ASCENT Communication Technology

AP214H GPON ONT

User Manual

Revision D

ACT 214H GPON HGU ONT User Manual

ACT Document Number: ACT 214H GPON HGU ONT

User Manual Revision D

This document is produced to assist professional and properly trained personnel with installation and maintenance issues for the product. The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

For more information, contact ACT: support@ascentcomtec.com

Revision History

Revision	Date	Reason for Change
A	12/17/2018	Initial release
B	01/07/2019	Updated pictures
C	04/09/2019	Minor updates
D	12/26/2023	Updated Chapter1 sub chapters

Contents

Chapter 1 Product Introduction

1.1 Product Description

ACT AP214H GPON ONT is series terminals are a combination of optical network units, WIFI, CATV, POTS and USB, Adopting high-performance ONU chips and low-power optical receiving technology can meet the needs of home optical fiber to the home.

Figure 1: AP214H GPON ONT

1.2 Special Features

- Support EPON&GPON mode adaptive
- Support GPON WAN port with 1.244Gbps uplink / 2.488Gbps downlink link
- Support 4x 10/100/1000BASE-T Ethernet RJ45 Ports
- Support 1x POTS
- Support 2x USB
- Support 802.11b/g/n speed up to 300Mbps
- Support 802.11a/b/g/n/ac speed up to 867Mbps

1.3 Technical Parameters

Item	Description
PON Interface	1 G/EPON port (EPON PX20+ and GPON Class B+)
	Receiving Sensitivity: ≤-27 dBm
	Transmitting Optical Power: 0 dBm to +4 dBm
	Transmission Distance: 20 km
Wavelength	TX: 1310 nm, RX: 1490 nm
	SC/UPC Connector
Optical Interface	(SC/APC Connector for CATV)
	1 FXS, RJ11 connectors
	Support: G.711/G.723/G.726/G.729 codec
	Support: T.30/T.38/G.711 Fax mode, DTMF Relay
POTS Interface	Line testing according to GR-909
LAN Interface	LAN port for GE and FE automatic adaptive mode. Full/Half, RJ45 connector
CATV Interface	RF, optical power: +2 to -18dBm
	Optical Reflection Loss: ≥45Db
	Optical Receiving Wavelength: 1550±10nm
	RF Frequency Range: 47 to 1000MHz,
	RF Output Impedance: 75Ω RF output level: 78dBμV
	AGC range: 0 to -15dBm
	MER: ≥32dB@-15dBm
Wireless	Compliant with IEEE802.11b/g/n,
	Operating Frequency: 2.400-2.4835GHz
	Support MIMO, Rate up to 300Mbps, 2T2R, 2 external antenna 5dBi,
	Support: multiple SSID
	Channel: Auto
	Modulation Type: DSSS, CCK and OFDM
	Encoding Scheme: BPSK, QPSK, 16QAM and 64QAM
Push-Button	3, For Function of Reset, WLAN, WP
	Temperature: 0 °C to +50 °C
Operating Condition	Humidity: 10 % to 90 % (non-condensing)
	Temperature: -30 °C to +60 °C
Storing Condition	Humidity: 10 % to 90 %(non-condensing)
Power Supply	DC 12V/1A
Power Consumption	≤6W
Dimension	155mm×92mm×34mm(L×W×H)
Net Weight	≤0.24Kg

Table 1: Technical Parameters

1.4 The use of Instructions

This device should be connected by an external power adapter. First of all, connect the DC12V output cable of the adapter to the PWR port of the device, and then plug in AC 220V power supply. When the panel PWR lights, the device is powered on successfully.

1.4.1 Product Feature and Model list

XPON Model	Feature
AP214HC	4G+1POTS+2.4G&5G WIFI+CATV+XPON+USB
AP214H	4G+1POTS+2.4G&5G WIFI+XPON+USB

Table 2: Product Features

1.5 Panel Description

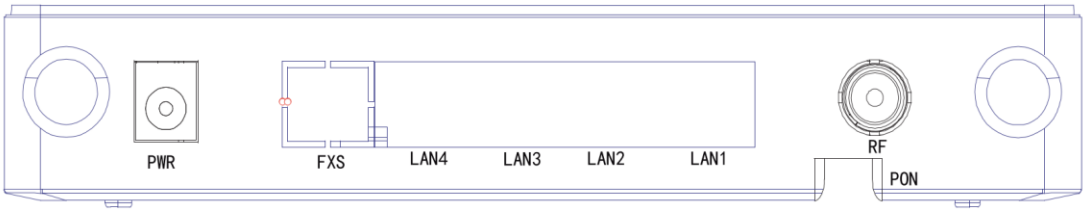


Figure 2: Panel Description

Interface / Button	Interface / button descriptions
PWR	DC 12V power input interface
PON	EPON/GPON/CATV fiber interface, SC/APC
LAN1 to LAN4	10/100/1000Mbps Adaptive ethernet interface
USB1/USB2	USB2.0 interface
RST	Reset and restore factory configuration
WLAN	Enable and disable WIFI function
RF	CATV RF output interface
FXS	POTS interface, RJ11 connector

Table 3: Panel Description

1.6 Indicator Description

LED	Color	Status	Description
POWER	Green	On	The ONU is powered on properly.
		Off	The ONU is not powered on.
PON	Green	On	The ONU is connected to the OLT and is registered successfully
		Blink	The ONU is connected to the OLT but is not registered
		Off	The ONU is not connected to the OLT
LOS	Red	On	The ONU detects continuously transmitting optical signal.
		Blink	The ONU receives low optical power.
		Off	The ONU receives optical power normally.
LAN1/LAN4	Green	On	The network interface is

			connected.
		Blink	The network port has data transmission
		Off	The device system runs abnormally.
USB1/USB2	Green	On	USB port has been connected and works in host mode, but there is no data transmission.
		Blink	With traffic flow transmission
		Off	No power on or USB port not connected
2.4G	Green	On	Indicates that the WIFI function opens.
		Blink	Indicates that the WIFI Data is being transmitted.
		Off	Indicates that the device is powered off or the WIFI function is disabled
5G	Green	On	Indicates that the WIFI function opens.
		Blink	Indicates that the WIFI Data is being transmitted
		Off	Indicates that the device is powered off or the WIFI function is disabled.
CATV	Green	On	Indicates that the CATV receives normal optical power.
		Off	Indicates that the CATV receives low optical power.
FXS	Green	On	Indicates that the soft switch has been successfully registered, Input optical power is but there is no traffic now.
		Blink	Indicates that there is traffic flow transmission
		Off	Indicates that the system is not powered on or cannot register with the soft switch

Table 4: Indicator Description

1.7 WiFi Features

2.4G/5.8G Parameter	**Specification**
Standard	IEEE 802.11 b/g/n @ 2.4G Operating frequency: 2.400GHz to 2.4835GHz IEEE 802.11 ac/a/m @ 5.8G Operating frequency: 5.150GHz to 5.825GHz
Antenna	2* 5dBi Antennas
Date Rate	2.4G 2*2 MIMO, rate up to 300Mbps; 5.8G 2*2 MIMO, rate up to 867Mbps

Table 5: WiFi Features

1.8 PON Interface

Parameter	**Specification**
Wavelength	Transmitting end: 1310 +/- 20nm Receiving end: 1490 +/- 10nm
PON Interface Standard	GPON: ITU-TG.984.x, Class B+
Output Optical Power	0.5dBm to 5dBm
Optical Receiver Sensitivity	-8dBm to -28dBm

Table 6: PON Interface

1.9 POTS Interface

Parameter	Specification
Standard	Support: G.711/G.723/G.726/G.729 codec Support: T.30/T.38/G.711 Fax mode, DTMF Relay Line testing according to GR-909

Table 7: POTS Interface

2.0 CATV Features

Parameter	Specification
Wavelength	1550 +/- 10nm
Optical Receiving Range	0dBm to -18dBm
Frequency Range	47MHz to 1000MHz
RF Output Level	>70dBuv(-5dBm to -15dBm)
RF Output impedance	75ohm
MER	>32dB(-9dBm)

Table 8: CATV Features

Chapter 2 Quick Installation

2.1 Standard Packing Contents

When you receive our products, please check carefully to make sure that our products whether have some defects or not. If something wrong with shippings, please contact carrier; other damage or lack of some parts, please contact with dealer.

Contents	Description
ONU	1 pcs
Power Adapter	1 pcs
User Manual	1 pcs (Optional)
Cable	1 pcs

Table 9: Packing Contents

2.2 Quick Installation

Figure 3: Actual package content

- Connecting the optical fiber cable to the unit.
- Remove the protective cap of the optical fiber.
- Clean the end of the optical fiber with an optical fiber end cleaner.
- Remove the protective cap of the ONU optical interface (PON
- Connect the fiber to the PON port on the unit.

Note: When measuring the optical power before connecting to the ONU, it is recommended to use a PON Inline Power Meter. The receiver optical power should be between -7dbm and -28 dbm by using 1490nm.

While connecting, please note:

- Keep the optical connector and the optical fiber clean.
- Make sure there are no tight bends in the fiber and that the bending diameter is greater than 6cm. Otherwise, the optical signal loss may be increased, to the extent that signal may be unavailable.

- Cover all optic ports and connectors with protective cap to guard against dust and moisture when the fiber is not used.
- Apply power to the unit. If the product has the power button, please push the power button before used.
- After the ONU is power ON, Indicators should light up as for normal operation. Check whether the PON interface status LED (PON) is on continuously. If it is, the connection is normal; otherwise there is either problem of the physical connection or the optical level at either end. This may be caused by either too much or too little attenuation over the optical fiber. Please refer to the Panel Lights Description for normal LED activity.
- Check all signal levels and services on all the ONU communication ports.

2.3 Unit Installation Adjustment

Installing the ONU on a horizontal surface (Bench top)

Put the ONU on a clean, flat, sturdy bench top. You must keep the clearance for all sides of the unit to more than 10cm for heat dissipation.

Chapter 3 Configuration

After finishing the basic connection configuration, you can use its basic function. In order to satisfy service requirements, this charter provides the user parameter modification and individuation configuration description.

3.1 Login

The device is configured by the web interface. The following steps will enable you to login:

1. Conform “2.2 Quick Installation” to install;

2. The device management default IP address is 192.168.1.1;

3. Open your web browser, type the device IP in address bar;

4. Entry of the user name and password will be prompted. Enter the default login user name and password.

By default, there are two user levels for management. Administration level user name is "superadmin", password is "superadmin". Normal user level user name is "admin", password is "ascent".

The Administration account is able to access and modify all settings of ONU. It also can modify user account’s username and password.

The normal account can only be used to view configurations, status and configure few parameters.

Figure 4: Login Interface

3.2 Status

This part shows the main information of device and the active status about major services.

3.2.1 Device Information

This page shows the basic information about device, such as Device Name, LAN configuration information, IPv4 WAN connection information you have configured.

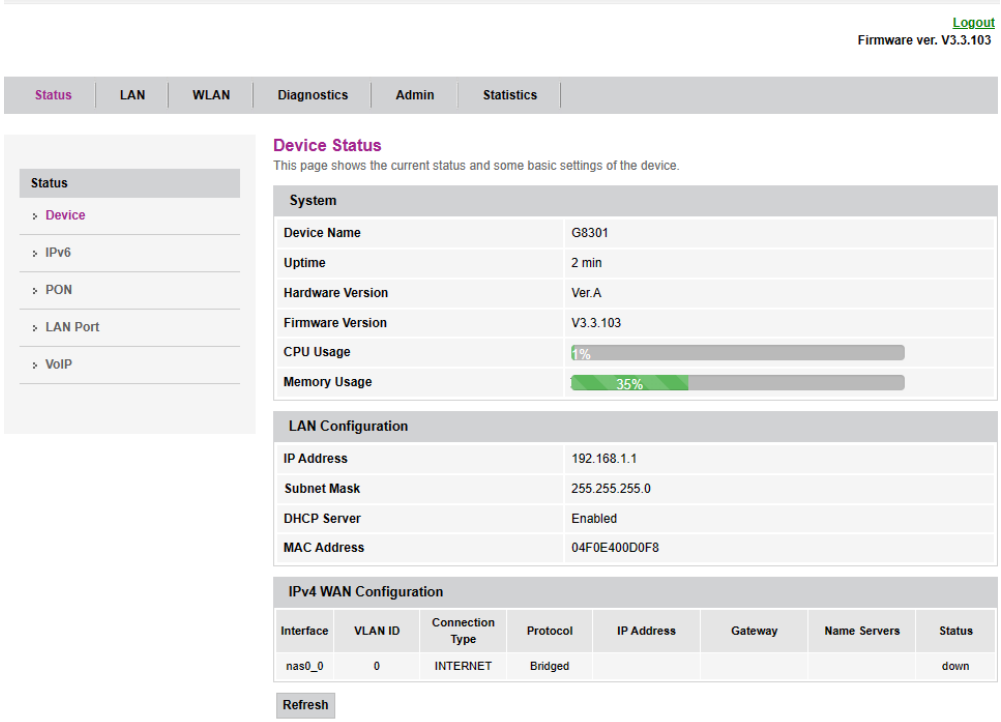


Figure 5: Device Information

3.2.2 Network Info

3.2.2.1 IPv6 WAN Connection Information

This page shows IPv6 WAN connection information you have configured.

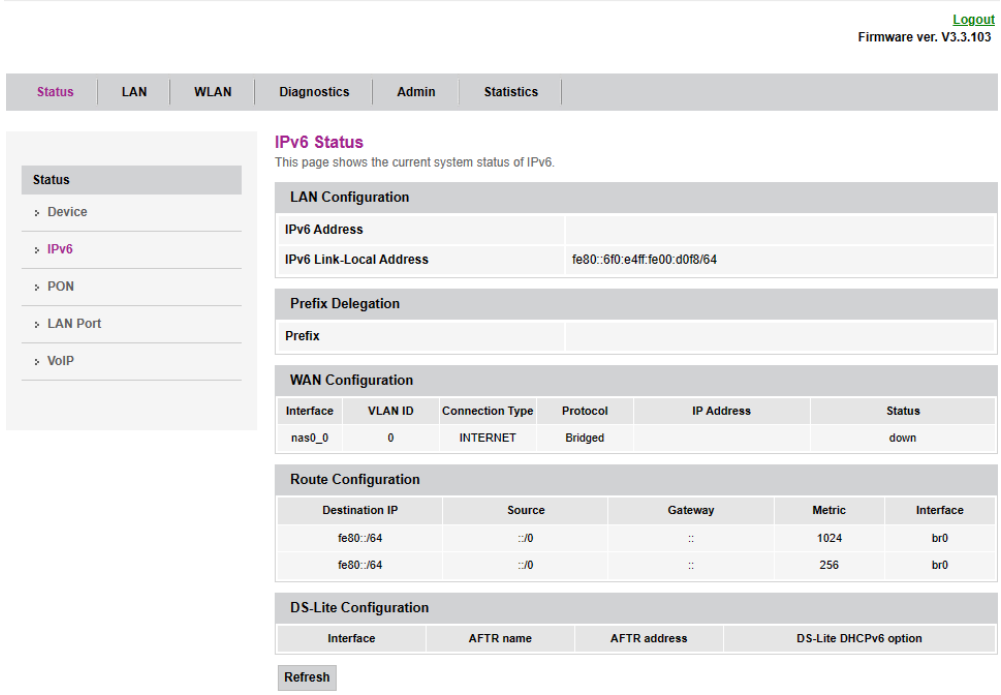


Figure 6: IPV6 WLAN Information

3.2.2.2 PON Information

This page shows the PON information, including PON and GPON status.

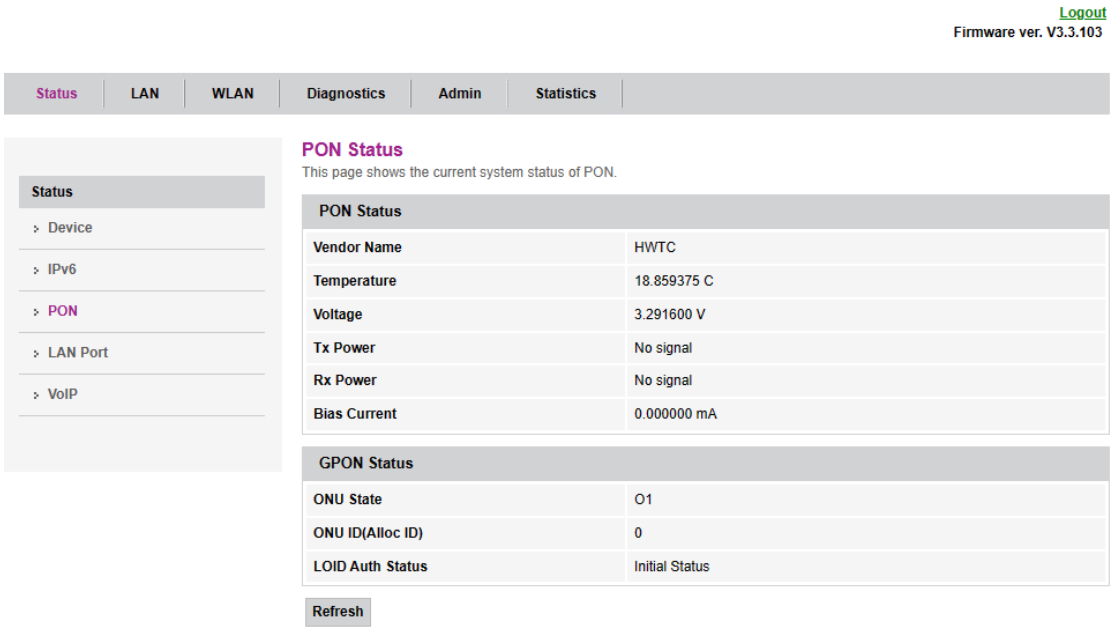


Figure 7: PON Status

3.2.2.3 LAN Interface Information

This page shows the Ethernet port information of LAN port status.

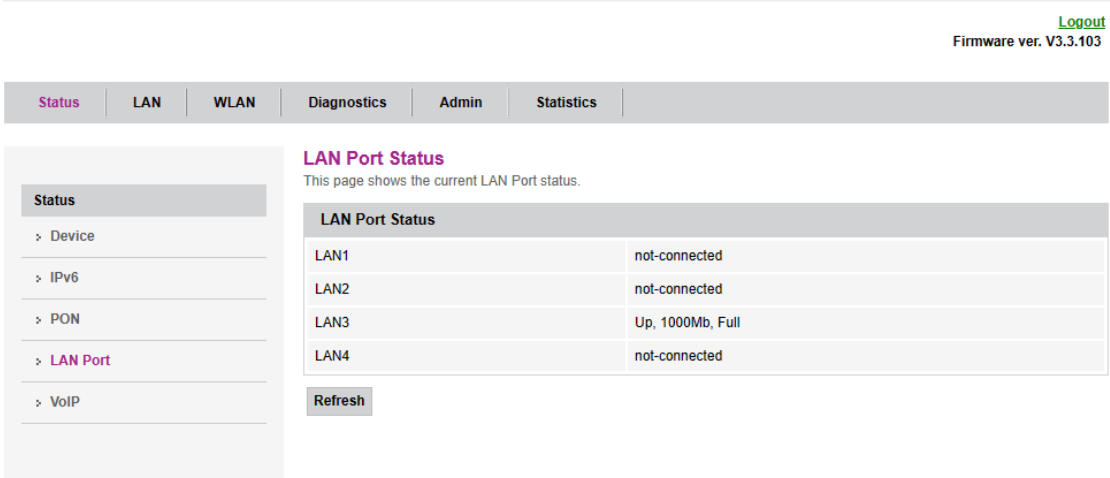


Figure 8: LAN Interface Information

3.2.2.4 VoIP Information

This page shows the register status of Port1 attention, you need to configure the part of VoIP Configuration. Otherwise, it couldn't be registered.

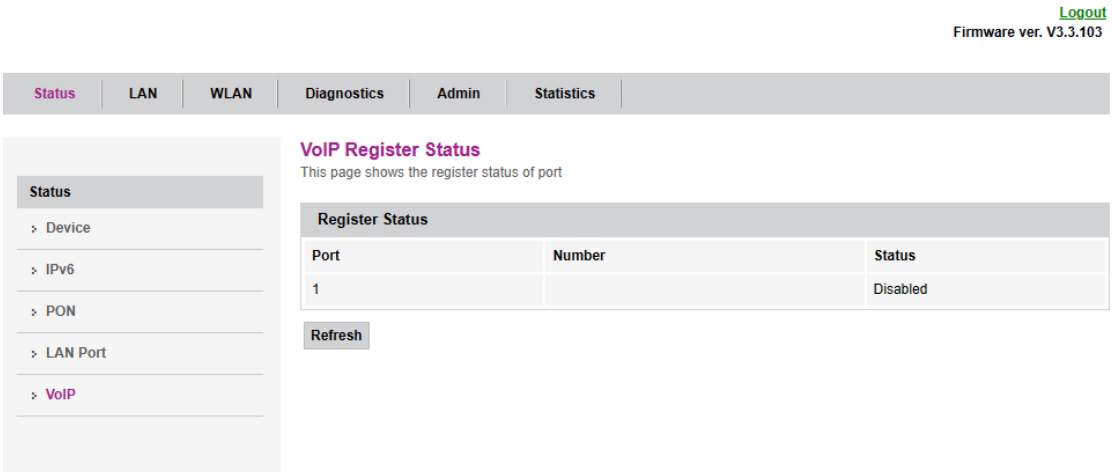


Figure 9: VoIP Information

3.3 LAN Interface Settings

This page shows the LAN Interface settings including basic LAN settings and LAN ports status.

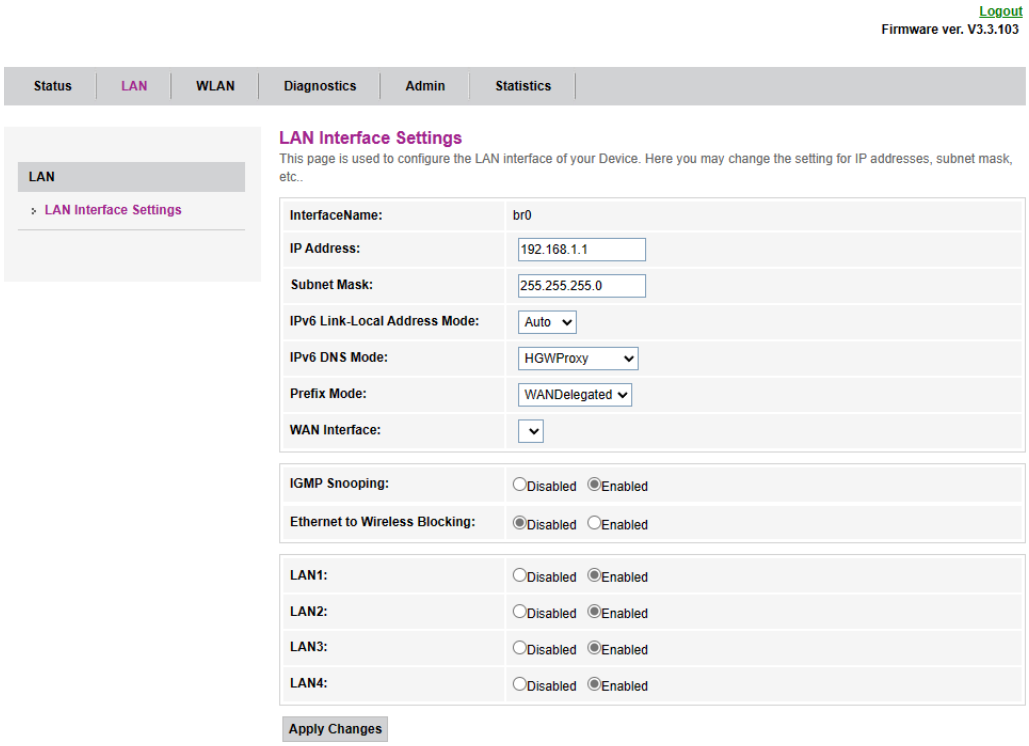


Figure 10: LAN Interface Settings

3.4 WLAN Interface Settings

3.4.1 WLAN0 Basic Information

This page shows the WLAN Interface information of WLAN0 (5GHz) basic information.

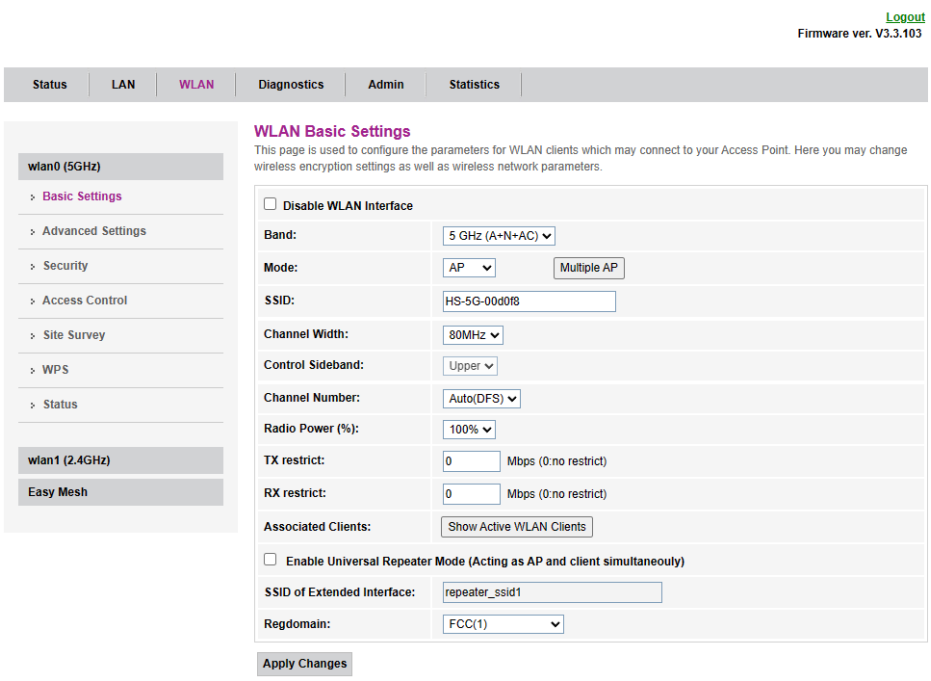


Figure 11: WLAN0 Basic Interface Information

3.4.2 WLAN0 Advanced Information

This page shows the WLAN Interface information of WLAN0 (5GHz) advanced information.

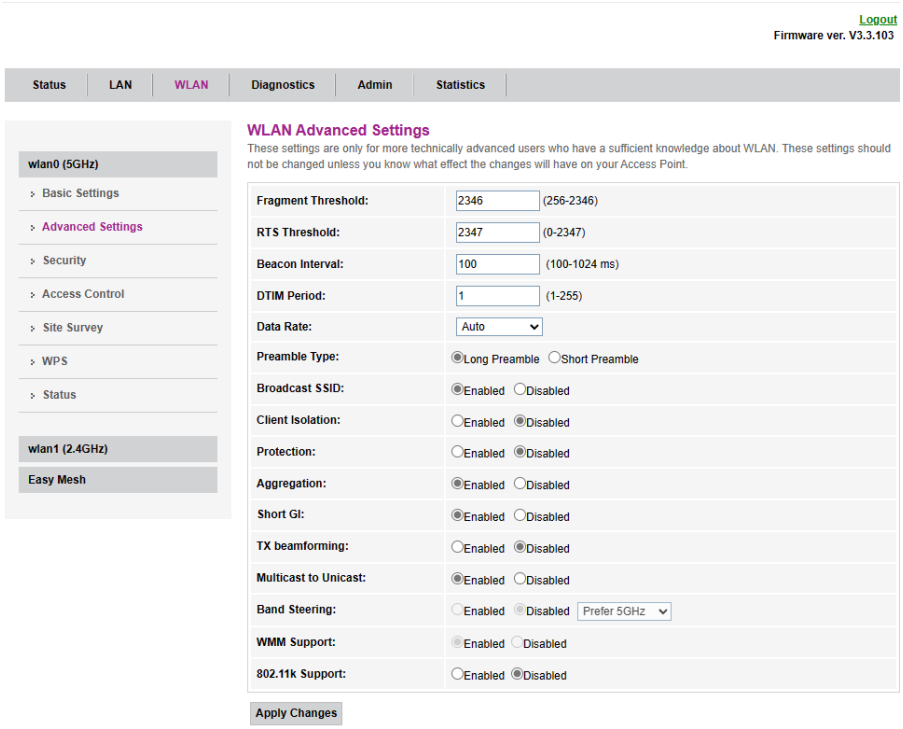


Figure 12: WLAN0 Advanced Interface Information

3.4.3 WLAN0 Security Information

This page shows the WLAN Interface information of WLAN0 (5GHz) security information.

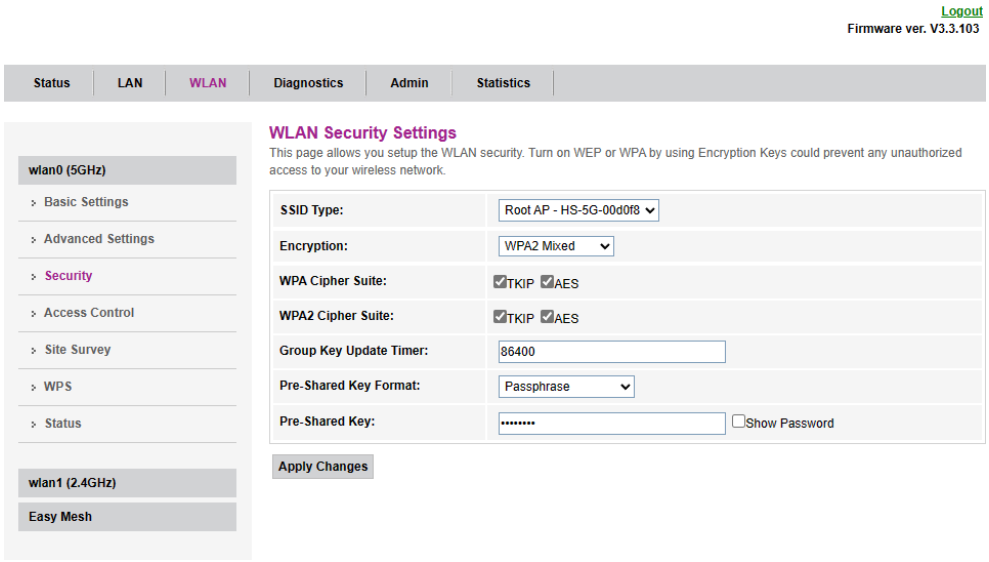


Figure 13: WLAN0 Security Information

3.4.4 WLAN0 Access Control

This page shows the WLAN Interface information of WLAN0 (5GHz) access control information.

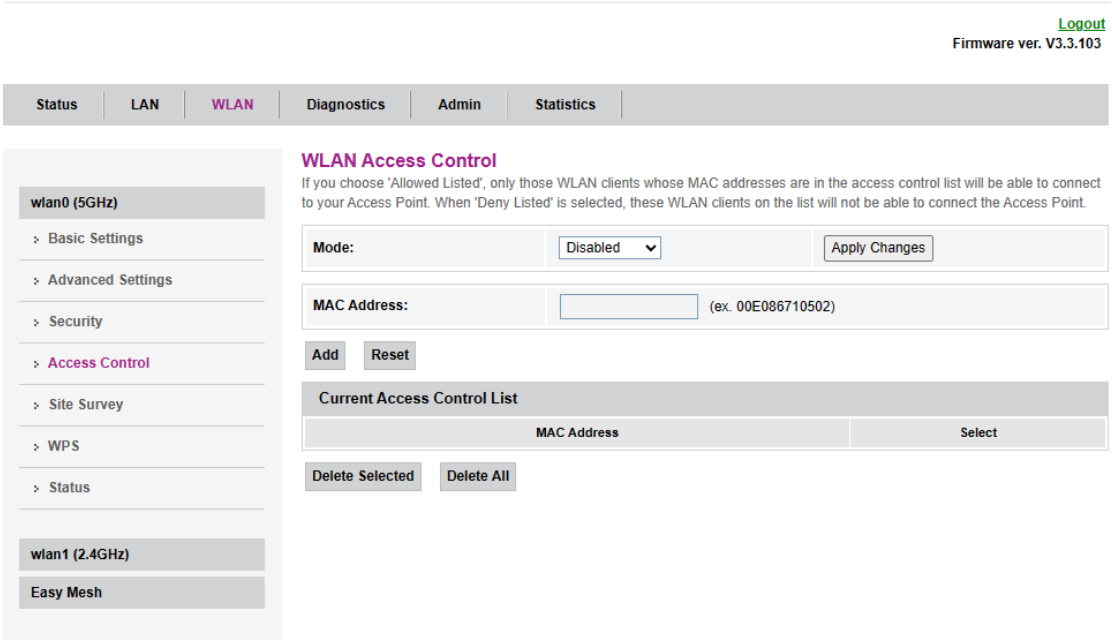


Figure 14: WLAN0 Access Control Information

3.4.5 WLAN0 Site Survey

This page shows the WLAN Interface information of WLAN0 (5GHz) site survey information.

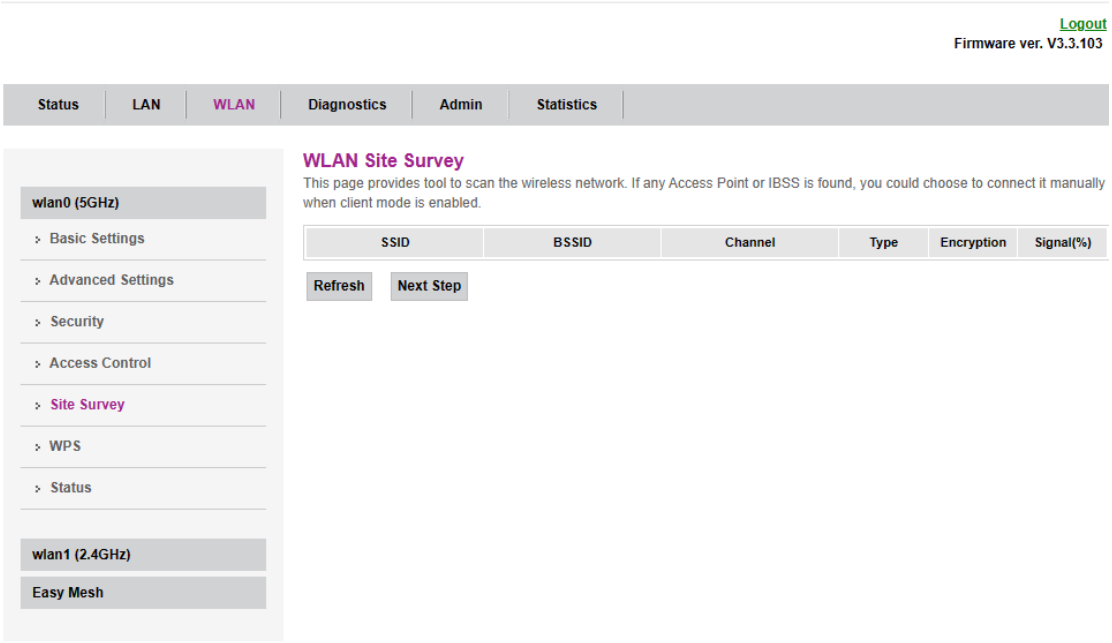


Figure 15: WLAN0 Site Survey Information

3.4.6 WLAN0 WPS

This page shows the WLAN Interface information of WLAN0 (5GHz) WiFi Protected Setup information.

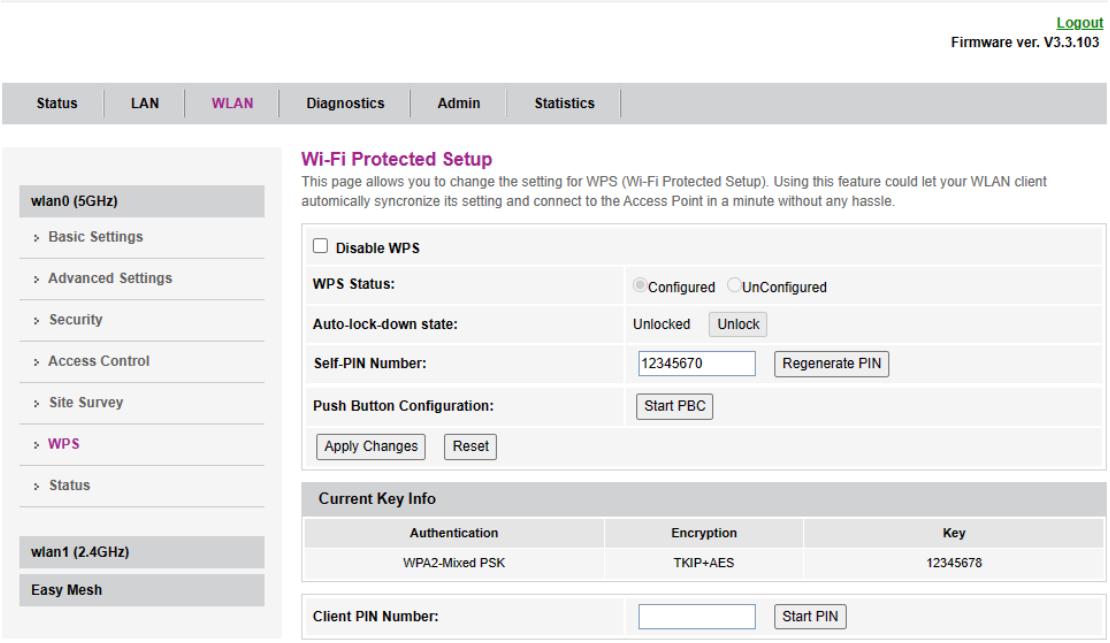


Figure 16: WLAN0 WiFi Protected Setup Information

3.4.7 WLAN0 Status

This page shows the WLAN Interface information of WLAN0 (5GHz) status information.

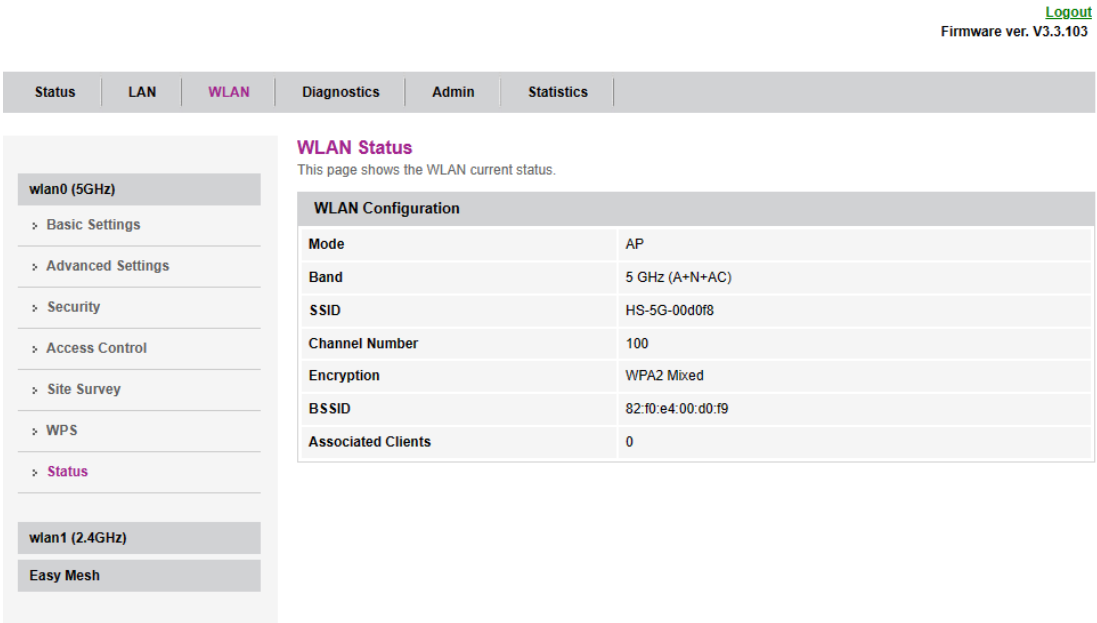


Figure 17: WLAN0 Status Information

3.4.8 WLAN1 Basic Information

This page shows the WLAN Interface information of WLAN1 (2.4GHz) basic information.

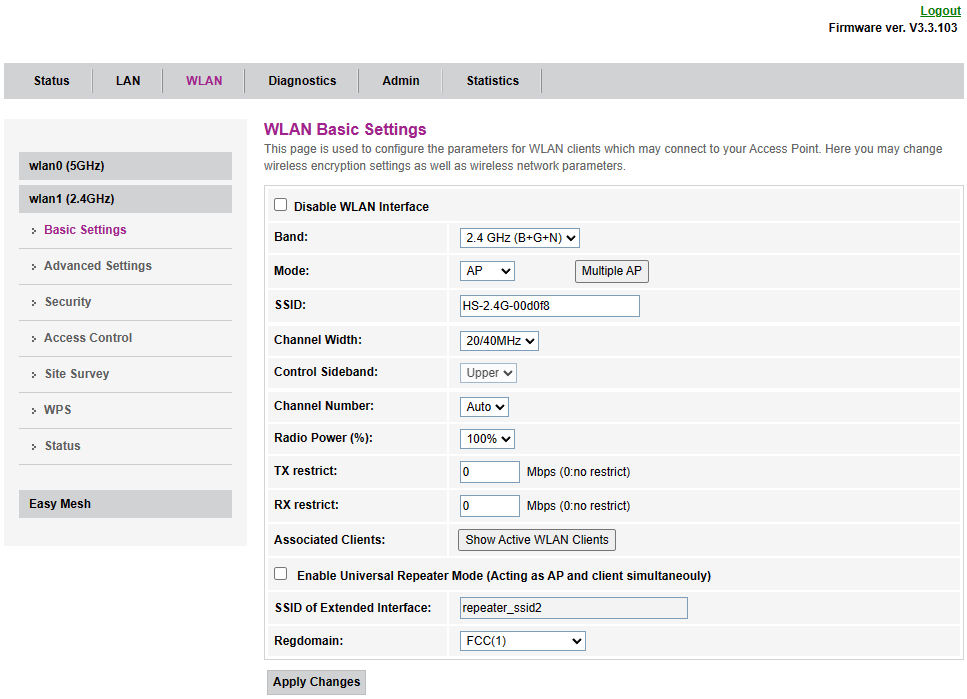


Figure 18: WLAN1 Basic Interface Information

3.4.9 WLAN1 Advanced Information

This page shows the WLAN Interface information of WLAN1 (2.4GHz) advanced information.

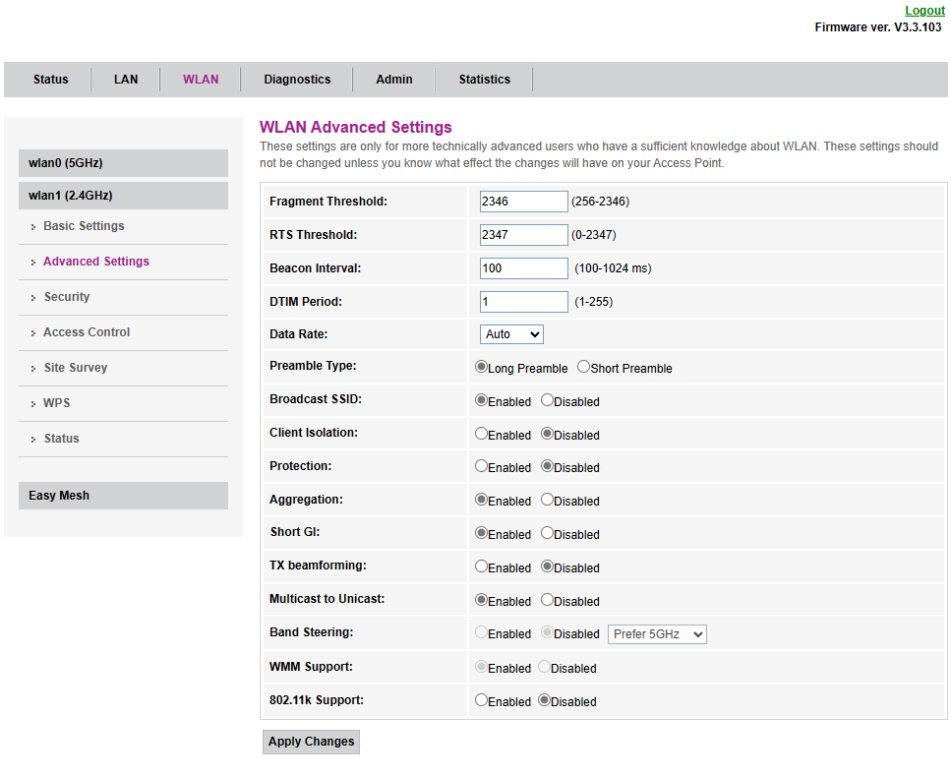


Figure 19: WLAN1 Advanced Interface Information

3.4.10 WLAN1 Security Information

This page shows the WLAN Interface information of WLAN1 (2.4GHz) security information.

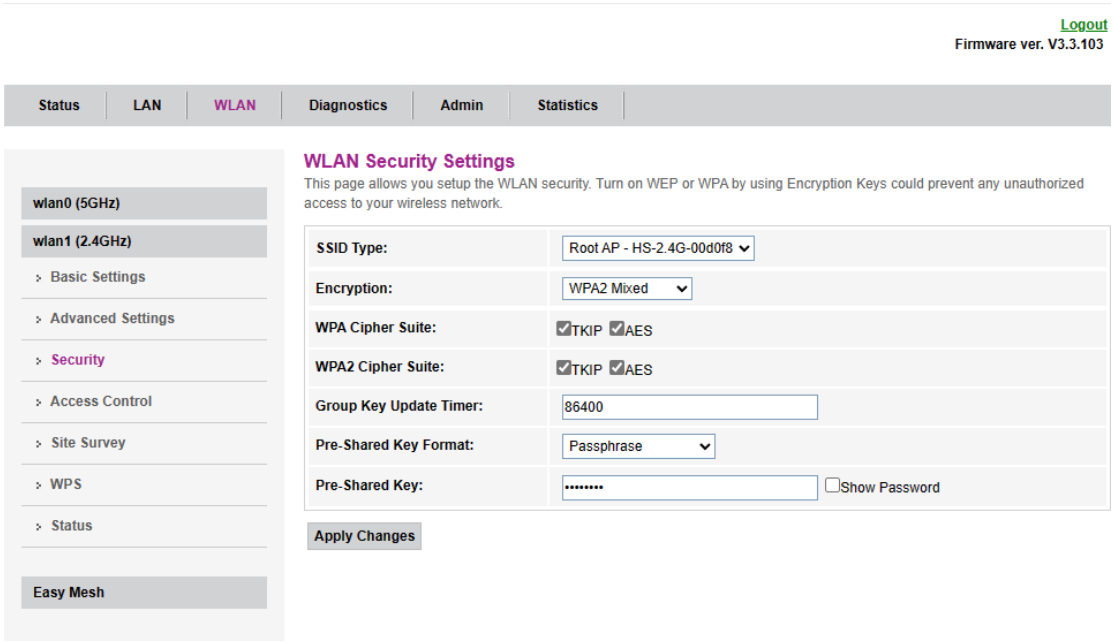


Figure 20: WLAN1 Security Information

3.4.11 WLAN1 Access Control

This page shows the WLAN Interface information of WLAN1 (2.4GHz) access control information.

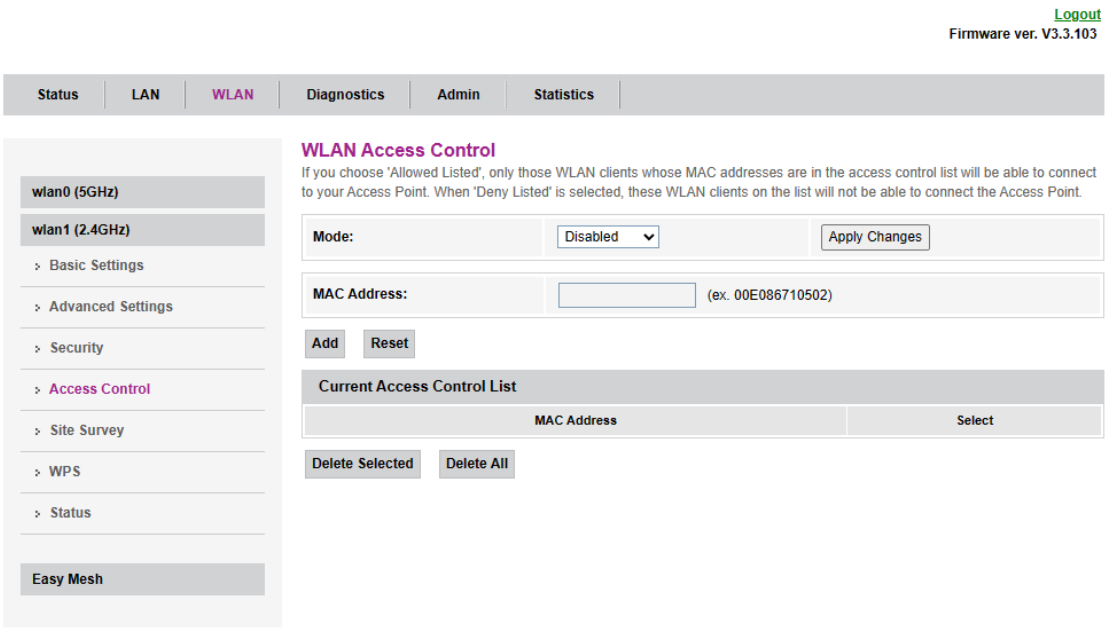


Figure 21: WLAN1 Access Control Information

3.4.12 WLAN1 Site Survey

This page shows the WLAN Interface information of WLAN1 (2.4GHz) site survey information.

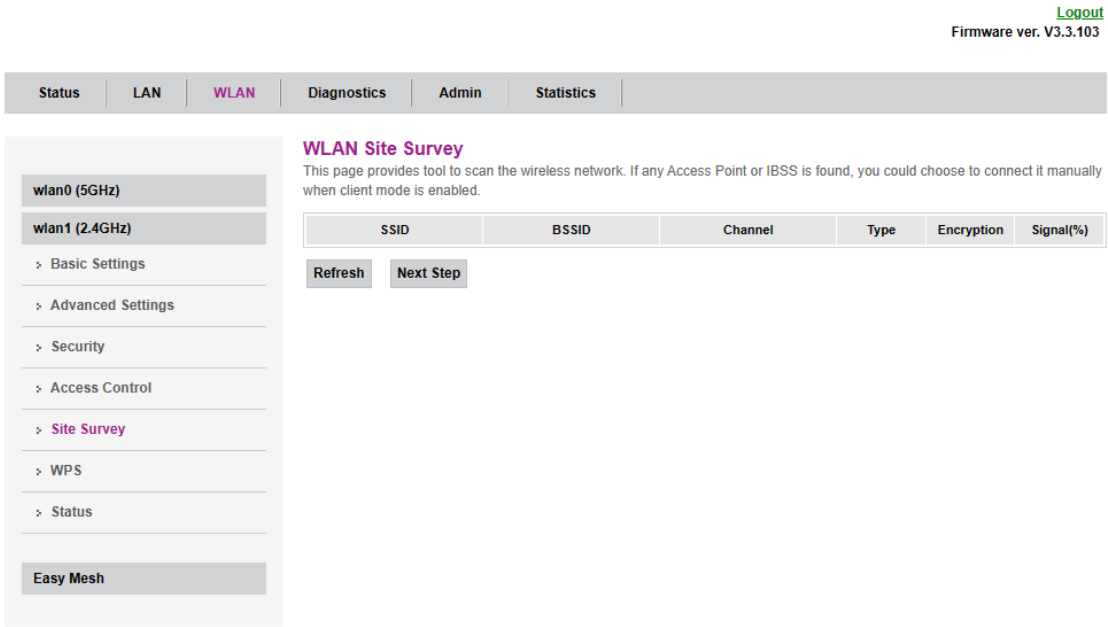


Figure 22: WLAN1 Site Survey Information

3.4.13 WLAN1 WPS

This page shows the WLAN Interface information of WLAN1 (2.4GHz) WiFi Protected Setup information.

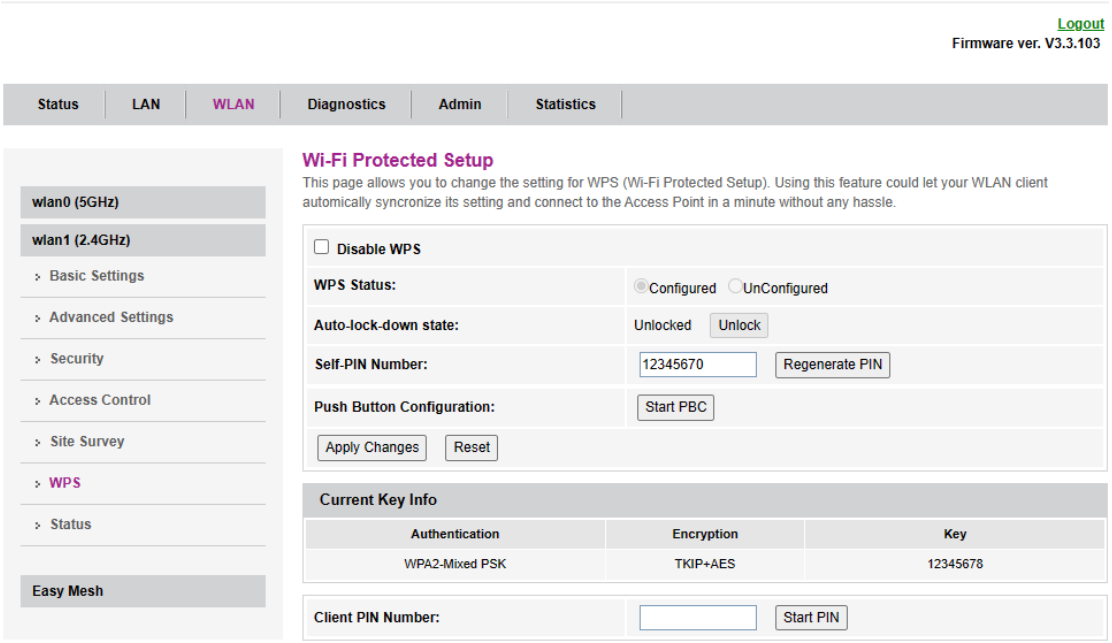


Figure 23: WLAN1 WiFi Protected Setup Information

3.4.14 WLAN1 Status

This page shows the WLAN Interface information of WLAN1 (2.4GHz) status information.

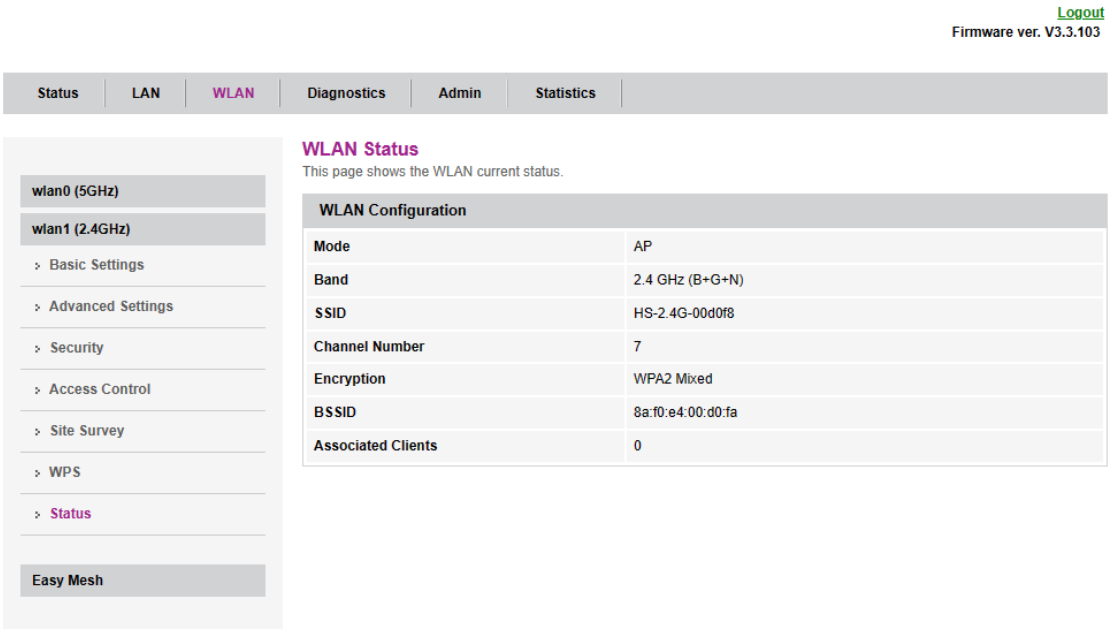


Figure 24: WLAN1 Status Information

3.4.15 Easy Mesh

This page shows the WLAN Interface information of Easy Mesh interface setup.

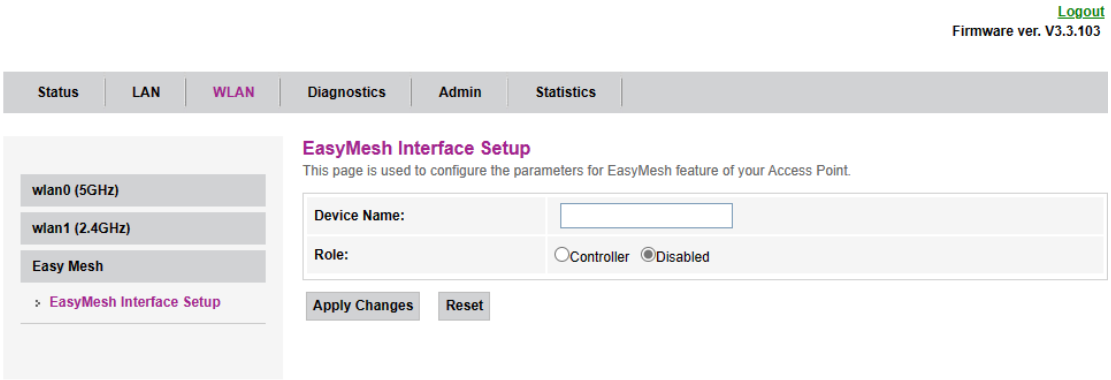


Figure 25: Easy Mesh Information

3.5 Diagnostics Settings

3.5.1 Ping Diagnostics

This page shows the Ping Diagnostics information.

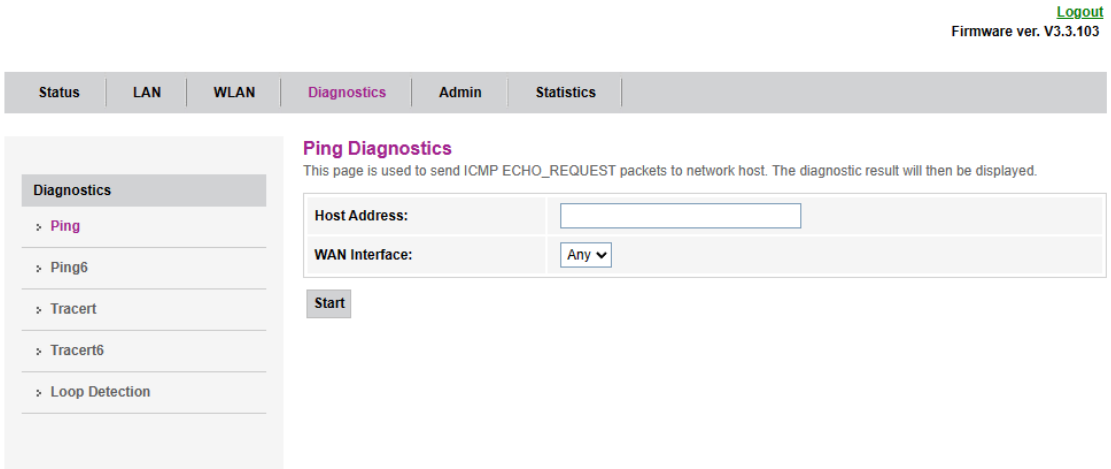


Figure 26: Ping Diagnostics Information

3.5.2 Ping6 Diagnostics

This page shows the Ping6 Diagnostics information.

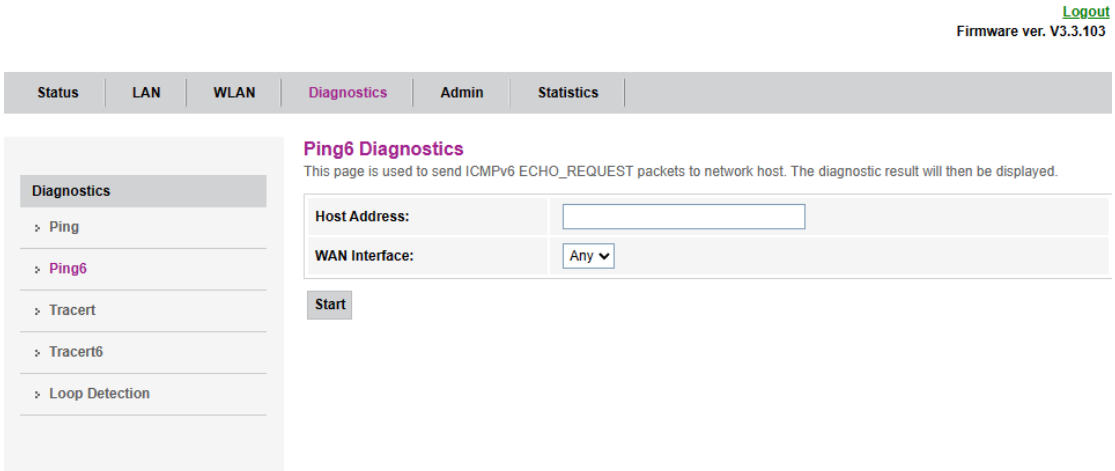


Figure 27: Ping6 Diagnostics Information

3.5.3 Tracert Diagnostics

This page shows the Traceroute Diagnostics information.

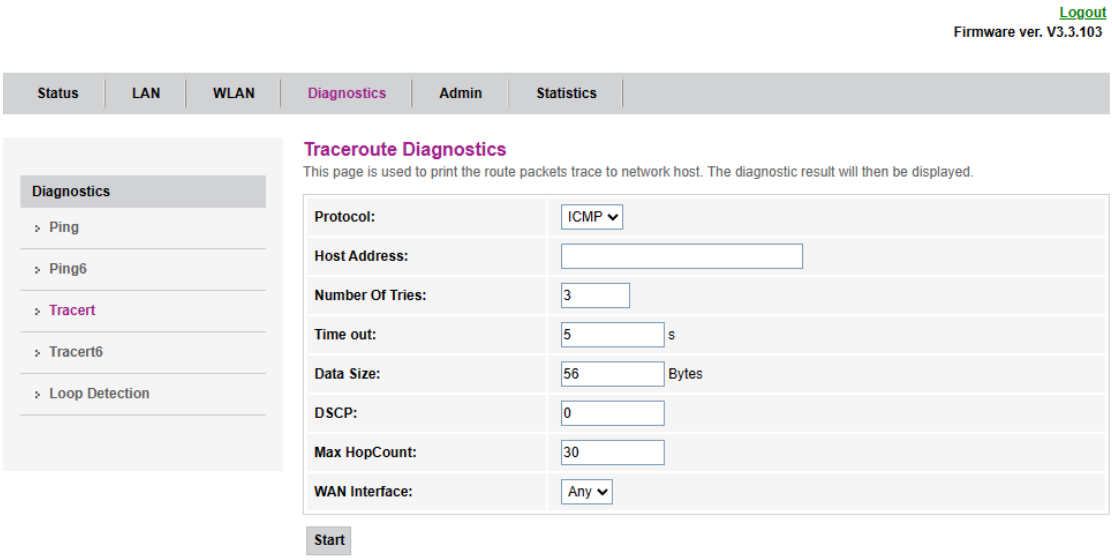


Figure 28: Traceroute Diagnostics Information

3.5.4 Tracert6 Diagnostics

This page shows the Traceroute6 Diagnostics information.

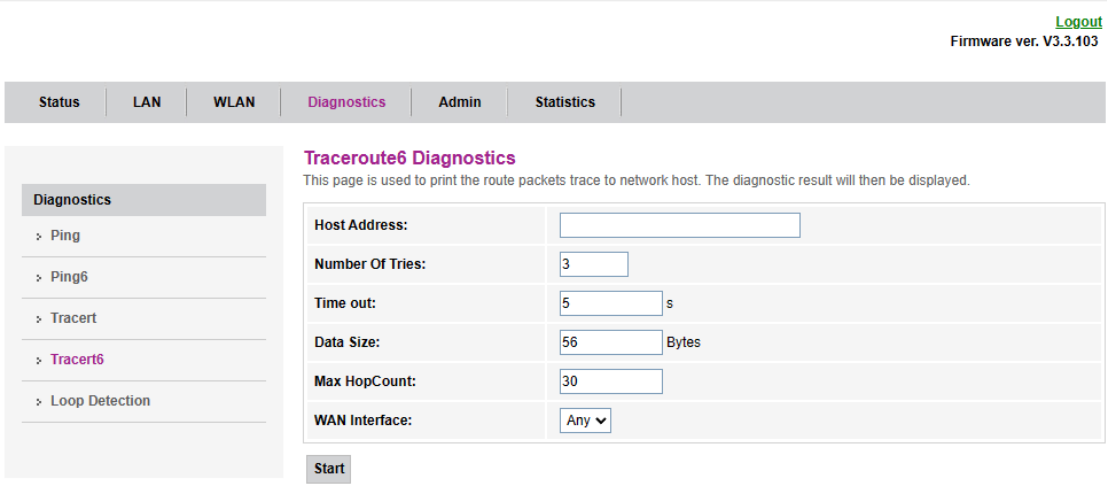


Figure 29: Traceroute6 Diagnostics Information

3.5.5 Loop Detection

This page shows the Loop Detection information.

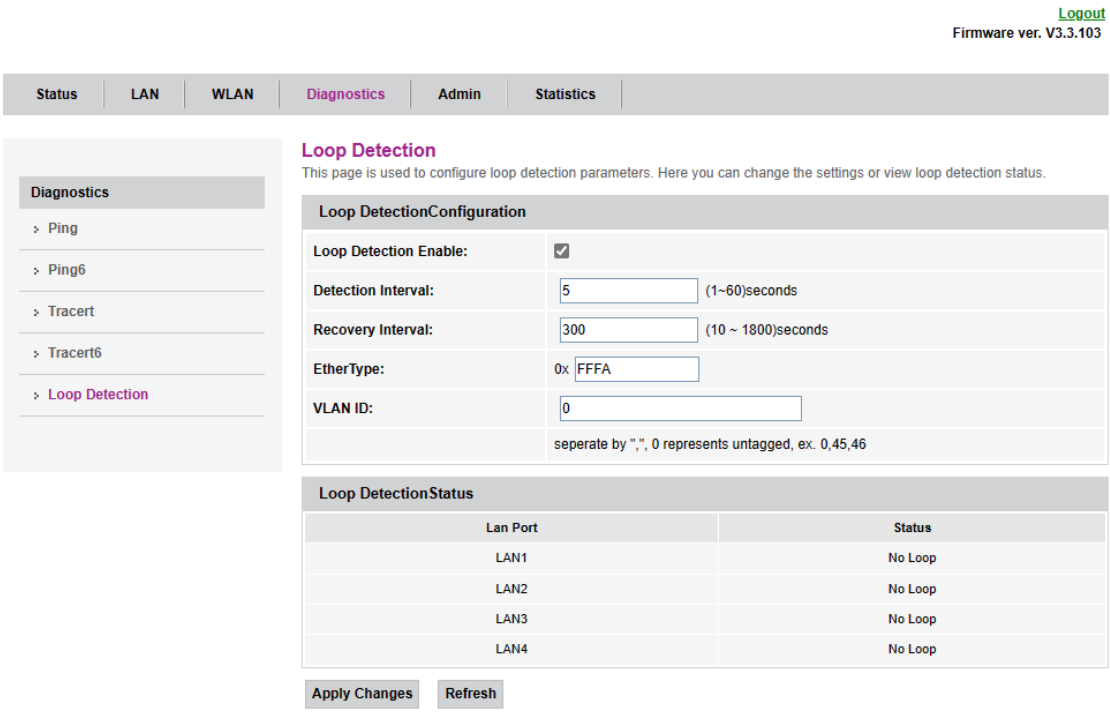


Figure 30: Loop Detection Diagnostics Information

3.6 Admin Interface

3.6.1 Commit/Reboot

This page shows the Interface of commit and reboot operation for the admin role.

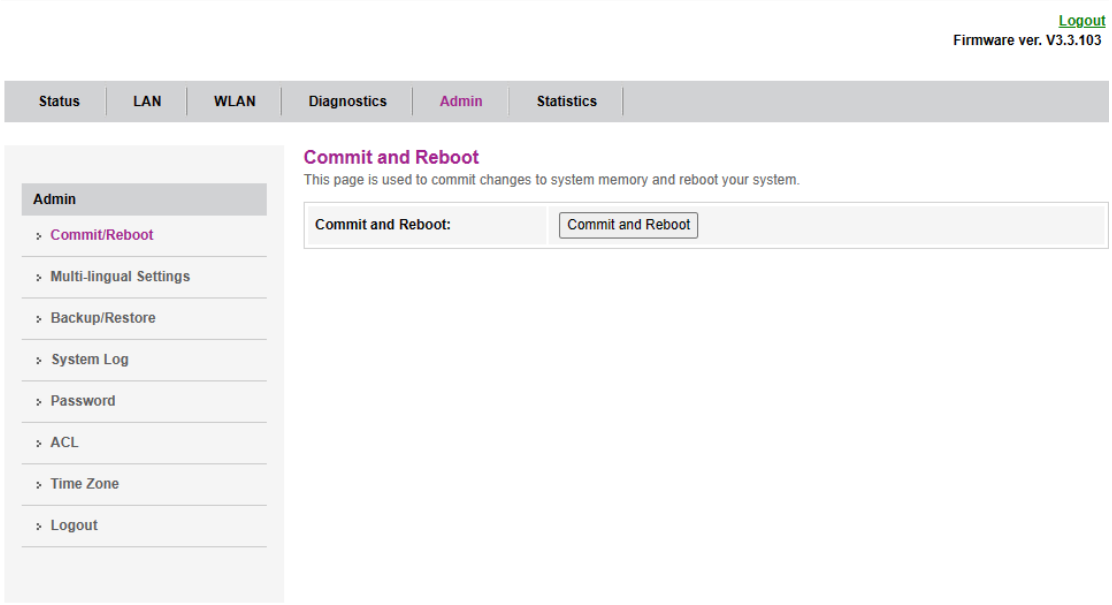


Figure 31: Commit/Reboot Operation

3.6.2 Multi-lingual Settings

This page shows the Interface of language settings.

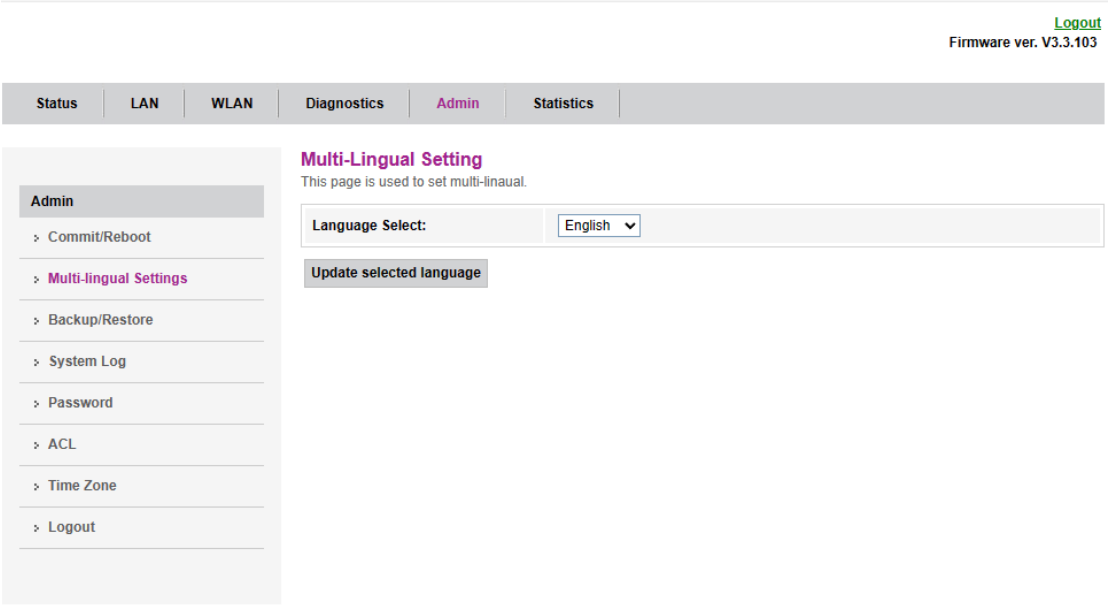


Figure 32: Multi-lingual Settings

3.6.3 Backup/Restore Settings

This page shows the Interface of backup and restore settings.

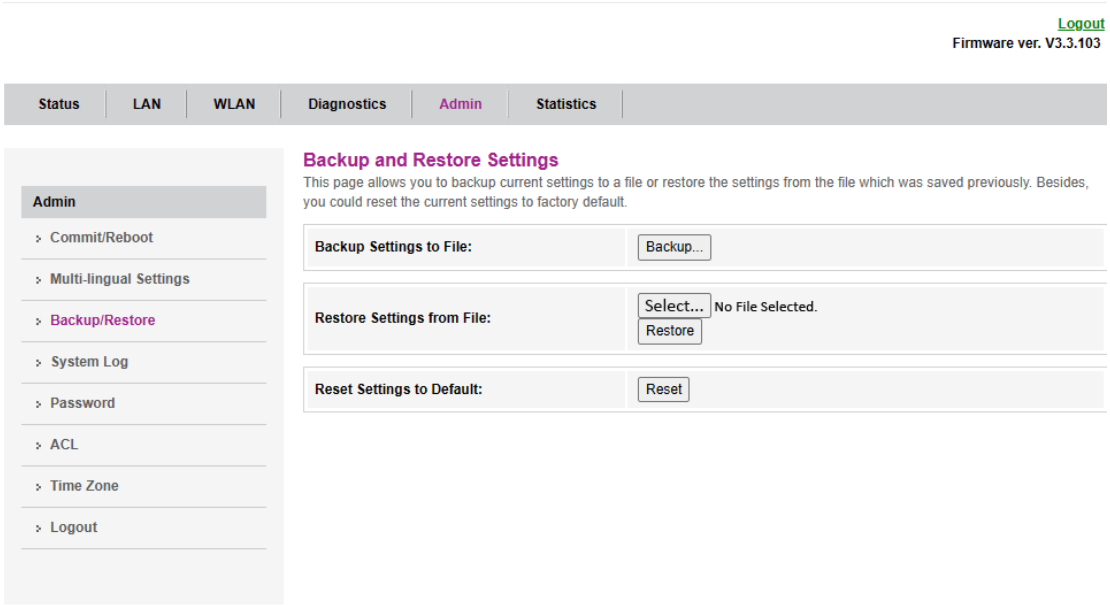


Figure 33: Backup/Restore Settings

3.6.4 System Log

This page shows the Interface of system log information and save/clear logs.

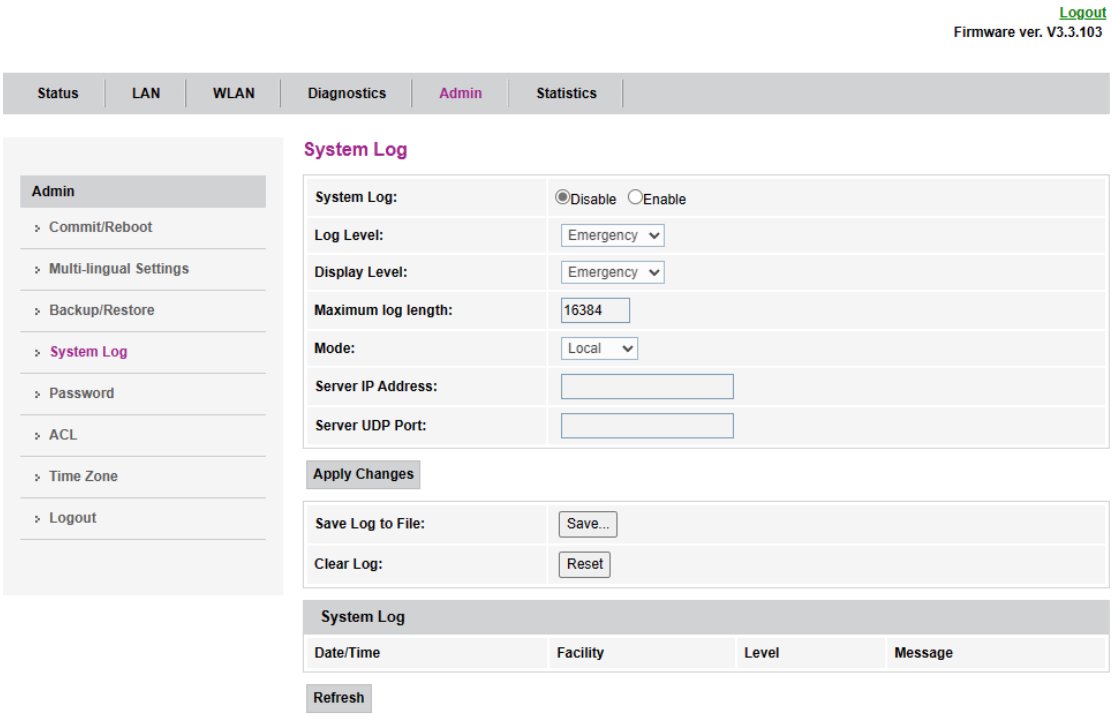


Figure 34: System Log Settings

3.6.5 Password

This page shows the Interface of user password configuration.

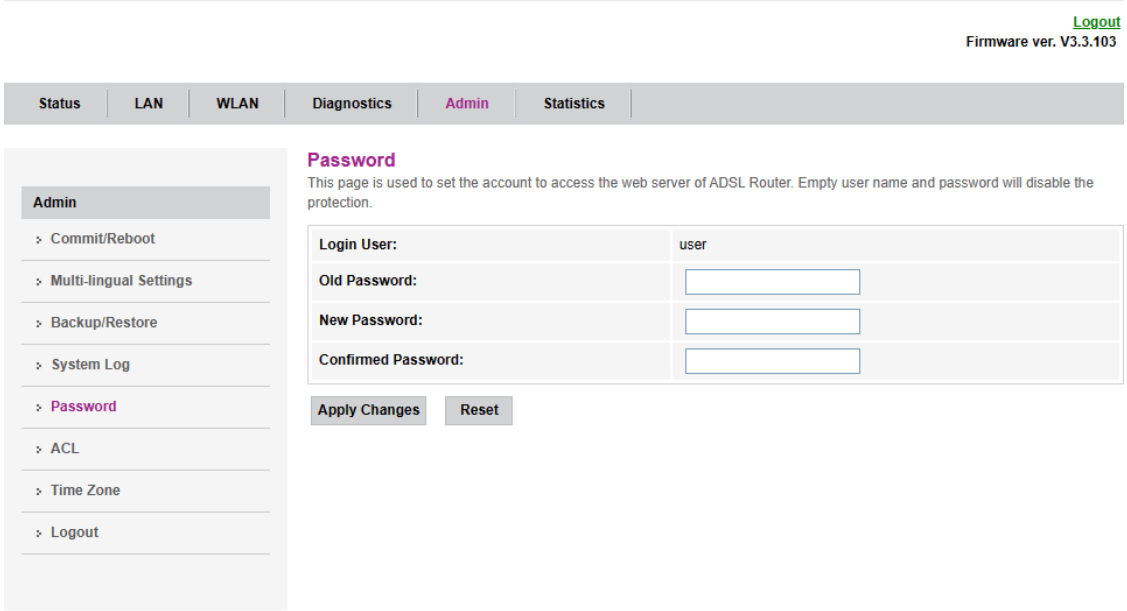


Figure 35: Password Configuration

3.6.6 ACL Configuration

This page shows the Interface of ACL IP information and ACL Table configuration.

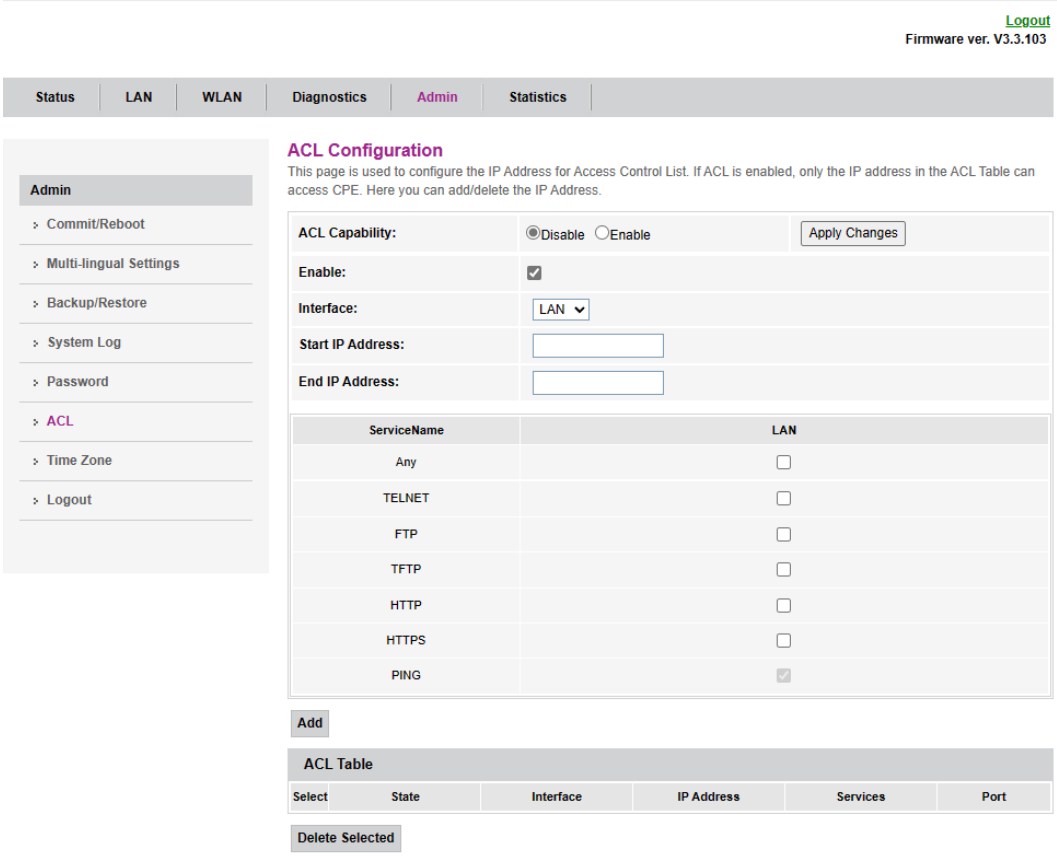


Figure 36: ACL Configuration

3.6.7 Time Zone

This page shows the Interface of Time Zone configuration for synchronizing with public time server over the internet.

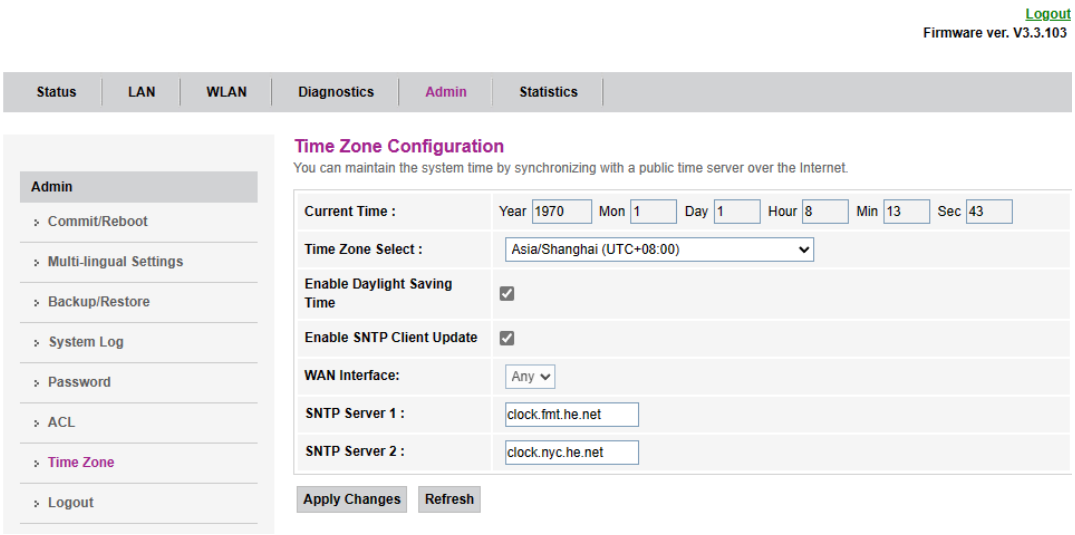


Figure 37: Time Zone Configuration

3.6.8 Logout

This page shows the Interface of user logout from the device.

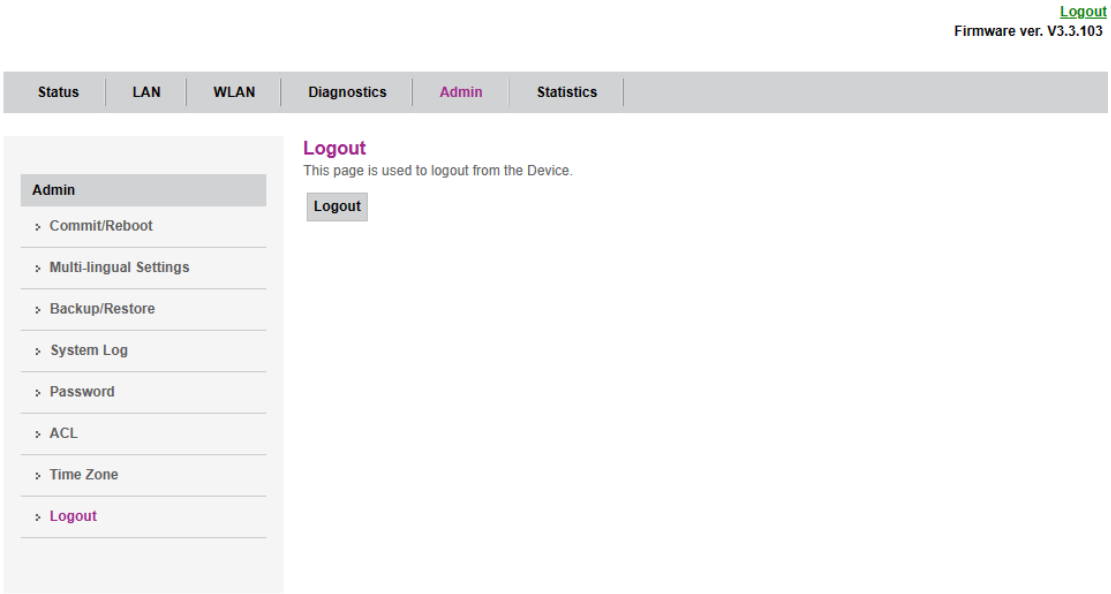
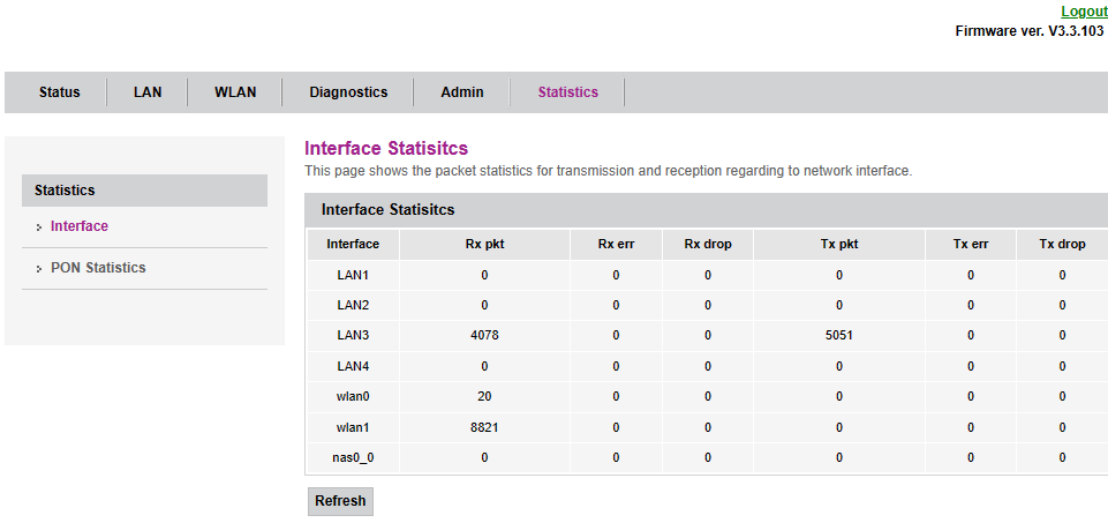


Figure 38: Logout

3.7 Statistics

3.7.1 Interface

This page shows the Interface of transmission and reception data information of different interfaces.

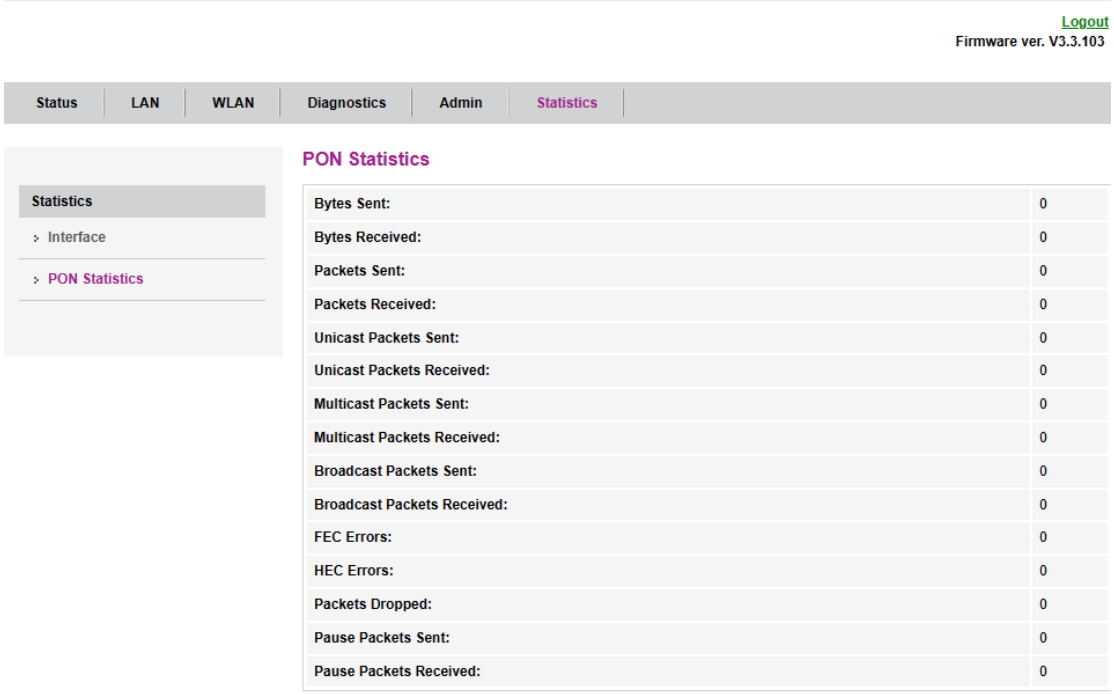


Interface	Rx pkt	Rx err	Rx drop	Tx pkt	Tx err	Tx drop
LAN1	0	0	0	0	0	0
LAN2	0	0	0	0	0	0
LAN3	4078	0	0	5051	0	0
LAN4	0	0	0	0	0	0
wlan0	20	0	0	0	0	0
wlan1	8821	0	0	0	0	0
nas0_0	0	0	0	0	0	0

Figure 39: Interface Statistics

3.7.2 PON Statistics

This page shows the Interface of PON transmission and reception status in different dimensions.



Bytes Sent:	0
Bytes Received:	0
Packets Sent:	0
Packets Received:	0
Unicast Packets Sent:	0
Unicast Packets Received:	0
Multicast Packets Sent:	0
Multicast Packets Received:	0
Broadcast Packets Sent:	0
Broadcast Packets Received:	0
FEC Errors:	0
HEC Errors:	0
Packets Dropped:	0
Pause Packets Sent:	0
Pause Packets Received:	0

Figure 40: PON Statistics

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Ver. ACT_AP214H_GPON_ONT_Manual_V1d_Apr_2019