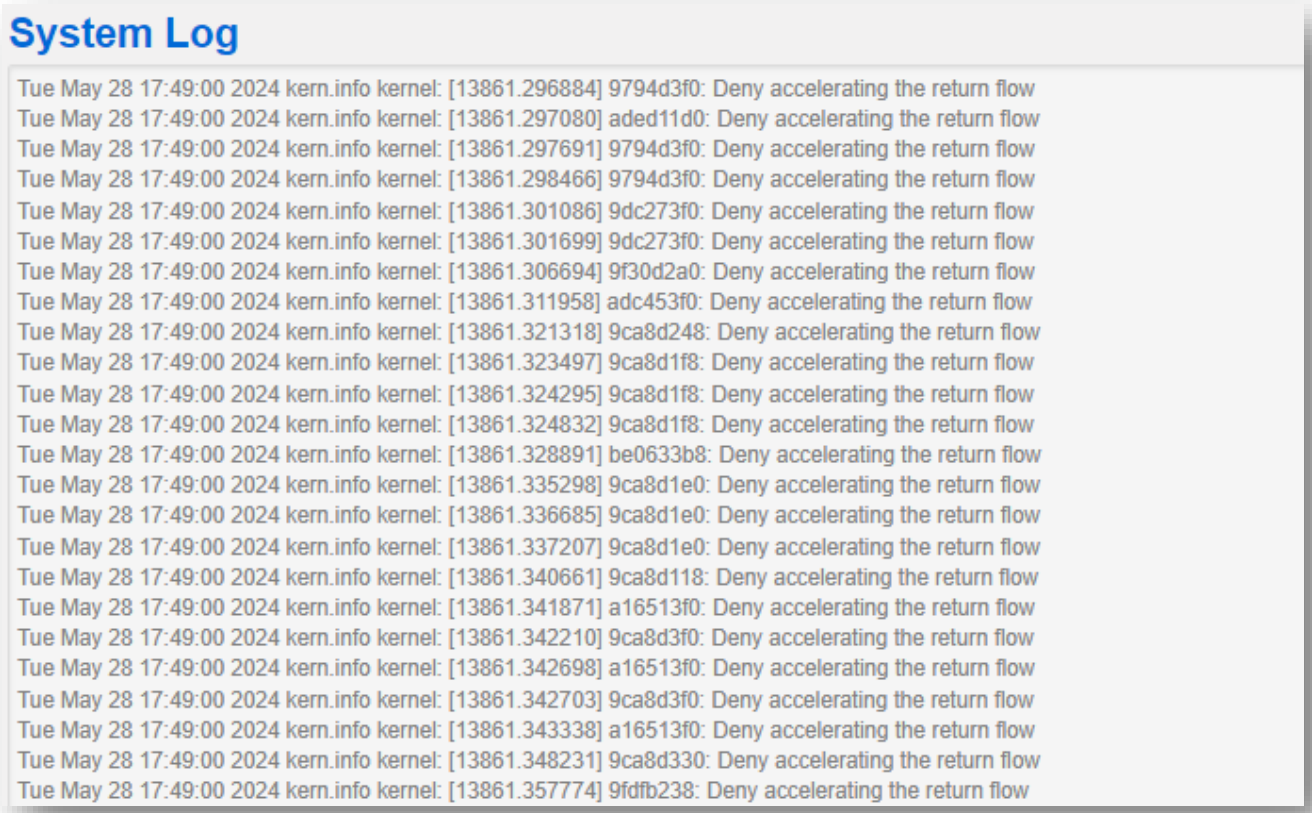


Figure 59: System Log

4.8.2 Kernel Log

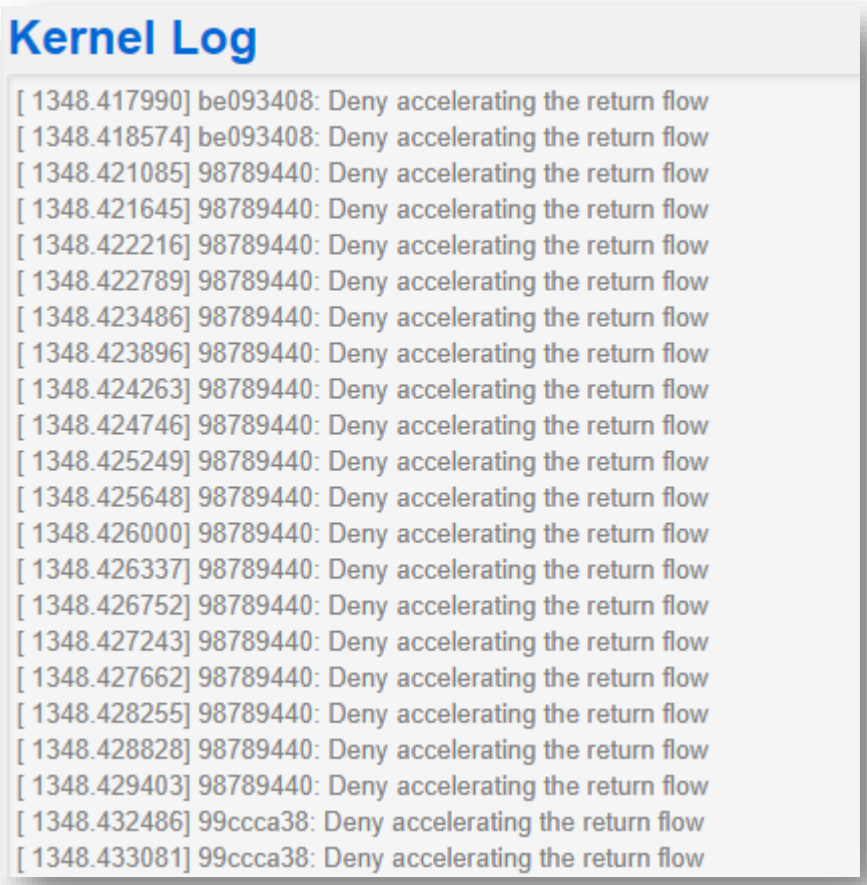


Figure 60: Kernel Log

4.8.3 Diagnostics Tools

4.8.3.1 Network Utilities

User can Ping/Traceroute/Nslookup for any network IP at the time of troubleshooting.

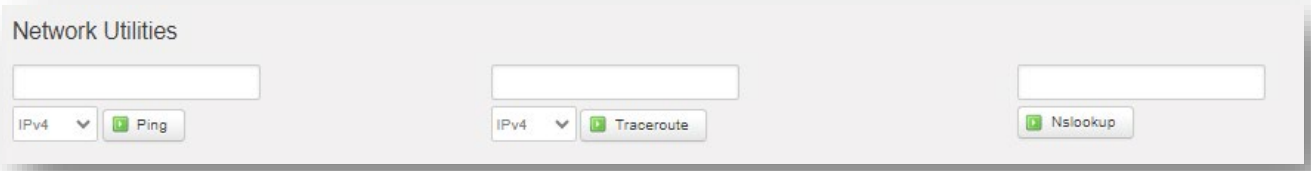


Figure 61: Network Utilities

4.8.3.2 TWAMP

TWAMP defines a standard for measuring round-trip network performance between any two devices. TWAMP-Test provides Latency, Packets lost, Jitter, Hops/TTL, and processing time measurement. With this, we can measure network performance between the TWAMP server and UBR network path.

Figure 62: TWAMP

S. No	Field	Description
1.	Server IP	Displays/Configure the TWAMP server IP.
2.	ToS	User can assign the priority of IP packet.
3.	Interval	User can configure the interval in range of 1-1000 ms.
4.	Packet count	User can configure the packet count ranging from 1 to 20.
5.	Packet Length	User can configure the packet length ranging from 160 to 1472 Bytes.

Table 37: TWAMP Description

4.8.4 Throughput Estimation

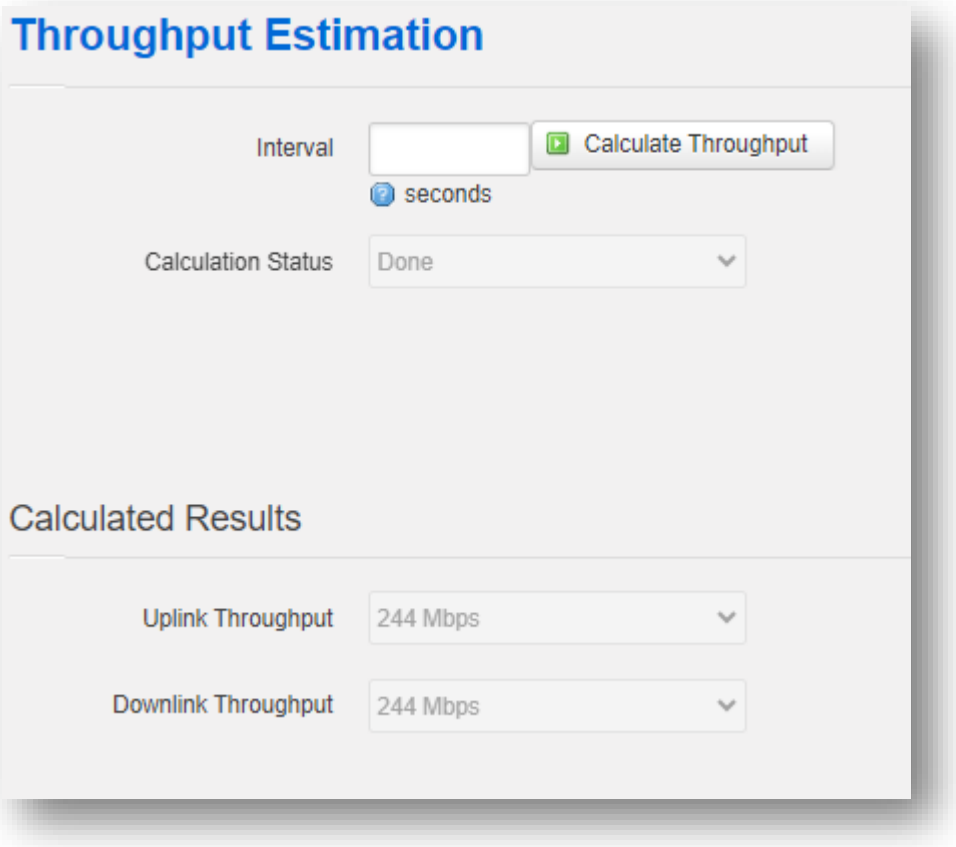


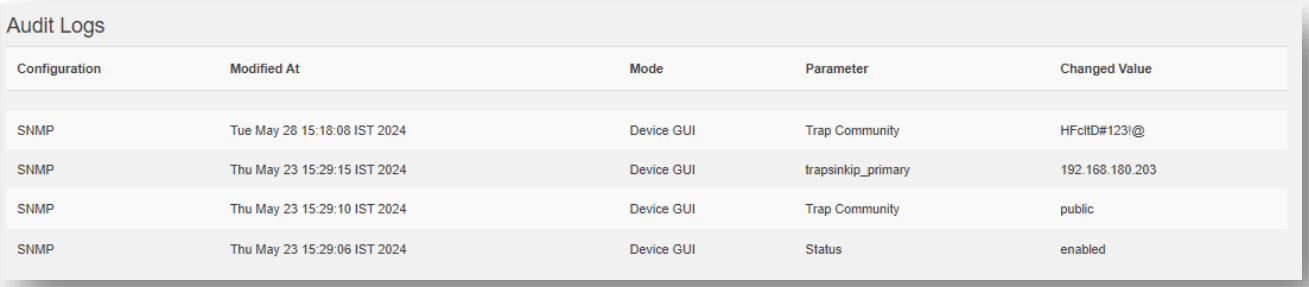
Figure 63: Throughput Estimation

S. No	Field	Description
1.	Interval	Display/configure the interval in seconds ranging between 10 to 600 seconds.
2.	Calculated Results	Displays the estimated Uplink Throughput & Downlink Throughput

Table 38: Throughput Estimation Description

4.8.5 Audit Logs

Audit logs are detailed records that track and document events, actions, and changes within a system or application. They provide a chronological account of user activities, system operations, and security events, allowing for monitoring, troubleshooting, and compliance verification. By capturing this data, audit logs help ensure transparency, accountability, and traceability in our EMS.



Audit Logs

Configuration	Modified At	Mode	Parameter	Changed Value
SNMP	Tue May 28 15:18:08 IST 2024	Device GUI	Trap Community	HFcItD#123!@
SNMP	Thu May 23 15:29:15 IST 2024	Device GUI	trapsinkip_primary	192.168.180.203
SNMP	Thu May 23 15:29:10 IST 2024	Device GUI	Trap Community	public
SNMP	Thu May 23 15:29:06 IST 2024	Device GUI	Status	enabled

Figure 64: Audit Log

4.8.6 DCS Logs

DCS Log

Radio 1

```
16:20:42 - Initial home channel 40
```

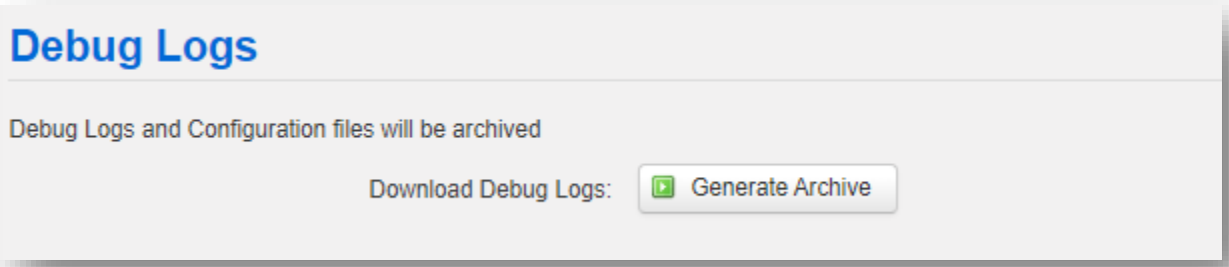
Radio 2

```
16:20:42 - Initial home channel 120
```

Figure 65: Dcs Logs

4.8.7 Debug Log

Click on **Generate Archive** to archive the debugged logs. The Logs is downloaded in .tar format



Debug Logs

Debug Logs and Configuration files will be archived

Download Debug Logs: Generate Archive

Figure 66: Debug Log

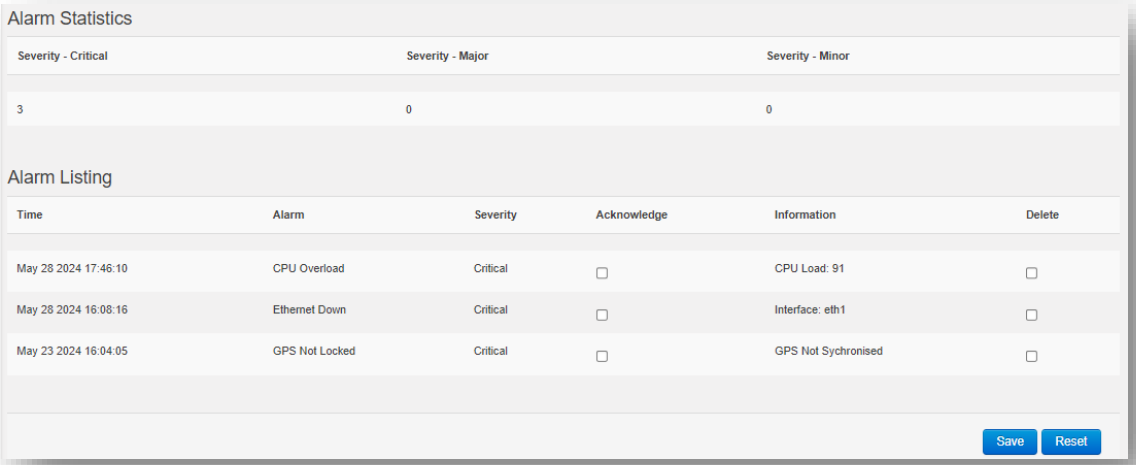
4.9 Alarm Summary

The alarm Summary provides two functionalities to the user which are listed as follows;

- Active alarm
- Historical Alarm

4.9.1 Active Alarm

The active alarm window displays the number of alarm that are active based on severity



Alarm Statistics

Severity - Critical	Severity - Major	Severity - Minor
3	0	0

Alarm Listing

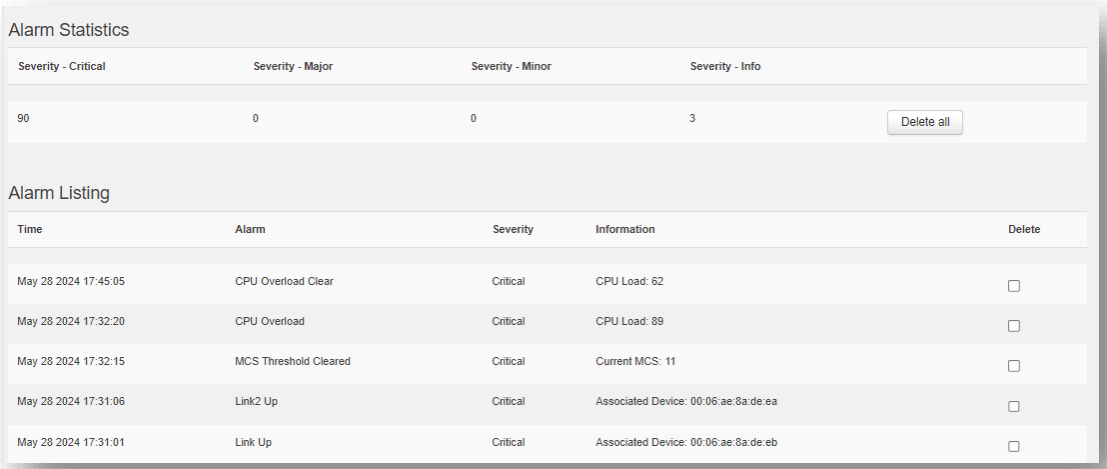
Time	Alarm	Severity	Acknowledge	Information	Delete
May 28 2024 17:46:10	CPU Overload	Critical	☐	CPU Load: 91	☐
May 28 2024 16:08:16	Ethernet Down	Critical	☐	Interface: eth1	☐
May 23 2024 16:04:05	GPS Not Locked	Critical	☐	GPS Not Sychronised	☐

Save Reset

Figure 67: Active Alarm

Note: User can acknowledge the alarm here, by clicking the checkbox.
If user acknowledges – alarms move to the historical alarms.

4.9.2 Historical Alarm



Alarm Statistics

Severity - Critical	Severity - Major	Severity - Minor	Severity - Info	
90	0	0	3	Delete all

Alarm Listing

Time	Alarm	Severity	Information	Delete
May 28 2024 17:45:05	CPU Overload Clear	Critical	CPU Load: 62	☐
May 28 2024 17:32:20	CPU Overload	Critical	CPU Load: 89	☐
May 28 2024 17:32:15	MCS Threshold Cleared	Critical	Current MCS: 11	☐
May 28 2024 17:31:06	Link2 Up	Critical	Associated Device: 00:06:ae:8a:de:ea	☐
May 28 2024 17:31:01	Link Up	Critical	Associated Device: 00:06:ae:8a:de:eb	☐

Figure 68: Historical Alarm

Click on **"Save"** to save the data entered or click "**Reset**" to remove all the data.

4.10 Logout

Click on the Logout button to exit the window.

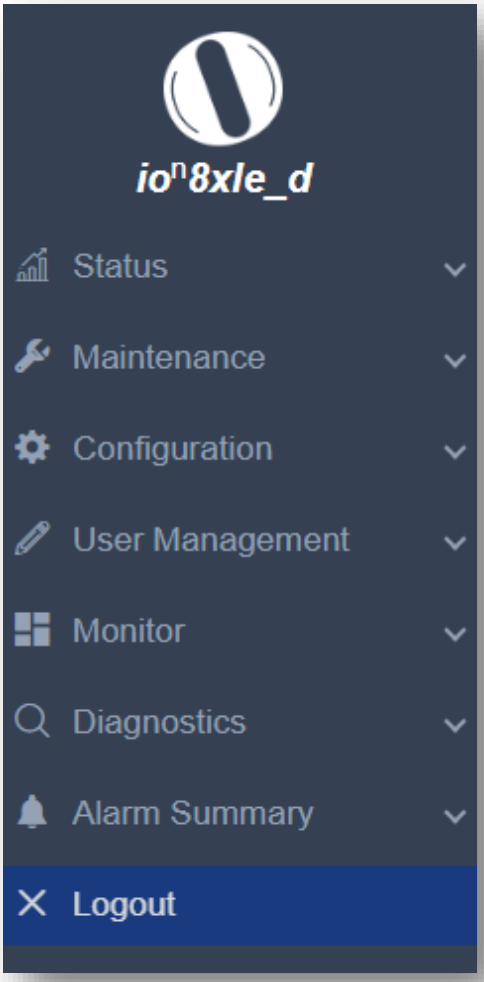


Figure 69: Logout

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The Company's in-house R&D Centers located at Gurgaon & Bengaluru along with invested R&D Houses and other R&D collaborators at different locations in India and abroad, innovate a futuristic range of technology products and solutions. HFCL has developed capabilities to provide premium quality Optical Fiber and Optical Fiber Cables, state-of-the-art telecom products including 5G Radio Access Network (RAN) products, 5G Transport Products, WiFi Systems (WiFi 6, WiFi 7), Unlicensed Band Radios, Switches, Routers and Software Defined Radios.

The Company has state-of-the-art Optical Fiber and Optical Fiber Cable manufacturing plants at Hyderabad, Optical Fiber Cable manufacturing plant in Goa and in its subsidiary HTL Limited at Chennai.

We are a partner of choice for our customers across India, Europe, Asia Pacific, Middle East, Africa, and USA. Our commitment to quality and environmental sustainability inspires us to innovate solutions for the ever-evolving customer needs.

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21/08/2024	A0-00	Initial Version	HFCL