

EnGenius®

Turbo Engine Series

# User Manual



EAP1300/EAP1300EXT  
version 1.0



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# Chapter 1

## **Product Overview**





# Introduction

## Key Features

- Deploy and manage with ease using EWS Series Wireless Management Switches.
- Up to 20 dBm transmit power enabling long range connectivity
- Supports IEEE802.11ac/a/b/g/n wireless standards with up to 400 Mbps data rate on 2.4GHz band and 867Mbps on 5GHz band
- Two 5 dBi 2.4 GHz Omni-directional antennas
- Two 5 dBi 5 GHz Omni-directional antennas
- Support Wave 2 MU-MIMO function on 5GHz radio.
- Support Tx Beamforming to enlarge the transmitting distance.
- Perform 256-QAM under 2.4GHz for enhancing data rate to 400Mbps
- 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 Dual-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 configure as an: Access Point, WDS (AP, Bridge). The AP is designed to operate in a variety of indoor environments. 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 mode while at the same time providing 5GHz band under 802.11 ac/a/n mode 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 optional PoE (Power over Ethernet) injector for quick indoor installation. 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, Linux-based operating systems
- Web-Browsing Application (i.e. Edge, Internet Explorer, Firefox, 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 Access Point
- Mounting Bracket
- Bracket Screw
- Quick Installation Guide
- 2 detachable 4 dBi 2.4 GHz Omni-directional Antennas (EAP1300EXT only)
- 2 detachable 5 dBi 5 GHz Omni-directional Antennas(EAP1300EXT only)



## 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

## EAP1300/EAP1300EXT

### 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: orthogonal frequency-division multiplexing (OFDM)

#### Channelization:

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

#### Supported Modulation:

- 802.11b: BPSK, QPSK, CCK
- 802.11a/g/n: 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)

### Physical & Environment

#### Power Source:

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

#### Internal Antenna (EAP1300):

- 5 dBi 2.4GHz antennas
- 5 dBi 5GHz antennas

#### External Antenna (EAP1300EXT):

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

#### Interface:

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

#### Dimensions:

- Diameter: 6.36" (161.54 mm)

#### Mounting:

- Wall mount (standard US/EU single gang wall jack)

#### Environment:

- Operating temperature: 0°C~40°C
- Operating humidity: 0%~90% typical
- Storage temperature: -10°C~60°C

### Wireless

#### Operating Mode:

- AP Mode



#### 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

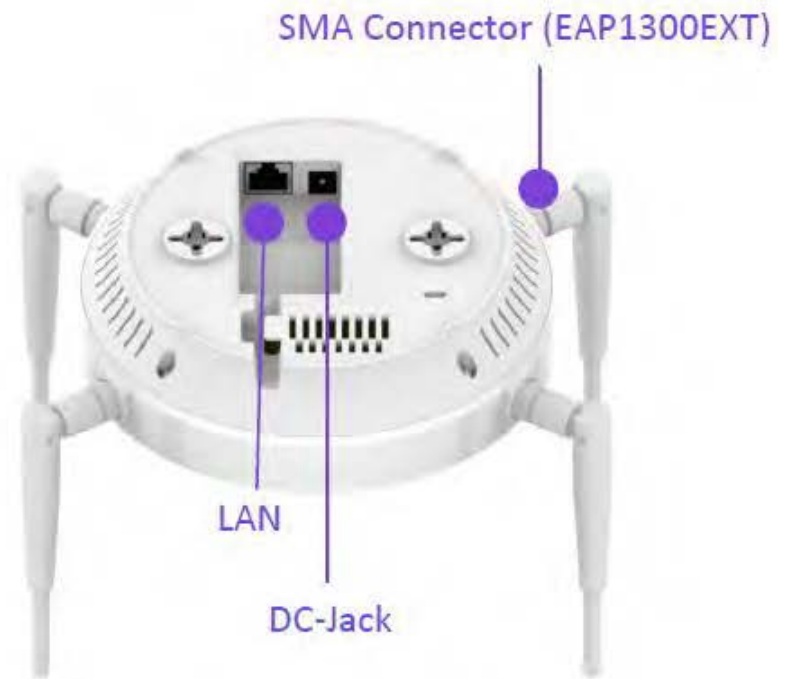
#### Schedule Reboot:

- Specifies interval to reboot system periodically

#### E-mail Alert / Syslog Notification



## Physical Interface



1. LED Indicators: LEDs for Power, WAN, 2.4Hz, 5GHz, LAN , Reserved
2. Reset Button: Press and hold for over 10 seconds to reset to factory default settings.
3. RSMA Connector for external antenna(EAP1300EXT)
4. DC12V Input: DC12V/1A power in
5. 10/100/1000 RJ45 Uplink (PoE In): Uplink port that supports 802.3af/at PoE input



# 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*



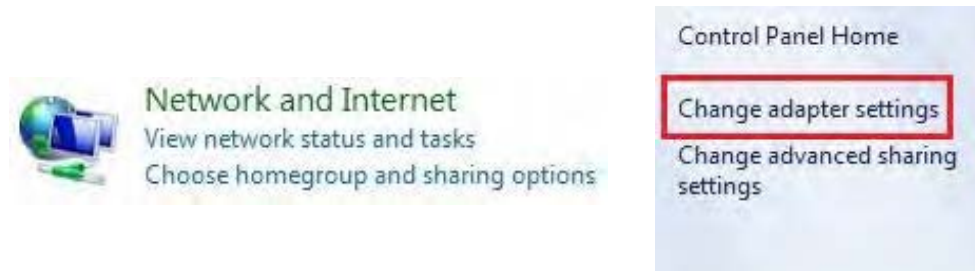
*Windows 7*

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

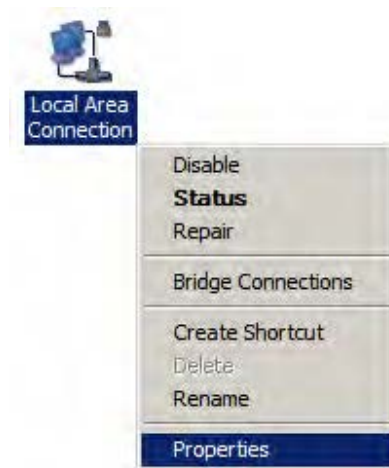




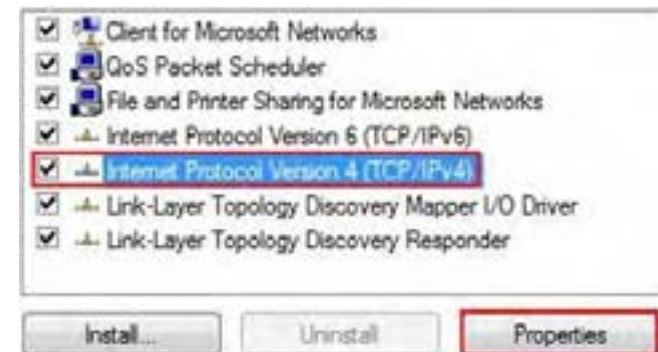
2b. In **Windows 7**, click **View network status and tasks** in the **Network and Internet** section, then select **Change adapter settings**.



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



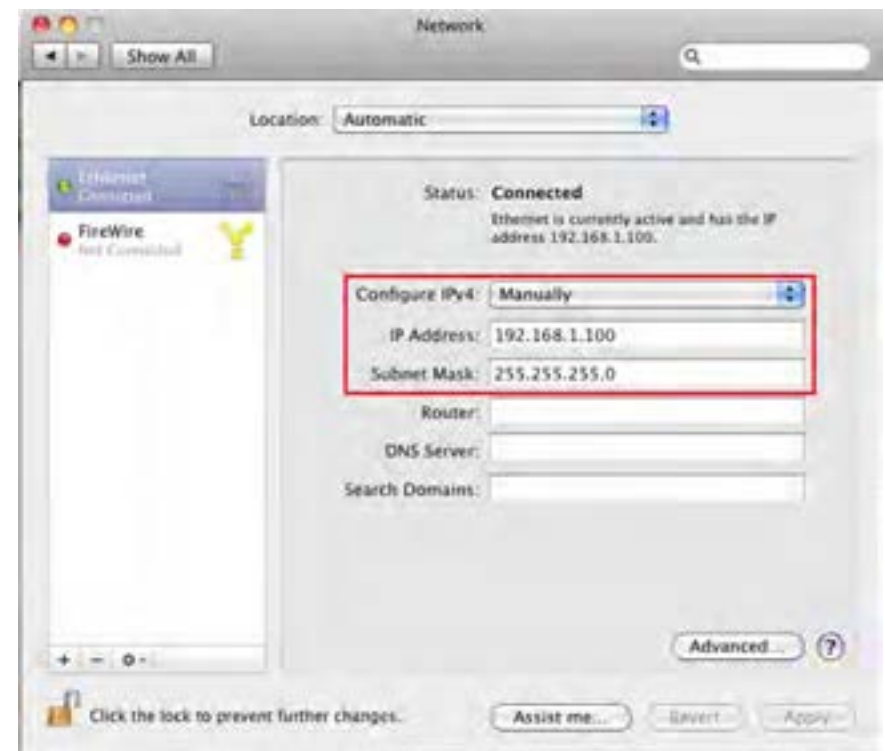


## Apple Mac OS X

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.



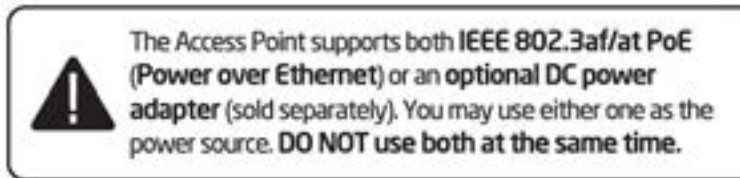
3. Highlight **Ethernet**.
4. In **Configure IPv4**, select **Manually**.
5. Enter an IP address that is different from the Access Point and Subnet mask, then click **OK**.  
Note: Ensure that the IP address and Subnet mask are on the same subnet as the device.  
For example: Access Point IP address: 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 **Ethernet 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.





## Mounting the Access Point

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

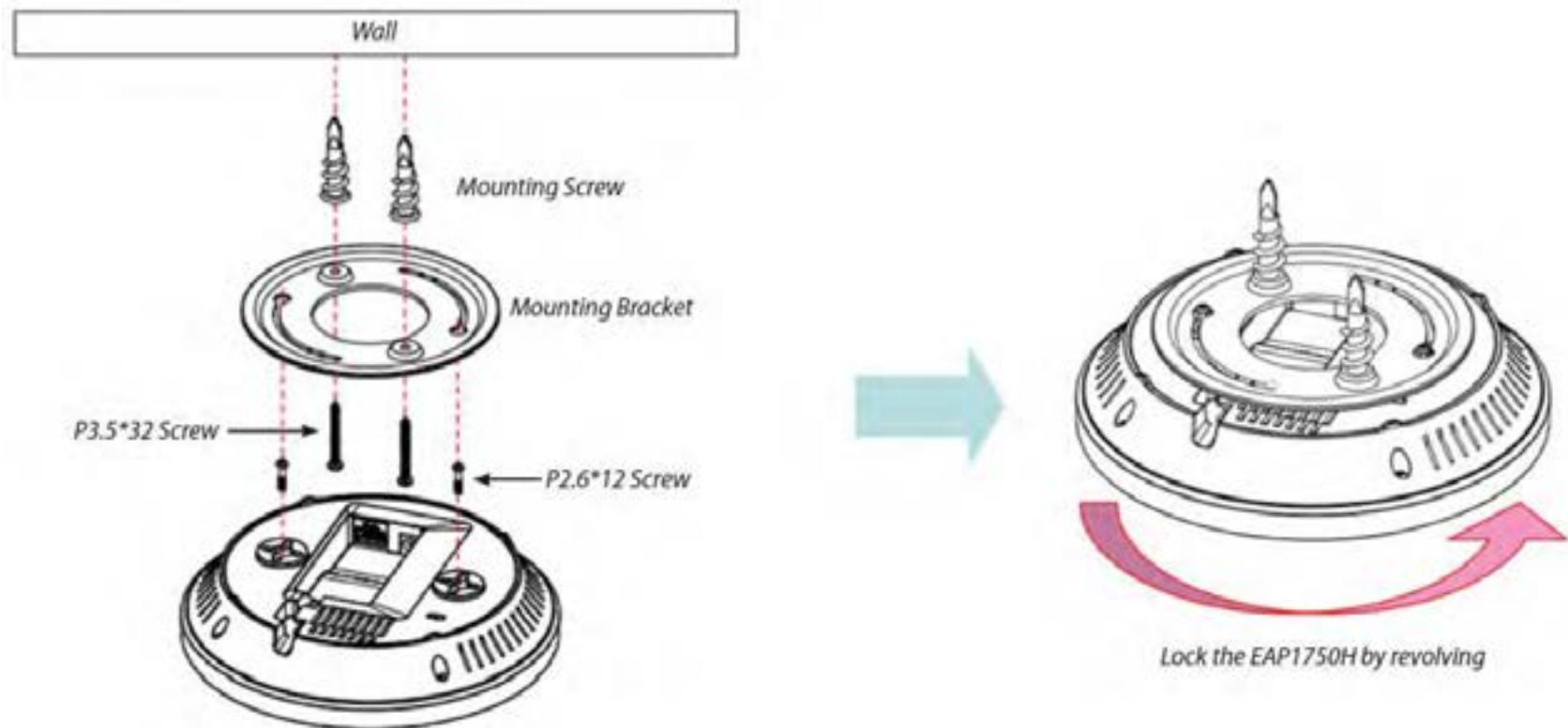
### To attach the AP to a ceiling or wall using the mounting bracket:

1. Attach the mounting bracket to the wall or ceiling using the provided wall/ceiling mounting hardware kit.
2. Insert the provided short screws into the bottom cover of the AP.

Leave enough of the screws exposed to ensure that the unit can be attached to the mounting bracket.

If extra space is required, use the provided spacers and long screws from the T-Rail mounting hardware kit to increase the space between the unit and the mounting bracket.

3. Mount the AP on the mounting bracket by rotating the unit clockwise about 90 degrees to secure it in place.





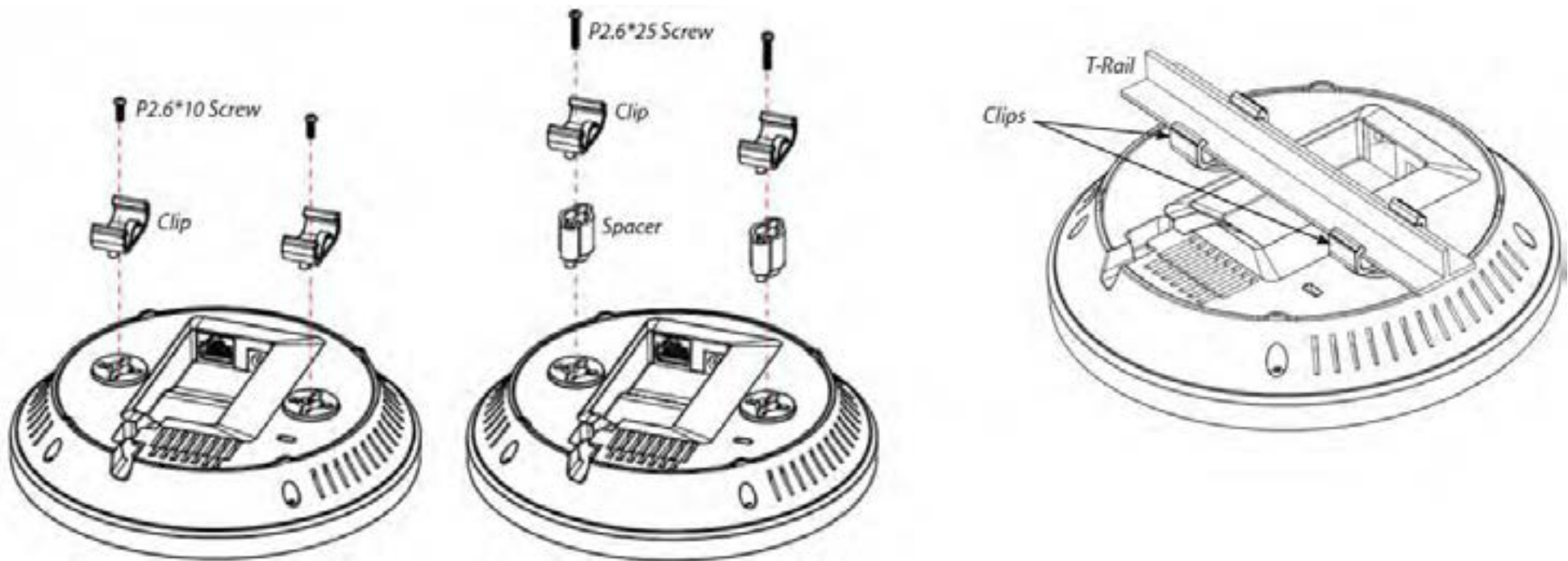
## Attaching the AP to a ceiling using the provided T-Rail connector

1. Attach the T-Rail connectors to the bottom cover of the AP using the provided short screws.

**Note:** Two sizes of T-Rail connectors are included in the mounting hardware kit: 15/16in (2.38cm) and 9/16in (1.43cm). If extra space is required to accommodate drop ceiling tiles, use the provided spacers and long screws.

2. Line up the connected T-Rail connectors with an appropriately sized rail and press the unit onto the rail until it snaps into place.

**Note:** To protect your AP, use the Kensington Security Slot to attach a cable lock (cable lock is not included).





## 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/Chrome) 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.

\*Model name varies depending on model.



## Overview

Device Status

Connections

## Network

Basic

Wireless

## Management

Advanced

Time Zone

WiFi Scheduler

Tools

## System Manager

Account

Firmware

Log

## Device Information

Device Name	EAP1300
MAC Address	
- LAN	88:DC:96:40:40:4A
- Wireless LAN - 2.4GHz	88:DC:96:40:40:4C
- Wireless LAN - 5GHz	88:DC:96:40:40:4D
Country	USA
Current Local Time	Fri Jul 24 05:55:27 UTC 2015
Firmware Version	2.0.56 + 1.5.6
Management VLAN ID	Untagged

## LAN Information - IPv4

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Gateway	
Primary DNS	
Secondary DNS	



# Chapter 4

## **Overview**

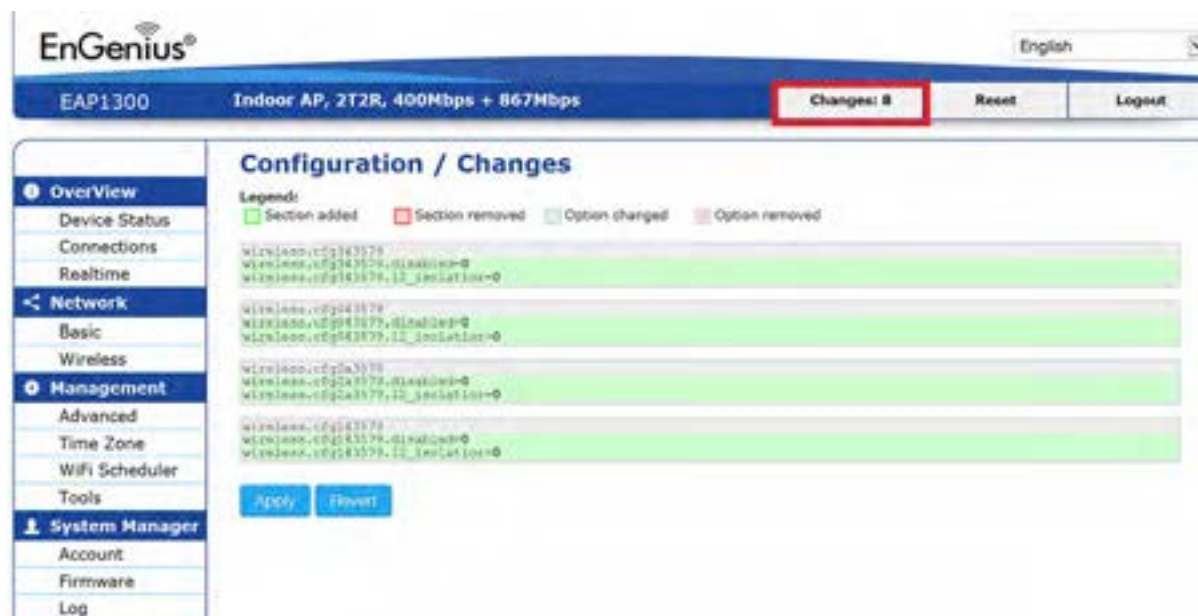




# Overview

## Save Changes

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.



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

- Device Status
- Connections

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.

**Note:** VLAN ID is only applicable in Access Point, WDS AP or WDS BR mode.

Device Information	
Device Name	EAP1300
MAC Address	
- LAN	88:DC:96:40:40:4A
- Wireless LAN - 2.4GHz	88:DC:96:40:40:4C
- Wireless LAN - 5GHz	88:DC:96:40:40:4D
Country	USA
Current Local Time	Fri Jul 24 05:55:27 UTC 2015
Firmware Version	2.0.56 + 1.5.6
Management VLAN ID	Untagged

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

### Memory Information

Total Available	148384 kB / 236320 kB (62%)
Free	113640 kB / 236320 kB (48%)
Cached	25460 kB / 236320 kB (10%)
Buffered	9284 kB / 236320 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 Spanning Tree Protocol(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.

**Note:** Profile Settings are only applicable in Access Point and WDS AP modes.



#### 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	RX	RSSI	Block
------	-------------	----	----	------	-------

### Connection List - 5GHz

SSID	MAC Address	TX	RX	RSSI	Block
EnGenius05B06A_1-5GHz	00:02:6F:93:47:5C	162Kb	30Kb	-42dBm	<button>Kick</button>

Refresh

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

**Note:** Only applicable in Access Point and WDS AP modes.

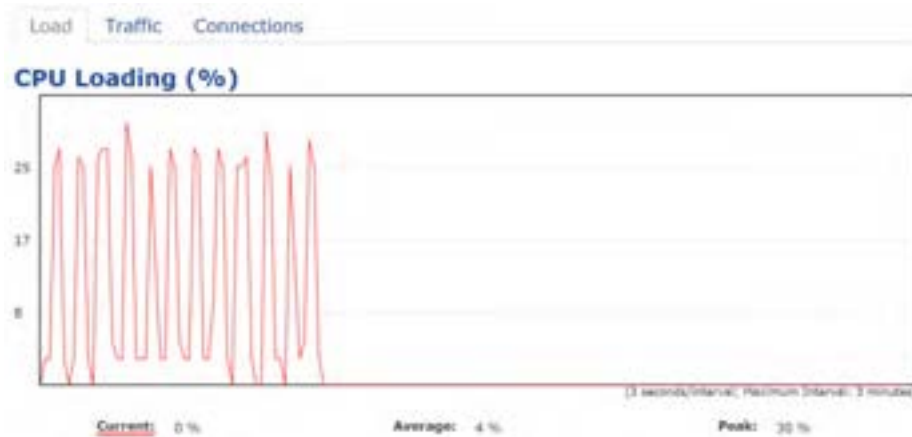
## Realtime

### Realtime

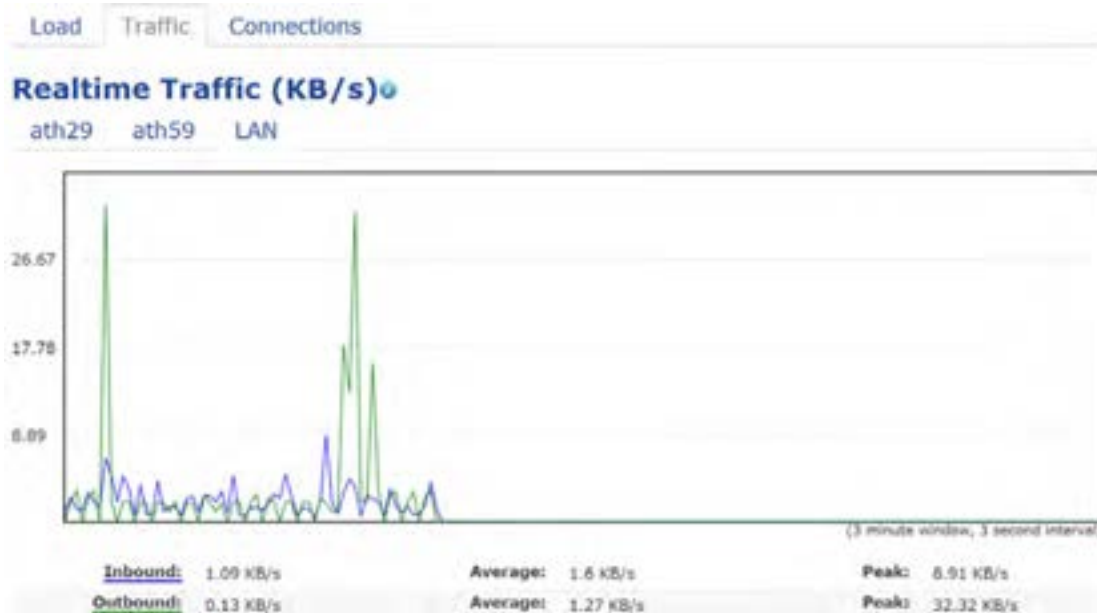
The Realtime section contains the following options:

**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



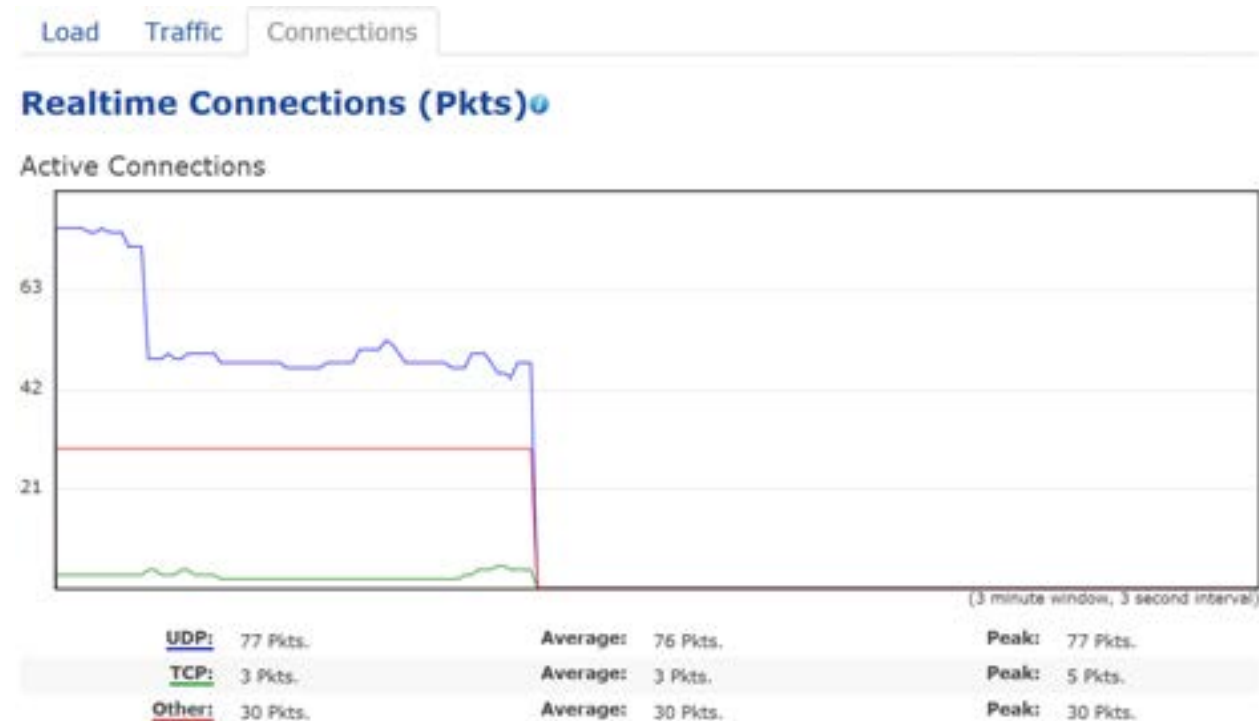


**Traffic Loading:** 2.4GHz and 5GHz and Ethernet port inbound and outbound traffic by current, average and peak time.





**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

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

### 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. Default is Disable.

**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 in the network.

**Priority:** Specify the Priority Number. A smaller number has greater priority than a larger number.

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



# Chapter 6


## **2.4GHz & 5GHz Wireless**






# Basic

## Wireless Settings



Wireless Settings	
Device Name	EAP1300
Country / Region	Please select the country <input type="button" value="v"/>
Band Steering 	Disabled <input type="button" value="v"/>
<b>NOTE:</b> In order for Band Steering function to work properly, both 2.4GHz and 5GHz SSID and Security Settings must be the same.	

**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	EAP1300
Country / Region	Please select the country <input type="button" value="v"/>
Band Steering 	Force 5GHz <input type="button" value="v"/>
<b>INFORMATION:</b> 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. <b>NOTE:</b> In order for Band Steering function to work properly, both 2.4GHz and 5GHz SSID and Security Settings must be the same.	

\*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.

Band Steering 	Prefer 5GHz <input type="button" value="v"/>
	5GHz RSSI -75 dBm 
<b>NOTE:</b> In order for Band Steering function to work properly, both 2.4GHz and 5GHz SSID and Security Settings must be the same.	



\***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.



The screenshot shows a configuration panel for Band Steering. On the left, there is a toggle switch labeled "Band Steering" which is currently turned on. To the right, there is a dropdown menu labeled "Band Balance" with a downward arrow. Below this, there are two input fields: "5GHz RSSI" with the value "-75" and the unit "dBm", and "Percent of clients on 5GHz radio" with the value "75" and the unit "%". At the bottom, there is a red "NOTE" that reads: "In order for Band Steering function to work properly, both 2.4GHz and 5GHz SSID and Security Settings must be the same."

\***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.



This page displays the current status of the Wireless settings of this AP.

## 2.4 GHz/5 GHz Wireless Network

	2.4GHz	5GHz
Operation Mode	Access Point <input type="checkbox"/> <input checked="" type="checkbox"/> Green	Access Point <input type="checkbox"/> <input checked="" type="checkbox"/> Green
Wireless Mode	802.11 B/G/N <input type="checkbox"/>	802.11 AC/N <input type="checkbox"/>
Channel HT Mode	20MHz <input type="checkbox"/>	40MHz <input type="checkbox"/>
Channel	<input type="button" value="Configuration"/>	
Transmit Power	Auto <input type="checkbox"/>	Auto <input type="checkbox"/>
Data Rate	Auto <input type="checkbox"/>	Auto <input type="checkbox"/>
RTS/CTS Threshold  (1 - 2346)	2346	2346
Client Limits	127 <input checked="" type="radio"/> Enable <input type="radio"/> Disable	127 <input checked="" type="radio"/> Enable <input type="radio"/> Disable
Aggregation	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
	64 <b>Frames</b>	
	65535 <b>Bytes(Max)</b>	
AP Detection	<input type="button" value="Scan"/>	<input type="button" value="Scan"/>

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

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

**Channel HT Mode:** Scrow 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.



2.4GHz		5GHz	
All	None	All	None
1,6,11	1,4,8,11	U-NII-1	U-NII-2A
1,7,13	1,5,9,13	U-NII-2B	
Ch 01 : 2.412 GHz	Ch 02 : 2.417 GHz	Ch 36 : 5.180 GHz	Ch 40 : 5.200 GHz
Ch 03 : 2.422 GHz	Ch 04 : 2.427 GHz	Ch 44 : 5.220 GHz	Ch 48 : 5.240 GHz
Ch 05 : 2.432 GHz	Ch 06 : 2.437 GHz	Ch 52 : 5.260 GHz	Ch 56 : 5.280 GHz
Ch 07 : 2.442 GHz	Ch 08 : 2.447 GHz	Ch 60 : 5.300 GHz	Ch 64 : 5.320 GHz
Ch 09 : 2.452 GHz	Ch 10 : 2.457 GHz	Ch100 : 5.500 GHz	Ch104 : 5.520 GHz
Ch 11 : 2.462 GHz	Ch 12 : 2.467 GHz	Ch108 : 5.540 GHz	Ch112 : 5.560 GHz
Ch 13 : 2.472 GHz		Ch132 : 5.660 GHz	Ch136 : 5.680 GHz

\***Default configuration:** Default setting of channel selection is “**All**” to perform auto channel on the 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

No.	Enable	SSID	Edit	Security	Hidden SSID	Client Isolation	VLAN Isolation	VLAN ID
1	<input checked="" type="checkbox"/>	EnGenius05B069_1-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
2	<input type="checkbox"/>	EnGenius05B069_2-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
3	<input type="checkbox"/>	EnGenius05B069_3-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
4	<input type="checkbox"/>	EnGenius05B069_4-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
5	<input type="checkbox"/>	EnGenius05B069_5-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
6	<input type="checkbox"/>	EnGenius05B069_6-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
7	<input type="checkbox"/>	EnGenius05B069_7-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
8	<input type="checkbox"/>	EnGenius05B069_8-2.4GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8



## Wireless Settings - 5GHz

No.	Enable	SSID	Edit	Security	Hidden SSID	Client Isolation	VLAN Isolation	VLAN ID
1	<input checked="" type="checkbox"/>	EnGenius05B06A_1-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51
2	<input type="checkbox"/>	EnGenius05B06A_2-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52
3	<input type="checkbox"/>	EnGenius05B06A_3-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53
4	<input type="checkbox"/>	EnGenius05B06A_4-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54
5	<input type="checkbox"/>	EnGenius05B06A_5-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55
6	<input type="checkbox"/>	EnGenius05B06A_6-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56
7	<input type="checkbox"/>	EnGenius05B06A_7-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	57
8	<input type="checkbox"/>	EnGenius05B06A_8-5GHz	Edit	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58

**Current Profile:** You can configure up to sixteen (16) different SSIDs (eight (8) per band). If multiple client devices will be accessing the network, you can arrange the devices into SSID groups. Click Edit to configure the profile and check whether you want to enable extra SSID.

**Enable:** Click this check box to enable this SSID interface. The default SSIDs are enable on the both first 2.4GHz and 5GHz SSID.

**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.

**L2 Isolation:** Enable this function prevents 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
Auth Type	Open System
Input Type	Hex
Key Length	40/64-bit (10 hex digits or 5 ASCII char)
Default Key	1
Key1	
Key2	
Key3	
Key4	

**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	<input type="text" value="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	<input type="text" value="3600"/>
Radius Server	<input type="text"/>
Radius Port	<input type="text" value="1812"/>
Radius Secret	<input type="text"/>
Radius Accounting	Disable ▼
Radius Accounting Server	<input type="text"/>
Radius Accounting Port	<input type="text" value="1813"/>
Radius Accounting Secret	<input type="text"/>
Interim Accounting Interval	<input type="text" value="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.

**Note:** Only applicable in Access Point and WDS AP modes.

Wireless MAC Filter

---

ACL Mode  ▼

---

:  :  :  :  :

---

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.



The screenshot shows a configuration window titled "Wireless Traffic Shaping". It contains the following elements:

- A section "Enable Traffic Shaping" with two radio buttons: "Enable" (unselected) and "Disable" (selected).
- A "Download Limit" section with a text input field containing "100" and a unit label "Mbps (1-999)". To the right is a checkbox labeled "Per User" which is unchecked.
- An "Upload Limit" section with a text input field containing "100" and a unit label "Mbps (1-999)". To the right is a checkbox labeled "Per User" which is unchecked.
- At the bottom, there is a blue "Save" button and the text "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.

**Note:** Only applicable in WDS AP and WDS Bridge modes.



## 2.4 GHz/5 GHz WDS Link Settings

**WDS Link Settings - 2.4GHz**

<b>Security</b>	None <input checked="" type="checkbox"/>
<b>AES Passphrase</b>	(8-63 ASCII characters or 64 hexadecimal digits)
<b>MAC Address</b>	<b>Mode</b>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>

**WDS Link Settings - 5GHz**

<b>Security</b>	None <input checked="" type="checkbox"/>
<b>AES Passphrase</b>	(8-63 ASCII characters or 64 hexadecimal digits)
<b>MAC Address</b>	<b>Mode</b>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>
<input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>	Disable <input checked="" type="checkbox"/>

**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

Adding a guest network allows visitors to use the Internet without giving out your office or company wireless security key. You can add a guest network to each wireless network in the 2.4 GHz b/g/n and 5 GHz ac/a/n frequencies.

### Guest Network Settings

Enable	SSID	Edit	Security	Hidden SSID	Client Isolation
<input type="checkbox"/>	EnGenius-2.4GHz_GuestNetw	Edit	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	EnGenius-5GHz_GuestNetwo	Edit	None	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**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 ⓘ	2.4GHz	5GHz
Status	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
RSSI	<input type="text" value="-90"/> dBm (Range: -100dBm ~ -60dBm)	<input type="text" value="-85"/> dBm (Range: -100dBm ~ -60dBm)

**RSSI Threshold:** Enable the RSSI Threshold feature by ensuring that each client is served by at least one Access Point at any time. Access Points continuously monitor the connectivity quality of any client in their range and efficiently share this information with other Access Points in the vicinity of that client to coordinate which of them should serve the client best.

**RSSI:** Enter the RSSI (Received Signal Strength Index) in order to determine the handover procedure which the current wireless link will terminate. RSSI is an indication of the power level being received by the antenna. Therefore, the higher the RSSI number, the stronger the signal.



## 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.

**Note:** Only applicable in Access Point and WDS AP modes.

### Management VLAN Settings

Status

☐ Enable ☒ Disable

4096

**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"/>	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.



## 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"/>	<input type="text"/>
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"/>	<input type="text"/>
- 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	MD5 <input type="text"/>	
- Authorized Key	<input type="text" value="12345678"/>	(8-32 Characters)
- Private Protocol	DES <input type="text"/>	
- 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 accessed 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 ☐ Enable

- From

- To

- Subject [Email-Alert][EWS320AP][88.DC.96.05.B0.68] Configur

Email Account

- Username

- Password

- SMTP Server Port: 25

- Security Mode None

Send Test Mail

Apply 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.

**Day(s):** Place a checkmark in the boxes for the desired days or select the All Week radio button to select all seven days of the week.

**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.



## 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"/>	<div></div>	

**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

This page allows you to implement speed test to realize the throughput of a target DUT.

### 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>	
IPv4 Port	<input type="text" value="5001"/>	
IPv6 Port	<input type="text" value="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	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
<input type="button" value="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
<div>Scan</div>				



# 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"/>

Apply

Apply saved settings to take effect

**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: 1.0.0

Select the new firmware from your hard disk.

<input type="text"/>	瀏覽	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 ⓘ	Export
- Restore New Setting	<input type="text"/> 瀏覽 Import
- Reset to Default ⓘ	Reset

User Setting	
- Back Up Setting as Default	Backup
- Restore to User Default ⓘ	Restore

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

## 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.

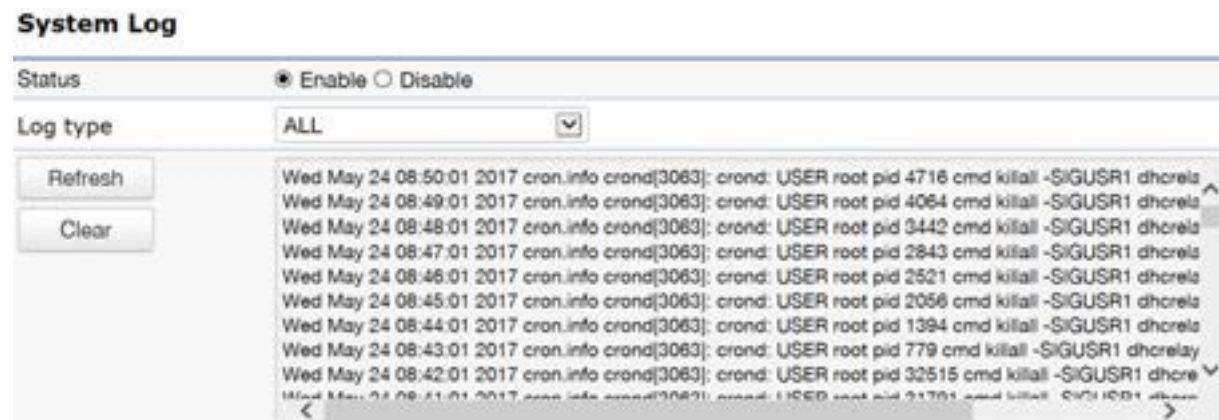
**Restore to User Default:** Click **Restore** to restore the Access Point to user's default settings.

**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.

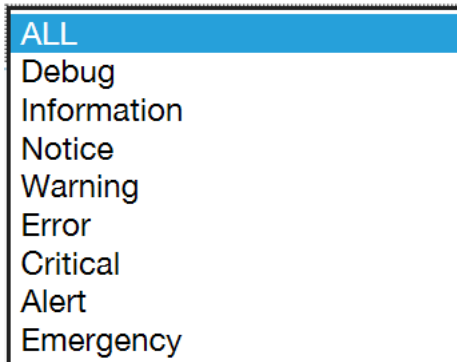
## System Log

The AP automatically logs (records) events of possible interest in its internal memory. To view the logged information, click the **Log** link under the System Manager menu. If there is not enough internal memory to log all events, older events are deleted from the log. When powered down or rebooted, the log will be cleared.



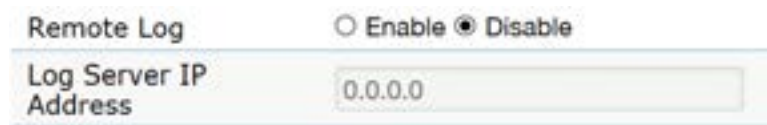


**Status:** Enables or disables the System Log function.



ALL
Debug
Information
Notice
Warning
Error
Critical
Alert
Emergency

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



Remote Log	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Log Server IP Address	<input type="text" value="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.

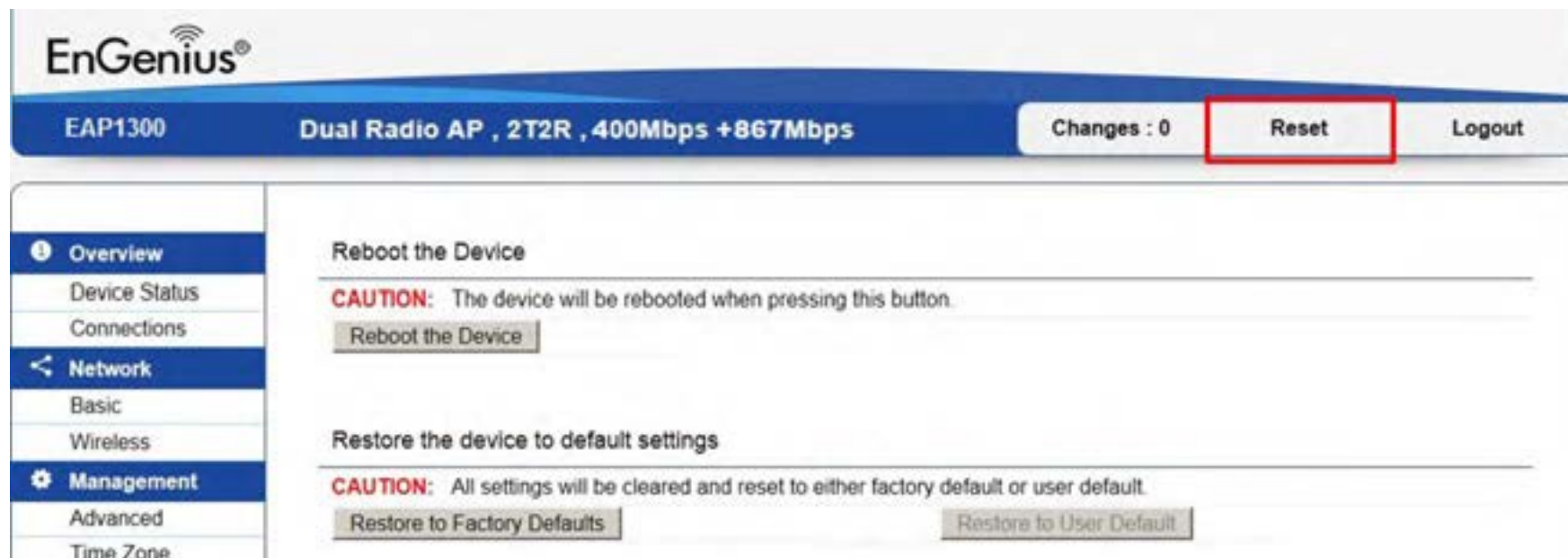
**Log Server IP Address:** Enter the IP address of the log server.

**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.



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.

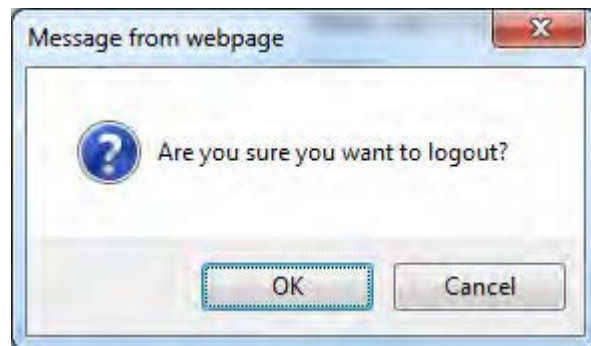
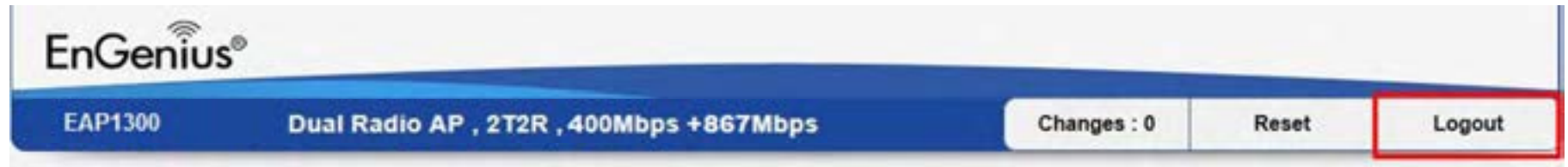
Restore to Factory Default: Click it to reset this device to factory default setting.

Restore to User Default: Click it to reset this device to user default settings. For realizing the setting method, you may refer page 74



## 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

This device complies with Directive 2014/53/EU issued by the Commission of the European Community.

Operations in the 5.15-5.35GHz band are restricted to indoor usage only.

### 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



# C€0560!

<span>cs</span> Česky [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.
<span>da</span> 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.
<span>de</span> 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.
<span>et</span> 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.
<span>en</span> 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.
<span>es</span> 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.
<span>el</span> 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.
<span>fr</span> 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.
<span>it</span> 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</i>



	<i>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.
[nl]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.
[mt]Malti [Maltese]	Hawnhekk, [ <i>il-ism 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.
[hu]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.
[pl]Polski [Polish]	Niniejszym [ <i>nazwa producenta</i> ]świadczam, że [ <i>nazwa wyrobu</i> ] jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
[pt]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.
[sl]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.
[fi]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.
[sv]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.