

# EnGenius®



WIRELESS 11N LONG RANGE OUTDOOR AP / CB  
ENS200EXT User Guide

V1.0

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# Conventions

The following conventions are used to give the user additional information about specific procedures or content. It is important to pay attention to these conventions as they provide information to prevent damage to equipment or personal injury.

## General Conventions

The following general conventions are used in this document.



### **CAUTION!**

CAUTIONS APPEAR BEFORE THE TEXT IT REFERENCES. CAUTIONS APPEAR IN CAPITAL LETTERS TO EMPHASIZE THAT THE MESSAGE CONTAINS VITAL HEALTH AND SAFETY INFORMATION.



### **WARNING!**

Warning information appears before the text it references to emphasize that the content may prevent damage to the device or equipment.



### **Important:**

Indicates information that is important to know for the proper completion of a procedure, choice of an option, or completing a task.



### **Note:**

Indicates additional information that is relevant to the current process or procedure.



### **Example:**

Indicates information used to demonstrate or explain an associated concept.

### **N/A:**

Indicates that a component or a procedure is not applicable to this model.

### **Prerequisite:**

Indicates a requirement that must be addressed before proceeding with the current function or procedure.

# Typographical Conventions

The following typographical conventions are used in this document:

## *Italics*

Indicates book titles, directory names, file names, path names, and program/process names.

## Constant width

Indicates computer output shown on a computer screen, including menus, prompts, responses to input, and error messages.

## **Constant width bold**

Indicates commands lines as entered on the computer. Variables contained within user input are shown in angle brackets (< >).

## **Bold**

Indicates keyboard keys that are pressed by the user.



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# Product Overview

Chapter 1

# 1.1 Package Contents

- ENS200EXT
- Quick Start Guide
- Technical Support Card
- Pole Mounting Strap x2
- Wall Mounting Screw Set
- PoE Injector (EPE-1212) with Power Adapter
- One detachable 5 dBi high gain omni-directional antenna

## 1.2 Product Overview

The ENS200EXT Wireless Outdoor unit provides not only detachable antenna connectors for antenna upgrade, but also high output power and high sensitivity can extend the transmission range to deliver a stable wireless connection. ENS200EXT integrates 4 operation modes: Access Point, Client Bridge, Client Router and WDS.

Advanced multi-function operation modes offer flexibility in constructing scalable wireless networks for all possible applications. ENS200EXT is designed to deliver reliable service under harsh outdoor environment with certified IP65 protection and tailored to accommodate multimedia streaming services with data-rate up to 150Mbps. Most importantly, it is built-in encryption standards (WEP, WPA, WPA2, TKIP/AES and IEEE802.1x) ensure maximum security and compatibility.

### Hardware Features

- **High output power:** Transmit high output power programmable for different country selections
- **High Data Rate:** High speed transmitting rate up to 150Mbps with 1T1R 802.11n
- **Long range transmitting:** Transmit power control and distance control (ACK timeout)
- **Signal Strength Display:** Indicate RF signal strength to be shown as LEDs of 3 colors, making network build-up

easier. LED indicators have the best transmit and receive signal for traffic communication

- **PoE Support:** Support proprietary 24V passive power over Ethernet

### Software Features

- **Multiple SSID:** 4 SSID supported. Each SSID can set itself wireless or WAN access setting
- **PPPoE:** Point-to-Point Protocol over Ethernet at Client Router mode. This function will keep trying when failed or disconnected
- **PPTP:** Point-to-Point Tunneling Protocol (PPTP) is a method for implementing virtual private networks
- **VLAN Pass-through:** Support VLAN Pass-through
- **Firmware Upgrade:** Upgrading firmware via web browser, setting are reserved after upgrade
- **Reset & Backup:** Reset to factory default. User can export all setting into a file via WEB
- **Ping & Trace Route:** Built-in PING function & Trace Route function in Web GUI
- **MIB:** MIB I, MIB II (RFC1213), Private MIB
- **SNMP:** V1, V2c, V3

## Benefits

The ENS200EXT is the ideal product around which you can build your WLAN. The following list summarizes a few key advantages that WLANs have over wired networks:

### **Ideal for hard-to-wire environments**

There are many scenarios where cables cannot be used to connect networking devices. Historic and older buildings, open areas, and busy streets, for example, make wired LAN installations difficult, expensive, or impossible.

### **Temporary workgroups**

WLANs make it easy to provide connectivity to temporary workgroups that will later be removed. Examples include parks, athletic arenas, exhibition centers, disaster-recovery shelters, temporary offices, and construction sites.

### **Ability to access real-time information**

With a WLAN, workers who rely on access to real-time information, such as doctors and nurses, point-of-sale employees, mobile workers, and warehouse personnel, can access the data they need and increase productivity, without having to look for a place to plug into the network.

### **Frequently changed environments**

WLANs are well suited for showrooms, meeting rooms, retail stores, and manufacturing sites where workplaces are rearranged frequently.

### **Wireless extensions to Ethernet networks**

WLANs enable network managers in dynamic environments to minimize overhead caused by moves, extensions to networks, and other changes.

### **Wired LAN backup**

Network managers can implement WLANs to provide backup for mission-critical applications running on wired networks.

### **Mobility within training/educational facilities**

Training sites at corporations and students at universities are a few examples where wireless connectivity can be used to facilitate access to information, information exchanges, and learning.

# Technical Specification

## Hardware Specification

- **Physical Interface:**
  - 2 x RJ-45 for 10/100 Fast Ethernet; one port is compatible with PoE
  - 1 x Reset Button
- **Power Requirements:**
  - Active Ethernet (Power over Ethernet)
  - Proprietary PoE design
  - Power Adapter 24V / 0.6A

## Software Specification

- **Operation Mode:** Client Bridge, Access Point, Client Router, WDS AP, WDS Bridge, WDS Station
- **Wireless/Network:**
  - Auto Channel Selection (Setting varies by Regular Domains)
  - Obey Regulatory Power
  - Distance Control (802.1x ACK (acknowledgement) timeout)
  - CLI Supported
  - 802.1x Supplicant (CB Mode)
  - 4 SSIDs

- WDS AP / WDS Bridge / WDS Station
- Multicast Supported
- RADIUS Accounting
- VLAN Tag / VLAN Pass-through
- Auto Reboot
- WiFi Scheduling
- **Security:**
  - WEP Encryption-64/128/152 bit
  - WPA/WPA2 Personal (WPA-PSK using TKIP or AES)
  - WPA/WPA2 Enterprise (WPA-EAP using TKIP)
  - Hide SSID in beacons
  - MAC address filtering, up to 50 field
  - Wireless STA (Client) connected list
- **QoS:** WMM

## Environment & Mechanical

- **Temperature Range:**
  - Operating -20°C~70°C
  - Storage -30°C to 80°C
- **Humidity (non-condensing):** 0%~90% typical
- **Dimensions**
  - **with antenna:** 100mm (4") x 37.5mm (1.375") x 205mm (8") (W x D x H)
  - **without antenna:** 100mm (4") x 37.5mm (1.37") x 189mm (7.375") (W x D x H)
- **Weight**
  - **with antenna:** 242g (0.11 lbs) ± 2g
  - **without antenna:** 275g (0.125lbs) ±2g

## Wireless Specification

- **Frequency Band:** 802.11b/g/n
- **Data rate:** 150 Mbps
- **Antenna:** 1 x Detachable SMA Connector



### Note:

The maximum power of the radio frequency band may be different depending on local regulations.

# 1.3 Product Layout

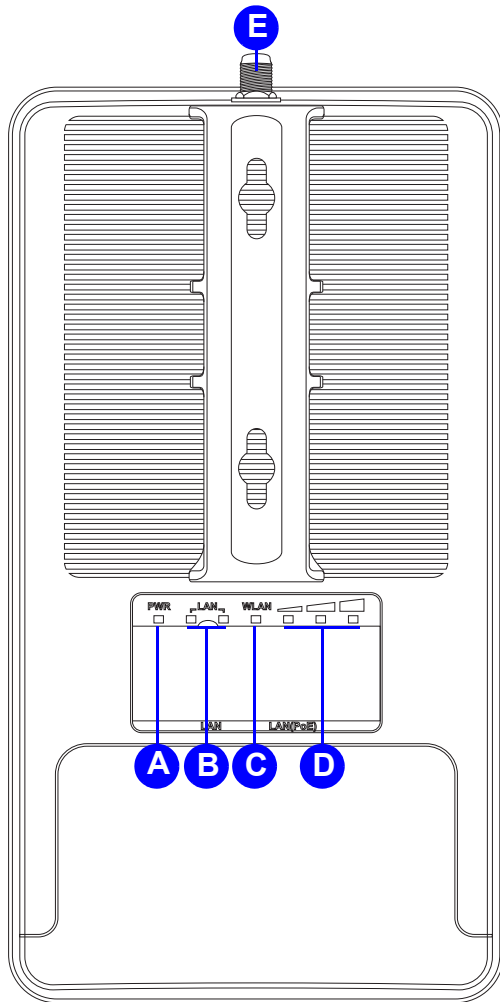
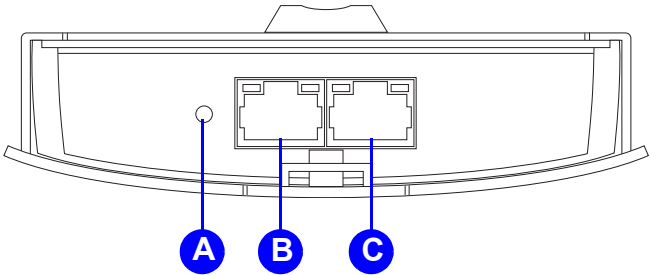


Figure 1-1: Back Panel View

|   | BACK PANEL VIEW      | DESCRIPTION   |
|---|----------------------|---|
| A | Power LED            | OFF = ENS200EXT is not receiving power<br>ON = ENS200EXT is receiving power   |
| B | LAN (2) LEDs         | OFF = ENS200EXT is not connected to the network.<br>ON = ENS200EXT is connected to the network, but not sending or receiving data<br>Blink = ENS200EXT is sending or receiving data   |
| C | WLAN LED             | (Access Point or Client Bridge Mode)<br>OFF = ENS200EXT radio is off and the device is not sending or receiving data over the wireless LAN.<br>ON = ENS200EXT radio is on, and the device is not sending or receiving data over the wireless LAN.<br>Blinking = ENS200EXT radio is on, and the device is sending or receiving data over the wireless LAN. |
| D | Signal Indicator LED | (Client Bridge, WDS Station and Client Router Mode)<br>Green - Signal is good<br>Orange - Signal is normal<br>Red - Signal is weak or non-existent  |
| E | Antenna Connectors   |   |





| BOTTOM VIEW |                   | DESCRIPTION   |
|-------------|-------------------|---|
| A           | Reset Button      | To reset to factory settings, press button for > 10 seconds.  |
| B           | LAN Connector     | To configure the ENS200EXT, connect an Ethernet cable to an Ethernet adapter on a computer. For more information about configuring individual features, see <i>Logging In</i> . |
| C           | PoE LAN Connector | The PoE interface allows the ENS200EXT to be powered using the supplied PoE injector  |

# Installation

Chapter 2

## 2.1 System Requirements

To install the ENS200EXT, you need the following:

- Computer (Windows, Linux, Mac OS X Operating System)
- Web Browser (Internet Explorer, FireFox, Chrome, Safari)
- Network Interface equipped: (one of the following)
  - **Wired connectivity:** Network Interface with an open RJ-45 Ethernet Port
  - **Wireless Connectivity:**
    - Embedded 802.11n Wi-Fi wireless networking, IEEE 802.11a/b/g compatible
    - Wi-Fi Card, USB Wi-Fi Dongle (802.11 b/g/n)
- An existing router or access point (AP) with SSID broadcast
- 1 x CAT5e Ethernet Cable

## 2.2 Installing the Device

Installing the ENS200EXT on a pole or wall optimizes the wireless access range.



### Note:

Only experienced installation professionals who are familiar with local building and safety codes and, wherever applicable, are licensed by the appropriate government regulatory authorities should install the ENS200EXT.

### Pre-Installation Guidelines

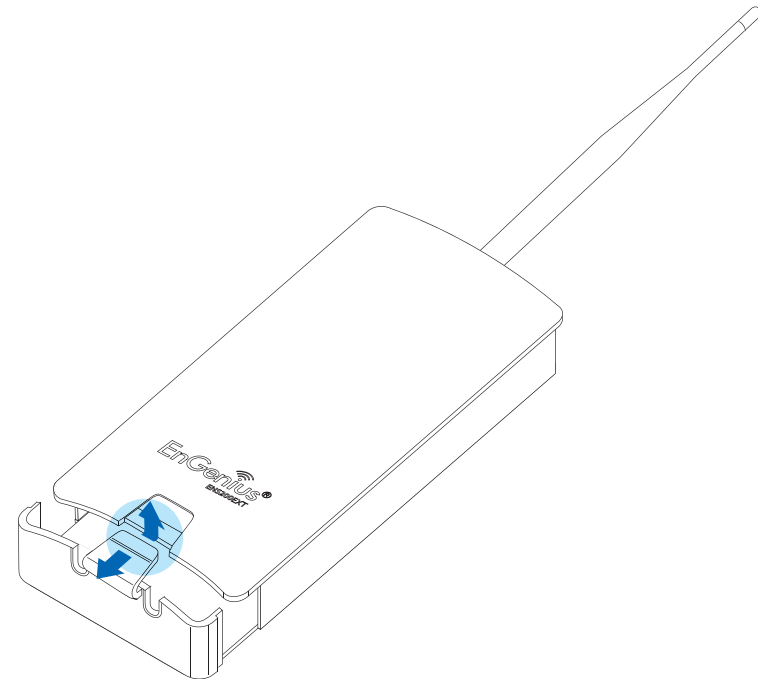
Select the optimal location for the equipment using the following guidelines:

- The ENS200EXT should be mounted on a pole 1" to 4" (2.54cm to 10.16cm) in diameter. Its location should enable easy access to the unit and its connectors for installation and testing.
- The higher the placement of the antenna, the better the achievable link quality.
- The antenna should be installed to provide a direct, or near line of sight with the Base Station antenna. The antenna should be aligned to face the general direction of the Base Station.

### Installing the Device

To install the ENS200EXT, use the following procedure to mount the device on a pole and refer to the figure below.

1. Remove the bottom cover protecting the RJ-45 connectors.



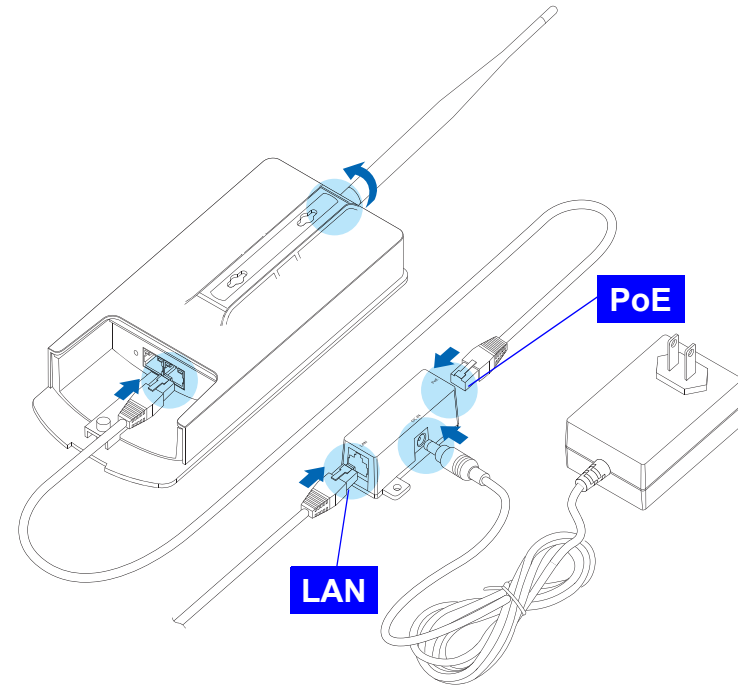
**Figure 2-1: Removing the RJ-45 Port Cover**

2. Insert an Ethernet cable into the RJ-45 port labeled LAN (PoE) on the ENS200EXT.
3. Plug the other end of the Ethernet cable into the PoE port of the PoE injector.
4. Remove the power cord and PoE injector from the box and plug the power cord into the DC port of the PoE injector.

**CAUTION!**

ONLY USE THE POWER ADAPTER SUPPLIED WITH THE ENS200EXT. USING A DIFFERENT POWER ADAPTER MIGHT DAMAGE THE ENS200EXT.

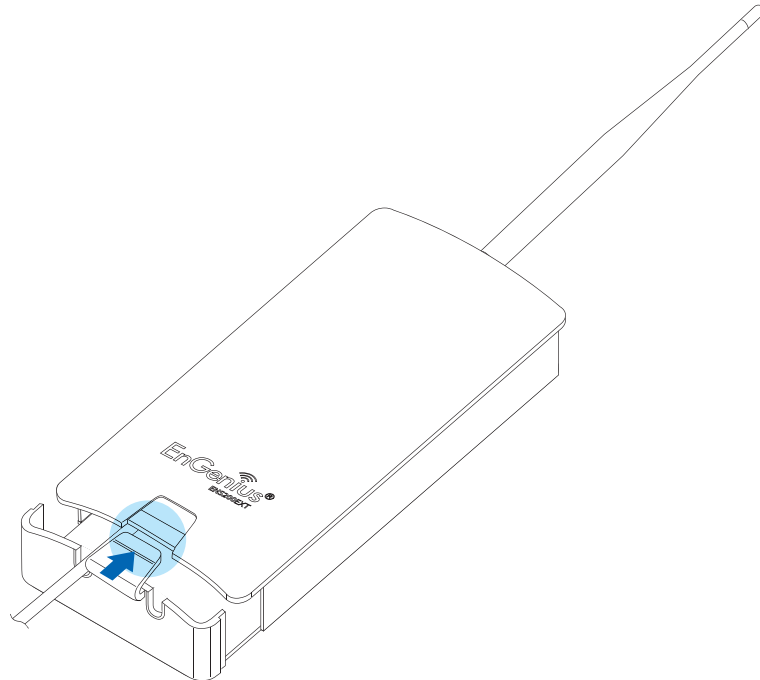
5. Plug another Ethernet cable into the LAN port of the PoE injector and connect the other end of Ethernet cable to the LAN port of the PC.



**Figure 2-2: Installing the ENS200EXT**

6. Attach and secure the one antenna to the top of the ENS200EXT.

7. Install the bottom cover securely to protect the RJ-45 connectors.



**Figure 2-3: Installing the RJ-45 Port Cover**

8. Turn over the ENS200EXT.

To mount the ENS200EXT on a wall or a pole, follow these steps:

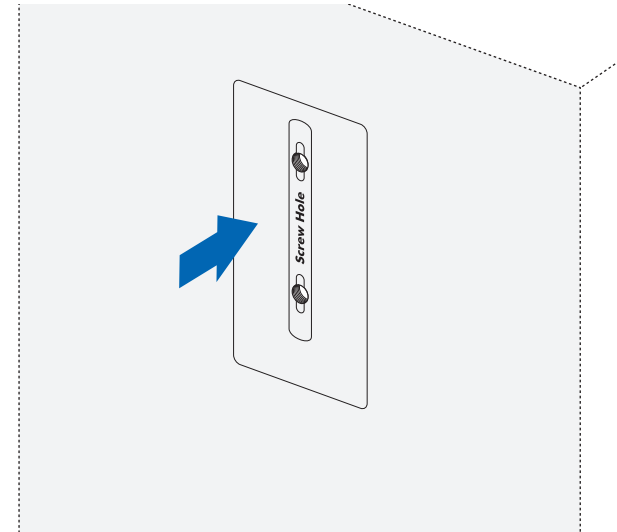


**Note:**

Find a position for the ENS200EXT that provides the best signal.

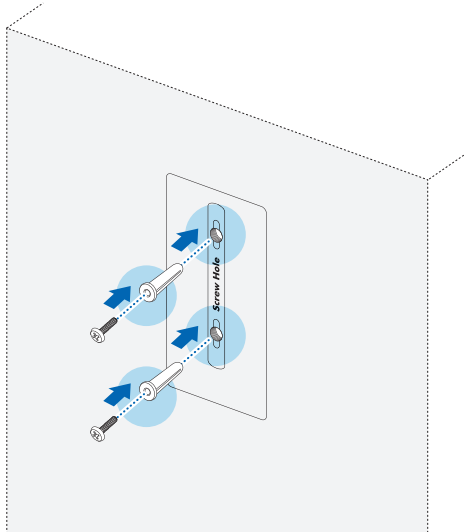
**Wall mount:**

1. Secure the adhesive label to a position on the wall where you would like to install the ENS200EXT.



**Figure 2-4: Screw Layout Adhesive Label**

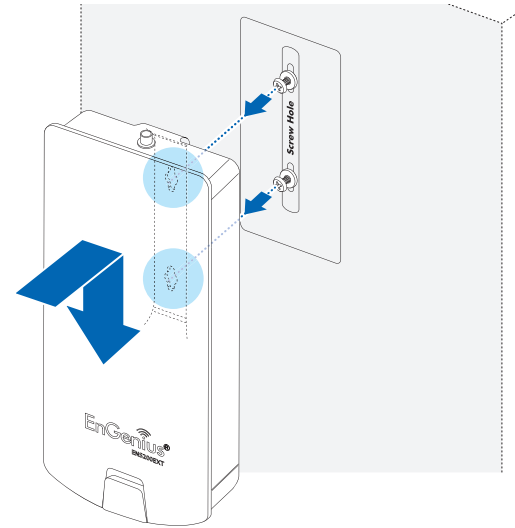
2. Follow the plotting sticker, drill two holes, and secure the plastic anchors.



**Figure 2-5: Wall Mount (1 of 2)**

3. Install two screws into the plastic anchors, leaving enough of the screw protruding out to hang the ENS200EXT on.

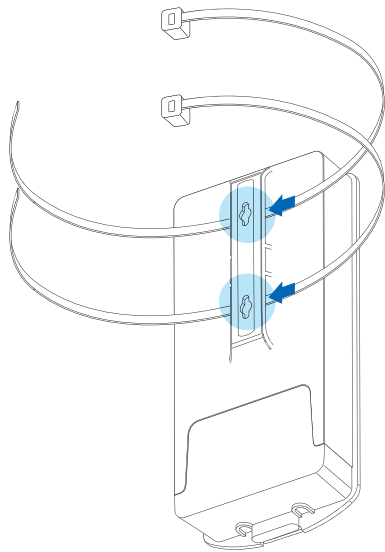
4. Align the screw holes on the mounting bracket with the screws and then install the device on the wall.



**Figure 2-6: Wall Mount (2 of 2)**

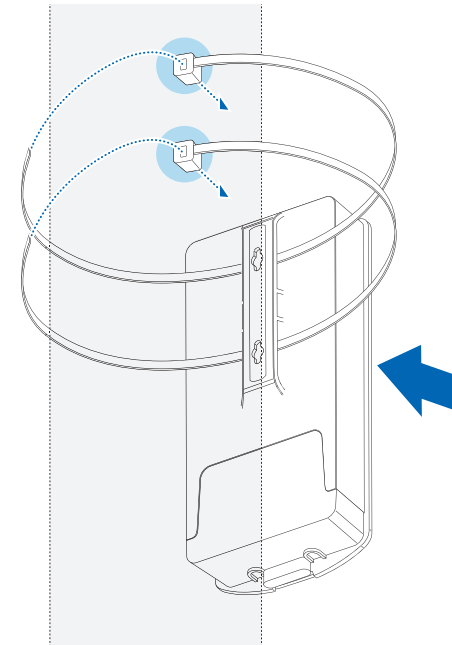
**Pole mount:**

1. Thread two cable ties through the mounting bracket on the back of the ENS200EXT.



**Figure 2-7: Pole Mount (1 of 2)**

2. Position the ENS200EXT on a pole and secure both cable ties.



**Figure 2-8: Pole Mount (2 of 2)**

This completes the installation procedure.



# Web Configuration

Chapter 3

## 3.1 Logging In

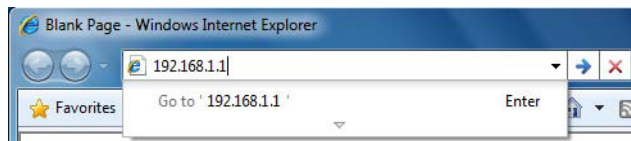
The ENS200EXT has a built-in Web Configurator that lets you manage the unit from any location using a Web browser that supports HTTP and has Javascript installed.

After configuring the computer for TCP/IP using the procedure appropriate for your operating system, use that computer's Web browser to log in to the ENS200EXT Web Configurator.

1. Launch your Web browser.
2. In the browser address bar, type `192.168.1.1` and press the Enter key.

**Note:**

If you changed the ENS200EXT LAN IP address, enter the correct IP address.



**Figure 3-1: Web Browser Address Bar**

3. When the login screen appears, enter `admin` for the username in the top field and `admin` for the password in the bottom field.

**Figure 3-2: Windows Security Login Dialog**

4. Click `Login` to continue or `Reset` to abort the login.

You are now ready to use the instructions in the following chapters to configure the ENS200EXT.

## Best Practices

Perform the following procedures regularly to make the ENS200EXT more secure and manage the ENS200EXT more effectively.

- **Change the default password** Use a password that is not easy to guess and that contains different characters, such as numbers and letters. The ENS200EXT username cannot be changed. For more information, see *Configuring Administrator Account*.
- **Back up the configuration** and be sure you know how to restore it. Restoring an earlier working configuration can be useful if the ENS200EXT becomes unstable or crashes. If you forget your password, you will have to reset the ENS200EXT to its factory default settings and lose any customized override settings you configured. However, if you back up an earlier configuration, you will not have to completely reconfigure the ENS200EXT. You can simply restore your last configuration. For more information, see *Configuring Backup/Restore Settings*.

# Basic Network Settings

Chapter 4

## 4.1 System Status

View the summary of the current system status including system (hardware/software version, date/time), wired network (LAN) and wireless network (WLAN) information.

### 4.1.1 Using Save/Reload

Save and apply the settings shown in the Unsaved changes list, or cancel the unsaved changes and revert to the previous settings that were in effect.

#### Save/Reload

[Home](#) [Reset](#)

---

**Unsaved changes list**

```
network.sys.opmode=ap'  
wireless.wifi0.countryName=N/A
```

**Caution:** Network Setting changed, redirect IP to 192.168.1.1

---

[Save & Apply](#) [Revert](#)

## 4.1.2 Viewing System Information

Displays status information about the current operating mode.

**System Information** shows the general system information such as operating mode, system up time, firmware version, serial number, kernel version, and application version.

**LAN Settings** shows Local Area Network settings such as the LAN IP address, subnet mask, and MAC address.

### System Information

|                                |                              |
|--------------------------------|------------------------------|
| Device Name                    | ENS200EXT                    |
| Ethernet Main MAC Address      | 00:02:6F:EC:30:DA            |
| Ethernet Secondary MAC Address | 00:02:6F:EC:30:DA            |
| Wireless MAC Address           | 00:02:6F:EC:30:DA            |
| Country                        | N/A                          |
| Current Time                   | Thu Nov 29 10:29:47 UTC 2012 |
| Firmware Version               | 1.2.5                        |

### LAN Settings

|                         |                          |
|-------------------------|--------------------------|
| IP Address              | 192.168.1.1              |
| Subnet Mask             | 255.255.255.0            |
| Default Gateway         | 192.168.1.1              |
| Primary DNS             | 0.0.0.0                  |
| Secondary DNS           | 0.0.0.0                  |
| DHCP Client             | Disabled                 |
| IPv6 IP Address         | None                     |
| IPv6 Link-Local Address | FE80::202:6FFF:FE11:2207 |
| IPv6 Default Gateway    |                          |
| IPv6 Primary DNS        |                          |
| IPv6 Secondary DNS      |                          |
| RX(Packets)             | 588.181 KB (4270 PKts.)  |
| TX(Packets)             | 671.421 KB (5395 PKts.)  |

**WAN Settings** shows Wide Area Network settings such as the MAC address, connection type, connection status, WAN IP address, subnet mask, primary and secondary DNS.

| WAN Settings      |                        |
|-------------------|------------------------|
| MAC Address       | 00:02:6F:11:22:07      |
| Connection Type   | DHCP                   |
| Connection Status | Down                   |
| IP Address        |                        |
| IP Subnet Mask    | 255.255.255.0          |
| Primary DNS       |                        |
| Secondary DNS     |                        |
| RX(Packets)       | 0 B (0 PKts.)          |
| TX(Packets)       | 32.3955 KB (678 PKts.) |

**Current Wireless Settings** shows wireless information such as frequency and channel. Since the ENS200EXT supports multiple-SSIDs, information about each SSID, such as its ESSID and security settings, are displayed.

| Current Wireless Settings    |                        |
|------------------------------|------------------------|
| Operation Mode               | Client Router          |
| Wireless Mode                | IEEE 802.11b/g/n Mixed |
| Channel Bandwidth            | 20/40 MHz              |
| Frequency/Channel            | 2.452 GHz (Channel 9)  |
| Wireless Network Name (SSID) | AP SSID                |
| Security                     | None                   |
| Distance                     | 1 Km                   |
| RX(Packets)                  | 0 B (0 PKts.)          |
| TX(Packets)                  | 10.3838 KB (217 PKts.) |

## 4.1.3 Viewing Wireless Client List

### Client List

[Home](#)[Reset](#)

| SSID:# | MAC Address | TX(Bytes) | RX(Bytes) | RSSI(dBm) | Kick and Ban |
|--------|-------------|-----------|-----------|-----------|--------------|
|--------|-------------|-----------|-----------|-----------|--------------|

[Refresh](#)

Displays a list of clients associated to the ENS200EXT, along with the MAC addresses and signal strength for each client. To remove an SSID client from the list, click the button that appears in the Kick and Ban column.

Click the `Refresh` button to update the client list.



## 4.1.4 Viewing System Log

Home
Reset

System Log

Show log type All

```

Nov 29 10:30:03 ENS200EXT user.notice root: starting ntpclient
Nov 29 10:30:01 ENS200EXT cron.err crond[1508]: USER root pid 1522 cmd . /etc/hotplug.d/iface/20-ntpcl
Nov 29 10:29:53 ENS200EXT cron.err crond[1508]: crond (busybox 1.15.3) started, log level 5
Nov 29 10:29:52 ENS200EXT user.notice root: starting ntpclient
Nov 29 10:29:52 ENS200EXT daemon.warn dnsmasq[1257]: ignoring nameserver 127.0.0.1 - local interface
Nov 29 10:29:52 ENS200EXT daemon.info dnsmasq[1257]: using local addresses only for domain lan
Nov 29 10:29:52 ENS200EXT daemon.info dnsmasq[1257]: reading /tmp/resolv.conf
Nov 29 10:29:49 ENS200EXT daemon.info locator[1471]: daemonize: Unable to read pid file [/var/run/loca
Nov 29 10:29:42 ENS200EXT user.info kernel: br-lan: topology change detected, propagating
Nov 29 10:29:42 ENS200EXT user.info kernel: br-lan: port 3(ath0) entering learning state
Nov 29 10:29:42 ENS200EXT user.info kernel: br-lan: port 3(ath0) entering forwarding state
Nov 29 10:29:42 ENS200EXT daemon.info dnsmasq[1257]: using local addresses only for domain lan
Nov 29 10:29:42 ENS200EXT daemon.info dnsmasq[1257]: using local addresses only for domain lan
Nov 29 10:29:42 ENS200EXT daemon.info dnsmasq[1257]: started, version 2.52 cachesize 150
Nov 29 10:29:42 ENS200EXT daemon.info dnsmasq[1257]: reading /tmp/resolv.conf
Nov 29 10:29:42 ENS200EXT daemon.info dnsmasq[1257]: read /etc/hosts - 1 addresses
Nov 29 10:29:42 ENS200EXT daemon.info dnsmasq[1257]: compile time options: IPv6 GNU-getopt no-DBus no-
Nov 29 10:29:37 ENS200EXT user.warn kernel: ar5416SetSwitchCom, ant switch com = 0xa900120
Nov 29 10:29:35 ENS200EXT user.warn kernel: ip_nat_pptp version 3.0 unloaded
Nov 29 10:29:35 ENS200EXT user.warn kernel: ip_conntrack_pptp version 3.1 unloaded
Nov 29 10:29:34 ENS200EXT cron.err crond[1114]: crond (busybox 1.15.3) started, log level 5
Nov 29 10:29:33 ENS200EXT user.info kernel: device ath0 entered promiscuous mode

```

Refresh
Clear

The ENS200EXT automatically logs events to internal memory.

### Note:

The oldest events are deleted from the log when memory is full.

Click the `Save` button to save the log information to a text file, click the `Refresh` button to update the client list, or the `Clear` button to remove all events.

## 4.1.5 Viewing Connection Status

Displays the current status of the network.

The WLAN information shown includes network type, SSID, BSSID, connection status, wireless mode, current channel, security, data rate, noise level, and signal strength.

| Wireless            |               |
|---------------------|---------------|
| Network Type        | Client Router |
| SSID                | AP SSID       |
| BSSID               | N/A           |
| Connection Status   | N/A           |
| Wireless Mode       | N/A           |
| Current Channel     | N/A           |
| Security            | N/A           |
| Tx Data Rates(Mbps) | N/A           |
| Current noise level | N/A           |
| Signal strength     | N/A           |

The WAN information shown includes the MAC address, connection type, connection status, IP address, IP subnet mask, primary DNS and secondary DNS.

| WAN               |  |
|-------------------|--|
| MAC Address       | 00:02:6F:E4:61:C0  |
| Connection Type   | DHCP <input type="button" value="Renew"/> <input type="button" value="Release"/> |
| Connection Status | Down   |
| IP Address        |  |
| IP Subnet Mask    | 255.255.255.0  |
| Primary DNS       |  |
| Secondary DNS     |  |

Click the `Refresh` button to update connections status.

## 4.1.6 Viewing DHCP Client Table

### DHCP Client List

[Home](#)[Reset](#)

| MAC addr | IP | Expires |
|----------|----|---------|
|----------|----|---------|

[Refresh](#)

Displays the clients that are associated to the ENS200EXT through DHCP. The MAC addresses, IP addresses, and expiry times period for each client are shown in separate rows.

Click the `Refresh` button to update the client table.

## 4.1.7 Viewing WDS Link List

### WDS Link Status

[Home](#)[Reset](#)

| WDS Link ID | MAC Address | Link Status | RSSI (dBm) |
|-------------|-------------|-------------|------------|
|-------------|-------------|-------------|------------|

[Refresh](#)

Displays the clients that are associated to the ENS200EXT through WDS. The MAC addresses, link status and signal strength for each client are also shown.

Click the `Refresh` button to update the client list.

## 4.2 System Setup

The following sections explain the features and functionality of the ENS200EXT in access point mode, client bridge mode, WDS access point mode, WDS bridge mode, WDS station mode and client router mode.

### 4.2.1 Configuring Operation Mode

Set the primary function of the device. The function that is selected affects which items are available in the main menu.

**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.

**Country/Region** Select a Country/Region to conform to local regulations.

**Operation Mode** Use the radio button to select an operating mode.

Click `Save & Apply` to save changes or `Cancel` to abort.

#### System Properties

##### System Properties

|                       |  |
|-----------------------|--|
| <b>Device Name</b>    | ENS200EXT ( 1 to 32 characters )   |
| <b>Country/Region</b> | Please Select a Country Code <input type="button" value="v"/>  |
| <b>Operation Mode</b> | <input type="radio"/> Access Point<br><input type="radio"/> Client Bridge<br><input checked="" type="radio"/> WDS<br><input checked="" type="radio"/> Access Point<br><input type="radio"/> Bridge<br><input type="radio"/> Station<br><input type="radio"/> Client Router |

## 4.2.2 Configuring IP Settings

Configure the ENS200EXT LAN settings for the ENS200EXT using a static or dynamic IP address.

**IP Network Setting** Configure the network connection type using either a static IP or dynamic IP.

**IP Address** Enter the LAN IP address of the ENS200EXT.

**Subnet Mask** Enter the subnet mask of the ENS200EXT.

**Default Gateway** Enter the default gateway of the ENS200EXT.

**Primary DNS** Enter the primary DNS address of the ENS200EXT.

**Secondary DNS** Enter the secondary DNS address of the ENS200EXT.

**Use Link-Local Address** Click to enable a link-local address for the device.

**IPv6 IP Address** Enter the IPv6 LAN IP address of the ENS200EXT.

**IPv6 Subnet Prefix Length** Enter the IPv6 subnet prefix length of the ENS200EXT.

**IPv6 Default Gateway** Enter the IPv6 default gateway of the ENS200EXT.

**IPv6 Primary DNS** Enter the IPv6 primary DNS of the ENS200EXT.

**IPv6 Secondary DNS** Enter the IPv6 secondary DNS of the ENS200EXT.

Click `Apply` to save the settings or `Cancel` to discard changes.

### IP Settings

| System Information        |   |
|---------------------------|---|
| IP Network Setting        | <input type="radio"/> Obtain an IP address automatically (DHCP)<br><input checked="" type="radio"/> Specify an IP address |
| IP Address                | 192 . 168 . 1 . 220   |
| IP Subnet Mask            | 255 . 255 . 255 . 0   |
| Default Gateway           | 192 . 168 . 1 . 1   |
| Primary DNS               | 0 . 0 . 0 . 0   |
| Secondary DNS             | 0 . 0 . 0 . 0   |
| Use Link-Local Address    | <input checked="" type="checkbox"/>   |
| IPv6 IP Address           |   |
| IPv6 Subnet Prefix Length |   |
| IPv6 Default Gateway      |   |
| IPv6 Primary DNS          |   |
| IPv6 Secondary DNS        |   |

## 4.2.3 Configuring Spanning Tree Settings

**Spanning Tree Status** Enable or disable the ENS200EXT Spanning Tree function.

**Bridge Hello Time** Specify Bridge Hello Time, in seconds. This value determines how often the ENS200EXT sends hello packets to communicate information about the topology throughout the entire Bridged Local Area Network

**Bridge 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 dead.

**Bridge Forward Delay** Specify 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 looks at some traffic before participating.

**Priority** Specify the Priority number. Smaller numbers have greater priority.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

### Spanning Tree Settings

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

Accept

Cancel

## 4.3 Router Setup

### 4.3.1 Configuring WAN Settings

Configure the WAN settings for the ENS200EXT using a static or dynamic IP address, PPPoE or PPTP.

#### Static IP

Setting a static IP address allows an administrator to set a specific IP address for the router and guarantees that it can not be assigned a different address.

**Account Name** Enter the account name provided by your ISP.

**Domain Name** Enter the domain name provided by your ISP.

**MTU** The maximum transmission unit (MTU) specifies the largest packet size permitted for an internet transmission. The factory default MTU size for static IP is 1500. The MTU size can be set between 576 and 1500.

**IP Address** Enter the router's WAN IP address.

**Subnet Mask** Enter the router's WAN subnet mask.

**Default Gateway** Enter the WAN gateway address.

**Primary DNS** Enter the primary DNS server address.

| WAN Settings  |           |      |                |   | Home                                | Reset |
|---|-----------|------|----------------|---|-------------------------------------|-------|
| Internet Connection Type  | Static IP |      |                |   |                                     |       |
| Options   |           |      |                |   |                                     |       |
| Account Name (if required)  |           |      |                |   |                                     |       |
| Domain Name (if required)   |           |      |                |   |                                     |       |
| MTU   | Auto      | 1500 | ( 576 - 1500 ) |   |                                     |       |
| Internet IP Address   |           |      |                |   |                                     |       |
| IP Address  | 192       | 168  | 10             | 1 |                                     |       |
| IP Subnet Mask  | 255       | 255  | 255            | 0 |                                     |       |
| Gateway IP Address  | 0         | 0    | 0              | 0 |                                     |       |
| Domain Name Server (DNS) Address  |           |      |                |   |                                     |       |
| Primary DNS   | 0         | 0    | 0              | 0 |                                     |       |
| Secondary DNS   | 0         | 0    | 0              | 0 |                                     |       |
| WAN Ping  |           |      |                |   |                                     |       |
| Discard Ping on WAN   |           |      |                |   | <input checked="" type="checkbox"/> |       |
| <input type="button" value="Accept"/> <input type="button" value="Cancel"/> |           |      |                |   |                                     |       |



**Secondary DNS** Enter the secondary DNS server address.

**Discard Ping on WAN** Check to Enable to recognize pings on the ENS200EXT WAN interface or Disable to block pings on the ENS200EXT WAN interface. Note: Pinging IP addresses is a common method used by hackers to test whether the IP address is valid. Blocking pings provides some extra security from hackers.

Click `Accept` to save the settings or `Cancel` to discard changes.

## Dynamic IP

Dynamic IP addressing assigns a different IP address each time a device connects to an ISP service provider. The service is most commonly used by ISP cable providers.

**Account Name** Enter the account name provided by your ISP.

**Domain Name** Enter the domain name provided by your ISP.

**MTU** The maximum transmission unit (MTU) specifies the largest packet size permitted for an internet transmission. The factory default MTU size for Dynamic IP is 1500. The MTU size can be set between 576 and 1500.

**Get Automatically From ISP** Click the radio button to obtain the DNS automatically from the DHCP server.

**Use These DNS Servers** Click the radio button to set up the Primary DNS and Secondary DNS servers manually.

**Discard Ping on WAN** Check to Enable to recognize pings on the ENS200EXT WAN interface or Disable to block pings on the ENS200EXT WAN interface. Note: Pinging IP addresses is a common method used by hackers to test whether the IP address is valid. Blocking pings provides some extra security from hackers.

Click `Accept` to save the settings or `Cancel` to discard changes.

**WAN Settings** Home Reset

Internet Connection Type: DHCP

Options

Account Name (if required):

Domain Name (if required):

MTU: Auto 1500 ( 576 - 1500 )

Domain Name Server (DNS) Address

Get Automatically From ISP

Use These DNS Servers

Primary DNS: 0 . 0 . 0 . 0

Secondary DNS: 0 . 0 . 0 . 0

WAN Ping

Discard Ping on WAN:

Accept Cancel

## Point-to-Point Protocol over Ethernet (PPPoE)

Point-to-Point Protocol over Ethernet (PPPoE) is used mainly by ISPs that provide DSL modems to connect to the Internet.

**MTU** Enter the maximum transmission unit (MTU). The MTU specifies the largest packet size permitted for an internet transmission (PPPoE default: 1492). The MTU size can be set between 576 and 1492.

**Login** Enter the username assigned by an ISP.

**Password** Enter the password assigned by an ISP.

**Service Name** Enter the service name of an ISP (optional).

**Connect on Demand** Select the radio button to specify the maximum idle time. Internet connection will disconnect when it reach the maximum idle time, but it will automatically connect when user tries to access the network.

**Keep Alive** Select whether to keep the Internet connection always on, or enter a redial period once the internet lose connection.

**Get Automatically From ISP** Click the radio button to obtain the DNS automatically from the DHCP server.

**Use These DNS Servers** Click the radio button to set up the Primary DNS and Secondary DNS servers manually.

**Discard Ping on WAN** Check to Enable to recognize pings on the ENS200EXT WAN interface or Disable to block pings on the ENS200EXT WAN interface. Note: Pinging IP addresses is a common method used by hackers to test whether the IP address is valid. Blocking pings provides some extra security from hackers.

Click `Accept` to save the settings or `Cancel` to discard changes.

### WAN Settings

Internet Connection Type: PPPoE

Options

MTU: Auto 1492 (576 - 1492)

PPPoE Options

Login:

Password:

Service Name (if required):

Connect on Demand: Max idle Time  Minutes  
 Keep Alive: Redial Period  Seconds

Domain Name Server (DNS) Address

Get Automatically From ISP  
 Use These DNS Servers

Primary DNS:  .  .  .

Secondary DNS:  .  .  .

WAN Ping

Discard Ping on WAN:

## Point-to-Point Tunnelling Protocol (PPTP)

The point-to-point tunnelling protocol (PPTP) is used in association with virtual private networks (VPNs). There are two parts to a PPTP connection: the WAN interface settings and the PPTP settings.

**MTU** Enter the maximum transmission unit (MTU). The MTU specifies the largest packet size permitted for an internet transmission (PPTP default: 1400). The MTU size can be set between 1200 and 1400.

**IP Address** Enter the router's WAN IP address.

**Subnet Mask** Enter the router's WAN subnet IP address.

**Default Gateway** Enter the router's WAN gateway IP address.

**PPTP Server** Enter the IP address of the PPTP server.

**Username** Enter the username provided by your ISP.

**Password** Enter the password provided by your ISP.

**Connect on Demand** If you want the ENS200EXT to end the Internet connection after it has been inactive for a period of time, select this option and enter the number of minutes you want that period of inactivity to last.

**Keep Alive** If you want the ENS200EXT to periodically check your Internet connection, select this option. Then specify how often you want the ENS200EXT to check the Internet connection. If the connection is down, the ENS200EXT automatically re-establishes your connection.

**Get Automatically From ISP** Obtains the DNS automatically from ISP.

### WAN Settings

Internet Connection Type: PPTP

Options

MTU: Auto (1400) (1200 - 1400)

PPTP Options

IP Address: 192 . 168 . 10 . 1

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: 0 . 0 . 0 . 0

PPTP Server: 0 . 0 . 0 . 0

Username:

Password:

Connect on Demand: Max idle Time 15 Minutes  
 Keep Alive: Redial Period 30 Seconds

Domain Name Server (DNS) Address

Get Automatically From ISP  
 Use These DNS Servers

Primary DNS: 0 . 0 . 0 . 0

Secondary DNS: 0 . 0 . 0 . 0

WAN Ping

Discard Ping on WAN:

**Use These DNS Servers** Click the radio button to set up the Primary DNS and Secondary DNS servers manually.

**Discard Ping on WAN** Check to Enable to recognize pings on the ENS200EXT WAN interface or Disable to block pings on the ENS200EXT WAN interface. Note: Pinging IP addresses is a common method used by hackers to test whether the IP address is valid. Blocking pings provides some extra security from hackers.

Click `Accept` to save the settings or `Cancel` to discard changes.

## 4.3.2 Configuring LAN Settings

**IP Address** Enter the LAN IP address.

**IP Subnet Mask** Enter the LAN IP subnet mask.

**Use Router As DHCP Server** Check this option to enable the ENS200EXT internal DHCP server.

**Starting IP Address** Specify the starting IP address range for the pool of allocated for private IP addresses. The starting IP address must be on the same subnet as the ending IP address; that is the first three octets specified here must be the same as the first three octets in End IP Address.

**Ending IP Address** Specify the ending IP address range for the pool of allocated for private IP addresses. The ending IP address must be on the same subnet as the starting IP address; that is the first three octets specified here must be the same as the first three octets in Start IP Address.

**WINS Server IP** Enter the IP address of the WINS server.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

### LAN Settings

#### LAN IP Setup

|                |     |   |     |   |     |   |     |
|----------------|-----|---|-----|---|-----|---|-----|
| IP Address     | 192 | . | 168 | . | 1   | . | 153 |
| IP Subnet Mask | 255 | . | 255 | . | 255 | . | 0   |

Use Router As DHCP Server

|                     |     |   |     |   |   |   |     |
|---------------------|-----|---|-----|---|---|---|-----|
| Starting IP Address | 192 | . | 168 | . | 1 | . | 100 |
| Ending IP Address   | 192 | . | 168 | . | 1 | . | 200 |
| WINS Server IP      | 0   | . | 0   | . | 0 | . | 0   |

`Accept` `Cancel`

## 4.3.3 Configuring VPN Pass-Through

VPN Pass-through allows a secure virtual private network (VPN) connection between two computers. Enabling the options on this page opens a VPN port and enables connections to pass through the ENS200EXT without interruption.

**PPTP Pass-through** Check this option to enable PPTP pass-through mode.

**L2TP Pass-through** Check this option to enable L2TP pass-through mode.

**IPSec Pass-through** Check this option to enable IPSec pass-through mode.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

### VPN Pass Through

---

PPTP Pass Through

L2TP Pass Through

IPSec Pass Through

Accept

Cancel

## 4.3.4 Configuring Port Forwarding

Port forwarding enables multiple server applications on a LAN to serve clients on a WAN over a single WAN IP address. The router accepts incoming client packets, filters them based on the destination WAN, or public, port and protocol and forwards the packets to the appropriate LAN, or local, port. Unlike the DMZ feature, port forwarding protects LAN devices behind the firewall.

### Port Forwarding

[Home](#)
[Reset](#)

| # | Name | Protocol | Start Port | End Port | Server IP Address | Enable | Modify | Delete |
|---|------|----------|------------|----------|-------------------|--------|--------|--------|
|---|------|----------|------------|----------|-------------------|--------|--------|--------|

[Add Entry](#)
[Accept](#)

**NO.** Displays the sequence number of the forwarded port.

**Name** Displays the name of the forwarded port.

**Protocol** Displays the protocol to use for mapping from the following: TCP, UDP or Both.

**Start Port** Displays the LAN port number that WAN client packets will be forward to.

**End Port** Displays the port number that the WAN client packets are received.

**Server IP** Displays the IP address of the server for the forwarded port.

**Enable** Click to enable or disable the forwarded port profile.

**Modify** Click to modify the forwarded port profile.

**Delete** Click to delete the forwarded port profile.

Click [Add Entry](#) to add port forwarding rules.

Click [Accept](#) to confirm the changes.

**Service Name** Enter a name for the port forwarding rule.

**Protocol** Select a protocol for the application: Choices are Both, TCP, and UDP.

**Starting Port** Enter a starting port number.

**Ending Port** Enter an ending port number. All ports numbers between the starting and ending ports will forward users to the IP address specified in the IP Address field.

**IP Address** Enter the IP address of the server computer on the LAN network where users will be redirected.

Click `Save` to apply the changes or `Cancel` to return previous settings.

**Port Forwarding**

|               |   |
|---------------|---|
| Service Name  | <input type="text"/>  |
| Protocol      | BOTH <input type="button" value="v"/>   |
| Starting Port | <input type="text"/> (1~65535)  |
| Ending Port   | <input type="text"/> (1~65535)  |
| IP Address    | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> |



## 4.3.5 Configuring Demilitarized Zone

Configuring a device on the LAN as a demilitarized zone (DMZ) host allows unrestricted two-way Internet access for Internet applications, such as online video games, to run from behind the NAT firewall. The DMZ function allows the router to redirect all packets going to the WAN port IP address to a particular IP address on the LAN. The difference between the virtual server and the DMZ function is that a virtual server redirects a particular service or Internet application, such as FTP, to a particular LAN client or server, whereas a DMZ redirects all packets, regardless of the service, going to the WAN IP address to a particular LAN client or server.



### WARNING!

The PC defined as a DMZ host is not protected by the firewall and is vulnerable to malicious network attacks. Do not store or manage sensitive information on the DMZ host.

**DMZ Hosting** Select `Enable` DMZ to activate DMZ functionality.

**DMZ Address** Enter an IP address of a device on the LAN.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

### DMZ

|             |               |
|-------------|---------------|
| DMZ Hosting | Disable ▾     |
| DMZ Address | 0 . 0 . 0 . 0 |

Accept Cancel

# 4.4 Configuring Wireless LAN

## 4.4.1 Configuring Wireless Settings

Instructions on how to configure the wireless and security settings for each of the possible operating modes.



**WARNING!**

Incorrectly changing these settings may cause the device to stop functioning. Do not modify the settings in this section without a thorough understanding of the parameters.

### Access Point Mode

The ENS200EXT supports Access Point Mode. In this mode, users with a wireless client device within range can connect to the ENS200EXT to access the WLAN.

**Wireless Mode** Wireless mode supports 802.11b/g/n mixed modes.

**Channel HT Mode** The default channel bandwidth is 20/40 MHz. The larger the channel, the better the transmission quality and speed.

**Extension Channel** Select upper or lower channel. Your selection may affect the Auto channel function.

**Channel / Frequency** Select the channel and frequency appropriate for your country's regulation.

**Auto** Check this option to enable auto-channel selection.

**Wireless Network**
Home    Reset

---

|                            |                    |  |  |  |  |
|----------------------------|--------------------|--|--|--|--|
| <b>Wireless Mode</b>       | 802.11 B/G/N Mixed |  |  |  |  |
| <b>Channel HT Mode</b>     | 20/40MHz           |  |  |  |  |
| <b>Extension Channel</b>   | Lower Channel      |  |  |  |  |
| <b>Channel / Frequency</b> | Ch5-2.432GHz       | <input checked="" type="checkbox"/> Auto |  |  |  |
| <b>AP Detection</b>        | Scan               |  |  |  |  |

---

| Current Profiles |          |                          |     |                                     |      |
|------------------|----------|--------------------------|-----|-------------------------------------|------|
| SSID             | Security | Isolation                | VID | Enable                              | Edit |
| EnGeniusE461C0   | None     | <input type="checkbox"/> | 1   | <input checked="" type="checkbox"/> | Edit |
| EnGeniusE461C0_2 | None     | <input type="checkbox"/> | 2   | <input type="checkbox"/>            | Edit |
| EnGeniusE461C0_3 | None     | <input type="checkbox"/> | 3   | <input type="checkbox"/>            | Edit |
| EnGeniusE461C0_4 | None     | <input type="checkbox"/> | 4   | <input type="checkbox"/>            | Edit |

Accept
Cancel

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

**Current Profile** Configure up to four different SSIDs. If many 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 SSIDs.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

**SSID** Specify the SSID for the current profile.

**VLAN ID** Specify the VLAN tag for the current profile.

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

**Station Separation** Click the appropriate radio button to allow or prevent communication between client devices.

**Wireless Security** For details on wireless security settings, see *Configuring Wireless Security*.

Click `Save` to accept the changes or `Cancel` to cancel and return previous settings.

### SSID Profile

#### Wireless Setting

|                    |   |                      |
|--------------------|---|----------------------|
| SSID               | EnGeniusE461C0  | (1 to 32 characters) |
| VLAN ID            | 1   | (1~4094)             |
| Suppressed SSID    | <input type="checkbox"/>  |                      |
| Station Separation | <input type="radio"/> Enable <input checked="" type="radio"/> Disable |                      |

#### Wireless Security

|               |          |
|---------------|----------|
| Security Mode | Disabled |
|---------------|----------|

# Client Bridge Mode

Client Bridge Mode lets you connect two LAN segments via a wireless link as though they are on the same physical network. Since the computers are on the same subnet, broadcasts reach all machines. As a result, DHCP information generated by the server reach all client computers as though the clients residing on one physical network.

**Wireless Mode** Wireless mode supports 802.11b/g/n mixed modes.

**SSID** Specify the SSID if known. This field is completed automatically if you select an Access Point in the Site Survey.

**Site Survey** Scans nearby locations for Access Points. You can select a discovered Access Point to establish a connection.

**Prefer BSSID** Enter the MAC address if known. If you select an Access Point in the Site Survey, this field is completed automatically.

**Wireless Security** For details on wireless security settings, see *Configuring Wireless Security*.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

**Wireless Network**
Home    Reset

---

|                |  |
|----------------|--|
| Wireless Mode  | 802.11 B/G/N Mixed ▾   |
| SSID           | Specify the static SSID :<br>AP SSID <input style="width: 150px;" type="text"/> ( 1 to 32 characters )<br>Or press the button to search for any available WLAN Service.<br><input style="width: 60px;" type="button" value="Site Survey"/>   |
| Prefered BSSID | <input type="checkbox"/> <input style="width: 20px;" type="text"/> : <input style="width: 20px;" type="text"/> : <input style="width: 20px;" type="text"/> : <input style="width: 20px;" type="text"/> : <input style="width: 20px;" type="text"/> : <input style="width: 20px;" type="text"/> |

---

**Wireless Security**

Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session.

|               |            |
|---------------|------------|
| Security Mode | Disabled ▾ |
|---------------|------------|

---

Accept
Cancel

**Profiles** If you used the Site Survey, the Web Configurator shows nearby Access Points. To connect to an Access Point, click the Access Point's BSSID.

Click **Refresh** to scan again.

**Site Survey**

2GHz Site Survey

Infrastructure  Ad\_hoc

| BSSID             | SSID                     | Channel | Signal Level | Type  | Security     | Mode              |
|-------------------|--------------------------|---------|--------------|-------|--------------|-------------------|
| 08:10:74:96:17:04 | DT-200N                  | 6       | -93 dBm      | 11g/n | none         | <a href="#">i</a> |
| 00:16:01:93:C8:6F | 00160193C86E             | 11      | -81 dBm      | 11b/g | WEP          | <a href="#">i</a> |
| 04:4F:AA:5B:88:C1 | annie                    | 1       | -93 dBm      | 11b/g | WEP          | <a href="#">i</a> |
| 02:2F:4F:42:BC:41 | HPCP1525-9b886d          | 6       | -91 dBm      | 11b/g | none         | <a href="#">i</a> |
| 90:E6:BA:BE:8A:46 | james wifi               | 1       | -84 dBm      | 11b/g | WPA/WPA2-PSK | <a href="#">i</a> |
| F0:B4:79:06:0C:8D | AE                       | 1       | -96 dBm      | 11g/n | WPA2-PSK     | <a href="#">i</a> |
| 00:19:70:22:05:96 | NOVA Technical Institute | 7       | -55 dBm      | 11g/n | WPA2-PSK     | <a href="#">i</a> |
| 4C:E8:76:43:1E:6B | mike                     | 11      | -79 dBm      | 11g/n | WPA-PSK      | <a href="#">i</a> |
| 00:1F:1F:23:F9:F0 | kao                      | 11      | -86 dBm      | 11g/n | WPA-PSK      | <a href="#">i</a> |
| 34:08:04:DD:81:02 | RouterforTecom           | 11      | -83 dBm      | 11b/g | WPA/WPA2-PSK | <a href="#">i</a> |
| 5C:D9:98:E1:56:94 | TW FlyKiwi               | 6       | -94 dBm      | 11g/n | WPA/WPA2-PSK | <a href="#">i</a> |

## WDS Bridge Mode

Unlike traditional bridging, WDS Bridge Mode allows you to create large wireless networks by linking several wireless access points with WDS links. WDS is normally used in large, open areas, where pulling wires is cost prohibitive, restricted or physically impossible.

**Wireless Mode** Wireless mode supports 802.11b/g/n mixed modes.

**Channel HT Mode** The default channel bandwidth is 40 MHz. The larger the channel, the better the transmission quality and speed.

**Extension Channel** Select upper or lower channel. Your selection may affect the Auto channel function.

**Channel / Frequency** Select the channel and frequency appropriate for your country's regulation.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

### Wireless Network

---

|                     |                      |
|---------------------|----------------------|
| Wireless Mode       | 802.11 B/G/N Mixed ▾ |
| Channel HT Mode     | 40MHz ▾              |
| Extension Channel   | Lower Channel ▾      |
| Channel / Frequency | Ch6-2.437GHz ▾       |

---

**Security** Select the type of WDS security: None, WEP, or AES.

**WEP Key** Enter the WEP key.

**AES Pass phrase** Enter the AES pass phrase.

**MAC Address** Enter the MAC address of the Access Point to which you want to extend wireless connectivity.

**Mode** Select Disable or Enable to disable or enable WDS.

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

**WDS Link Settings**

**Home** **Reset**

|                |   |
|----------------|---|
| Security       | None  |
| WEP Key        | <input type="text"/> 40/64-bit(10 hex digits)   |
| AES Passphrase | <input type="text"/><br><small>(8-63 ASCII characters or 64 hexadecimal digits)</small> |

| ID | MAC Address   | Mode    |
|----|---|---------|
| 1  | <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> | Disable |
| 2  | <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> | Disable |
| 3  | <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> | Disable |
| 4  | <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> | Disable |

**Accept** **Cancel**

## Client Router Mode

In Client Router Mode, you can access the Internet wirelessly with the support of a WISP. It also supports VPN pass-through for sensitive data secure transmission.

**Wireless Mode** Wireless mode supports 802.11b/g/n mixed modes.

**SSID** Specify the SSID if known. This field is completed automatically if you select an Access Point in the Site Survey.

**Site Survey** Scans nearby locations for Access Points. You can select a discovered Access Point to establish a connection.

**Prefer BSSID** Enter the MAC address if known. If you select an Access Point in the Site Survey, this field is completed automatically.

**Wireless Security** For details on wireless security settings, see *Configuring Wireless Security*.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

---

| Wireless Network   |   |
|--|---|
| Wireless Mode  | 802.11 B/G/N Mixed ▾  |
| SSID   | Specify the static SSID :<br>AP SSID <input type="text"/> ( 1 to 32 characters )<br>Or press the button to search for any available WLAN Service.<br><input type="button" value="Site Survey"/> |
| Prefered BSSID   | <input type="checkbox"/> <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/> : <input type="text"/>                                |
| <b>Wireless Security</b>   |   |
| Changing the wireless security settings may cause this wireless client to associate with a different one. This may temporarily disrupt your configuration session. |   |
| Security Mode  | Disabled ▾  |



**Profiles** If you used the Site Survey, the Web Configurator shows nearby Access Points. To connect to an Access Point, click the Access Point's BSSID.

Click **Refresh** to scan again.

**Site Survey**

2GHz Site Survey

Infrastructure  Ad\_hoc

| BSSID             | SSID                     | Channel | Signal Level | Type  | Security     | Mode |
|-------------------|--------------------------|---------|--------------|-------|--------------|------|
| 08:10:74:96:17:04 | DT-200N                  | 6       | -93 dBm      | 11g/n | none         |      |
| 00:16:01:93:C8:6F | 00160193C86E             | 11      | -81 dBm      | 11b/g | WEP          |      |
| 04:4F:AA:5B:88:C1 | annie                    | 1       | -93 dBm      | 11b/g | WEP          |      |
| 02:2F:4F:42:BC:41 | HPCP1525-9b886d          | 6       | -91 dBm      | 11b/g | none         |      |
| 90:E6:BA:BE:8A:46 | james wifi               | 1       | -84 dBm      | 11b/g | WPA/WPA2-PSK |      |
| F0:B4:79:06:0C:8D | AE                       | 1       | -96 dBm      | 11g/n | WPA2-PSK     |      |
| 00:19:70:22:05:96 | NOVA Technical Institute | 7       | -55 dBm      | 11g/n | WPA2-PSK     |      |
| 4C:E8:76:43:1E:6B | mike                     | 11      | -79 dBm      | 11g/n | WPA-PSK      |      |
| 00:1F:1F:23:F9:F0 | kao                      | 11      | -86 dBm      | 11g/n | WPA-PSK      |      |
| 34:08:04:DD:81:02 | RouterforTecom           | 11      | -83 dBm      | 11b/g | WPA/WPA2-PSK |      |
| 5C:D9:98:E1:56:94 | TW FlyKiwi               | 6       | -94 dBm      | 11g/n | WPA/WPA2-PSK |      |

Refresh

## 4.4.2 Configuring Wireless Security

The Wireless Security Settings section lets you configure the ENS200EXT's security modes: WEP, WPA-PSK, WPA2-PSK, WPA-PSK Mixed, WPA, WPA2, and WPA Mixed. We strongly recommend you use WPA2-PSK.

### Wired Equivalent Privacy (WEP)

**Security Mode** Select WEP from the drop-down list to begin the configuration.

**Auth Type** Select Open System or Shared.

**Input Type** Select an input type of Hex or ASCII.

**Key Length** Level of WEP encryption applied to all WEP keys. Select a 64/128/152-bit password lengths.

**Default Key** Specify which of the four WEP keys the ENS200EXT uses as its default.

**Key1 - Key4** Specify a password for the security key index. For security, each typed character is masked by a dot.

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

| Wireless Security |   |
|-------------------|---|
| 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              |   |

Save Cancel



**Note:**

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

## Wi-Fi Protected Access Pre-Shared Key (WPA-PSK)

**Security Mode** Select WPA-PSK from the drop-down list to begin the configuration.

**Encryption** Select Both, TKIP, or AES as the encryption type.

- Both = uses TKIP and AES.
- TKIP = automatic encryption with WPA-PSK; requires passphrase.
- AES = automatic encryption with WPA2-PSK; requires passphrase.

**Passphrase** Specify the security password. For security, each typed character is masked by a dot.

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

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

| Wireless Security         |   |
|---------------------------|---|
| Security Mode             | WPA-PSK   |
| Encryption                | Both(TKIP+AES)  |
| Passphrase                | <input type="text"/><br>(8 to 63 characters) or (64 Hexadecimal characters) |
| Group Key Update Interval | 3600 seconds(30~3600, 0: disabled)  |

Save Cancel



### Note:

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

## Wi-Fi Protected Access 2 Pre-Shared Key (WPA2-PSK)

**Security Mode** Select WPA2-PSK from the drop-down list to begin the configuration.

**Encryption** Select Both, TKIP, or AES as the encryption type.

- Both = uses TKIP and AES.
- TKIP = automatic encryption with WPA-PSK; requires passphrase.
- AES = automatic encryption with WPA2-PSK; requires passphrase.

**Passphrase** Specify the security password. For security, each typed character is masked by a dot.

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

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

| Wireless Security         |   |
|---------------------------|---|
| Security Mode             | WPA2-PSK  |
| Encryption                | Both(TKIP+AES)  |
| Passphrase                | <input type="text"/><br>(8 to 63 characters) or (64 Hexadecimal characters) |
| Group Key Update Interval | 3600 seconds(30~3600, 0: disabled)  |



**Note:**

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

## Wi-Fi Protected Access Pre-Shared Key (WPA-PSK) Mixed

**Security Mode** Select WPA2-PSK Mixed from the drop-down list to begin the configuration.

**Encryption** Select Both, TKIP, or AES as the encryption type.

- Both = uses TKIP and AES.
- TKIP = automatic encryption with WPA-PSK; requires passphrase.
- AES = automatic encryption with WPA2-PSK; requires passphrase.

**Passphrase** Specify the security password. For security, each typed character is masked by a dot.

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

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

| Wireless Security         |   |
|---------------------------|---|
| Security Mode             | WPA-PSK Mixed ▾   |
| Encryption                | Both(TKIP+AES) ▾  |
| Passphrase                | <input type="text"/><br>(8 to 63 characters) or (64 Hexadecimal characters) |
| Group Key Update Interval | 3600 <input type="text"/> seconds(30~3600, 0: disabled)                     |



### Note:

WPA-PSK Mixed can allow multiple security modes at the same time. 802.11n does not allow WEP/WPA-PSK TKIP/WPA2-PSK TKIP security mode. The connection mode will change from 802.11n to 802.11g.

## Wi-Fi Protected Access (WPA)

**Security Mode** Select WPA from the drop-down list to begin the configuration.

**Encryption** Select Both, TKIP, or AES as the encryption type.

- Both = uses TKIP and AES.
- TKIP = automatic encryption with WPA-PSK; requires passphrase.
- AES = automatic encryption with WPA2-PSK; requires passphrase.

**Radius Server** Specify the IP address of the RADIUS server.

**Radius Port** Specify the port number that your RADIUS server uses for authentication. Default port is 1812.

**Radius Secret** Specify RADIUS secret furnished by the RADIUS server.

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

**Radius Accounting** Select to enable or disable RADIUS accounting.

**Radius Accounting Server** Specify the IP address of the RADIUS accounting server.

**Radius Accounting Port** Specify the port number that your RADIUS accounting server uses for authentication. Default port is 1813.

**Radius Accounting Secret** Specify RADIUS accounting secret furnished by the RADIUS server.

**Interem Accounting Interval** Specify the interem accounting interval (60 - 600 seconds).

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



### Note:

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

| Wireless Security           |                                    |
|-----------------------------|------------------------------------|
| Security Mode               | WPA                                |
| Encryption                  | Both(TKIP+AES)                     |
| Radius Server               | <input type="text"/>               |
| Radius Port                 | 1812                               |
| Radius Secret               | <input type="text"/>               |
| Group Key Update Interval   | 3600 seconds(30-3600, 0: disabled) |
| Radius Accounting           | Enable                             |
| Radius Accounting Server    | <input type="text"/>               |
| Radius Accounting Port      | 1813                               |
| Radius Accounting Secret    | <input type="text"/>               |
| Interim Accounting Interval | 600 seconds(60-600)                |

## Wi-Fi Protected Access 2 (WPA2)

**Security Mode** Select WPA2 from the drop-down list to begin the configuration.

**Encryption** Select Both, TKIP, or AES as the encryption type.

- Both = uses TKIP and AES.
- TKIP = automatic encryption with WPA-PSK; requires passphrase.
- AES = automatic encryption with WPA2-PSK; requires passphrase.

**Radius Server** Specify the IP address of the RADIUS server.

**Radius Port** Specify the port number that your RADIUS server uses for authentication. Default port is 1812.

**Radius Secret** Specify RADIUS secret furnished by the RADIUS server.

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

**Radius Accounting** Select to enable or disable RADIUS accounting.

**Radius Accounting Server** Specify the IP address of the RADIUS accounting server.

**Radius Accounting Port** Specify the port number that your RADIUS accounting server uses for authentication. Default port is 1813.

**Radius Accounting Secret** Specify RADIUS accounting secret furnished by the RADIUS server.

**Interem Accounting Interval** Specify the interem accounting interval (60 - 600 seconds).

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



### Note:

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

#### Wireless Security

|                             |                                    |
|-----------------------------|------------------------------------|
| Security Mode               | WPA2                               |
| Encryption                  | Both(TKIP+AES)                     |
| Radius Server               | <input type="text"/>               |
| Radius Port                 | 1812                               |
| Radius Secret               | <input type="text"/>               |
| Group Key Update Interval   | 3600 seconds(30~3600, 0: disabled) |
| Radius Accounting           | Enable                             |
| Radius Accounting Server    | <input type="text"/>               |
| Radius Accounting Port      | 1813                               |
| Radius Accounting Secret    | <input type="text"/>               |
| Interim Accounting Interval | 600 seconds(60~600)                |

## Wi-Fi Protected Access (WPA) Mixed

**Security Mode** Select WPA Mixed from the drop-down list to begin the configuration.

**Encryption** Select Both, TKIP, or AES as the encryption type.

- Both = uses TKIP and AES.
- TKIP = automatic encryption with WPA-PSK; requires passphrase.
- AES = automatic encryption with WPA2-PSK; requires passphrase.

**Radius Server** Specify the IP address of the RADIUS server.

**Radius Port** Specify the port number that your RADIUS server uses for authentication. Default port is 1812.

**Radius Secret** Specify RADIUS secret furnished by the RADIUS server.

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

**Radius Accounting** Select to enable or disable RADIUS accounting.

**Radius Accounting Server** Specify the IP address of the RADIUS accounting server.

**Radius Accounting Port** Specify the port number that your RADIUS accounting server uses for authentication. Default port is 1813.

**Radius Accounting Secret** Specify RADIUS accounting secret furnished by the RADIUS server.

**Interem Accounting Interval** Specify the interem accounting interval (60 - 600 seconds).

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

| Wireless Security           |   |
|-----------------------------|---|
| Security Mode               | WPA Mixed   |
| Encryption                  | Both(TKIP+AES)  |
| Radius Server               | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> |
| Radius Port                 | 1812  |
| Radius Secret               | <input type="text"/>  |
| Group Key Update Interval   | 3600 <input type="text"/> seconds(30~3600, 0: disabled)                                   |
| Radius Accounting           | Enable  |
| Radius Accounting Server    | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> |
| Radius Accounting Port      | 1813  |
| Radius Accounting Secret    | <input type="text"/>  |
| Interim Accounting Interval | 600 <input type="text"/> seconds(60~600)  |



### Note:

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



## 4.4.3 Configuring Wireless MAC Filter



### Note:

This section applies to Access Point and WDS Access point mode.

Wireless MAC Filters are used to allow or deny network access to wireless clients according to their MAC addresses. You can manually add a MAC address to restrict the permission to access ENS200EXT. The default setting is Disable Wireless MAC Filters.

### Wireless MAC Filter

Home
Reset

ACL Mode Disabled ▼

: 
  : 
  : 
  : 
  : 
 
Add

| # | MAC Address |
|---|-------------|
|   |             |

Accept

**ACL Mode** Determines whether network access is granted or denied to clients whose MAC addresses appear in the MAC Address table on this page. Choices are Disable, Deny MAC in the list, or Allow MAC in the list.

**MAC Address Filter** Enter the MAC address of the device.

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

Click **Apply** to apply the changes.

# 4.4.4 Configuring WDS Link Settings

Using WDS Link Settings, you can create a wireless backbone link between multiple access points that are part of the same wireless network. This allows a wireless network to be expanded using multiple Access Points without the need for a wired backbone to link them, as is traditionally required.

**Security** Select the type of WDS security: None, WEP, or AES.

**WEP Key** Enter the WEP key.

**AES Passphrase** Enter the AES passphrase.

**MAC Address** Enter the MAC address of the Access Point to which you want to extend wireless connectivity.

**Mode** Select Disable or Enable to disable or enable WDS.

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

Home
Reset

**WDS Link Settings**

|                |   |
|----------------|---|
| Security       | None <span style="float: right;">▼</span>   |
| WEP Key        | <input style="width: 90%;" type="text"/> <span style="float: right;">40/64-bit(10 hex digits) ▼</span>      |
| AES Passphrase | <input style="width: 90%;" type="text"/><br><small>(8-63 ASCII characters or 64 hexadecimal digits)</small> |

| ID | MAC Address   | Mode      |
|----|---|-----------|
| 1  | <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> | Disable ▼ |
| 2  | <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> | Disable ▼ |
| 3  | <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> | Disable ▼ |
| 4  | <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> : <input style="width: 15%;" type="text"/> | Disable ▼ |

Accept
Cancel



**Note:**

You must enter the ENS200EXT's MAC address in an access point to establish a connection to it. For more information on how to enter a MAC address in the access point, refer to its documentation. Not all access points support this feature.

## 4.4.5 Configuring Wireless Advanced Settings

Configure the advanced wireless settings for your access point using the screens in this section. Leave these settings to their default values if you are not sure what values to enter.

**Data Rate** Select a data rate from the drop-down list. The data rate affects throughput. If you select a low data rate value, for example, the throughput is reduced but the transmission distance increases.

**Transmit Power** Lets you increase or decrease transmit power. Higher transmit power may prevent connections to the network, while the lower transmit power can prevent clients from connecting to the device.

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

**Distance** Specify the distance between Access Points and clients. Longer distances may drop high-speed connections.

**Aggregation** Merges data packets into one packet. This option reduces the number of packets, but increases packet sizes.

### Wireless Advanced Settings

|                              |   |
|------------------------------|---|
| Data Rate                    | Auto  |
| Transmit Power               | 20 dBm <input type="checkbox"/> Obey Regulatory Power   |
| RTS/CTS Threshold (1 - 2346) | 2346 bytes  |
| Distance (1-30km)            | 1 km  |
| Aggregation:                 | <input checked="" type="radio"/> Enable <input type="radio"/> Disable<br>32 Frames 50000 Bytes(Max) |

## Wireless Traffic Shaping

**Enable Traffic Shaping** Enable or disable the regulation of packet flow leaving an interface for improved QoS.

**Incoming Traffic Limit** Specify the wireless transmission speed used for downloading.

**Outgoing Traffic Limit** Specify the wireless transmission speed used for uploading.

**Total Percentage** Specify the total percentage of the wireless traffic that is shaped.

**SSID1 to SSID4** Specify the percentage of the wireless traffic that is shaped for a specific SSID.

### Wireless Traffic Shaping

|                        |   |
|------------------------|---|
| Enable Traffic Shaping | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| Incoming Traffic Limit | 1000 kbit/s (512-99999999)  |
| Outgoing Traffic Limit | 180000 kbit/s (512-99999999)  |
| Total Percentage       | 10 %  |
| SSID #1 : EnGenius1    | 10 %  |
| SSID #2 : (Off)        | 10 %  |
| SSID #3 : (Off)        | 10 %  |
| SSID #4 : (Off)        | 10 %  |

# Client Limit

Enable Client Limit to specify the number of clients (default: 127, Maximum: 127) allowed to connect to this access point.

Click `Accept` to confirm the changes or `Cancel` to cancel and return previous settings.

Client limit

| Frequency | Enable                              | Max Client                       |
|-----------|-------------------------------------|----------------------------------|
| 2.4G      | <input checked="" type="checkbox"/> | <input type="text" value="127"/> |

## 4.5 Management Setup

The Management section lets you configure administration, management VLAN, SNMP settings, backup/restore settings, firmware upgrade, time settings, and log settings. This chapter describes these settings.

### 4.5.1 Configuring Administrator Account

Click the Administration link under the Management menu to change the user name and password used to log on to the ENS200EXT Web Configurator. The default user name is `admin` and the default password is `admin`. Changing these settings protects the ENS200EXT configuration settings from being accessed by unauthorized users.

**New Name** Enter a new username for logging in to the Web Configurator.

**New Password** Enter a new password for logging in to the Web Configurator

**Confirm Password** Re-enter the new password for confirmation.

Click `Save/Apply` to apply the changes or `Cancel` to return previous settings.

| Login Setting    |       | Home   | Reset  |
|------------------|-------|--------|--------|
| New Name         | admin |        |        |
| New Password     |       |        |        |
| Confirm Password |       |        |        |
| Save/Apply       |       | Cancel | Logout |

**Remote Management** Enable or disable remote management.

**Remote Upgrade** Specify whether the ENS200EXT firmware can be upgraded remotely.

**Remote Management Port** If remote management is enabled, enter the port number to be used for remote management. For example: If you specify the port number 8080, enter `http://<IP address>:8080` to access the ENS200EXT Web Configurator.

Click `Accept` to apply the changes or `Cancel` to return previous settings.

| Remote Access          |   |
|------------------------|---|
| Remote Management      | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| Remote Upgrade         | <input checked="" type="radio"/> Enable <input type="radio"/> Disable |
| Remote Management Port | 8080  |
| Accept Cancel          |   |

## 4.5.2 Configuring Management VLAN

Click the Management VLAN link under the Management menu 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

[Home](#)[Reset](#)

**Caution:** If you reconfigure the Management VLAN ID, you may lose connectivity to the access point. Verify that the switch and DHCP server can support the reconfigured VLAN ID, and then re-connect to the new IP address.

Management VLAN ID

 No VLAN tag Specified VLAN ID

(must be in the range 1 ~ 4094. )

[Accept](#)[Cancel](#)

**Management VLAN ID** If your network includes VLANs and if tagged packets need to pass through the Access Point, enter the VLAN ID. Otherwise, click No VLAN tag.

Click [Accept](#) to confirm the changes or [Cancel](#) to cancel and return previous settings.

**Note:**

If you reconfigure the Management VLAN ID, you may lose your connection to the ENS200EXT. Verify that the DHCP server supports the reconfigured VLAN ID and then reconnect to the ENS200EXT using the new IP address.

## 4.5.3 Configuring SNMP

SNMP is used in network management systems to monitor network-attached devices for conditions that warrant administrative attention.

**SNMP** Enable or disable the ENS200EXT SNMP function.

**Contact** Enter the contact details of the device.

**Location** Enter the location of the device.

**Community Name (Read Only)** Enter the password for accessing the SNMP community for read-only access.

**Community Name (Read/Write)** Enter the password for accessing the SNMP community for read and write access.

**Trap Destination Address** Enter the IP address where SNMP traps are to be sent.

**Trap Destination Community Name** Enter the password of the SNMP trap community.

**SNMPv3** Enable or Disable the SNMPv3 feature.

**User Name** Specify the username for SNMPv3.

**Auth Protocol** Select the authentication protocol type: MD5 or SHA.

**Auth Key (8-32 Characters)** Specify the authentication key for authentication.

**Priv Protocol** Select the privacy protocol type: DES.

**Priv Key (8-32 Characters)** Specify the privacy key for privacy.

| SNMP Settings   |   | Home | Reset |
|---|---|------|-------|
| SNMP  | <input checked="" type="radio"/> Enable <input type="radio"/> Disable     |      |       |
| Contact   | <input type="text"/>  |      |       |
| Location  | <input type="text"/>  |      |       |
| Community Name (Read Only)  | <input type="text" value="public"/>                                       |      |       |
| Community Name (Read/Write)   | <input type="text" value="private"/>                                      |      |       |
| Trap Destination Address  | <input type="text"/>  |      |       |
| Trap Destination Community Name   | <input type="text" value="public"/>                                       |      |       |
| SNMPv3  | <input checked="" type="radio"/> v3Enable <input type="radio"/> v3Disable |      |       |
| User Name   | <input type="text" value="admin"/>  |      |       |
| Auth Protocol   | MD5 <input type="text"/>  |      |       |
| Auth Key (8-32 Characters)  | <input type="text" value="12345678"/>                                     |      |       |
| Priv Protocol   | DES <input type="text"/>  |      |       |
| Priv Key (8-32 Characters)  | <input type="text" value="12345678"/>                                     |      |       |
| Engine ID   | <input type="text"/>  |      |       |
| <input type="button" value="Save/Apply"/> <input type="button" value="Cancel"/> |   |      |       |

**Engine ID** Specify the engine ID for SNMPv3.

Click `Save/Apply` to apply the changes or `Cancel` to return previous settings.



## 4.5.4 Configuring Backup/Restore Settings

Click the Backup/Restore Setting link under the Management menu to save the ENS200EXT's current settings in a file on your local disk or load settings onto the device from a local disk. This feature is particularly convenient administrators who have several ENS200EXT devices that need to be configured with the same settings.

This page also lets you return the ENS200EXT to its factory default settings. If you perform this procedure, any changes made to the ENS200EXT default settings will be lost.

### Backup/Restore Settings

[Home](#)[Reset](#)

Save A Copy of Current Settings

Restore Saved Settings from A File

 No file chosen

Revert to Factory Default Settings

**Save A Copy of Current Settings** Click `Backup` to save the current configured settings.

**Restore Saved Settings from A File** To restore settings that have been previously backed up, click `Browse`, select the file, and click `Restore`.

**Revert to Factory Default Settings** Click `Factory Default` to restore the ENS200EXT to its factory default settings.

## 4.5.5 Configuring Auto Reboot Settings

Click the Auto Reboot Settings link under the Management menu to enable or disable the Auto Reboot function. This feature is particularly convenient to administrators for the scheduling of auto rebooting on the device.

This page also allows you to set the frequency of this function.

### Auto Reboot Settings

[Home](#) [Reset](#)

---

|                          |                 |
|--------------------------|-----------------|
| Auto Reboot Setting      | Disable ▾       |
| Frequency of Auto Reboot | Min ▾ 10 Mins ▾ |

---

[Save/Apply](#) [Cancel](#)

**Auto Reboot Setting** Select `Enable` from the drop-down menu to setup this function.

**Frequency of Auto Reboot** Select the frequency interval using the drop-down menus.

**Save/Apply** Click `Save/Apply` to set the new configuration.

**Cancel** Click `Cancel` to delete the settings.

## 4.5.6 Configuring Firmware Upgrade

Firmware is system software that operates and allows the administrator to interact with the router.



### WARNING!

Upgrading firmware through a wireless connection is not recommended. Firmware upgrading must be performed while connected to an Ethernet (LAN port) with all other clients disconnected.

The firmware upgrade procedure can take several minutes. Do not power off the ENS200EXT during the firmware upgrade, as it can cause the device to crash or become unusable.

To update the firmware version, follow these steps:

1. Download the appropriate firmware approved by EnGenius Networks from an approved web site.



### Note:

Save the firmware file to a local hard drive.

2. Click `Choose File`.
3. Browse the file system and select the firmware file.
4. Click `Upload`.
5. The ENS200EXT restarts automatically after the upgrade completes.

### Firmware Upgrade

Current firmware version: 1.1.13

Locate and select the upgrade file from your hard disk:

No file chosen

## 4.5.7 Configuring System Time

Change the system time of the ENS200EXT by manually entering the information, synchronizing the device with a PC, or setup automatic updates through a network time (NTP) protocol server.

**Manually Set Date and Time** Enter the date and time values in the date and time fields or click the *Synchronize with PC* button to get the date and time values from the administrator's PC.

**Automatically Get Date and Time** Select a time zone from the drop-down list and check whether you want to enter the IP address of an NTP server or use the default NTP server.

**Enable Daylight Saving** Click to enable or disable daylight savings time. Select the start and stop times from the *Start Time* and *Stop Time* dropdown lists.

Click *Save/Apply* to apply the changes or *Cancel* to return previous settings.

### Time Settings

**Time**

**Manually Set Date and Time**  
 2012 / 08 / 31 09 : 36 Synchronize with PC

**Automatically Get Date and Time**  
 Time Zone: UTC+00:00 Gambia, Liberia, Morocco ▼  
 **User defined NTP Server:** 209.81.9.7

**Enable Daylight Saving**  
**Start Time:** January ▼ 1st ▼ Sun ▼ 12 am ▼  
**End Time:** January ▼ 1st ▼ Mon ▼ 12 am ▼

Save/Apply
Cancel

## 4.5.8 Configuring Wi-Fi Schedule

Use the Wi-Fi schedule function to control the wireless power ON/OFF service that operates on a routine basis.

### Add a Schedule Service

Create a schedule service type and date/time parameters for a specific service.

**Schedule Name** Enter the description of the schedule service.

**Service** Select the type of schedule service, either Wireless Power ON or Wireless Power OFF.

**Day** Select the days of the week to enable the schedule service.

**Time of Day** Set the start time that the service is active.

Click **Add** to append the schedule service to the schedule service table, or **Cancel** to discard changes.

#### Wifi Schedule

|  |  |
|--|--|
| Wifi Schedule  | Disable ▾  |
| Schedule Name  | <input type="text"/>   |
| Service  | <input checked="" type="radio"/> Wireless Power ON<br><input type="radio"/> Wireless Power OFF |
| Day  | Mon ▾  |
| Time of day  | <input type="text"/> : <input type="text"/> (use 24-hour clock)                                |
| <input type="button" value="Add"/> <input type="button" value="Cancel"/> |  |

## Schedule Services Table

The Schedule function relies on the GMT time setting acquired from a network time protocol (NTP) server. For details on how to connect the ENS200EXT to an NTP server, see *Configuring System Time*.

Schedule Table

| #   | Name | Service | Schedule | Select |
|---|------|---------|----------|--------|
| <input type="button" value="Delete Selected"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/> |      |         |          |        |
| <hr/> <input type="button" value="Accept"/> <input type="button" value="Cancel"/>   |      |         |          |        |

**Schedule Table** Displays a list of scheduled services for the ENS200EXT. The properties of each service displayed are:

**#** Displays the ID number of the service in the table.

**Name** Displays the description of the service.

**Service** Displays the type of service, either `Wireless Power ON` or `Wireless Power OFF`.

**Schedule** Displays the schedule information of when the service is active.

**Select** Select one or more services to edit or delete.

Click `Delete Selected` to delete the selected services or `Delete All` to delete all services.

Click `Apply` to save the settings or `Cancel` to discard changes.

## 4.5.9 Configuring Command Line Interface

Most users will configure the ENS200EXT 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.

**CLI** Select to enable or disable the ability to modify the ENS200EXT via a command line interface (CLI).

Click `Save/Apply` to apply the changes or `Cancel` to return previous settings.

**CLI Setting**

---

CLI  ON  OFF

---

`Save/Apply` `Cancel`

## 4.5.10 Configuring Logging

Display a list of events that are triggered on the ENS200EXT Ethernet and wireless interfaces. You can consult this log if an unknown error occurs on the system or when a report needs to be sent to the technical support department for debugging purposes.

**Syslog** Enable or disable the ENS200EXT syslog function.

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

**Local Log** Enable or disable the local log service.

Click *Save/Apply* to apply the changes or *Cancel* to return previous settings.

### Log

#### Syslog

|                                       |           |
|---------------------------------------|-----------|
| Syslog                                | Disable ▾ |
| Log Server IP Address / Computer Name | 0.0.0.0   |

#### Local log

|           |          |
|-----------|----------|
| Local Log | Enable ▾ |
|-----------|----------|



## 4.5.11 Configuring Diagnostics

The diagnosis feature allow the administrator to verify that another device is available on the network and is accepting request packets. If the ping result returns `alive`, it means a device is on line. This feature does not work if the target device is behind a firewall or has security software installed.

**Target IP / Domain Name** Enter the IP address you would like to search.

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

**Number of Pings** Enter the number of times you want to ping.

**Start Ping** Click `Start Ping` to begin pinging.

**Trace route target** Enter an IP address or domain name you want to trace.

**Start Traceroute** Click `Start Traceroute` to begin the traceroute operation.

**Target Address** Enter the IP address of the target PC.

**Time period** Enter time period for the speed test.

**Check Interval** Enter the interval for the speed test.

**Start Speed Test** Click `Start Speed Test` to begin the speed test operation.

**IPv4 Port** Displays the IPv4 port number of the ENS200EXT.

**IPv6 Port** Displays the IPv6 port number of the ENS200EXT.

### Diagnostics

#### 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"/>        |

#### Traceroute Test Parameters

|                   |                      |
|-------------------|----------------------|
| Traceroute target | <input type="text"/> |
|-------------------|----------------------|

#### Speed Test

|                |                                     |
|----------------|-------------------------------------|
| Target Address | <input type="text"/>                |
| Time period    | <input type="text" value="20"/> Sec |
| Check Interval | <input type="text" value="5"/> Sec  |
| IPv4 Port      | 5001                                |
| IPv6 Port      | 5002                                |

## 4.5.12 Viewing Device Discovery

### Device Discovery

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

Refresh

**Device Name** Displays the name of the devices connected to the network.

**Operation Mode** Displays the operation mode of the devices connected to the network.

**IP Address** Displays the IP address of the devices connected to the network.

**System MAC Address** Displays the system MAC address of the devices connected to the network.

**Firmware Version** Displays the firmware version of the devices connected to the network.

# 4.5.13 Configure Denial of Service Protection

**Use TCP SYN Cookies Protection** Click to enable TCP SYN cookies protection.

**SYN Flood Attack Protection** Click to enable or disable SYN Flood Attack Protection.

**Match Interval Per Second** Enter the allowed number of packets per second.

**Limit Packets** Enter the maximum number of packets allowed per request.

**UDP Flood Attack Protection** Click to enable or disable UDP Flood Attack Protection.

**Match Interval Per Second** Enter the allowed number of packets per second.

**Limit Packets** Enter the maximum number of packets allowed per request.

**Ping Attack Protection** Click to enable or disable ping attack protection.

Click *Save/Apply* to apply the changes or *Cancel* to return previous settings.

## Dos Protection

|   |   |
|---|---|
| <input type="checkbox"/> Use TCP SYN Cookies Protection                         |   |
| SYN Flood Attack Protection   | <input type="radio"/> Enable <input checked="" type="radio"/> Disable<br>Match Interval <input type="text" value="50"/> Per Second Limit <input type="text" value="5"/> Packets |
| UDP Flood Attack Protection   | <input type="radio"/> Enable <input checked="" type="radio"/> Disable<br>Match Interval <input type="text" value="50"/> Per Second Limit <input type="text" value="5"/> Packets |
| Ping Attack Protection  | <input type="radio"/> Enable <input checked="" type="radio"/> Disable   |
| <input type="button" value="Save/Apply"/> <input type="button" value="Cancel"/> |   |

## 4.5.14 Logging Out

Click `Logout` to logout from the ENS200EXT.

### Management

- Administration
- SNMP Settings
- Backup/Restore Settings
- Auto Reboot Settings
- Firmware Upgrade
- Time Settings
- Wifi Schedule
- CLI Settings
- Log
- Diagnostics
- Device Discovery
- Logout

# Appendix A

## 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.



### **WARNING!**

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.

## FCC Radiation Exposure Statement



### **Important:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device complies with FCC RF Exposure limits set forth for an uncontrolled environment, under 47 CFR 2.1093 paragraph (d)(2).

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

# Appendix B

## Industry Canada Statement

This device complies with RSS-210 of the Industry Canada 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.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.



### **Important:**

#### **Radiation Exposure Statement:**

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

#### **Déclaration d'exposition aux radiations:**

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

# Appendix C

## WorldWide Technical Support

| REGION/COUNTRY OF PURCHASE | SERVICE CENTRE   | SERVICE INFORMATION |  |
|----------------------------|------------------|---------------------|--|
| Canada                     | CANADA           | web site            | www.engeniuscanada.com                                   |
|                            |                  | email               | rma@engeniuscanada.com                                   |
|                            |                  | contact numbers     | Toll Free: (+1) 888-397-2788<br>Local: (+1) 905-940-8181 |
|                            |                  | hours of operation  | Monday - Friday<br>9:00AM to 5:30PM EST (GMT-5)          |
| USA                        | LOS ANGELES, USA | web site            | www.engiustech.com                                       |
|                            |                  | email               | support@engiustech.com                                   |
|                            |                  | contact numbers     | Toll Free: (+1) 888-735-7888<br>Local: (+1) 714-432-8668 |
|                            |                  | hours of operation  | Monday - Friday<br>8:00 AM to 4:30 PM PST (GMT-8)        |



| REGION/COUNTRY OF PURCHASE   | SERVICE CENTRE |                    | SERVICE INFORMATION  |
|--|----------------|--------------------|--|
| Mexico, Central and Southern America   | MIAMI, USA     | web site           | [ES] es.engeniustech.com<br>[PT] pg.engeniustech.com   |
|  |                | email              | miamisupport@engeniustech.com  |
|  |                | contact numbers    | Miami: (+1) 305-887-7378<br>Sao Paulo, Brazil: (+55)11-3957-0303<br>D.F., Mexico:(+52)55-1163-8894 |
|  |                | hours of operation | Monday - Friday<br>8:00 AM to 5:30PM EST (GMT-5)   |
| Europe   | NETHERLANDS    | web site           | www.engeniusnetworks.eu  |
|  |                | email              | support@engeniusnetworks.eu  |
|  |                | contact numbers    | (+31) 40-8200-887  |
|  |                | hours of operation | Monday - Friday<br>9:00 AM - 5:00 PM (GMT+1)   |
| Africa<br>Middle East<br>Russia<br>CIS / Armenia, Azerbaijan, Belarus,<br>Georgia, Kazakhstan, Kyrgyzstan,<br>Moldova, Tajikistan,<br>Turkmenistan, Ukraine,<br>Uzbekistan<br>Turkey<br>Afghanistan<br>Pakistan<br>Bangladesh, Maldives,<br>Nepal, Bhutan, Sri Lanka | DUBAI, UAE     | web site           | www.engenius-me.com  |
|  |                | email              | support@engenius-me.com  |
|  |                | contact numbers    | Toll Free:<br>U.A.E.: 800-EnGenius<br>800-364-364-87<br>General:<br>(+971) 4357-5599               |
|  |                | hours of operation | Sunday - Thursday<br>9:00 AM - 6:00 PM (GMT+4)   |

| REGION/COUNTRY OF PURCHASE   | SERVICE CENTRE | SERVICE INFORMATION |  |
|--|----------------|---------------------|--|
| Singapore, Cambodia,<br>Indonesia, Malaysia,<br>Thailand, Philippines,<br>Vietnam<br>China, Hong Kong, Korea<br>India<br>South Africa<br>Oceania | SINGAPORE      | web site            | www.engeniustech.com.sg/e_warranty_form      |
|  |                | email               | techsupport@engeniustech.com.sg              |
|  |                | contact numbers     | Toll Free:<br>Singapore: 1800-364-3648       |
|  |                | hours of operation  | Monday - Friday<br>9:00 AM - 6:00 PM (GMT+8) |
| Others   | TAIWAN, R.O.C. | web site            | www.engeniusnetworks.com                     |
|  |                | email               | technology@senao.com                         |

**Note:**

\* Service hours are based on the local time of the service center.

\* Please visit the website for the latest information about customer service.