# Wireless 802.11b+g Access Point

## User's Guide

## FCC Certifications

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 or more of the following measures:

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

## CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the 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 RF Radiation Exposure Statement

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

## CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

# Table of Content

# INTRODUCTION

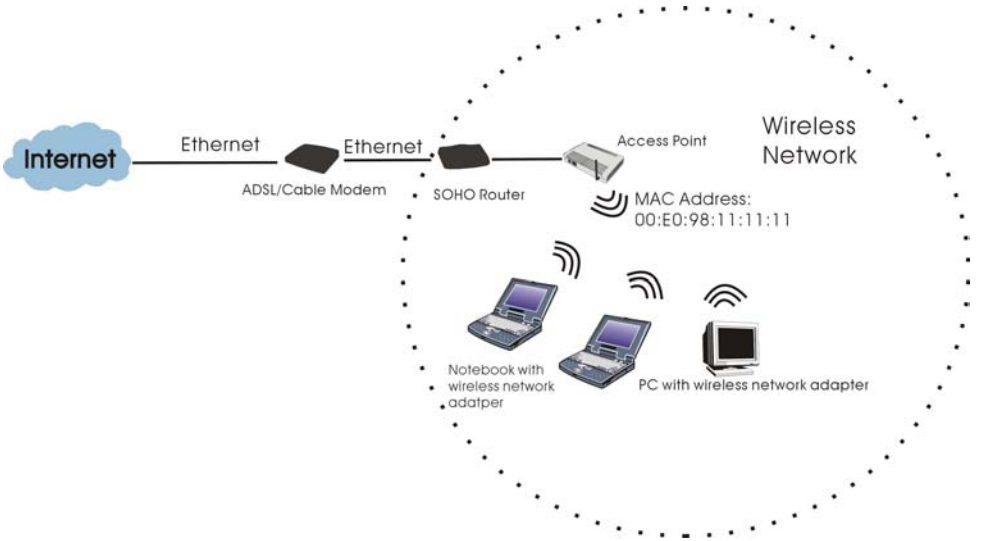
The **Wireless 802.11b+g Access Point** (**AP**) is an IEEE802.11g compliant access point. It not only provides a high transfer rate up to 54Mbps, which is almost five times faster than the already existing 11Mbps 802.11b products, but is also backward compatible with the Wireless b equipments.

The **AP** provides 40/128/256 bit WEP encryption, WPA and **IEEE802.1x,** which ensures a high level of security to protects users' data and privacy. The MAC Address control prevents the banned or unauthorized MAC Addresses from accessing your Wireless LAN. Your network security is therefore double assured.

Placed anywhere along with an Ethernet LAN, the **AP** allows up to 64 wireless stations within its area of coverage to access transparently to the corporate network.

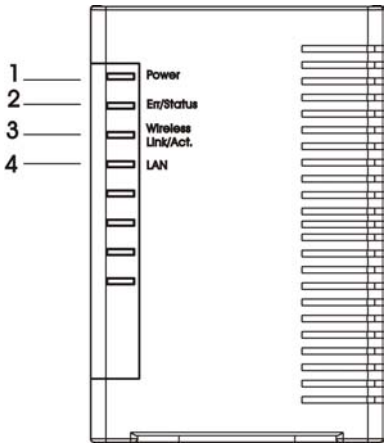
The web-based configuration utility allows users to configure via web browser. Advanced setup and firmware upgrade can be done easily.

# Application



# Parts Names and Functions

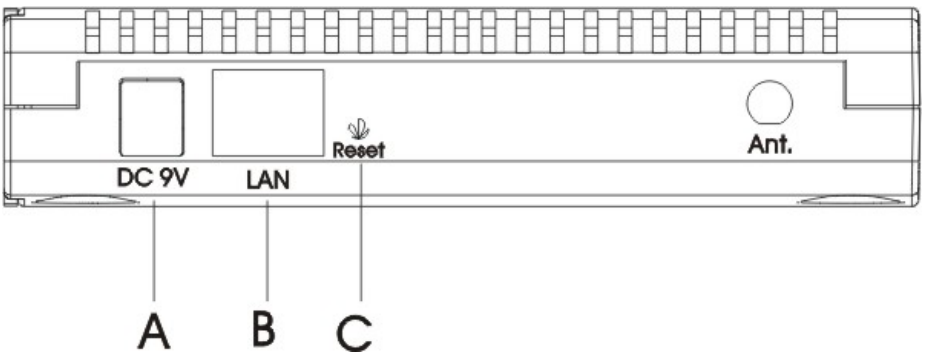
**1. Top Panel: (LED Indicators)**




| | LED Indicator | Color | Status | |
|---|---|---|---|---|
| | | | **Solid** | **Flashing** |
| **1** | **Power** | **Green** | Turns solid green when power is applied to this device. | N/A. |
| **2** | **ErrStatus** | **Red** | Turns solid red when the device is not working properly. | When power on self-test failure occurs. |
| **3** | **Wireless Link/Act.** | **Green** | Turns solid green when connected and associated to at least a client station. | Receiving/ Sending data |
| **4** | **LAN** | **Green** | Turns solid green when linked to a local network. | Receiving/ Sending data |

**Table 1: LED Indicators**

## 2. Rear Panel: Connection Ports




| | Port/button | Functions |
|---|---|---|
| **A** | **9V DC** | Connects to the power adapter plug |
| **B** | **LAN** | Connects to Ethernet |
| **C** | (**Factory**) **RESET** | Press for 5 seconds to reboot this device and restore factory settings.<br>Performing the Factory Reset will erase all previously entered device settings. |

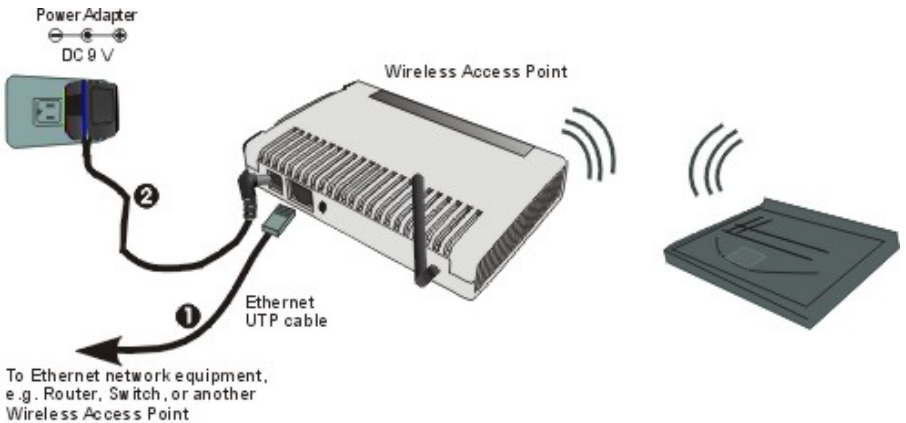
**Table 2: Connection Ports**

# Factory Default Settings

| Setting | Wireless Acc ss Point |
|---|---|
| Device Name | Wireless AP |
| SSID | Default value: **802.11SSID** |
| Channel | **6** |
| WEP | Default value: **Disabled** |
| IP Address | **192.168.1. 252** |

# SETUP

*Note: Before your starting hardware connection, you are advised to find an appropriate location to place the Access Point. Usually, the best place for the Access Point is at the center of your wireless network, with line of straight to all your wireless stations. Also, remember to adjust the antenna; usually the antenna is placed higher, the performance will be better.*




1. **Connect to your local area network**:
   Connect an Ethernet cable to the Ethernet port of this Wireless Access Point, and the other end to a hub, switch, router, or another wireless access point.

2. **Power on the device**:
   Connect the included AC power adapter to the Wireless Access Point's power port and the other end to a wall outlet.

**Check the LEDs:**

The **Power**, **Wireless Link/Act.** and **LAN** should be **ON**. **Wireless Link/Act.** and **LAN** will blink if the data is being transmitted or received.

3. **Configure your PC:**

   Make sure your local PC(s) has wireless network adapter installed.

# CONFIGURATION

## Login

1. Start your computer. Connect an Ethernet cable between your computer and the Wireless Access Point.
2. Make sure your wired station is set to the same subnet as the Wireless Access Point, i.e. 192.168.1.10
3. Start your WEB browser. In the *Address* box, enter the following:

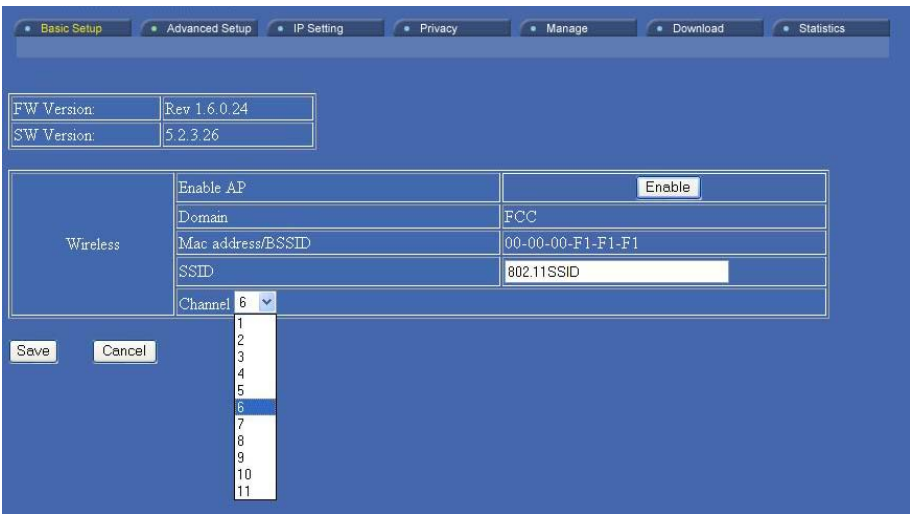
   HTTP://192.168.1.252


4. On the login page, enter default user name "**Admin**" and leave the password blank to log in.


The configuration menu includes: **Basic Setup, Advanced Setup, IP Setting, Privacy, Manage, Download,** and **Statistics**. The details for the configuration menu are described as follows.

# Basic Setup

The Setup page displays basic local and WLAN settings for the AP and enables you to change the settings.



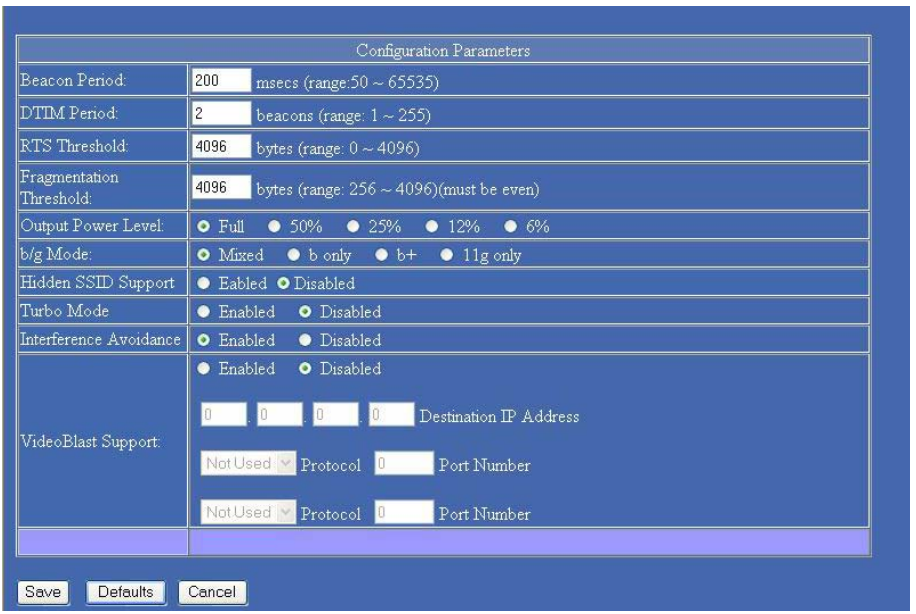

| | |
|---|---|
| **FW Version** | The current version of the firmware installed in this device. |
| **SW Version** | The current version of the software installed in this device. |
| **Wireless** | |
| **Enable/Disable AP** | **Enable**/ **Disable** Click to enable/disable the AP. |
| **Domain** | The AP's domain determines the channel number. |
| **MAC address/BSSID** | The AP's MAC address/BSSID. **BSSID** displays the ID of current BSS, which uniquely identifies each BSS. It is also the MAC address of this Access Point. |
| **SSID** | **SSID** is the unique name shared among all points in your wireless network. It is case-sensitive and must not exceed 32 characters. It must be identical for all points in the network. Make sure that all points in the network are using the same SSID. |

| | |
|---|---|
| **Channel** | The number of channels supported depends on the region of this Access Point. All stations communicating with the Access Point must use the same channel. |

| | |
|---|---|
| **Save** | After completing the settings, Click **Save** to save the settings. |
| **Cancel** | Click **Cancel** to discard the data you have entered since last time you press **Save**. |

# Advanced Setup

It is not recommended that settings in this page to be changed unless advanced users want to change to meet their wireless environment for optimal performance.




| | |
|---|---|
| **Beacon Period** | Beacon Period is the amount of time between beacon transmissions. Before a station enters power save mode, the station needs the beacon period to know when to wake up to receive the beacon (and learn whether there are buffered frames at the access point). The default value is **200**. |
| **DTIM Period** | DTIM stands for **Delivery Traffic Indication Message**. A DTIM is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the access point has buffered broadcast or multicast message for associated clients, it sends the next DTIM with a DTIM Period value. Access point clients hear and awaken to receive the broadcast and multicast messages. The default DTIM period is '**2**'. |
| **RTS Threshold** | RTS (Request To Send) is a control frame sent from the transmitting station to the receiving station requesting permission to transmit. This value is recommended to remain at |

| | |
|---|---|
| | its default setting of **4096**. Should you encounter inconsistent data flow, only minor modifications of this value are recommended. |
| **Fragment Threshold** | Fragmentation mechanism is used for improving the efficiency when high traffic flows along in the wireless network. The value can be set from 256 to 4096. The default value is **4096**. |
| **Output Power Level** | You can choose the percentage of maximum power to meet your requirement. The default is **Full**. |
| **b/g Mode** | You can choose one mode of the following you need.<br><br>⊙**Mixed:** 802.11b supported rate and 802.11g supported rate.<br><br>⊙ **b only:** 802.11b supported rate only.<br><br>⊙ **b+:** 802.11b supported rate and 22 Mbps PBCC rate.<br><br>⊙**11g only:** 802.11g supported rate only.<br><br>The default is **Mixed** mode. |
| **Hidden SSID Support** | Click ⊙**Enabled** /⊙**Disabled** to hide/broadcast the SSID. |
| **Turbo Mode** | Click ⊙**Enabled** or ⊙**Disabled** to enable or disable enhancing throughput rate. |
| **Interference Avoidance** | Click ⊙**Enabled** or ⊙**Disabled** to enable or disable the Access Point's energy detection mechanism. |
| **Video Blast Support** | ⊙**Enabled/ ⊙Disabled:** enable or disable the vHCF feature. |
| | **Destination IP Address:** The destination IP address with preferred bandwidth. |
| | **Protocol:** The destination AP's protocol. |
| | **Port Number:** The destination AP's port number. |
| **Save** | After completing the settings, Click **Save** to save the settings. |
| **Defaults** | Click to restore the AP to factory default settings. |

| | |
|---|---|
| **Cancel** | Click **Cancel** to discard the data you have entered since last time you press **Save**. |

# IP Setting

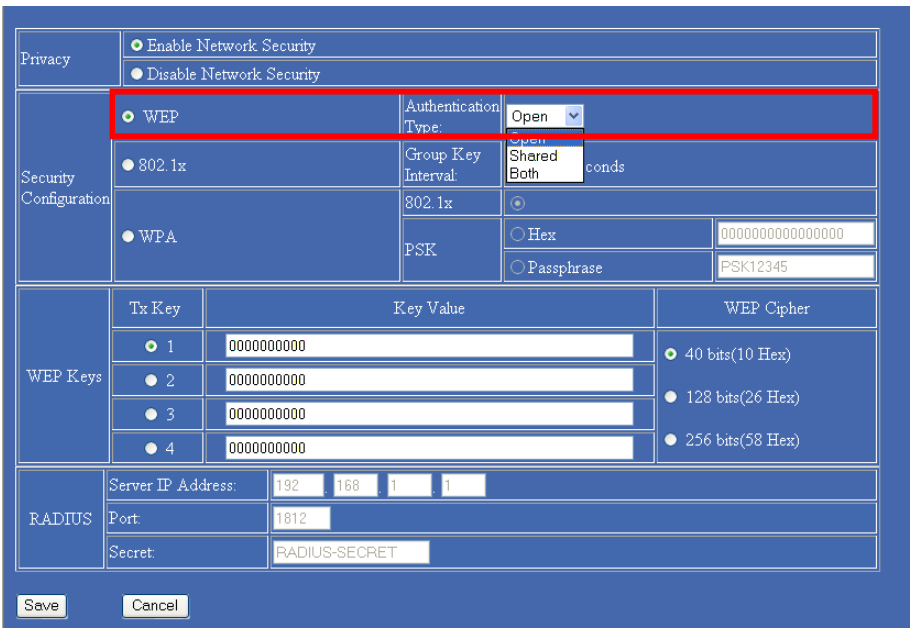
The IP Settings page displays the IP address for the AP.


| | |
|---|---|
| **IP Address** | This field can be modified only when DHCP Client is disabled. If your system manager assigned you static IP settings, then you will have to enter the information provided. |
| **Subnet Mask** | Enter the information provided by your system manager. |
| **Default Gateway** | Enter the information provided by your system manager. |

| | |
|---|---|
| **Save** | After completing settings, Click **Save** to save settings. |
| **Cancel** | Click **Cancel** to discard the data you have entered since last time you press **Save**. |

# Privacy

The Privacy page displays WLAN security settings. You can select **WEP, 802.1x,** or **WPA** to be the privacy mode for the AP.



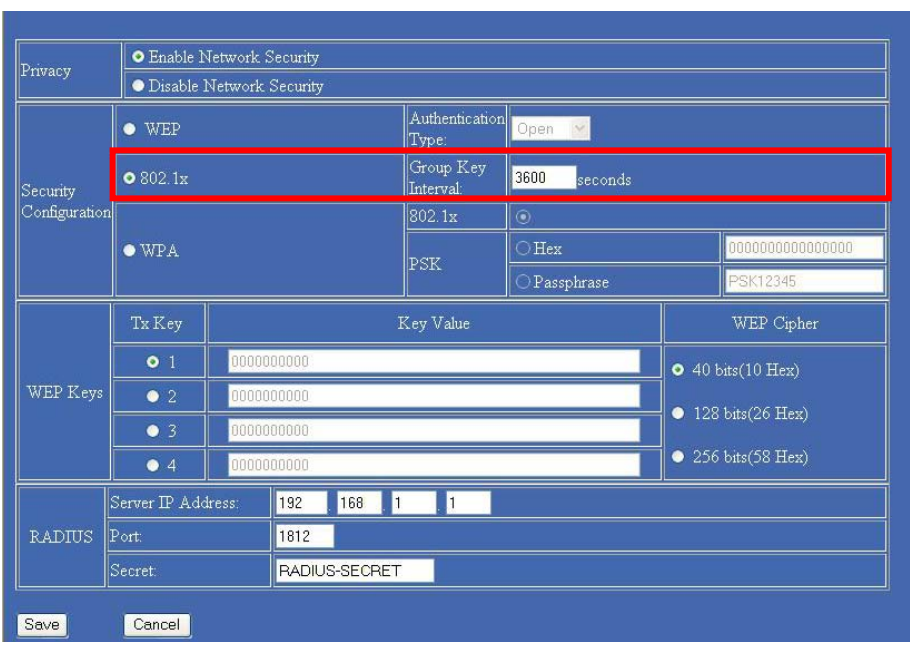

| **WEP** | |
|---|---|
| **Privacy** | Click ⦿**Enable Network Security** or ⦿**Disable Network Security** to enable/disable **Privacy**. If you select to disable privacy function, there will be no need to change the rest of the settings. |
| **Authentication Type** | **Open:** If the type is selected**,** the associated station should set the same Authentication type as AP.<br><br>**Shared:** If the type is selected, there must be a key to be shared between the AP and the associated station.<br><br>**Both:** **Open** or **Shared** will be selected automatically depending on the settings of the AP's clients. |
| **WEP Keys** | |

| | |
|---|---|
| **Tx Key** | You can select one of the Keys for Security. |
| **Key Value** | Please set the Key Value according to the WEP Cipher you select.<br><br>If 40bits is selected, 10 Hex characters are needed.<br><br>If 128bits is selected, 26 Hex characters are needed.<br><br>If 256bits is selected, 58 Hex characters are needed. |
| **WEP Cipher** | You can choose one from ⊙**40bits**⊙**128bits**⊙**256bits**. 256bits is the highest WEP level among the three. |

**RADIUS**

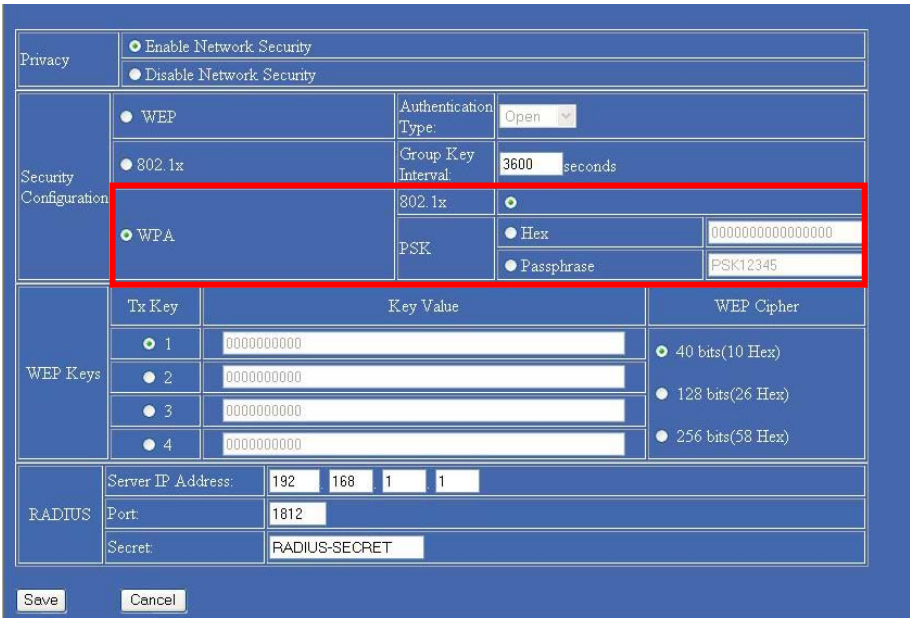
Not Required.

| | |
|---|---|
| **Save** | After completing the settings, Click **Save** to save the settings. |
| **Cancel** | Click **Cancel** to discard the data you have entered since last time you press **Save**. |



| | |
|---|---|
| **802.1x** | |
| **Group Key Interval** | Please enter the value to decide how long it should change the Group Keys. The default is **3600** seconds**.** |
| **WEP Keys**<br><br>Not Required. | |
| **RADIUS** | |
| **Server IP Address** | Enter the RADIUS Server's IP Address provided by your ISP. |
| **Port** | Enter the RADIUS Server's port number provided by your ISP. The default is **1812**. |
| **Secret** | Enter the secret phrase that the AP shares with the RADIUS Server. |

| | |
|---|---|
| **Save** | After completing the settings, Click **Save** to save the settings. |
| **Cancel** | Click **Cancel** to discard the data you have entered since last time you press **Save**. |



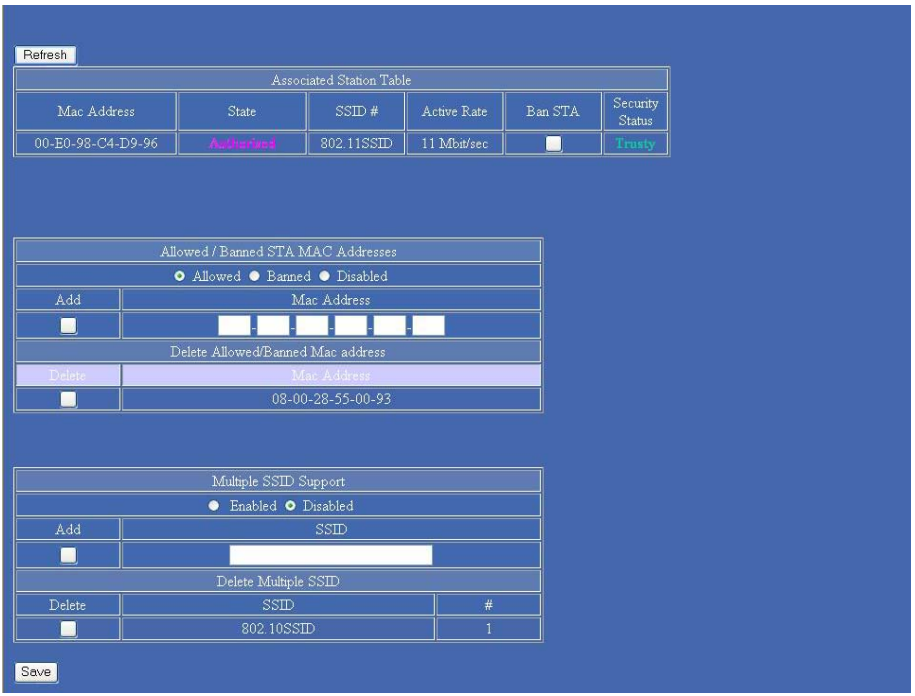

| **WPA** | |
|---|---|
| **802.1x** | WPA stations authenticate with RADIUS Server over 802.1x.<br><br>Enter a period of time in **Group Key Interval** field to decide how long to change group keys. |
| **PSK Hex** | WPA stations share the pre-shared key (PSK) with AP, you have to enter 64 characters for the key. Enter a period of time in **Group Key Interval** field to decide the interval to change group keys. |
| **PSK Passphrase** | WPA stations share the pre-shared key (PSK) with AP, 8-63 characters are needed for the key. Enter a period of time in **Group Key Interval** field to decide how long to change group keys. |
| **WEP Keys**<br><br>Not Required. | |
| **RADIUS** | |
| **Server IP Address** | Enter the RADIUS Server's IP Address provided by your ISP. |

| | |
|---|---|
| **Port** | Enter the RADIUS Server's port number provided by your ISP. The default is **1812**. |
| **Secret** | Enter the secret phrase shared between the AP and the RADIUS Server. |

| | |
|---|---|
| **Save** | After completing the settings, Click **Save** to save the settings. |
| **Cancel** | Click **Cancel** to discard the data you have entered since last time you press **Save**. |

# Manage

The management page displays information about stations that are currently associated with the AP.




| | |
|---|---|
| **Refresh** | Click **Refresh** to update the Associated Station Table. |

| **Associated Station Table** | |
|---|---|
| **Mac Address** | The Mac address of the station associated with the AP. |
| **State** | Current state between the associated station and the AP. |
| **SSID** | The SSID for the associated station. |
| **Active Rate** | Current data transmitting/receiving rate. |
| **Ban STA (wireless** | Press the button to remove the Mac Address from the table if |

| | |
|---|---|
| **station)** | **Banned** is selected in **Allowed/Banned STA MAC Address.**<br><br>Press the button to add the Mac Address to the table if **Allowed** is selected in **Allowed/Banned STA MAC Address.**<br><br>If **Allowed/Banned STA MAC Address** is disabled, there will be no effect when pressing the button. |
| **Security Status** | The station's security Status. |

## Allowed/Banned STA MAC Address

| | |
|---|---|
| ⊙**Allowed** ⊙**Banned** ⊙**Disable** | ⊙**Allowed:** only the stations shown in the table can associate with the AP.<br>⊙**Banned:** stations shown in the table won't be able to associate with the AP.<br>⊙**Disable:** The function is disabled. |
| **Add/Mac Address** | Enter a Mac address in the **Mac Address** field and click **Add** to add the address. Click **Save** on the bottom left corner so that the change can take effect. |
| **Delete Allowed/Banned Mac Address** | Click **Delete** to remove the address from the **Mac Address** field. |

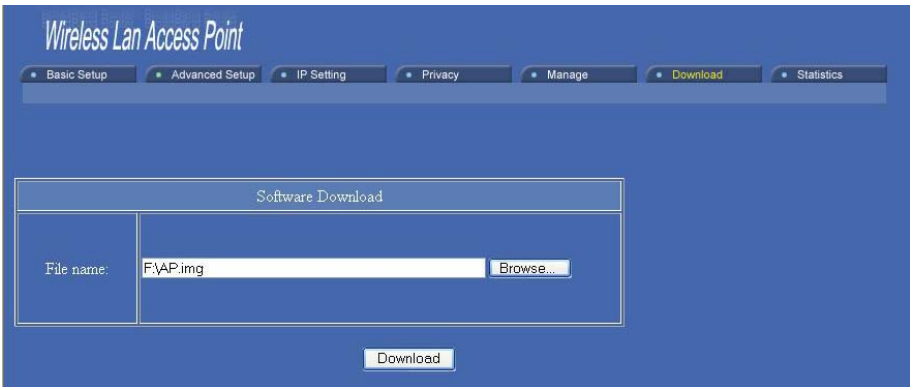
## Multiple SSID Support

- When the table is enabled, you cannot change privacy settings.
- SSID strings can be added or removed at any time.

| | |
|---|---|
| ⊙**Enabled** ⊙**Disabled** | Click to enable or disable Multiple SSID Support. |
| **Add SSID** | Click **Add** to add the SSID entered in **SSID** field. The SSID can be up to 32 characters. You have to click **Save** to make it work. |
| **Delete SSID** | Click **Delete** to remove added SSID(s) in the table. |

# Download

You can download the latest firmware (from your distributor) and upgrade the Wireless Point.




| | |
|---|---|
| **Browse…** | Enter the new firmware's path and file name (i.e. C:\FIRMWARE\AP.img). Or, click the **Browse…** button, find and open the firmware file. |
| **Download** | Click **Download** to start downloading the file. |

# Statistics

The Statistics table shows the packets sent/received over the wireless and ethernet LAN connection respectively.

Click **Refresh** to update the data.


| | | | |
|---|---|---|---|
| LAN | Send | Unicasts frames | 0 |
| | | Multicasts frames | 0 |
| | Receive | Unicasts frames | 0 |
| | | Multicasts frames | 30 |
| Wireless | Send | MPDUs | 28 |
| | | MSDUs | 30 |
| | | Multicast MSDUs | 30 |
| | | Failed MSDUs | 1 |
| | | Retry MSDUs | 0 |
| | Receive | MPDUs | 0 |
| | | MSDUs | 184 |
| | | Multicast MSDUs | 0 |
| | | FCS Error MPDUs | 6 |
| | | Mic Failure MSDUs | 0 |
| | | Decrypt Error MPDUs | 0 |