



Turbo Engine Series

User Manual



EAP2200
version 1.0

Wireless Tri-Band Indoor Access Point

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Chapter 1

Product Overview



Introduction

Key Features

- Deploy and manage with ease using EWS Series Wireless Management Switches.
- Supports IEEE802.11ac/a/b/g/n wireless standards
- Two 2.4 GHz Omni-directional antennas
- Two 5 GHz Omni-directional antennas
- Support Wave 2 MU-MIMO function on 5GHz radio.
- Support Tx Beamforming to enlarge the transmitting distance.
- IEEE802.11 PoE af Input design with Gigabits port supports.
- Flexible application by the built-in 2nd LAN port.
- More customized items on Band Steering for intelligent Management.
- Secured Guest Network option available

Introduction

The AP is a great performance, evenly coverage and long-range Tri-Band Wireless 802.11 ac/a/b/g/n Indoor Access Point with speeds up to 400 Mbps on 2.4GHz and 867Mbps on 5GHz band. It can be configuring as an: Access Point, Repeater, or WDS (AP, Station & Bridge). Its high-powered, long-range characteristics make it a cost-effective alternative to ordinary Access Points that don't have the range and reach to connect to a growing number of wireless users who wish to connect to a business network. The AP supports the 2.4GHz frequency band under 802.11 b/g/n modes while at the same time providing 5GHz band under 802.11 ac/a/n modes for communicating to and from 5GHz capable computers, tablets or smart phones or transferring files. Several APs can be deployed in a campus setting using the 5GHz band as a backhaul to provide multiple 2.4GHz wireless cells for computers or mobile devices in common indoor areas.

The AP is easy to install in virtually any location with PoE (Power over Ethernet). The AP enables network administrators to control its transmit power and feature settings for selecting narrow bandwidth and traffic shaping. The AP also supports wireless encryption including Wi-Fi Protected Access (WPA-PSK/WPA2-PSK) Encryption, and IEEE 802.1x with RADIUS.

Maximum data rates are based on IEEE 802.11 standards. Actual throughput and range may vary depending on many factors including environmental conditions, distance between devices, radio interference in the operating environment, and mix of devices in the network. Features and specifications are subjected to change without prior notice. Trademarks and registered trademarks are the property of their respective owners. For United States of America: Copyright © 2017 EnGenius Technologies, Inc. All rights reserved.

System Requirements

The following are the Minimum System Requirements in order to configure the device:

- Computer with an Ethernet interface or wireless network capability
- Windows OS (XP, Vista, 7, 8), or Mac OS
- Web-Browsing Application (i.e. Internet Explorer, Firefox, Chrome, Safari, or another similar browser application)

Package Contents

The package contains the following items (all items must be in package to issue a refund):

- EAP Indoor Access Point
- Mounting Bracket
- Bracket Screw
- Quick Installation Guide
- Power Adaptor

Applications

Wireless LAN (WLAN) products are easy to install and highly efficient. The following list describes some of the many applications made possible through the power and flexibility of WLANs:

- **Difficult-to-Wire Environments:** There are many situations where wires cannot be installed, deployed easily, or cannot be hidden from view. Older buildings, sites with multiple buildings, and/or areas that make the installation of a Ethernet-based LAN impossible, impractical or expensive are sites where WLAN can be a network solution.
- **Temporary Workgroups:** Create temporary workgroups/networks in more open areas within a building; auditoriums, amphitheaters classrooms, ballrooms, arenas, exhibition centers, or temporary offices where one wants either a permanent or temporary Wireless LAN established.
- **The Ability to Access Real-Time Information:** Doctors/Nurses, Point-of-Sale Employees, and/or Warehouse Workers can access real-time information while dealing with patients, serving customers, and/or processing information.
- **Frequently Changing Environments:** Set up networks in environments that change frequently (i.e.: Show Rooms, Exhibits, etc.).
- **Small Office and Home Office (SOHO) Networks:** SOHO users require a cost-effective, easy, and quick installation of a small network.
- **Training/Educational Facilities:** Training sites at corporations or students at universities use wireless connectivity to exchange information between peers and easily access information for learning purposes.

Technical Specifications

EAP2200

Radio Specification

Dual Concurrent Radio:

- 2.4GHz: 802.11b/g/n with max data rate up to 400Mbps
- 5GHz: 802.11ac/n with max data rate up to 867Mbps

Transmit Power:

- Max transmit power is limited by regulatory power

Radio Chains / Spatial Streams:

- 2 x 2 / 2

Supported Radio Technology:

- 802.11b: direct-sequence spread-spectrum (DSSS)
- 802.11a/g/n/ac: orthogonal frequency-division multiplexing (OFDM)

Channelization:

- 802.11n with 20/40 MHz channel width
- 802.11a/b/g with 20 MHz channel width
- 802.11ac with 20/40/80 MHz channel width

Supported Modulation:

- 802.11b: BPSK, QPSK, CCK
- 802.11a/g/n/ac: BPSK, QPSK, 16-QAM, 64-QAM

Supported data rates (Mbps):

- 802.11b: 1, 2, 5.5, 11
- 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54
- 802.11n: 6.5 to 300 (MCS0 to MCS23)
- 802.11ac: 6.5 to 867 (MCS0 to MCS9)

Physical & Environment

Power Source:

- DC Input: DC12V/1A
- PoE: compatible with 802.3af

Internal Antenna

- 2 x 2.4GHz antennas
- 4 x 5GHz antennas

Interface:

- 2 x 10/100/1000Mbps Uplink Port with 802.3af/at PoE
- 1 x DC power connector
- 1 x Reset button

Dimensions:

20 x 20 x 4.5cm (7.87" x 7.87" x 1.77")

Mounting:

- Wall mount, Ceiling mount

Environment:

- Operating temperature: 0°C~40°C
- Operating humidity: 0%~90% typical
- Storage temperature: -30°C~80°C

Wireless

Operating Mode:

- AP, Repeater, WDS

Auto Channel Selection:

- Setting varies by regulatory domains

SSIDs:

- Supports up to 8 SSIDs per frequency band

VLAN Tag / VLAN Pass-through

Wireless Client List

Guest Network:

- Allocates a separate network segment for guest access within the same WLAN

QoS:

- Supports 802.11e/WMM

Band Steering

Mobility:

- PMKSA support for fast roaming

Security:

- WEP encryption: 64/128/152-bit
- WPA/WPA2 Enterprise/PSK
- Hidden SSID
- MAC address filtering (up to 50 MAC)

- Client isolation

Management

Deployment Options

- Standalone Mode
- Managed Mode (by Neutron Switch)

Configuration

- Web interface (HTTP)
- SNMP v1/v2c/v3 with MIB I/II and private MIB
- CLI (Telnet)

Firmware Upgrade

- Web interface or CLI (FTP/HTTP)

Backup / Restore Settings

- Revert to factory default settings

Schedule Reboot:

- Specifies interval to reboot system periodically

E-mail Alert / Syslog Notification

Physical Interface

LED INDICATORS



DC-Jack

LAN1

LAN2

Reset Button

1. LED Indicators: LEDs for Power, WAN, 2.4Hz, 5GHz, LAN
2. Reset Button: Press and hold for over 10 seconds to reset to factory default settings.
3. DC12V Input: DC12V/1A power in
4. LAN1 : 10/100/1000 RJ45 Uplink (PoE In)that supports 802.3af/at PoE input
5. LAN2 :10/100/1000 RJ45

Chapter 2

Before You Begin



Before You Begin

This section will guide you through the installation process. Placement of the EnGenius Access Point is essential to maximize the Access Point's performance. Avoid placing the Access Point in an enclosed space such as a closet, cabinet, or stairwell.

Considerations for Wireless Installation

The operating distance of all wireless devices can often not be pre-determined due to a number of unknown obstacles in the environment in which the device is deployed. Obstacles such as the number, thickness, and location of walls, ceilings, or other objects that the Access Point's wireless signals must pass through can weaken the signal. Here are some key guidelines for allowing the Access Point to have an optimal wireless range during setup.

- Keep the number of walls and/or ceilings between the Access Point and other network devices to a minimum. Each wall and/or ceiling can reduce the signal strength, resulting in a lower overall signal strength.
- Building materials make a difference. A solid metal door and/or aluminum studs may have a significant negative effect on the signal strength of the Access Point. Locate your wireless devices carefully so the signal can pass through drywall and/or open doorways. Materials such as glass, steel, metal, concrete, water (example: fish tanks), mirrors, file cabinets, and/or brick can also diminish wireless signal strength.
- Interference from your other electrical devices and/or appliances that generate RF noise can also diminish the Access Point's signal strength. The most common types of devices are microwaves or cordless phones.

Computer Settings

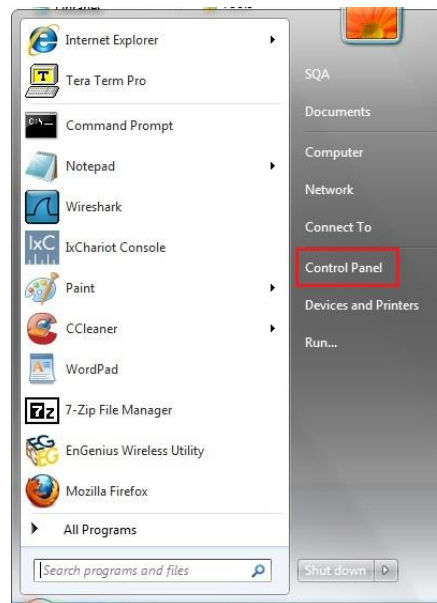
Windows XP/Windows 7

In order to use the Access Point, you must first configure the TCP/IPv4 connection of your Windows OS computer system.

1. Click the **Start** button and open the **Control Panel**.



Windows XP



Windows 7

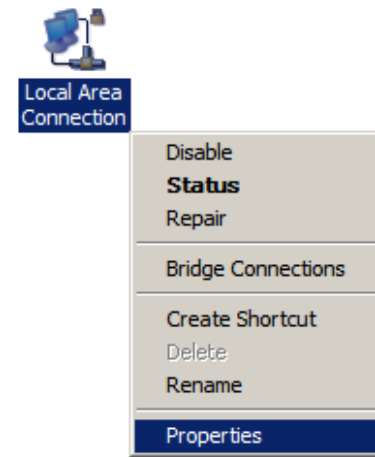
2a. In **Windows XP**, click on **Network Connections**.



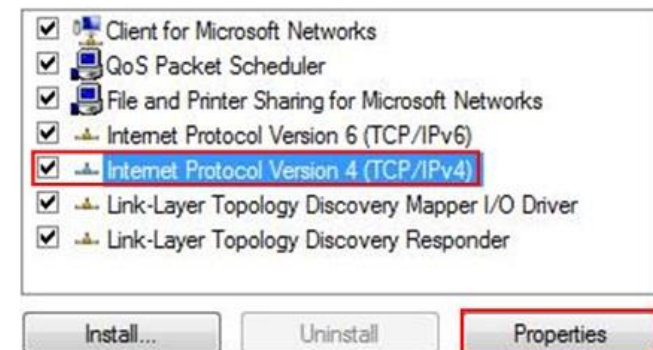
2b. In Windows 7, click **View network status and tasks** in the **Network and Internet** section, then select **Change adapter settings**.



3. Right click on **Local Area Connection** and select **Properties**.



4. Select **Internet Protocol Version 4 (TCP/IPv4)** and then select **Properties**.



5. Select **Use the following IP address** and enter an IP address that is different from the Access Point and Subnet mask, then click **OK**.

Note: Ensure that the IP address and Subnet mask are on the same subnet as the device.

For example: Access Point IP address: 192.168.1.1

PC IP address: 192.168.1.2 – 192.168.1.255

PC Subnet mask: 255.255.255.0

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 1 . 10

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

OK Cancel

Apple Mac OS X

1. Go to **System Preferences** (it can be opened in the **Applications** folder or by selecting it in the Apple Menu).
2. Select **Network** in the **Internet & Network** section.

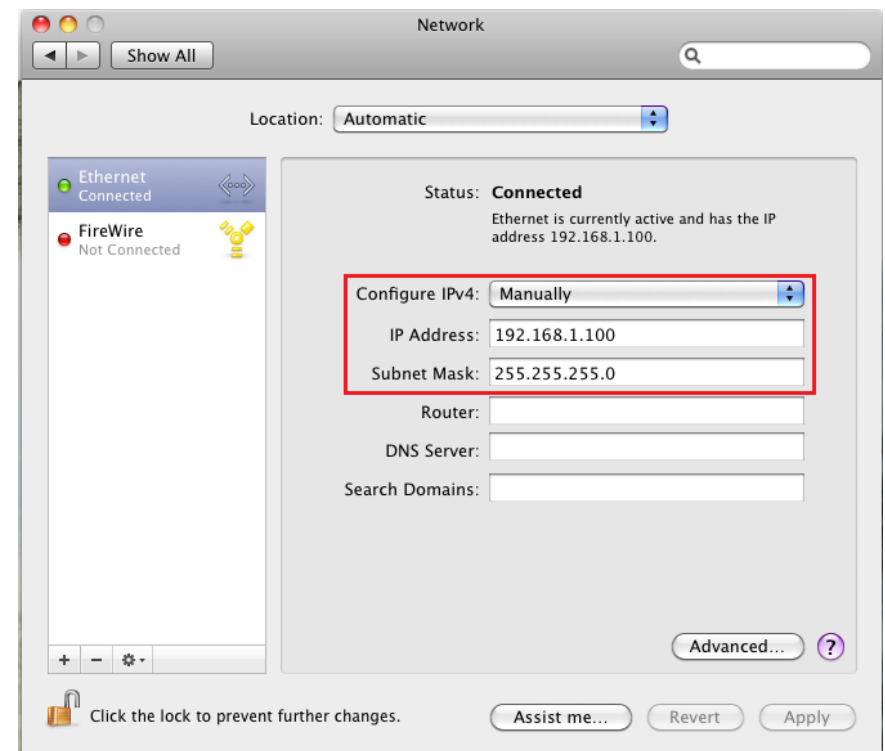


3. Highlight **Ethernet**.
4. In **Configure IPv4**, select **Manually**.
5. Enter an IP address that is different from the Access Point and Subnet mask, then click **OK**.

Note: Ensure that the IP address and Subnet mask are on the same subnet as the device.

For example: Access Point IP address: 192.168.1.1
 PC IP address: 192.168.1.2 – 192.168.1.255
 PC Subnet mask: 255.255.255.0

6. Click **Apply** when finished.



Hardware Installation

1. Connect one end of a RJ45 Ethernet cable to the **PoE In (LAN/Uplink) port** on the rear of the Access Point.
2. Connect the other end of the RJ45 Ethernet cable to a **PoE Ethernet switch** or the **PoE Out port** on the **PoE injector**.
3. Using another RJ45 Ethernet cable, connect one end to the **Ethernet port** on the computer, and connect the other end to another port on the **PoE Ethernet switch** or to the **Data In port** on the PoE injector.
4. Provide power to the PoE injector/switch.
5. Verify that the **Power LED** on the AP is steady **orange**.
6. Proceed to set up the Access Point using the computer.



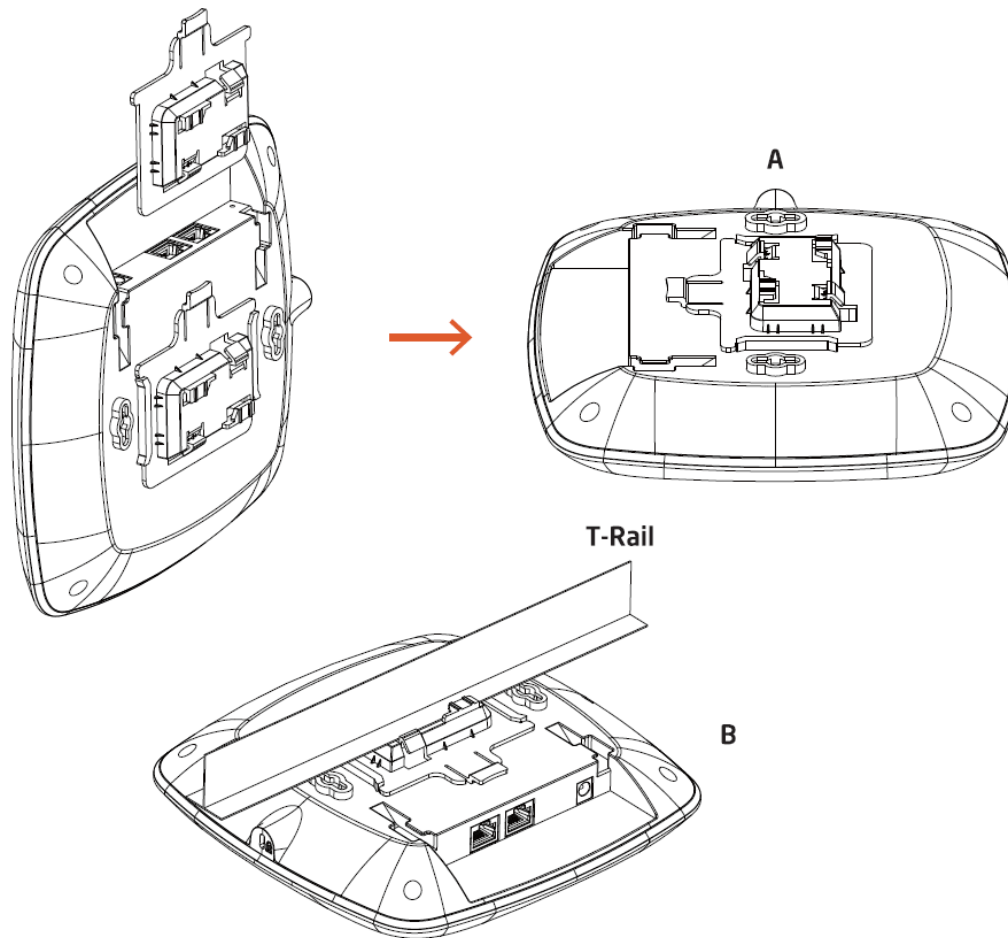
The Access Point supports both **IEEE 802.3af/at PoE (Power over Ethernet)** or an **optional DC power adapter** (sold separately). You may use either one as the power source. **DO NOT use both at the same time.**

Mounting the Access Point

Using the provided hardware, the AP can be attached to a ceiling or wall.

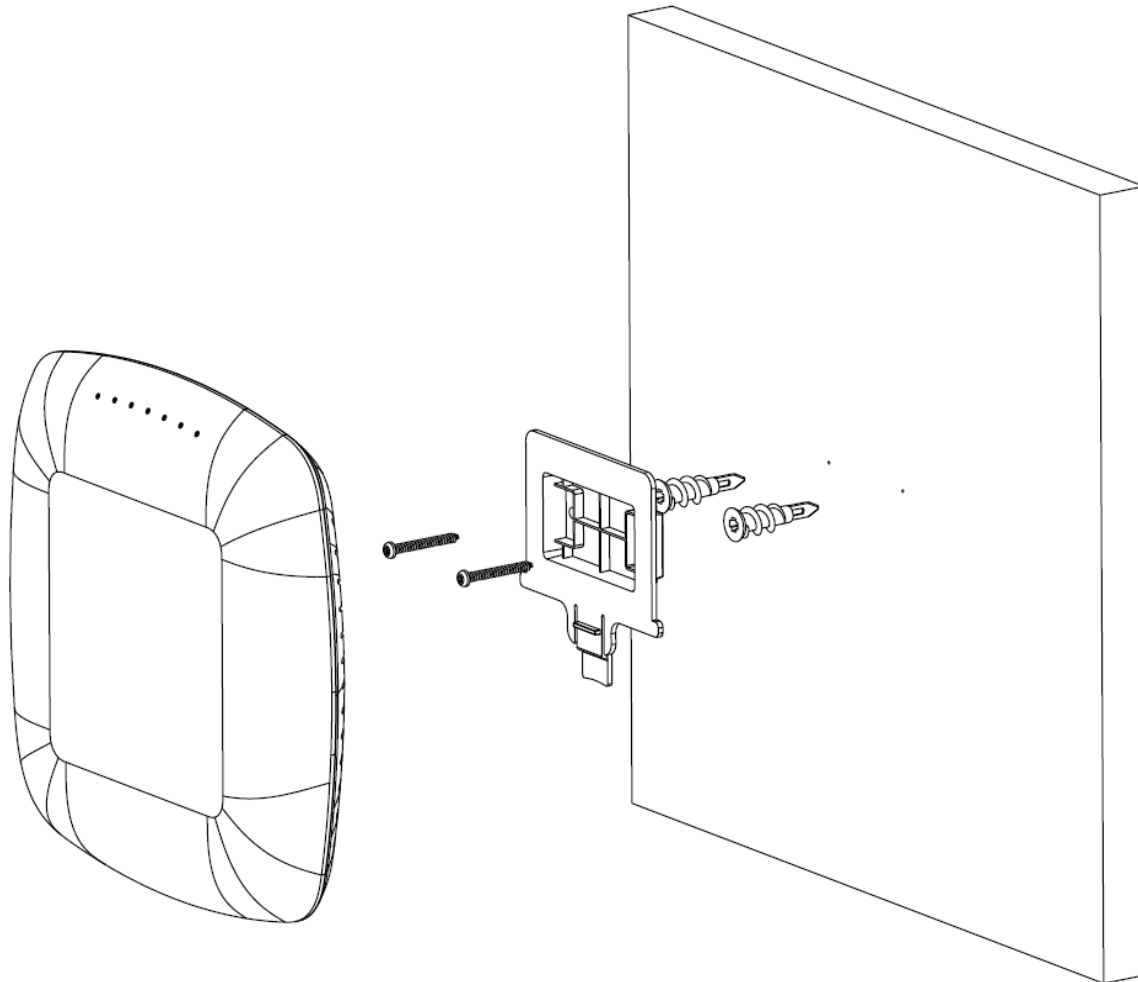
To attach the AP to a ceiling or wall using the mounting bracket:

- A) Slide the ceiling mount base into the slot of the Access Point.**
- B) Hold the Access Point with one hand to reach the other hand over the T-Rail sides of the bracket. Then hook the stationary end of the ceiling mount bracket onto the T-Rail.**



Wall mount the Access Point

- A) Determine where the Access Point will be placed; mark the location for the two base plate mounting holes on the wall. Use the appropriate drill bit to drill a hole on each mark (1/3" or 8.1mm diameter; 1" or 26mm deep).
- B) Screw the anchors into the holes until they are flush with the wall.
- C) Screw the included screws into the anchors.
- D) Slide the wall mount base into the slot of the Access Point.



Chapter 3

Configuring Your Access Point



Configuring Your Access Point

This section will show you how to configure the device using the web-based configuration interface.

Default Settings

Please use your Ethernet port or wireless network adapter to connect the Access Point.

IP Address	192.168.1.1
Username/Password	admin/admin

Web Configuration

1. Open a web browser (Internet Explorer/Firefox/Safari) and enter the IP Address <http://192.168.1.1>.



Note: If you have changed the default LAN IP Address of the Access Point, ensure you enter the correct IP Address.

2. The default username and password are: **admin**. Once you have entered the correct username and password, click the **Login** button to open the web-based configuration page.



3. If successful, you will be logged in and see the Access Point User Interface.

Overview

Device Status

Connections

Realtime

Network

Basic

Wireless

Management

Advanced

Time Zone

WiFi Scheduler

Tools

System Manager

Account

Firmware

Log

Device Information

Device Name	EAP2200
Serial Number	177226916
MAC Address	
- LAN	88:DC:96:60:BB:F4
- Wireless LAN - 2.4GHz	88:DC:96:60:BB:F5
- Wireless LAN - 5GHz - 1	88:DC:96:60:BB:F6
- Wireless LAN - 5GHz - 2	88:DC:96:60:BB:F7
Country	USA
Current Local Time	Mon Oct 2 02:21:37 2017
Uptime	3d 18h 23m 37s
Firmware Version	3.0.1 + 1.8.59
Management VLAN ID	Untagged
Registration Check Code	e4791eb8


Chapter 4

Overview



Overview

This page lets you save and apply the settings shown under **Unsaved changes list**, or Revert the unsaved changes and revert to the previous settings that were in effect.



English

EAP2200Tri-band Indoor AP, 400Mbps + 867Mbps + 867MbpsChanges: 0ResetLogout

i Overview

Device Status

Connections

Realtime

< Network

Basic

Wireless

⚙ Management

Advanced

Time Zone

WiFi Scheduler

Tools

👤 System Manager

Account

Firmware

Log

Device Information

Device Name	EAP2200
Serial Number	177226916
MAC Address	
- LAN	88:DC:96:60:BB:F4
- Wireless LAN - 2.4GHz	88:DC:96:60:BB:F5
- Wireless LAN - 5GHz - 1	88:DC:96:60:BB:F6
- Wireless LAN - 5GHz - 2	88:DC:96:60:BB:F7
Country	USA
Current Local Time	Mon Oct 2 02:21:37 2017
Uptime	3d 18h 23m 37s
Firmware Version	3.0.1 + 1.8.59
Management VLAN ID	Untagged
Registration Check Code	e4791eb8

The **Overview** section contains the following options:

- Device Status
- Connections
- Realtime

The following sections describe these options.

Device Status

Clicking the **Device Status** link under the **Overview** menu shows the status information about the current operating mode.

- The **Device Information** section shows general system information such as Device Name, MAC address, Current Time, Firmware Version, and Management VLAN ID

Device Information

Device Name	EAP2200
Serial Number	000000001
MAC Address	
- LAN	00:00:00:E3:0C:54
- Wireless LAN - 2.4GHz	00:AA:BB:CC:DD:11
- Wireless LAN - 5GHz - 1	00:AA:BB:CC:DD:12
- Wireless LAN - 5GHz - 2	
Country	Netherlands
Current Local Time	Mon Jul 31 05:32:51 2017
Uptime	1h 33m 42s
Firmware Version	1.0.0 + 1.8.57
Management VLAN ID	Untagged
Registration Check Code	6d899865

- The Memory Information section shows usage of memory such as Total Available, Free, Cached, Buffered.

Memory Information

Total Available	140916 kB / 236444 kB (59%)
Free	109884 kB / 236444 kB (46%)
Cached	22144 kB / 236444 kB (9%)
Buffered	8888 kB / 236444 kB (3%)

- The **LAN Information** section shows the Local Area Network settings such as the LAN IP Address, Subnet mask, Gateway, DNS Address, DHCP Client, and STP status.

LAN Information - IPv4

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	
Primary DNS	
Secondary DNS	
DHCP Client	Enable
Spanning Tree Protocol (STP)	Disable

LAN Information - IPv6

IP Address	N/A
Link-Local Address	fe80::8adc:96ff:fe54:3216
Gateway	N/A
Primary DNS	N/A
Secondary DNS	N/A

- The **Wireless LAN Information 2.4 GHz/5GHz** section shows wireless information such as Operating Mode, Frequency, and Channel. Since the Access Point supports multiple-SSIDs, information about each SSID and security settings are displayed.

*Wireless LAN Information - 5GHz only available for 5GHz capable models.

Wireless LAN Information - 2.4GHz

Operation Mode		Access Point		
Wireless Mode		802.11 B/G/N		
Channel Bandwidth		20-40 MHz		
Channel		2.412 GHz (Channel 1)		
Profile	SSID	Security	VID	802.1Q
#1	EnGenius543218_1-2.4GHz	None	1	Disable
#2	EnGenius543218_2-2.4GHz	None	2	Disable
#3	EnGenius543218_3-2.4GHz	None	3	Disable
#4	EnGenius543218_4-2.4GHz	None	4	Disable
#5	EnGenius543218_5-2.4GHz	None	5	Disable
#6	EnGenius543218_6-2.4GHz	None	6	Disable
#7	EnGenius543218_7-2.4GHz	None	7	Disable
#8	EnGenius543218_8-2.4GHz	None	8	Disable

Wireless LAN Information - 5GHz

Operation Mode		Access Point		
Wireless Mode		802.11 A/N		
Channel Bandwidth		40 MHz		
Channel		5.18 GHz (Channel 36)		
Profile	SSID	Security	VID	802.1Q
#1	EnGenius543219_1-5GHz	None	51	Disable
#2	EnGenius543219_2-5GHz	None	52	Disable
#3	EnGenius543219_3-5GHz	None	53	Disable
#4	EnGenius543219_4-5GHz	None	54	Disable
#5	EnGenius543219_5-5GHz	None	55	Disable
#6	EnGenius543219_6-5GHz	None	56	Disable
#7	EnGenius543219_7-5GHz	None	57	Disable
#8	EnGenius543219_8-5GHz	None	58	Disable

- The **Statistics** section shows Mac information such as SSID, MAC address, RX and TX.

Statistics

SSID	MAC	RX(Packets)	TX(Packets)
Ethernet	88:DC:96:5C:45:DC	5.00 MB(54832 Pkts.)	5.12 MB(4264 Pkts.)

Connections

Clicking the **Connections** link under the **Device Status** menu displays the list of clients associated to the Access Point's 2.4GHz/5GHz, along with the MAC address, TX, RX and signal strength for each client. Clicking **Kick** in the Block column removes this client.

Connection List - 2.4GHz

SSID	MAC Address	TX (KB)	RX (KB)	RSSI (dBm)	Block
EnGenius60BBF5_1 -2.4GHz	ac:b5:7d:42:39:0d	8 KB	19 KB	-31dBm	<button>Kick</button>

Connection List - 5GHz - 1

SSID	MAC Address	TX (KB)	RX (KB)	RSSI (dBm)	Block
EnGenius60BBF6_1 -5GHz	ac:b5:7d:42:39:0d	4 KB	15 KB	-44dBm	<button>Kick</button>

Connection List - 5GHz - 2

SSID	MAC Address	TX (KB)	RX (KB)	RSSI (dBm)	Block
EnGenius60BBF7_1 -5GHz	ac:b5:7d:42:39:0d	4 KB	15 KB	-48dBm	<button>Kick</button>

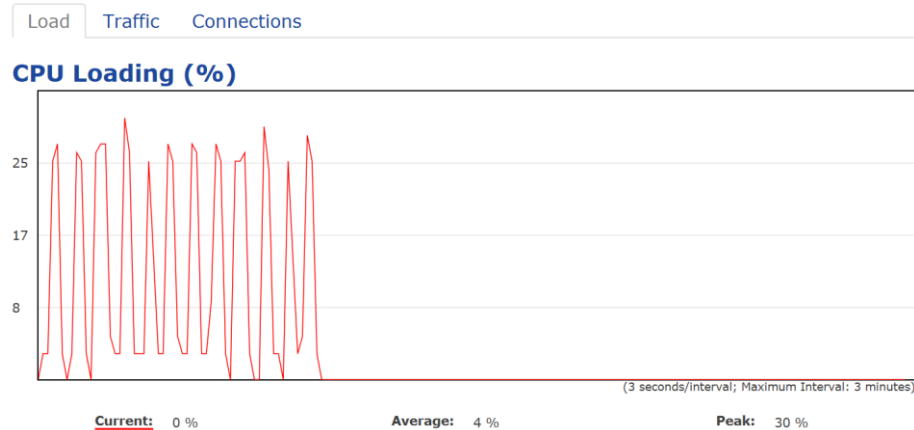
Refresh

Click **Refresh** to refresh the Connection List page.

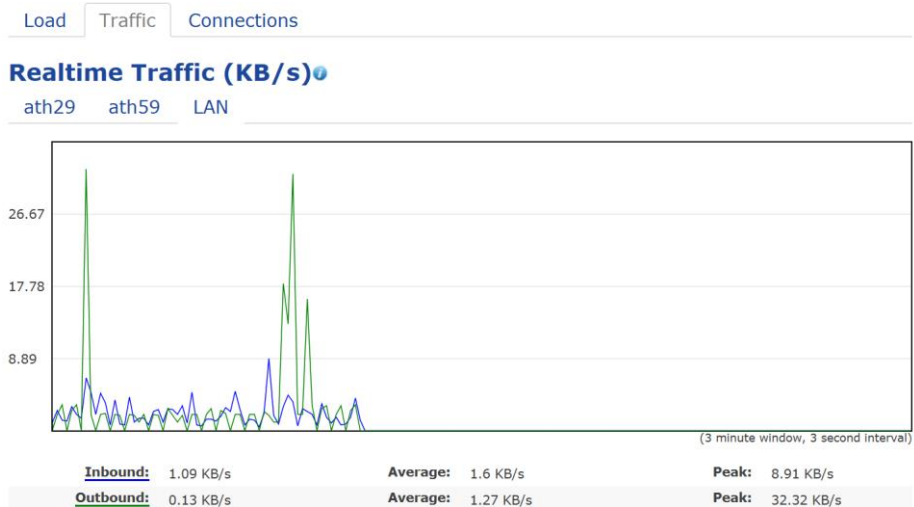
Realtime

The Realtime section contains the following options:

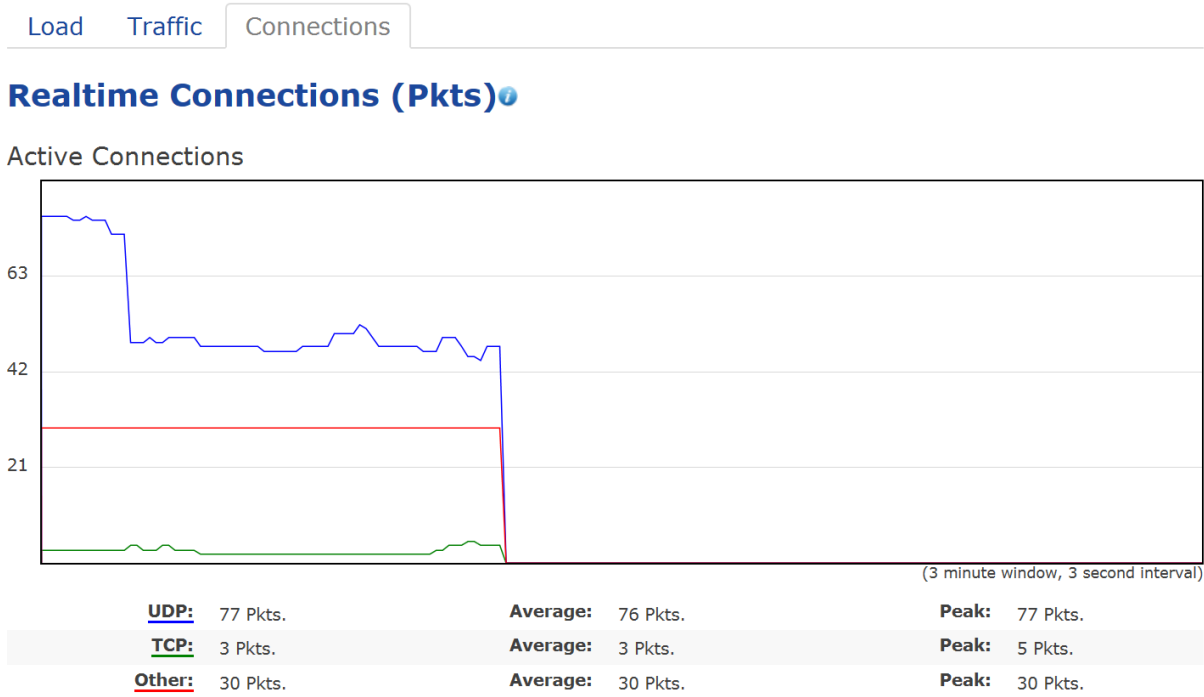
CPU Loading: 3 minutes CPU loading percentage information, it displays current loading, average loading and peak loading status. Left bar is loading percentage; button is time tracing. Interval is every 3 seconds



Traffic Loading: 2.4GHz and 5GHz and Ethernet port inbound and outbound traffic by current, average and peak time.



Realtime Connection (Pkts): Overview on current active network connections. It displays UDP and TCP packets information and other connection status. UDP connections curve is in blue; TCP connection curve is in green; others curve is in red. Below of chart shows connections source and destination.



Chapter 5

Network



Basic

This page allows you to modify the device’s IP settings and the Spanning Tree settings. Enabling Spanning Tree protocol will prevent network loops in your LAN network.

IPv4 Settings

IPv4 Settings

IP Network Setting	<input type="radio"/> DHCP <input checked="" type="radio"/> Static IP
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Primary DNS	0.0.0.0
Secondary DNS	0.0.0.0

IP Network Setting: Select whether the device IP address will use the static IP address specified in the IP Address field or be obtained automatically when the device connects to a DHCP server.

IP Address: The IP Address of this device.

IP Subnet Mask: The IP Subnet mask of this device.

Gateway: The Default Gateway of this device. Leave it blank if you are unsure of this setting.

Primary/Secondary DNS: The primary/secondary DNS address for this device.

IPv6 Settings

IPv6 Settings	<input checked="" type="checkbox"/> Link-local Address
IP Address	<input type="text"/>
Subnet Prefix Length	<input type="text"/>
Gateway	<input type="text"/>
Primary DNS	<input type="text"/>
Secondary DNS	<input type="text"/>

Link-Local Address: Check this if you want to use Link-Local Address.

IP Address: The IPv6 IP Address of this device.

Subnet Prefix Length: The IPv6 Subnet Prefix Length of this device.

Gateway: The IPv6 Default Gateway of this device. Leave it blank if you are unsure of this setting.

Primary / Secondary DNS: The primary / secondary DNS address for this device.

Spanning Tree Settings

Spanning Tree Protocol (STP) Settings

Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
Hello Time	<input type="text" value="2"/>	seconds (1-10)
Max Age	<input type="text" value="20"/>	seconds (6-40)
Forward Delay	<input type="text" value="4"/>	seconds (4-30)
Priority	<input type="text" value="32768"/>	(0-65535)

Save

Save current setting(s)

Status: Enables or disables the Spanning Tree function.

Hello Time: Specify Bridge Hello Time, in seconds. This value determines how often the device sends handshake packets to communicate information about the topology throughout the entire Bridged Local Area Network.

Max Age: Specify Bridge Max Age, in seconds. If another bridge in the spanning tree does not send a hello packet for a long period of time, it is assumed to be inactive.

Forward Delay: Specifies Bridge Forward Delay, in seconds. Forwarding Delay Time is the time spent in each of the Listening and Learning states before the Forwarding state is entered. This delay is provided so that when a new bridge comes onto a busy network, it analyzes data traffic before participating.

Priority: Specify the Priority Number. A smaller number has greater priority.

Save: Click Save to confirm the changes.

LAN Port Settings

LAN Port Settings			
Port	Enable Port	VLAN	VLAN ID
LAN1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
LAN2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
LAN3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
LAN4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

Enable Port: All Ethernet ports are enabled by default. Unchecking this box disables that port. If you do not want to provide wired access through the AP, uncheck box next to the corresponding LAN port.

VLAN: Check this box to enable VLAN for the LAN port.

VLAN ID: Enter a VLAN ID to segment traffic arriving on this port to a specific VLAN.

Chapter 6

2.4GHz & 5GHz Wireless



Wireless Settings

Wireless Settings

Device Name	EAP2200
Country / Region	USA
Band Steering	Disabled
5GHz Load Balance	

NOTE: In order for Band Steering function to work properly, 2.4GHz and 5GHz-1 and 5GHz-2 SSID and Security Settings must be the same.

NOTE: The SSID on both the low-band and high-band should be set to the same name and encryption.

Device Name: Enter a name for the device. The name you type appears in SNMP management. This name is not the SSID and is not broadcast to other devices.

Band Steering: Enable Band Steering to send 802.11n clients to the 5 GHz band, where 802.11b/g clients cannot go, and leave 802.11b/g clients in 2.4GHz to operate at their slower rates. Before implementing this feature, we suggest you to assure the both 2.4GHz and 5GHz SSID, as well as security settings must be the same. EnGenius Band Steering supports following advanced settings,

Wireless Settings

Device Name	EAP2200
Country / Region	USA
Band Steering	Force 5GHz
5GHz Load Balance	

INFORMATION: When band steering is configured to Force 5GHz mode, the AP will not allow a dual band client to connect to the 2.4GHz band only if the client is not currently associated on the 2.4Ghz radio of this AP.

NOTE: In order for Band Steering function to work properly, 2.4GHz and 5GHz-1 and 5GHz-2 SSID and Security Settings must be the same.

NOTE: The SSID on both the low-band and high-band should be set to the same name and encryption.

***Force 5GHz:** When band steering is configured to Force 5GHz mode, the AP will not dual band capable client devices to network to the 2.4GHz band only if the client devices are not currently associated on 2.4GHz radio in this AP.

Wireless Settings

Device Name	EAP2200		
Country / Region	USA		
	Prefer 5GHz		dBm
Band Steering	5GHz RSSI	-75	dBm
	NOTE: In order for Band Steering function to work properly, 2.4GHz and 5GHz-1 and 5GHz-2 SSID and Security Settings must be the same.		
5GHz Load Balance	NOTE: The SSID on both the low-band and high-band should be set to the same name and encryption.		

***Prefer 5GHz:** When band steering is configured to Prefer 5GHz mode, the AP will steer dual band capable client devices to 5GHz radio when the RSSI value of these client devices on 5GHz radio is more than set one. The allowed RSSI value for default setting is -75dBm.





























Wireless Settings

Device Name	EAP2200		
Country / Region	USA		
	Band Balance		dBm
Band Steering	5GHz RSSI	-75	dBm
	Percent of clients on 5GHz radio	75	%
	NOTE: In order for Band Steering function to work properly, 2.4GHz and 5GHz-1 and 5GHz-2 SSID and Security Settings must be the same.		
5GHz Load Balance	NOTE: The SSID on both the low-band and high-band should be set to the same name and encryption.		

***Band Balance:** When band steering is configured to Band Balance mode, the AP will steer dual band capable client devices to 5GHz when the RSSI value of these client devices on 5GHz radio is more than set one. To evenly allocate RF resource on the both 2.4GHz and 5GHz radios, users also can set the portion of client devices on 5GHz radio to assure smoothly connection. The default value of the 5GHz radio is 75%.

Save: Click Save to confirm the changes.

2.4 GHz/5 GHz Wireless Network

	2.4GHz	5GHz -1 (Band3, 4)	5GHz -2 (Band1, 2)
Operation Mode	Access Point 	Access Point 	Access Point 
	<input checked="" type="checkbox"/> Green 	<input checked="" type="checkbox"/> Green 	<input checked="" type="checkbox"/> Green 
Wireless Mode	802.11 B/G/N 	802.11 AC/N 	802.11 AC/N 
Channel HT Mode	20MHz 	40MHz 	40MHz 
Extension Channel	Upper Channel 	Lower Channel 	Lower Channel 
Channel	Auto 	Auto 	Auto 
Transmit Power	Auto 	Auto 	Auto 
Data Rate	Auto 	Auto 	Auto 
RTS/CTS Threshold  (1 - 2346)	2346	2346	2346
Client Limits	<input checked="" type="radio"/> Enable <input type="radio"/> Disable 127	<input checked="" type="radio"/> Enable <input type="radio"/> Disable 127	<input checked="" type="radio"/> Enable <input type="radio"/> Disable 127
Aggregation 	<input checked="" type="radio"/> Enable <input type="radio"/> Disable 32 Frames 50000 Bytes(Max)		
Multicast to Unicast Stream Conversion	<input checked="" type="radio"/> Enable  <input type="radio"/> Disable 		
AP Detection	Scan	Scan	Scan

Operation Mode: Scroll down this list to select operation modes (Access Point, WDS Access Point, WDS Bridge, WDS Station and Repeater) for implementing on this radio. The default operation mode is Access Point.

Wireless Mode: Scroll down this list to select wireless broadcasting standard on 2.4GHz and 5GHz frequency bands.

Channel HT Mode: Scroll down this list to select bandwidth for operating under a frequency band. The default channel bandwidth is 20 MHz on 2.4GHz frequency radio and 40 MHz on 5GHz frequency radio. Considering the different applications, users can decide to implement a channel bandwidth to fulfill real applications. The larger of the channel, the greater of transmission quality and speed.

Transmit Power (Tx Power): Default Tx power is Auto to obey regulatory power of each country.

Channel: Click Configuration button to open a new window to configure channels for performing wireless service.

***Default configuration:** Default setting of channel selection is “**All**” to perform auto channel on exist channel list.

***None:** Click “None” to disable the setting on this radio. This radio is disabled.

***Group Configuration:** Click specific groups of channels for performing auto channel function. For example, users can click U-NII-1 and U-NII-3 to perform auto channel on these bands; the mechanism of this AP will select the relatively optimal channel to perform wireless service.

Data Rate: Select a data rate from the drop-down list. The data rate affects throughput of data in the AP. Select the best balance for you and your network but note that the lower the data rate, the lower the throughput, though transmission distance is also lowered.

RTS/CTS Threshold: Specifies the threshold package size for RTS/CTS. A small number causes RTS/CTS packets to be sent more often and consumes more bandwidth.

Client Limits: Limits the total number of clients on this radio. Once setting the ceiling of client numbers, the maximum associated client devices will be restricted at this number.

Aggregation: Integrate multiple data packets into one packet to deliver to client devices. This option reduces the number of packets, but also increases packet sizes.

AP Detection: AP Detection can select the best channel to use by scanning nearby areas for Access Points.

Distance: Specifies the distance between Access Points and client devices. The proper setting for this parameter may assist Access Points to avoid the improper operation when transmitting data under a filed application.

Save: Click **Save** to confirm the changes or **Cancel** to cancel and return to previous settings.

2.4GHz/5GHz SSID Profile

Under **Wireless Settings**, you can edit the SSID profile to fit your needs. Click **Edit** under the SSID you would like to make changes to.

Wireless Settings - 2.4GHz

Enabled	SSID	Edit	Security	Hidden SSID	Client Isolation	VLAN Isolation	L2 Isolation	VLAN ID
<input type="checkbox"/>	EnGenius60BBF5_1-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
<input type="checkbox"/>	EnGenius60BBF5_2-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
<input type="checkbox"/>	EnGenius60BBF5_3-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13
<input type="checkbox"/>	EnGenius60BBF5_4-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14
<input type="checkbox"/>	EnGenius60BBF5_5-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	15
<input type="checkbox"/>	EnGenius60BBF5_6-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16
<input type="checkbox"/>	EnGenius60BBF5_7-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17
<input type="checkbox"/>	EnGenius60BBF5_8-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18

Wireless Settings - 5GHz-1

Enabled	SSID	Edit	Security	Hidden SSID	Client Isolation	VLAN Isolation	L2 Isolation	VLAN ID
<input type="checkbox"/>	EnGenius60BBF6_1-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51
<input type="checkbox"/>	EnGenius60BBF6_2-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52
<input type="checkbox"/>	EnGenius60BBF6_3-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53
<input type="checkbox"/>	EnGenius60BBF6_4-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54
<input type="checkbox"/>	EnGenius60BBF6_5-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55
<input type="checkbox"/>	EnGenius60BBF6_6-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56
<input type="checkbox"/>	EnGenius60BBF6_7-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	57
<input type="checkbox"/>	EnGenius60BBF6_8-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58

Enable: Check this option to enable this profile.

SSID: Specifies the SSID for the current profile.

Security: Displays the Security Mode the SSID uses. You can click **Edit** to change the security mode. For more details, see the next section.

Hidden SSID: Check this option to hide the SSID from clients. If checked, the SSID will not appear in the site survey.

Client Isolation: Check this option to prevent communication between client devices.

VLAN Isolation: Check this option to enable VLAN Isolation feature.

VLAN ID: Specifies the VLAN tag for each profile. If your network includes VLANs, you can specify a VLAN ID for packets pass through the Access Point with a tag.

Wireless Security: See the Wireless Security section.

VLAN Isolation: Restrict clients communicating with different VLANs by selecting the radio button.

L2 Isolation: Enable this function prevent client devices to communicate on the both WLAN and LAN.

Save: Click Save to accept the changes.

Wireless Security

The Wireless Security section lets you configure the Access Point's security modes: WEP, WPA-PSK, WPA2-PSK, WPA-PSK Mixed, WPA-Enterprise, WPA2-Enterprise and WPA Mixed Enterprise.

It is strongly recommended that you use **WPA2-PSK**. Click on the **Edit** button under Wireless Settings next to the SSID to change the security settings.

WEP

Security Mode	WEP <input type="button" value="v"/>
Auth Type	Open System <input type="button" value="v"/>
Input Type	Hex <input type="button" value="v"/>
Key Length	40/64-bit (10 hex digits or 5 ASCII char) <input type="button" value="v"/>
Default Key	1 <input type="button" value="v"/>
Key1	<input type="text"/>
Key2	<input type="text"/>
Key3	<input type="text"/>
Key4	<input type="text"/>

Auth Type: Select Open System or Shared Key.

Input Type: ASCII: Regular Text (Recommended) or HEX: Hexadecimal Numbers (For advanced users).

Key Length: Select the desired option and ensure the wireless clients use the same setting. Your choices are: 64, 128, and 152-bit password lengths.

Default Key: Select the key you wish to be default. Transmitted data is ALWAYS encrypted using the Default Key; the other Keys are for decryption only. You must enter a Key Value for the Default Key.

Encryption Key: Enter the Key Value or values you wish to use. The default is none.

WPA-PSK/WPA2-PSK (Pre-Shared Key)

Security Mode	WPA-PSK Mixed ▼
Encryption	Both(TKIP+AES) ▼
Passphrase	<input type="text"/>
Group Key Update Interval	3600

Encryption: Select the WPA/WPA2 encryption type you would like to use. Available options are Both, TKIP(Temporal Key Integrity Protocol) and AES(Advanced Encryption Standard). Please ensure that your wireless clients use the same settings.

Passphrase: Wireless clients must use the same Key to associate the device. If using ASCII format, the Key must be from 8 to 63 characters in length. If using HEX format, the Key must be 64 HEX characters in length.

Group Key Update Interval: Specify how often, in seconds, the Group Key changes.

WPA/WPA2-Enterprise

Security Mode	WPA Mixed-Enterprise ▼
Encryption	Both(TKIP+AES) ▼
Group Key Update Interval	3600
Radius Server	<input type="text"/>
Radius Port	1812
Radius Secret	<input type="text"/>
Radius Accounting	Disable ▼
Radius Accounting Server	<input type="text"/>
Radius Accounting Port	1813
Radius Accounting Secret	<input type="text"/>
Interim Accounting Interval	600

Encryption: Select the WPA/WPA2 encryption type you would like to use. Available options are Both, TKIP(Temporal Key Integrity Protocol) and AES(Advanced

Encryption Standard). Please ensure that your wireless clients use the same settings.

Group Key Update Interval: Specify how often, in seconds, the group key changes.

Radius Server: Enter the IP address of the Radius server.

Radius Port: Enter the port number used for connections to the Radius server.

Radius Secret: Enter the secret required to connect to the Radius server.

Radius Accounting: Enables or disables the accounting feature.

Radius Accounting Server: Enter the IP address of the Radius accounting server.

Radius Accounting Port: Enter the port number used for connections to the Radius accounting server.

Radius Accounting Secret: Enter the secret required to connect to the Radius accounting server.

Interim Accounting Interval: Specify how often, in seconds, the accounting data sends.

Note: 802.11n does not allow WEP/WPA-PSK TKIP/WPA2-PSK TKIP security mode. The connection mode will automatically change from 802.11n to 802.11g.

Wireless MAC Filter

Wireless MAC Filter is used to allow or deny network access to wireless clients (computers, tablet PCs, NAS, smart phones, etc.) according to their MAC addresses. You can manually add a MAC address to restrict permission to access the Access Point. The default setting is: Disable Wireless MAC Filter.

Wireless MAC Filter

ACL Mode	Disabled	▼									
	<input type="text"/>	:	<input type="text"/>	:	<input type="text"/>	:	<input type="text"/>	:	<input type="text"/>	:	<input type="text"/>
	<input type="button" value="Add"/>										
No.	MAC Address										

ACL (Access Control List) Mode: Determines whether network access is granted or denied to clients whose MAC addresses appear in the MAC address table on this page. Choices given are: Disabled, Deny MAC in the list, or Allow MAC in the list.

MAC Address: Enter the MAC address of the wireless client.

Add: Click **Add** to add the MAC address to the MAC Address table.

Delete: Deletes the selected entries.

Traffic Shaping

Traffic Shaping regulates the flow of packets leaving an interface to deliver improved Quality of Service.

Wireless Traffic Shaping

Enable Traffic Shaping	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Download Limit	<input type="text" value="100"/> Mbps (1-999)
Upload Limit	<input type="text" value="100"/> Mbps (1-999)

Save current setting(s)

Enable Traffic Shaping: Select to Enable or Disable Wireless Traffic Shaping.

Download Limit: Specifies the wireless transmission speed used for downloading.

Upload Limit: Specifies the wireless transmission speed used for uploading.

Per User: Check this option to enable wireless traffic shaping per user function. This function allow users to limit the maximum download / upload bandwidth for each client devices on this SSID.

Save: Click **Save** to apply the changes.

Fast Roaming

Enable the function to serve mobile client devices that roam from Access Point to Access Point. Some applications running on Client devices require fast re-association when they roam to a different Access Point

Please enter the settings of the SSID and initialize the Security mode to WPA enterprise, as well as to set the Radius Server firstly. Users can enable the Fast Roaming and implement the advanced search.

Please also set the same enterprise Encryption under the same SSID on other Access Points and enable the Fast Roaming. When the configuration is realized on different Access Point, the mobile client devices can run the voice service and require seamless roaming to prevent delay in conversation from

Access Point to Access Point.

Fast Roaming

Enable Fast Roaming

☐ Enable ☒ Disable

Enable Fast Roaming: Enable or disable fast roaming feature.

Enable Advanced Search: Enable or disable advanced search feature.

WDS Link Settings

Using the WDS (Wireless Distribution System) feature will allow a network administrator or installer to connect to Access Points wirelessly. Doing so will extend the wired infrastructure to locations where cabling is not possible or inefficient to implement.

Note: Compatibility between different brands and models of Access Points is not guaranteed. It is recommended that the WDS network be created using the same models for maximum compatibility.

Also note: All Access Points in the WDS network need to use the same Channel and Security settings.

To create a WDS network, please enter the MAC addresses of the Access Points that you want included in the WDS. There can be a maximum of four Access Points.

WDS Link Settings - 2.4GHz

Security	None	▼
AES Passphrase	<div></div> (8-63 ASCII characters or 64 hexadecimal digits)	
MAC Address		Mode
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼

WDS Link Settings - 5GHz -1

Security	None	▼
AES Passphrase	<div></div> (8-63 ASCII characters or 64 hexadecimal digits)	
MAC Address		Mode
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼
<div></div> : <div></div> : <div></div> : <div></div> : <div></div> : <div></div>		Disable ▼

Security: Select None or AES from the drop-down list.

AES Passphrase: Enter the Key Values you wish to use. Other Access Points must use the same Key to establish a WDS link.

MAC Address: Enter the Access Point's MAC address to where you want to extend the wireless area.


Mode: Select to disable or enable from the drop-down list.

Save: Click Save to confirm the changes.

Guest Network

The Guest Network function allows administrators to grant Internet connectivity to visitors or guests while keeping other networked devices (computers and hard drives) and sensitive personal or company information private and secure.

Guest Network Settings

Enabled	SSID	Edit	Security	Hidden SSID	Client Isolation 
<input type="checkbox"/>	EnGenius-2.4GHz_GuestN	Edit	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	EnGenius-5GHz-1_GuestN	Edit	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	EnGenius-5GHz-2_GuestN	Edit	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Manual IP Settings

- IP Address	192.168.200.1
- Subnet Mask	255.255.255.0

Automatic DHCP Server Settings

- Starting IP Address	192.168.200.100
- Ending IP Address	192.168.200.200
- WINS Server IP	0.0.0.0

Enable SSID: Select to Enable or Disable SSID broadcasting.

SSID: Specify the SSID for the current profile. This is the name visible on the network to wireless clients.

Security: You can use None or WPA-PSK / WPA2-PSK security for this guest network.

Hidden SSID: Check this option to hide the SSID from broadcasting to discourage wireless users from connecting to a particular SSID.

Client Isolation: Check this option to prevent wireless clients associated with your access point to communicate with other wireless devices connected to the AP.

After enabling Guest Network in the SSID Config page, assign an IP Address, Subnet Mask and DHCP server IP address range for this Guest Network.

Manual IP Settings	
- IP Address	192.168.200.1
- Subnet Mask	255.255.255.0
Automatic DHCP Server Settings	
- Starting IP Address	192.168.200.100
- Ending IP Address	192.168.200.200
- WINS Server IP	0.0.0.0

Manual IP Settings

IP Address: Specify an IP Address for the Guest Network

Subnet Mask: Specify the the Subnet Mask IP Address for the Guest Network

Automatic DHCP Server Settings

Starting IP Address: Specify the starting IP Address range for the Guest Network.

Ending IP Address: Specify the ending IP Address range for the Guest Network.

WINS Server IP: Specify the WINS Server IP Address for the Guest Network. WINS means Windows Internet Name Service. It is Microsoft's implementation of NetBIOS Name Service (NBNS), a name server and service for NetBIOS computer names.

RSSI Threshold

With RSSI Threshold enabled, the AP will send a disassociation request to the wireless client and let it find another AP to handover and associate upon detecting the wireless client's RSSI value lower than specified. The RSSI value can be adjusted to allow more clients to stay associated to this AP. Note that setting the RSSI value too low may cause wireless clients to reconnect frequently.

RSSI Threshold

Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
--------	---

RSSI	<input type="text" value="-70"/> dBm (Range: -60dBm ~ -100dBm)
------	--

CAUTION: Enabling RSSI Threshold disassociates wireless clients that fall below the configured RSSI threshold and may cause wireless clients to reconnect frequently. It is recommended to disable this feature unless you deem it absolutely necessary.

Management VLAN Settings

This section allows you to assign a VLAN tag to the packets. A VLAN is a group of computers on a network whose software has been configured so that they behave as if they were on a separate Local Area Network (LAN). Computers on VLAN do not have to be physically located next to one another on the LAN.

Management VLAN Settings

Status ☐ Enable ☒ Disable

Caution: If you encounter disconnection issue during the configuration process, verify that the switch and the DHCP server can support the new VLAN ID and then connect to the new IP address.

Save

Save current setting(s)

Status: If your network includes VLANs and if tagged packets need to pass through the Access Point, select **Enable** and enter the VLAN ID. Otherwise, click **Disable**.

Save: Click **Save** to apply the changes.

Note: If you reconfigure the Management VLAN ID, you may lose your connection to the Access Point. Verify that the DHCP server supports the reconfigured VLAN ID and then reconnect to the Access Point using the new IP address.

Chapter 7

Management



Controller Settings

With EnGenius EWS switch or EzMaster management, user can add the Access Point to the management list by itself check code.

Controller Settings

Controller Address(Auto detection if leave empty)	<input type="text"/>	<input type="button" value="Test"/>
Connection Status	Disconnect	
Check Code	8c0a8acd	

Controller Address: Input the IP address of EnGenius EWS switch or EzMaster, then click “Test”.

Connection Status: After click “Test”, it will display the connection between Access Point and EnGenius EWS switch or EzMaster.

SNMP Settings

This page allows you to assign the Contact Details, Location, Community Name, and Trap Settings for Simple Network Management Protocol (SNMP). This is a networking management protocol used to monitor network attached devices. SNMP allows messages (called protocol data units) to be sent to various parts of the network. Upon receiving these messages, SNMP compatible devices (called agents) returns the data stored in their Management Information Bases. To configure SNMP Settings, click under the **Advanced** tab on the side bar under **Management**.

SNMP Settings

Status	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Contact	<input type="text"/>	
Location	<input type="text"/>	
Port	<input type="text" value="161"/>	
Community Name (Read Only)	<input type="text" value="public"/>	
Community Name (Read Write)	<input type="text" value="private"/>	
Trap Destination		
- Port	<input type="text" value="162"/>	
- IP Address	<input type="text"/>	
- Community Name	<input type="text" value="public"/>	
SNMPv3 Settings		
- Status	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
- Username	<input type="text" value="admin"/>	(1-31 Characters)
- Authorized Protocol	<input type="text" value="MD5"/>	
- Authorized Key	<input type="text" value="12345678"/>	(8-32 Characters)
- Private Protocol	<input type="text" value="DES"/>	
- Private Key	<input type="text" value="12345678"/>	(8-32 Characters)
- Engine ID	<input type="text"/>	

Status: Enables or Disables the SNMP feature.

Contact: Specifies the contact details of the device.

Location: Specifies the location of the device.

Port: Displays the port number.

Community Name (Read Only): Specifies the password for the SNMP community for read only access.

Community Name (Read/Write): Specifies the password for the SNMP community with read/write access.

Trap Destination Address: Specifies the port and IP address of the computer that will receive the SNMP traps.

Trap Destination Community Name: Specifies the password for the SNMP trap community.

SNMPv3 Status: Enables or Disables the SNMPv3 feature.

User Name: Specifies the username for the SNMPv3.feature

Auth Protocol: Select the Authentication Protocol type: MDS or SHA.

Auth Key: Specify the Authentication Key for authentication.

Priv Protocol: Select the Privacy Protocol type: DES.

Priv Key: Specifies the privacy key for privacy.

Engine ID: Specifies the Engine ID for SNMPv3.

CLI/SSH Settings

Most users will configure the device through the graphical user interface (GUI). However, for those who prefer an alternative method there is the command line interface (CLI). The CLI can be access through a command console, modem or Telnet connection. For security's concern, you can enable SSH (Secure Shell) to establish a secure data communication.

CLI Setting

Status ☒ Enable ☐ Disable

SSH Setting

Status ☐ Enable ☒ Disable

CLI Status: Select **Enable** or **Disable** to enable or disable the ability to modify the Access Point via a command line interface (CLI).

SSH Status: Select **Enable** or **Disable** to enable or disable the ability to modify the Access Point via a command line interface (CLI) with a secure channel.

HTTPS Settings

Hypertext Transfer Protocol Secure (HTTPS) is a communications protocol for secure communication over a computer network, with especially wide deployment on the Internet. Technically, it is not a protocol in and of itself; rather, it is the result of simply layering the Hypertext Transfer Protocol (HTTP) on top of the SSL/TLS protocol, thus adding the security capabilities of SSL/TLS to standard HTTP communications.

HTTPS Settings

Status	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
HTTPS forward	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

Status: Select **Enable** or **Disable** to enable or disable the ability to modify the Access Point via a HTTPS.

HTTPS forward: Enable this option; it will be forwarded to HTTPS if user uses HTTP to access the Access Point.

Email Alert

The Access Point will send email alerts when configurations have been changed.

Email Alert	
Status	<input type="checkbox"/> Enable
- From	<input type="text"/>
- To	<input type="text"/>
- Subject	[Email-Alert][EWS320AP][88:DC:96:05:B0:68] Configur
Email Account	
- Username	<input type="text"/>
- Password	<input type="password"/>
- SMTP Server	<input type="text"/> Port: 25
- Security Mode	None <input type="button" value="v"/> <input type="button" value="Send Test Mail"/>

Apply saved settings to take effect

Status: Check **Enable** to enable Email Alert feature.

From: Enter the address to show as the sender of the email.

To: Enter the address to show as the receiver of the email.

Subject: Enter the subject to show as the subject of the email.

Email Account

Username/Password: Enter the username and password required to connect to the SMTP server.

SMTP Server/Port: Enter the IP address/domain name and port of the SMTP server. The default port of SMTP Server is port 25.

Security Mode: Select the mode of security for the Email alert. The options are None, SSL/TLS and STARTTLS.

Send Test Mail: Click **Send Test Mail** button to test the Email Alert setup.

Apply: Click **Apply** to save the changes.

Date and Time Settings

This page allows you to set the internal clock of the Access Point. To access the Date and Time settings, click **Time Zone** under the **Management** tab on the side bar.

Date and Time Settings

☐ Manually Set Date and Time

Date: 2014 / 01 / 07

Time: 11 : 16 (24-Hour)

☒ Automatically Get Date and Time

NTP Server: 209.81.9.7

Time Zone

Time Zone: UTC+00:00 Gambia, Liberia, Morocco

☐ Enable Daylight Saving

Start: January 1st Sun 12 am

End : January 1st Mon 12 am

Apply saved settings to take effect

Manually Set Date and Time: Manually specify the date and time.

Synchronize with PC: Click to synchronize the Access Point's internal clock with the computer's time.

Automatically Get Date and Time: Enter the IP address of an NTP server or use the default NTP server to have the internal clock set automatically.

Time Zone: Choose the time zone you would like to use from the drop-down list.

Enable Daylight Savings: Check the box to enable or disable daylight savings time for the Access Point. Next, enter the dates that correspond to the present year's daylight savings time.

Click **Apply** to save the changes.

WiFi Scheduler

Use the schedule function to reboot the Access Point or control the wireless availability on a routine basis. The Schedule function relies on the GMT time setting acquired from a network time protocol (NTP) server. For details on how to connect the Access Point to an NTP server, see Date and Time Settings.

Auto Reboot Settings

You can specify how often you would like to reboot the Access Point.

Auto Reboot Settings

Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Timer	<input type="checkbox"/> Sunday <input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday
	<input type="text" value="0"/> : <input type="text" value="0"/>

Status: Enables or disables the Auto Reboot function.

Timer: Specifies the time and frequency in rebooting the Access Point by Min, Hour and Day.

WiFi Scheduler

The Wi-Fi Scheduler can be created for use in enforcing rules. For example, if you wish to restrict web access to Mon-Fri from 3pm to 8pm, you could create a schedule selecting Mon, Tue, Wed, Thu and Fri while entering a Start time of 3pm and End Time of 8pm to limit access to these times.

Wi-Fi Scheduler

Status

☐ Enable ☒ Disable
NOTE: Please assure that the Time Zone Settings is synced with your local time when enabling the Wi-Fi Scheduler.

Wireless Radio

2.4GHz

SSID Selection

EnGenius05B069_1-2.4GHz

Schedule Templates

Choose a template

Schedule Table

Day	Availability	Duration
Sunday	available	00 : 00 ~ 24 : 00
Monday	available	00 : 00 ~ 24 : 00
Tuesday	available	00 : 00 ~ 24 : 00
Wednesday	available	00 : 00 ~ 24 : 00
Thursday	available	00 : 00 ~ 24 : 00
Friday	available	00 : 00 ~ 24 : 00
Saturday	available	00 : 00 ~ 24 : 00

Save

Save current setting(s)

Status: Enables or disables the WiFi Scheduler function.

Wireless Radio: Select 2.4GHz or 5GHz to use WiFi Schedule.

SSID Selection: Select a SSID to use WiFi Schedule.

Schedule Templates: There are 3 templates available: Always available, Available 8-5 daily and Available 8-5 daily except weekends. Select Custom schedule if you want to set the schedule manually.

Duration: The Start Time is entered in two fields. The first box is for hours and the second box is for minutes. The End Time is entered in the same format as the Start time.

Schedule Table: Set the schedule manually.

Tools

This section allows you to analyze the connection quality of the Access Point and trace the routing table to a target in the network.

Ping Test Parameters

Ping Test Parameters

Target IP / Domain Name	<input type="text"/>	
Ping Packet Size	<input type="text" value="64"/>	Bytes
Number of Pings	<input type="text" value="4"/>	
<input type="button" value="Start"/>		

Target IP/Domain Name: Enter the IP address or Domain name you would like to search.

Ping Packet Size: Enter the packet size of each ping.

Number of Pings: Enter the number of times you wish to ping.

Start: Click **Start** to begin pinging target device (via IP).

Traceroute Parameters

Traceroute Test Parameters

Target IP / Domain Name

Target IP/Domain Name: Enter an IP address or domain name you wish to trace.

Start: Click **Start** to begin the trace route operation.

Stop: Halts the traceroute test.

Speed Test Parameters

Speed Test Parameters

Target IP / Domain Name	<input type="text"/>
Time Period	<input type="text" value="20"/> sec
Check Interval	<input type="text" value="5"/> sec
<input type="button" value="Start"/>	<div><div></div><div></div></div>
IPv4 Port	5001
IPv6 Port	5002

Target IP/Domain Name: Enter an IP address or domain name you wish to run a Speed Test for realizing the variance on wireless speed.

Time Period: Enter the time in seconds that you would like the test to run for and in how many intervals.

Start: Starts the Speed Test.

IPv4 / IPv6 Port: The Access Point uses IPv4 port 5001 and IPv6 port 5002 for the speed test.

LED Control

This section allows you to control the LED control functions: Power status, LAN interface and 2.4GHz/5GHz WLAN interface.

LED Control

Power	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
LAN	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
WLAN-2.4GHz	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
WLAN-5GHz - 1	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
WLAN-5GHz - 2	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

Apply

Apply saved settings to take effect

Power: Enables or disables the Power LED indicator.

LAN: Enables or disables the LAN LED indicator.

WLAN-2.4 GHz: Enables or disables the WLAN-2.4 GHz LED indicator.

WLAN-5 GHz: Enables or disables the WLAN-5 GHz LED indicator.

Click **Apply** to save the settings after selecting your choices from the boxes.

Device Discovery

Under Device Discovery, you can choose for the Access Point to automatically scan for local devices to connect to. Click **Scan** to begin the process.

Device Discovery

Device Name	Operation Mode	IP Address	System MAC Address	Firmware Version
-------------	----------------	------------	--------------------	------------------

Scan

Chapter 8




System Manager



Account Setting

This page allows you to change the username and password of the device. By default, the username is **admin** and the password is **admin**. The password can contain from 0 to 12 alphanumeric characters and is case sensitive.

Account Settings

Administrator Username	<input type="text" value="admin"/>
Current Password	<input type="password"/> 
New Password	<input type="password"/> 
Verify Password	<input type="password"/> 

Administrator Username: Enter a new username for logging in to the Administrator Username entry box.

Current Password: Enter the old password for logging in to the Current Password entry box.

New Password: Enter the new password for logging in to the New Password entry box.

Verify Password: Re-enter the new password in the Verify Password entry box for confirmation.

Apply: Click **Apply** to save the changes.

Note: it is highly recommended that you change your password to something more unique for greater security.

Firmware Upgrade

This page allows you to upgrade the Firmware of the Access Point.

Firmware Upgrade

Current Firmware Version:3.0.1

Select the new firmware from your hard disk.

<input type="text"/>	<input type="button" value="Browse"/>	<input type="button" value="Upload"/>
----------------------	---------------------------------------	---------------------------------------

To Perform the Firmware Upgrade:




1. Click the **Browse...** button and navigate the OS File System to the location of the Firmware upgrade file.
2. Select the upgrade file. The name of the file will appear in the Upgrade File field.
3. Click the **Upload** button to commence the Firmware upgrade.

Note: The device is unavailable during the upgrade process and must restart when the upgrade is completed. Any connections to or through the device will be lost.

Backup/Restore

This page allows you to save the current device configurations. When you save the configurations, you can also reload the saved configurations into the device through the **Restore New Settings** from a file folder. If extreme problems occur, or if you have set the Access Point incorrectly, you can use the **Reset** button in the **Reset to Default** section to restore all the configurations of the Access Point to the original default settings. To Configure the Backup/Restore Settings, click **Firmware** under the **Systems Manager** tab.

Backup/Restore Settings

Factory Setting	
- Backup Setting 	<input type="button" value="Export"/>
- Restore New Setting	<input type="text" value=""/> <input type="button" value="Browse"/> <input type="button" value="Import"/>
- Reset to Default 	<input type="button" value="Reset"/>
User Setting	
- Back Up Setting as Default	<input type="button" value="Backup"/>
- Restore to User Default 	<input type="button" value="Restore"/>

- **Warning:** This feature will overwrite the factory default setting with your current AP settings. Pressing the physical reset button will restore the configuration of the current AP settings, not factory default settings. To restore to factory settings, press Factory Setting, Reset to Default in the UI.

Factory Setting

Backup Setting: Click **Export** to save the current device configurations to a file.

Restore New Setting: Choose the file you wish restore for settings and click **Import**.

Reset to Default: Click the **Reset** button to restore the Access Point to its factory default settings.

User Setting

The function allows you to backup the current device configurations into the AP as the default value. If extreme problems occur, or if you have set the AP incorrectly, you can push the Reset button to revert all the configurations of the AP to the user default.

Back Up Setting as Default: Click **Backup** to backup the user settings you would like to use as the default settings.

Restore to User Default: Click **Restore** to restore the Access Point to user's default settings.


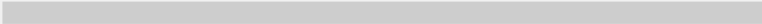
Note1: After setting the current settings as the default, you should click the Restore to Default on the web interface for reverting the settings into the factory default instead of pushing the reset button.

Note2: Please write down your account and password before saving. The user settings will now become the new default settings at the next successful login.

System Log

This page allows you to setup the System Log and local log functions of the Access Point. Click **Log** under the **Systems Manager** tab to open up the System Log page.

System Log

Status	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Log type	ALL 
<div>Refresh</div> <div>Clear</div>	<div>Oct 2 04:05:01 EAP2200 cron.info crond[4008]: crond: USER root pid 27727 cmd killall -SIGUSR1 dhcrelay_ Oct 2 04:04:01 EAP2200 cron.info crond[4008]: crond: USER root pid 27421 cmd killall -SIGUSR1 dhcrelay_ Oct 2 04:03:01 EAP2200 cron.info crond[4008]: crond: USER root pid 26843 cmd killall -SIGUSR1 dhcrelay_ Oct 2 04:02:01 EAP2200 cron.info crond[4008]: crond: USER root pid 26267 cmd killall -SIGUSR1 dhcrelay_ Oct 2 04:01:01 EAP2200 cron.info crond[4008]: crond: USER root pid 25701 cmd killall -SIGUSR1 dhcrelay_ Oct 2 04:00:01 EAP2200 cron.info crond[4008]: crond: USER root pid 25259 cmd killall -SIGUSR1 dhcrelay_ Oct 2 03:59:01 EAP2200 cron.info crond[4008]: crond: USER root pid 24681 cmd killall -SIGUSR1 dhcrelay_ Oct 2 03:58:01 EAP2200 cron.info crond[4008]: crond: USER root pid 24241 cmd killall -SIGUSR1 dhcrelay_ Oct 2 03:57:01 EAP2200 cron.info crond[4008]: crond: USER root pid 23805 cmd killall -SIGUSR1 dhcrelay_ </div>
Remote Log	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Log Server IP Address	0.0.0.0

Apply

Apply saved settings to take effect

Status: Enables or disables the System Log function.

- ALL
- Debug
- Information
- Notice
- Warning
- Error
- Critical
- Alert
- Emergency

Log Type: Select the Log Type mode you would like to use.

Remote Log

☐ Enable ☒ Disable

Log Server IP
Address

0.0.0.0

Remote Log: Enables or disables the Remote Log feature. If enabled, enter the IP address of the Log you would like to remote to.

Log Server IP Address: Enter the IP address of the log server.

Apply: Click **Apply** to save the changes.

Reset

In some circumstances, you may be required to force the device to reboot. Click on **Reboot the Device** to reboot the device.

The screenshot shows the EnGenius EAP2200 web interface. The top header includes the EnGenius logo, a language dropdown set to English, and a status bar with the device model (EAP2200), description (Tri-band Indoor AP, 400Mbps + 867Mbps + 867Mbps), and a 'Changes: 0' indicator. The 'Reset' button is highlighted with a red rectangle. The left sidebar contains navigation links for Overview, Network, Management, and System Manager. The main content area displays two sections: 'Reboot the device' with a caution message and a 'Reboot the device' button, and 'Restore the device to default settings' with a caution message and two buttons: 'Restore to Factory Default' and 'Restore to User Default'.

EnGenius® English

EAP2200 Tri-band Indoor AP, 400Mbps + 867Mbps + 867Mbps Changes: 0 **Reset** Logout

Overview

- Device Status
- Connections
- Realtime

Network

- Basic
- Wireless

Management

- Advanced
- Time Zone
- WiFi Scheduler
- Tools

System Manager

- Account
- Firmware
- Log

Reboot the device

Caution: Pressing this button will cause the device to reboot.

Reboot the device

Restore the device to default settings

Caution: All settings will be cleared and reset to either factory default or user default.

Restore to Factory Default Restore to User Default

Once you click reset button, you will see the options for reboot or restore this AP.

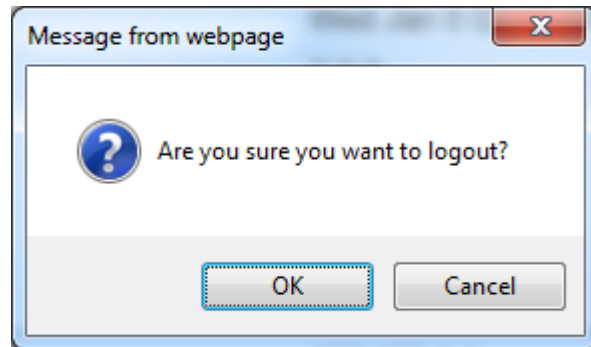
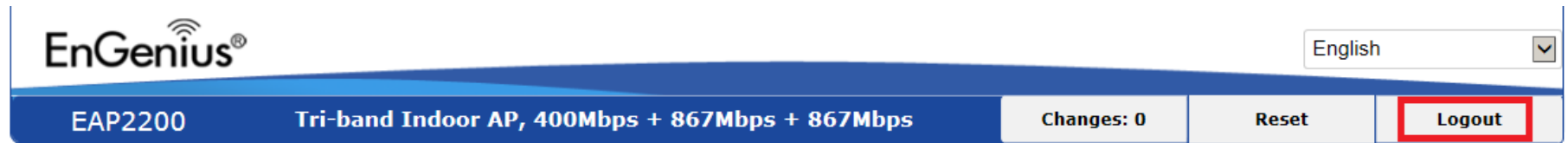
Reboot the device: Click it to reboot this device.

Restore to Factory Default: Click it to reset this device to factory default setting.

Restore to User Default: Click it to reset this device to user default settings.

Logout

Click **Logout**, it will pop up a warning window. Click **OK** to logout.



Appendix



Appendix A - FCC Interference Statement

Federal Communication Commission Interference Statement

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

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



FCC Caution:

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Operations in the 5.15-5.25 GHz band are restricted to indoor usage only.

IMPORTANT NOTE:

Radiation Exposure Statement

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

Appendix B - CE Interference Statement

Europe – EU Declaration of Conformity








- **EN60950-1**
Safety of Information Technology Equipment
- **EN50385**
Generic standard to demonstrate the compliance of electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields (0 Hz - 300 GHz)
- **EN 300 328**
Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
- **EN 301 893**
Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- **EN 301 489-1**
Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
- **EN 301 489-17**
Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

CE 0560

This device is a 5GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.

 Český [Czech]	<i>[Jméno výrobce]</i> tímto prohlašuje, že tento <i>[typ zařízení]</i> je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
 Dansk [Danish]	Undertegnede <i>[fabrikantens navn]</i> erklærer herved, at følgende udstyr <i>[udstyrets typebetegnelse]</i> overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
 Deutsch [German]	Hiermit erkläre <i>[Name des Herstellers]</i> , dass sich das Gerät <i>[Gerätetyp]</i> in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
 Eesti [Estonian]	Käesolevaga kinnitab <i>[tootja nimi = name of manufacturer]</i> seadme <i>[seadme tüüp = type of equipment]</i> vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
 English	Hereby, <i>[name of manufacturer]</i> , declares that this <i>[type of equipment]</i> is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
 Español [Spanish]	Por medio de la presente <i>[nombre del fabricante]</i> declara que el <i>[clase de equipo]</i> cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
 Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>[name of manufacturer]</i> ΔΗΛΩΝΕΙ ΟΤΙ <i>[type of equipment]</i> ΣΥΜΜΟΡΦΩΝΕΤΑΙ

	ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
 Français [French]	Par la présente <i>[nom du fabricant]</i> déclare que l'appareil <i>[type d'appareil]</i> est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
 Italiano [Italian]	Con la presente <i>[nome del costruttore]</i> dichiara che questo <i>[tipo di apparecchio]</i> è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo <i>[name of manufacturer / izgatavotāja nosaukums]</i> deklarē, ka <i>[type of equipment / iekārtas tips]</i> atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo <i>[manufacturer name]</i> deklaruoja, kad šis <i>[equipment type]</i> atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
 Nederlands [Dutch]	Hierbij verklaart <i>[naam van de fabrikant]</i> dat het toestel <i>[type van toestel]</i> in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
 Malti [Maltese]	Hawnhekk, <i>[isem tal-manifattur]</i> , jiddikjara li dan <i>[il-mudel tal-prodott]</i> jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Direttiva 1999/5/EC.
 Magyar [Hungarian]	Alulírott, <i>[gyártó neve]</i> nyilatkozom, hogy a <i>[... típus]</i> megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
 Polski [Polish]	Niniejszym <i>[nazwa producenta]</i> oświadczam, że <i>[nazwa wyrobu]</i> jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
 Português [Portuguese]	<i>[Nome do fabricante]</i> declara que este <i>[tipo de equipamento]</i> está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
 Slovensko [Slovenian]	<i>[Ime proizvajalca]</i> izjavlja, da je ta <i>[tip opreme]</i> v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	<i>[Meno výrobcu]</i> týmto vyhlasuje, že <i>[typ zariadenia]</i> spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
 Suomi [Finnish]	<i>[Valmistaja = manufacturer]</i> vakuuttaa täten että <i>[type of equipment = laitteen tyyppimerkintä]</i> tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
 Svenska [Swedish]	Härmed intygar <i>[företag]</i> att denna <i>[utrustningstyp]</i> står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.