

IEEE 802.11n Wireless Series

Wireless Access Point



User Manual

August 30, 2010, Version 2.1

FCC Certifications



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.

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

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

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

CE Mark Warning



This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class B for ITE, the essential protection requirement of Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility and R&TTE Directive 1999/5/EC to meet the regulation of the radio equipment and telecommunications terminal equipment.

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Unpacking Information

Thank you for purchasing the product. At the beginning, please check all the contents in the package.

The product package should include the following items:

1. One Wireless Access Point with one antenna
2. One Power Adapter
3. One resource CD, including:
 - ✧ User Manual
 - ✧ QIG

Note:

Make sure that the package contains the above items. If any of the listed items are damaged or missing in the package, please contact with your distributor.

Conventions

The AP mentioned in this guide stands for IEEE 802.11n Wireless Access Point without any explanation.

Chapter 1 Introduction to Wireless Access Point

1.1 General Description

Being compliant to IEEE 802.11n specification, this wireless access point supports data rate up to 150 Mbps and hence helps to construct your high-speed home or office wireless network. It provides a better wireless signal for network than existing wireless 802.11g technology. Also this device complies with IEEE 802.11b/g wireless standards.

This access point equips two LAN ports, and one embedding antenna. As for security, it also supports the latest wireless security features to help prevent unauthorized access from a wireless network or the Internet. Moreover, this AP supports WPA and WPA2 standards and makes you be able to use the best possible encryption, regardless of your client devices.

Additionally, this device supports WEB-based graphics user interface that helps our users to configure this device easily.

1.2 Key Features

- Complies with IEEE 802.11n and IEEE802.11b/g wireless standards
- Provides two 10/100Mbps Ethernet ports & one 802.11n/b/g wireless external antenna (2.0dBi)
- Provides the maximum data rate of 54 Mbps for IEEE 802.11g and 150 Mbps for 802.11n
- Supports 2.4 GHz frequency band
- Supports wireless data encryption with WPA, WPA2, Open/ shared key, and pair-wise key authentication services
- Supports Country Channel, Broadcast SSID, and 20/40MHz Channel Width
- Provides Wireless Access Control List (ACL) rule based on MAC addresses
- Supports DHCP Server , MAC Clone, and Spanning Tree
- Supports authentication for wireless connectivity based on ESSID
- Supports MDI/MDIX auto crossover function
- Supports firmware upgrade function via Web
- Provides 5 LEDs (Green) for the ports represent: Status(1pcs)/LAN(2pcs) /WLAN(1pcs) /WPS(1pcs)

1.3 The Front Panel

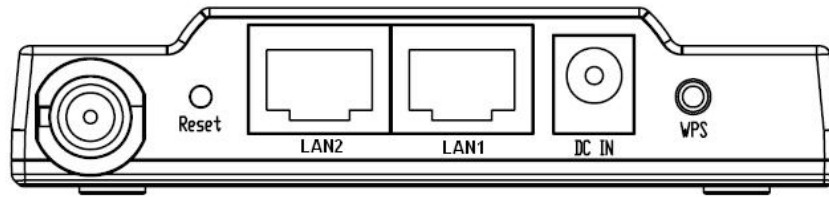
Please refer to the following description for the front panel:



Name	Status	Indication
Status	Green	Power On
	Dark	Power Off
	System Resetting default	Blink Green a few times
WPS	Blink Green One time	System reboot
	Blink Green	WPS Connecting
	Dark	System Stability
WLAN	Off	The wireless function is disabled
	Flashing	The wireless function is enabled
	Flashing fast	Sending or receiving data over wireless
LAN(1~2)	Off	There is no device linked to the corresponding port or the connection is dropping off
	On	There are devices linked to the corresponding ports but no data transmitted or received
	Flashing	Sending or receiving data over corresponding port

1.4 The Rear Panel

The rear panel of the Wireless 11n Access Point:



- **LAN(1~2):** Through these ports, you can connect the AP to your PCs and the other Ethernet network devices.
- **DC IN:** Plug the circle end of the power adapter firmly into the rear panel of the Wireless AP, and the other end put into an electric service outlet then the system is ready.

- **Reset Button**

Push the button for more than 5 seconds and then release it, the system will return to factory default setting. In the meantime, system rewrites flash to default value and SYS LED flash for a while. Approximately 60 seconds later, the SYS LED turn dark, now the whole system parameters have returned to factory default value. If the process has been interrupted by any reason(power off), the system will fail. Before performing the process, ensure a safe operating environment please!

- **Antenna:** Used for enhancing the wireless signal, and expanding the range of signal.
- **WPS:** Help users to connect this AP quickly and security. It uses PIN configuration method or PBC configuration method, in which users can easy setup WPS connection. Please refer to [WPS settings](#) for more information.

Warning : Incomplete factory setting recovery procedure will cause the Wireless AP malfunction ! If you are unfortunately in this situation, do not try to repair it by yourself. Consult your local distributor for help!

1.5 Placement (Optional)

There are two ways to place the AP. The first way is to place the AP vertically on a surface. The second way is to attach it to the wall. If you select a wall-mount option, please follow the steps below:

1. Select a location with access for cables and a power outlet.
2. Unplug the unit. Place it upside down on a flat surface and mark the two holes for anchors.
3. Installing the wall mount anchor (not supplied) into the wall with tools such as drill or hammer.
4. Insert the screws (not supplied) in each hole of the stand parts.
5. Attaches the unit to the anchors on the wall.

Chapter 2 Installation and Basic Configuration

This chapter provides a step-by-step guide to the installation and configuration of the Wireless AP. We suggest you go over the whole chapter and then do more advanced operation.

2.1 Connecting This AP to Your Network

This Chapter provides a step-by-step guide to the installation and configuration of this wireless access point.

- Connect the power adapter with the connector end to the power connector in the rear panel of the device and the plug end to an appropriate outlet.
- Connect the LAN port with RJ-45 cable to:
 1. A broad band router to allow wireless clients to connect to WAN.
 2. A switch to allow wireless clients to communicate with wired LAN.
 3. A computer directly to use the computer configuring this AP.

Note: You have to configure the network settings of this AP to be communicable with your router, switch or computer first. To change the default network settings of the AP, please refer to “**LAN Interface setup**”.



2.2 Configuring the IP Address of Your Computer

In order to communicate with this Wireless AP, you have to configure the IP addresses of your computer to make it compatible with the device.

1. The default network setting of the device:

IP address: 192.168.100.1

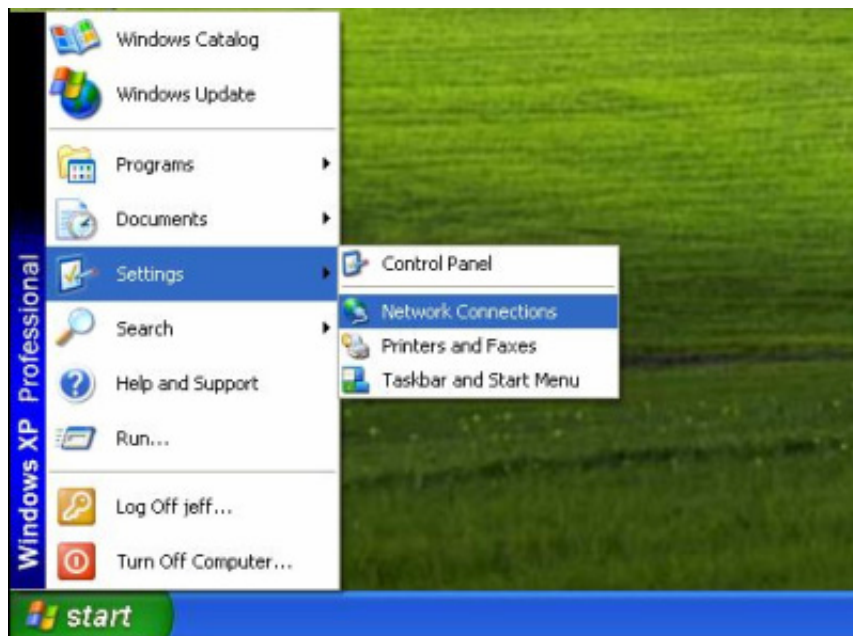
Subnet Mask: 255.255.255.0

DHCP Server: Enable

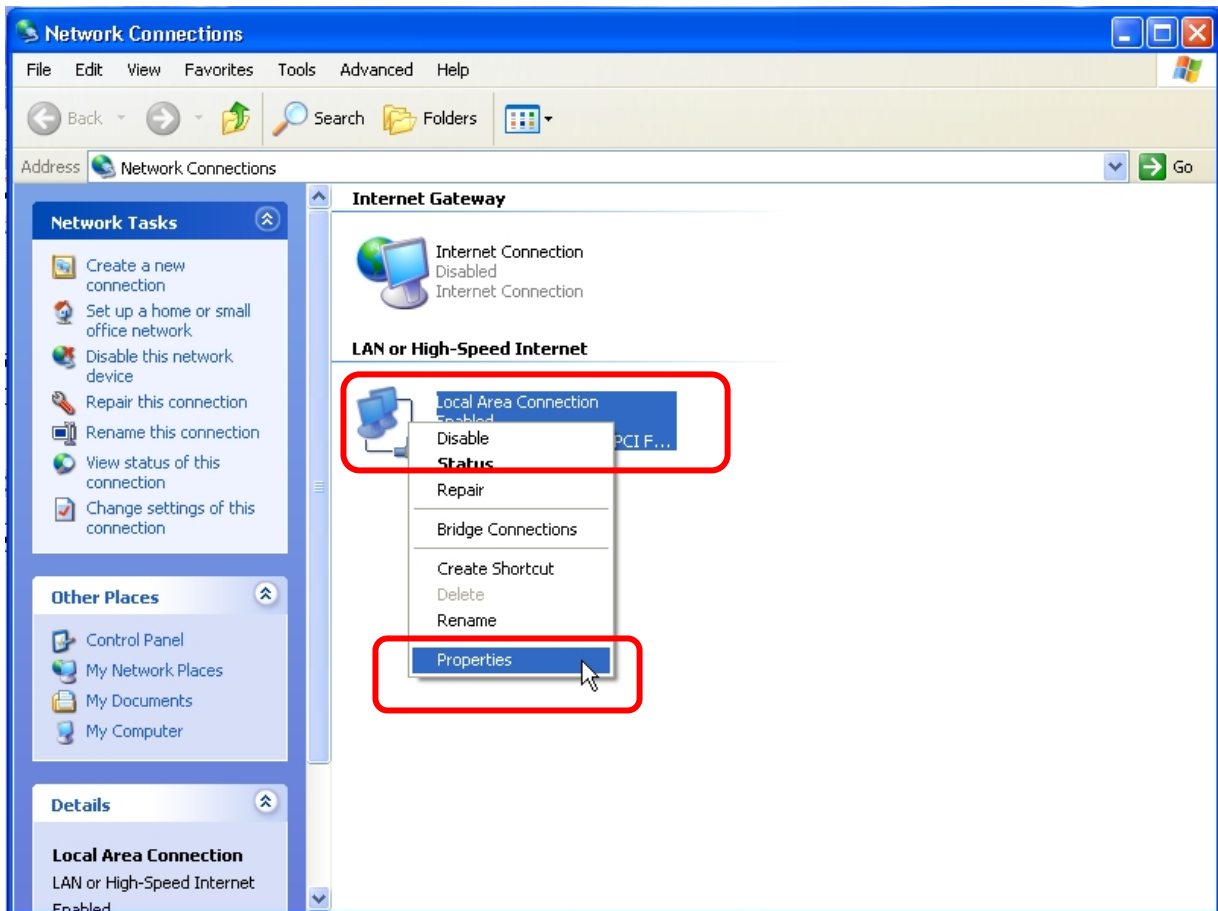
2. In the following TCP/IP configuration guide, the IP address “192.168.100.2” is assumed to be your IP address if you want to specify IP addresses manually. Please **DO NOT** choose “192.168.100.1” as the IP address. For the IP address “192.168.100.1” has been set as the default IP for this device.
3. The following TCP/IP configuration guide uses windows XP as the presumed operation system.

Procedures to configure IP addresses for your computer

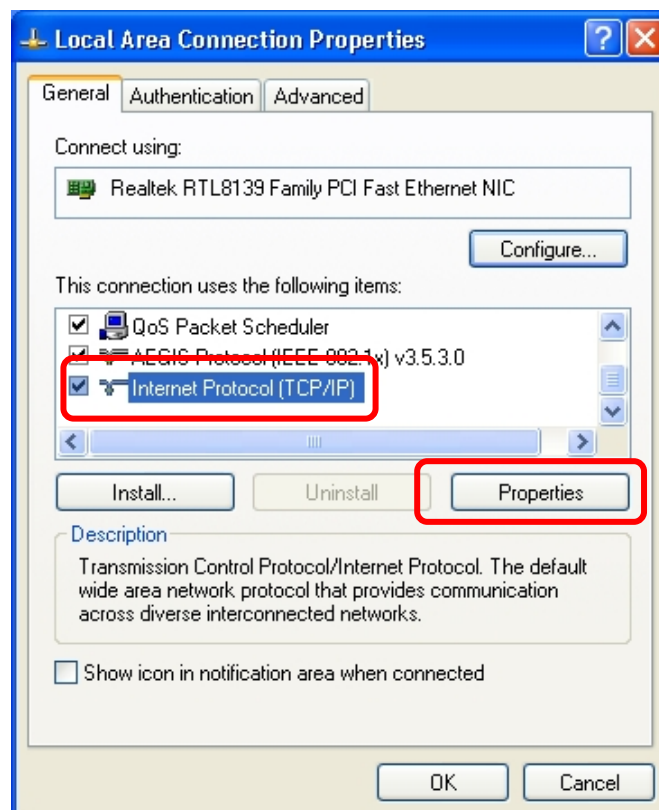
1. If you are in Classic Start menu view, click **Start > Settings > Network Connections**.
If you are in Start menu view, click **Start > Control Panel > Network Connections**.



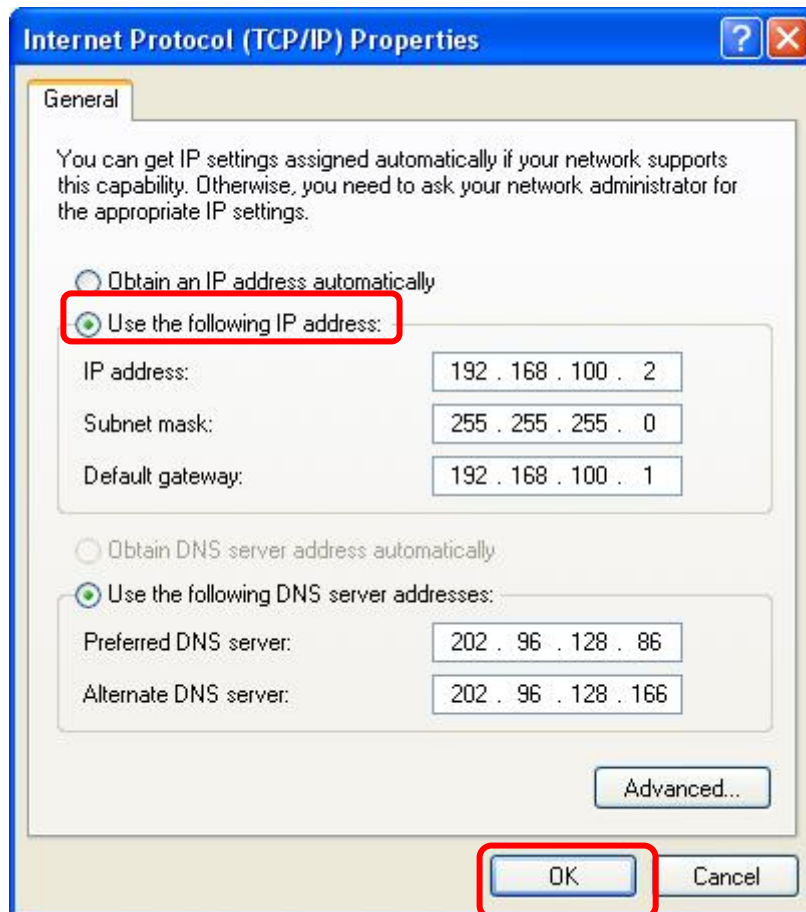
2. Right-click on **Local Area Connection** item and click on **Properties**.



3. Choose **Internet Protocol (TCP/IP)** and click **Properties**.



4. You can't choose "Obtain an IP address automatically" to get IP address automatically in this configuration. Choose "Use the following IP address" to specify IP addresses manually. Please click the **OK** button after your configuration.



Chapter 3 Web-Based Management

3.1 Starting the WEB-Based Management Interface

The device uses WEB as the management interface. You can use a browser to access the management interface easily. Please follow the steps listed below.

1. Open the Internet WEB browser.
2. Type **192.168.100.1** into the URL WEB address location and press Enter.
3. The Login window appears.
 - Enter **admin** in the User Name location (default value).
 - Enter **admin** in the Password location (default value).
 - Click **OK** button.



3.2 The Graphic User Interface

After the password authorization, the information page shows up as the home page of the Graphic User interface. You may click on each folder on left column of each page to get access to each configuration page. Please note that you should click the Save Settings button to apply your configuration to this device. You can also restore the default settings by clicking the Reset Settings button. The Graphic User Interface is as follows:

802.11n Wireless Access Point

Site contents:

- Setup Wizard
- Status
- Wireless**
 - Basic Settings
 - Advanced Settings
 - Security
 - Access Control
 - WDS settings
 - Mesh settings
 - Site Survey
 - WPS
 - Schedule
- TCP/IP Settings
- Log
- Statistics
- Upgrade Firmware
- Save/Reload Settings
- Password
- System Time
- Logout

Access Point Status

This page shows the current status and some basic settings of the device.

System	
Uptime	0day:0h:19m:49s
Firmware Version	v1.1
Build Time	Sat Jun 5 15:23:23 CST 2010
Wireless Configuration	
Mode	AP
Band	2.4 GHz (B+G+N)
SSID	Wireless-11n-AP
Channel Number	11
Encryption	Disabled
BSSID	00:e0:4c:81:96:b1
Associated Clients	0
TCP/IP Configuration	
Attain IP Protocol	Fixed IP
IP Address	192.168.100.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.100.1
MAC Address	00:e0:4c:81:96:b1

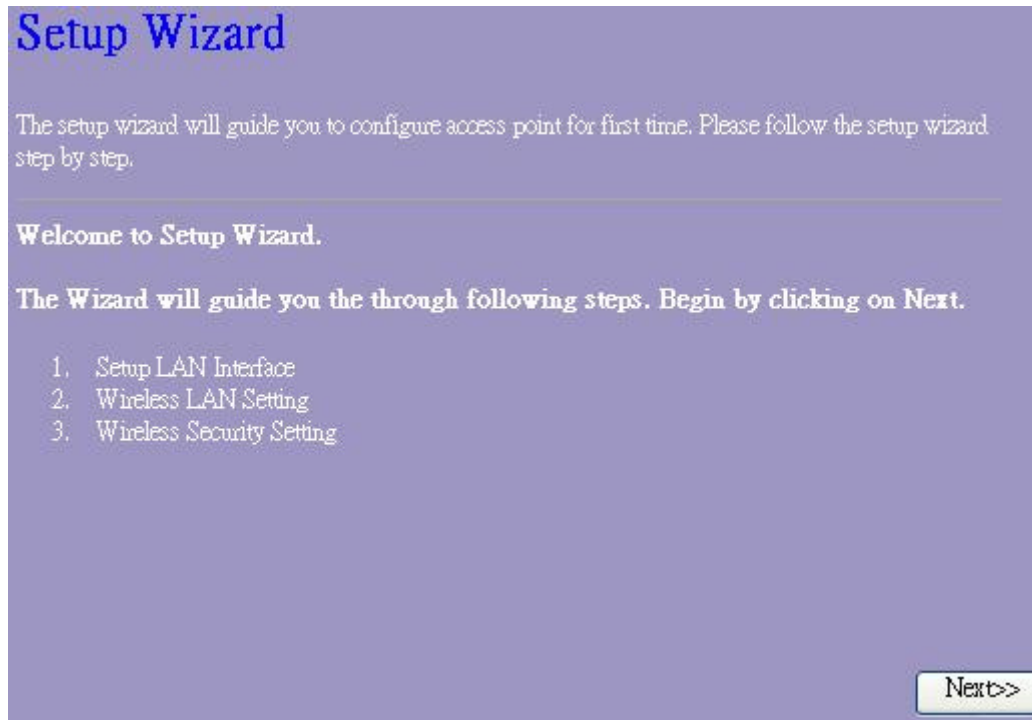
Items	Information
Uptime	The period that you turn the device on.
Firmware version	The current firmware version of the device.
Build Time	The build time of the device originally.
Mode	Shows if the device is operating in AP or WDS mode.
Band	The band that the wireless AP operating.
SSID	The name of this wireless network.
Channel Number	The channel that the wireless network using.
Encryption	The security encryption type that the wireless network using.
BSSID	The Basic Service Set Identity of this AP(This parameter is the same as the MAC address of LAN port)
Associated Clients	The number of members who is currently connected with this AP.
Attain IP Protocol	The way for this AP to get a IP address.
IP Address	The current IP address of this AP.
Subnet Mask	The current subnet mask of this AP.
Default Gateway	The current default gateway of this AP.
MAC Address	The current MAC address of this AP.

3.3 Setup Wizard

If you are using the AP for the first time, please follow the procedures of the setup wizard to do a step-by-step configuration.

Note: The following instruction does an overall introduction to the Setup Wizard. For detail information of each item, please refer to instruction of each page.

1. To start the Setup Wizard, click the “Next” button to proceed.



The Setup Wizard screen has a purple background. At the top, the title "Setup Wizard" is in large blue font. Below it, a paragraph explains the wizard's purpose. A horizontal line separates the introduction from the welcome message. The welcome message is in bold. Below that, another paragraph states the wizard's goal. A list of three steps follows. At the bottom right is a "Next>>" button.

Setup Wizard

The setup wizard will guide you to configure access point for first time. Please follow the setup wizard step by step.

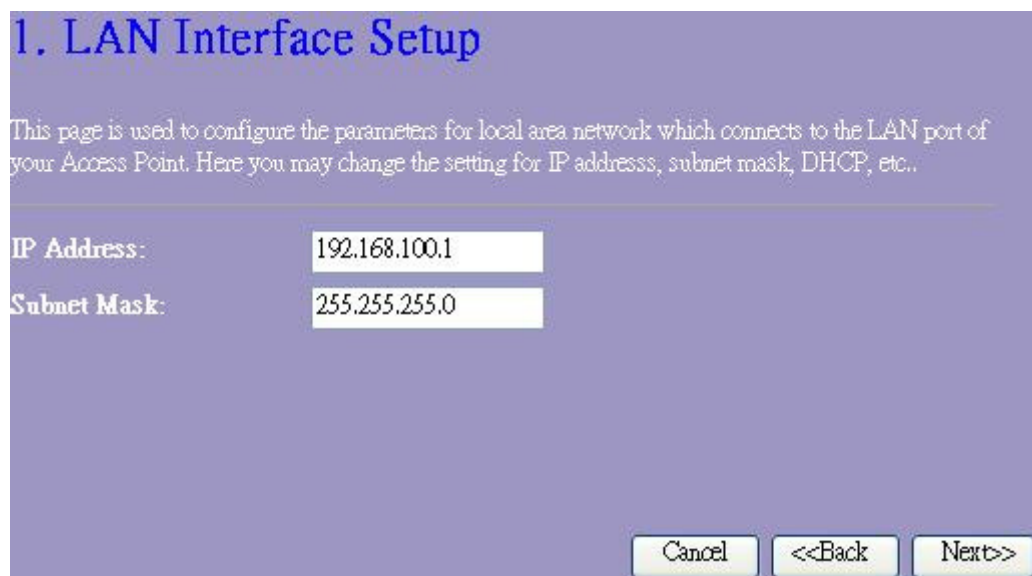
Welcome to Setup Wizard.

The Wizard will guide you the through following steps. Begin by clicking on Next.

1. Setup LAN Interface
2. Wireless LAN Setting
3. Wireless Security Setting

Next>>

2. Specify an IP address and subnet mask for connecting to the AP in LAN.



The "1. LAN Interface Setup" screen has a purple background. The title is in large blue font. A paragraph explains the purpose of the page. Below is a form with two rows: "IP Address:" and "Subnet Mask:", each followed by a text input field. At the bottom right are three buttons: "Cancel", "<<Back", and "Next>>".

1. LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP addresss, subnet mask, DHCP, etc..

IP Address:

Subnet Mask:

Cancel <<Back Next>>

3. Select the wireless parameters that are used for associating with this AP and click "Next".

2. Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point.

Band: 2.4 GHz (B+G+N) ▼

Mode: AP ▼

Network Type: Infrastructure ▼

SSID: Wireless-11n-AP

Channel Width: 40MHz ▼

ControlSideband: Upper ▼

Channel Number: 11 ▼

Country: USA(FCC) ▼

☐ Enable Mac Clone (Single Ethernet Client)

Cancel <<Back Next>>

Items	Information
Band	2.4GHz(B),2.4GHz(G),2.4GHz(N),2.4GHz(B+G),2.4GHz(G+N), 2.4GHz(B+G+N)
Mode	AP, Client, WDS, AP+WDS, AP+MESH, MESH
Network Type	Infrastructure, Ad-hoc
Channel Width	40MHz, 20MHz
Control Sideband	Upper, Lower
Channel Number	Auto,5,6,7,8,9,10,11
Country	This contains USA(FCC), Canada(IC), Europe(ETSI), Spain, France, Japan(MKK)

4. Click the drop list to select the encryption type for your wireless network. Fill in the parameters for the encryption type you select and click finish to complete configuration. Encryption type : None, WEP, WPA(TKIP), WPA2(AES), WPA2 Mixed

3. Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Encryption: None 

- None
- WEP
- WPA (TKIP)
- WPA2(AES)
- WPA2 Mixed

Cancel <<Back Finished

3.4 Wireless


3.4.1 Basic Settings


This page is used to configure the parameters for wireless LAN clients that may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters. You can set up the configuration of your Wireless basic settings and monitor the Wireless Clients associate with your AP.


Wireless Basic Settings

This page is used to configure the parameters for wireless LAN clients which may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.


☐ Disable Wireless LAN Interface


Band: 2.4 GHz (B+G+N) 


Mode: AP  Multiple AP


Network Type: Infrastructure 


SSID: Wireless-11n-AP


Channel Width: 40MHz 


Control Sideband: Upper 

Channel Number: 11 

Country: USA(FOC) 

Broadcast SSID: Enabled 

WMM: Enabled 

Data Rate: Auto 

Associated Clients: Show Active Clients


☐ Enable Mac Clone (Single Ethernet Client)

☐ Enable Universal Repeater Mode (Acting as AP and client simultaneously)

SSID of Extended Interface:

Apply Changes Reset

Wireless 11n Access Point


Items	Information
Disable Wireless LAN Interface	Mark the checkbox to disable interface of Wireless LAN.
Band	To select a band for this device to match 802.11b, 802.11g, 802.11n, 802.11b/g, 802.11g/n or 802.11b/g/n. optional parameters: 2.4GHz(B),2.4GHz(G),2.4GHz(N),2.4GHz(B+G),2.4GHz(G+N), 2.4GHz(B+G+N).
Mode	Configure this device as AP, Client, WDS or AP+WDS. If you set this device as AP or AP+WDS mode, the  button is available for you to set up three SSID for this wireless network. Click on this button to do more configurations.
Network Type	When you configure this device in Client mode, this drop-down list allows users to change the network type into infrastructure mode or ad-hoc mode. Ad-Hoc mode: connects two computers directly without the use of a router or AP. It is also know as a peer-to-peer network. Infrastructure Mode: the wireless network contains at least one wireless client and one wireless AP or router. This client connects to Internet or intranet by communicating with this wireless AP.
SSID	Service set identifier (SSID) for the name of the wireless network.
Channel Width	Select to use 20MHz or 40MHz as the wireless channel frequency.
Control Sideband	If you have selected the channel width of 40MHz for this AP, you can control this router to use the frequency for a deflection of "Upper" or "Lower."
Channel Number	Select a channel for the wireless network of this device. It contains: Auto, 5, 6, 7, 8, 9, 10, and 11.
Country	This contains USA(FCC), Canada(IC), Europe(ETSI), Spain, France, Japan(MKK)
Broadcast SSID	If you enable "Broadcast SSID", every wireless station located within the coverage of this wireless AP can discover this wireless AP easily. If you are building a public wireless network, enabling this feature is recommended. Disabling "Broadcast SSID" can provide better security.
WMM	This will enhance the data transfer performance of multimedia contents when they're being transferred over wireless network. WMM is not available in 11n mode.
Data Rate	The transmit limitation of data packets of this wireless AP. The wireless AP will use the highest possible selected transmission rate to transmit the data packets.
Associated Client	Click " Show Active Clients " button, then an "Active Wireless Client Table" pops up. You can see the status of all active wireless stations that are connecting to the access point.

Wireless 11n Access Point

Enable MAC clone	Mark the checkbox to clone the MAC address of the device. This function is only available when you set this AP as Client mode.
Enable Universal Repeater Mode	Mark this checkbox to enable Universal Repeater Mode which acts this device as an AP and client simultaneously.
SSID of Extended Interface	While you enable the Universal Repeater Mode, you have to specify an SSID for the extended interface.

* Please click on the **Apply Changes** button or the **Reset** button at the bottom to save/reset the configurations.

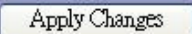

1. Multiple APs

This is the window that pops up after clicking the  button.

Multiple APs

This page shows and updates the wireless setting for multiple APs.

No.	Enable	Band	SSID	Data Rate	Broadcast SSID	WMM	Active Client List
AP1	<input type="checkbox"/>	2.4 GHz (B+G+N) ▾	Wireless-11n-A	Auto ▾	Enabled ▾	Enabled ▾	Show
AP2	<input type="checkbox"/>	2.4 GHz (B+G+N) ▾	Wireless-11n-A	Auto ▾	Enabled ▾	Enabled ▾	Show
AP3	<input type="checkbox"/>	2.4 GHz (B+G+N) ▾	Wireless-11n-A	Auto ▾	Enabled ▾	Enabled ▾	Show
AP4	<input type="checkbox"/>	2.4 GHz (B+G+N) ▾	Wireless-11n-A	Auto ▾	Enabled ▾	Enabled ▾	Show

Select one of the AP by marked the Enable checkbox, and then click the button “Show”, “Active Wireless Client Table” windows pops up.



Active Wireless Client Table - Windows Internet Explorer

http://192.168.100.1/wlstatbl_vap.asp?id=1

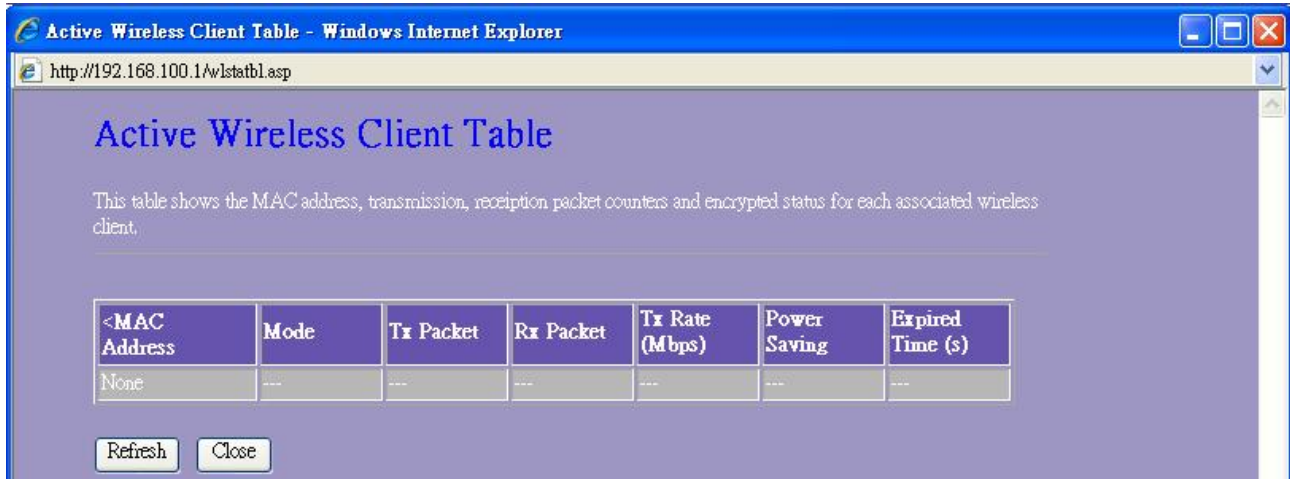
Active Wireless Client Table

This table shows the MAC address, transmission, reception packet counters and encrypted status for each associated wireless client.

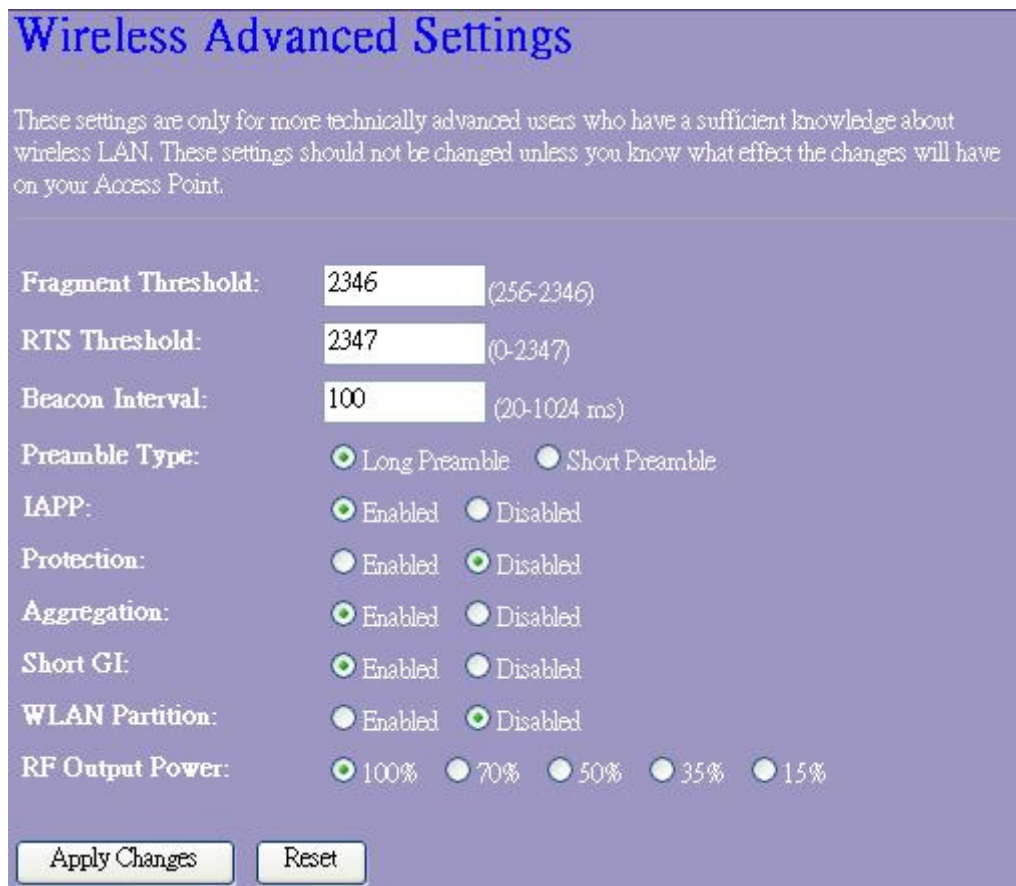
2. Active Wireless Client Table

This is the window that pops up after clicking the  button.



3.4.2 Advanced Settings

You can set advanced wireless LAN parameters of this AP. We recommend not changing these parameters unless you know what changes will be on this AP.



The form is titled "Wireless Advanced Settings" and includes a warning: "These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your Access Point." The settings are as follows:

- Fragment Threshold: 2346 (range 256-2346)
- RTS Threshold: 2347 (range 0-2347)
- Beacon Interval: 100 (range 20-1024 ms)
- Preamble Type: ☒ Long Preamble ☐ Short Preamble
- IAPP: ☒ Enabled ☐ Disabled
- Protection: ☐ Enabled ☒ Disabled
- Aggregation: ☒ Enabled ☐ Disabled
- Short GI: ☒ Enabled ☐ Disabled
- WLAN Partition: ☐ Enabled ☒ Disabled
- RF Output Power: ☒ 100% ☐ 70% ☐ 50% ☐ 35% ☐ 15%

At the bottom are "Apply Changes" and "Reset" buttons.

Items	Information
Fragment Threshold	This value should remain at its default setting of 2346. If you experience a high packet error rate, you may slightly increase your fragmentation threshold within the value range of 256 to 2346. Setting the fragmentation threshold too low may result in poor performance.
RTS Threshold	Request To Send threshold. This value should remain at its default setting of 2347. If you encounter inconsistent data flow, only minor modifications to the value range between 0 and 2347 are recommended.
Beacon Interval	Beacons are packets sent by an access point to synchronize a wireless network. Specify a beacon interval value. Default (100ms) is recommended.
Preamble Type	The length of CRC blocks in the frames during the wireless communication.
RF Output Power	Select the signal strength for the wireless network.

* Please click on the **Apply Changes** button or the **Reset** button at the bottom to save/reset the configurations.

3.4.3 Security

The security function protects your wireless network from invasion. When you connect it to your PC at the first time, the default configuration is disable. After you log in, you can modify it. We provide WEP and WPA encryption to secure your wireless network. Please select Disable, WEP, WPA, WPA2, and WPA-Mixed in the drop list. If you select none, any data will be transmitted without encryption and any station can access the AP.

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - Wireless-11n-AP Apply Changes Reset

Encryption:

Disable

802.1x Authentication:

☒

RADIUS Server IP Address:

RADIUS Server Port:

1812

RADIUS Server Password:

Wireless 11n Access Point

Items	Information
Select SSID	Please choose a SSID you have set for this AP in the Wireless > Basic Settings from the drop-down list. The SSID will be shown on the wireless network for recognizing.
Encryption	There are 5 modes for you to select: Disable, WEP, WPA, WPA2, and WPA-Mixed. Please refer to the following description.
802.1x Authentication	Users that do not use this function or connecting to an open-wireless network please skip this part. Please configure the settings in accordance with the Certificated Server.

1. Security Mode -- WEP

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - Wireless-11n-AP Apply Changes Reset

Encryption: WEP

802.1x Authentication: ☐

Authentication: ☐ Open System ☐ Shared Key ☒ Auto

Key Length: 64-bit

Key Format: Hex (10 characters)

Encryption Key: *****

Items	Information
Encryption	Select a security encryption mode for this AP.
Authentication	Here provide three options for selecting: Open System, Shared Key, Auto
Key Length	Select 64-bit or 128-bit as the key encryption length.
Key Format	Select ASCII ¹ or Hex ² to setup the key value.
Encryption Key	Enter the key according to the key format you select.

* Please click on the **Apply Changes** button or the **Reset** button to save/reset the configurations.

¹ ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127.

² Hexadecimal digits consist of the numbers 0-9 and the letters A-F.

2. Security Mode – WPA / WPA 2

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - Wireless-11n-AP Apply Changes Reset

Encryption: WPA

Authentication Mode: ☐ Enterprise (RADIUS) ☒ Personal (Pre-Shared Key)

WPA Cipher Suite: ☐ TKIP ☒ AES

Pre-Shared Key Format: Passphrase

Pre-Shared Key:

Items	Information
Encryption	Select a security encryption mode for this AP.
Authentication Mode	There are two items, "Enterprise (WPA-Radius)" and "Personal (Pre-Shared Key)". You can select the mode by clicking the item.
WPA Cipher Suite	Select the WPA Cipher Suite to be TKIP or AES.
Pre-Shared Key Format	To decide the format, select Pass phrase or Hex in the drop list.
Pre-Shared Key	Enter the Pre-shared Key according to the pre-shared key format you select. This is the shared secret between AP and STA. This field must be filled with character longer than 8 and less than 64 lengths.

3. Security Mode – WPA-Mixed

Wireless Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID: Root AP - Wireless-11n-AP Apply Changes Reset

Encryption: WPA-Mixed

Authentication Mode: ☐ Enterprise (RADIUS) ☒ Personal (Pre-Shared Key)

WPA Cipher Suite: ☐ TKIP ☒ AES

WPA2 Cipher Suite: ☐ TKIP ☒ AES

Pre-Shared Key Format: Passphrase

Pre-Shared Key:

Items	Information
Encryption	Select a security encryption mode for this AP.
Authentication Mode	There are two items, “Enterprise (WPA-Radius)” and “Personal (Pre-Shared Key)”. You can select the mode by clicking the item.
WPA / WPA2 Cipher Suite	Select the WPA/WPA2 Cipher Suite to be TKIP or AES.
Pre-Shared Key Format	To decide the format, select Passphrase or Hex in the drop list.
Pre-Shared Key	Enter the Pre-shared Key according to the pre-shared key format you select. This field must be filled with character longer than 8 and less than 64 lengths.
Show Password	Select it or not to configure whether to show the password.

* Please click on the **Apply Changes** button or the **Reset** button to save/reset the configurations.

3.4.4 Access Control

To restrict the clients of Access authentication of Stations, set up the control list in this page.

Wireless Access Control

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.

Wireless Access Control Mode: Disable

MAC Address: Comment:

Current Access Control List:

MAC Address	Comment	Select
<input type="button" value="Delete Selected"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/>		

Items	Information
Wireless Access Control Mode	Click on the drop list to choose the access control mode. You may select "Allow listed" to allow those allowed MAC addresses or select "Deny Listed" to ban those MAC addresses from accessing to this device or select "Disable".
MAC Address & Comment	Fill in the MAC address that you wish to control, and give a definition to it.
Current Access Control list	Lists the MAC Access Control Settings you have added before. Click on the list to change configuration. To Delete the station on the list, mark the check box in the select item and click the "Delete Selected". If you want to delete all stations on the list, click "Delete All" to remove all of them.

* Please click on the **Apply Changes** button or the **Reset** button to save/reset the configurations.

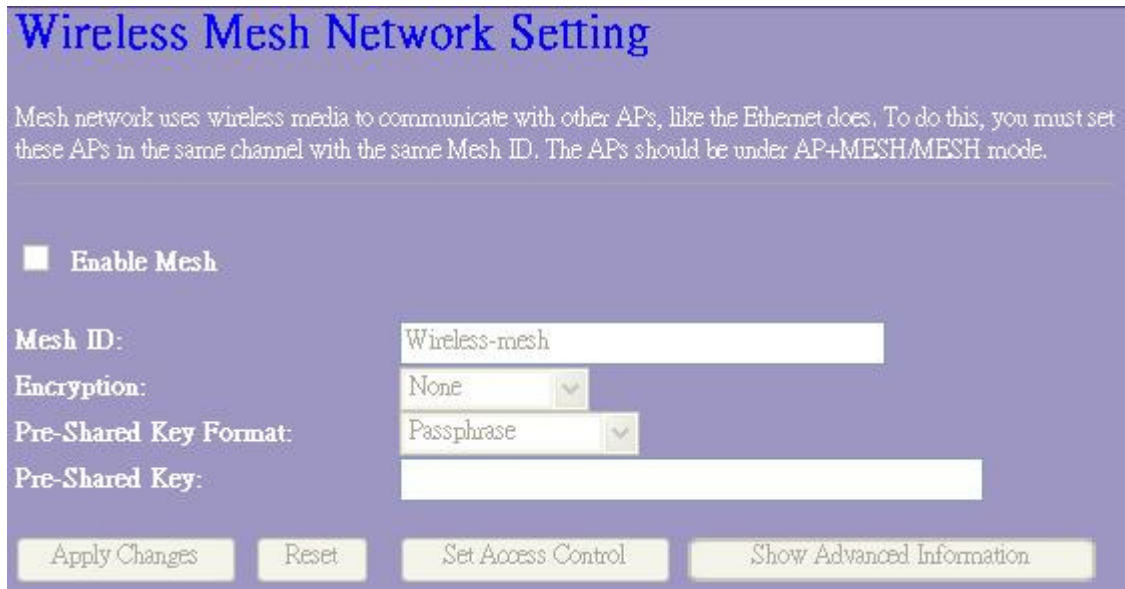
3.4.5 WDS Settings

When you use this device as WDS or AP+WDS mode, “WDS Setting” function can be operated. Wireless Distribution System allows the AP to communicate with other APs wirelessly. To make it work, you must ensure that these APs are in the same channel. Please add these APs MAC address and comment values into the WDS list. Don't Forget to Enable the WDS by click the check box of “Enable WDS” and press “Apply Changes” button to save. To Delete the AP on the list, Click the check box in the select item and click the “Delete Selected”. If you want to delete all APs on the list, click “Delete All” to remove all of them.

Items	Information
Enable WDS	Click this checkbox to use WDS.
MAC Address & Comment	Fill in the MAC address that you wish to control, and give a definition to it.
Data Rate	The transmit limitation of data packets of this wireless AP. The wireless AP will use the highest possible selected transmission rate to transmit the data packets.
Current WDS AP List	Lists the WDS Settings you have added before. Click on the list to change configuration. To Delete the station on the list, mark the check box in the select item and click the “Delete Selected”. If you want to delete all stations on the list, click “Delete All” to remove all of them.

3.4.6 Mesh Settings

A Wireless Mesh Network (WMN) is a communications network made up of radio nodes organized in a mesh topology. Mesh networking allows for continuous connections and reconfiguration around broken or blocked paths by “hopping” from node to node until the destination is reached.



Wireless Mesh Network Setting

Mesh network uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel with the same Mesh ID. The APs should be under AP+MESH/MESH mode.

☐ **Enable Mesh**

Mesh ID:

Encryption:

Pre-Shared Key Format:

Pre-Shared Key:

Items	Information
Enable Mesh	Click this checkbox to enable mesh.
Mesh ID	A character string ranging from 1 to 32 that will be used in the mesh node beacons.
Encryption	Select a security encryption mode for this AP.
Pre-Shared Key Format	To decide the format, select Passphrase or Hex in the drop list.
Pre-Shared Key	Enter the Pre-shared Key according to the pre-shared key format you select. This is the shared secret between AP and STA. This field must be filled with character longer than 8 and less than 64 lengths.

3.4.7 Site Survey

This page shows available wireless network information. When you use this device as a client station (STA), you may connect to other AP or Router. Select one of the lists in the site survey

table and click on to connect to other wireless network nearby. The button can be used to scan nearby Router and AP again.

Wireless Site Survey

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

SSID	BSSID	Channel	Type	Encrypt	Signal	Select
WLAN-11g-GW	00:e0:7d:c0:c7:d1	1 (B+G)	AP	WPA2-PSK	48	<input checked="" type="radio"/>
successful_gw	00:11:22:44:33:55	11 (B+G)	AP	no	44	<input type="radio"/>
DQA-Test-11N-1T1R	00:08:54:9a:79:1f	6 (B+G+N)	AP	WEP	22	<input type="radio"/>
TW-4F	00:08:54:9a:79:23	1 (B+G+N)	AP	WEP	6	<input type="radio"/>

Refresh

Connect

3.4.8 WPS Settings

The primary goal of Wi-Fi Protected Setup (Wi-Fi Simple Configuration) is to simplify the security setup and management of Wi-Fi networks. This AP supports the configuration setup using PIN configuration method or PBC configuration method through an internal or external Registrar.

Wi-Fi Protected Setup

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could let your wireless client automatically synchronize its setting and connect to the Access Point in a minute without any hassle.

☐ Disable WPS

WPS Status:

☐ Configured ☒ UnConfigured

Reset to UnConfigured

Self-PIN Number:

76986994

Push Button Configuration:


Start PBC

Apply Changes

Reset

Client PIN Number:

Start PIN

Items	Information
Disable WPS	Click this checkbox to undo WPS.
WPS Status	You cannot manually select the items here. The WPS Status will change from "UnConfigured" to "Configured" after you enable WPS function and setup a wireless security key for this device.
Self-PIN Number	If you use this device as a client, you can use this code when trying to connect this device to other AP by using the PIN method.
Push Button Configuration	Push Button Communication (PBC) method use a simple action of pushing a button on both the AP and the new STA to reach the function of easy setup WPS connection. You can simply click the  button in this GUI page. After click on the button, please run the client's WPS and push the PBC button within 2 minutes.

* Please click on the **Apply Changes** button or the **Reset** button to save/reset the configurations.

3.4.9 Schedule

You can configure the schedule via this page. Click "Enable Wireless Schedule", then configure days or time which you want. Wireless will start or stop at your scheduled time. Please do not forget to configure system time before enabling this feature.

Wireless Schedule

This page allows you setup the wireless schedule rule. Please do not forget to configure system time before enable this feature.

☐ **Enable Wireless Schedule**

Days :

☐ Everyday
 ☐ Sun
 ☐ Mon
 ☐ Tue
 ☐ Wed
 ☐ Thu
 ☐ Fri
 ☐ Sat

Time :

☐ 24 Hours
 ☒ From
 : To
 :

3.5 TCP/IP Setting

To set up the configuration of LAN interface, private IP of your AP LAN port and subnet mask for your LAN segment.

LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Access Point. Here you may change the setting for IP address, subnet mask, DHCP, etc..

IP Address: 192.168.100.1

Subnet Mask: 255.255.255.0

Default Gateway: 0.0.0.0

DHCP: Server

DHCP Client Range: 192.168.100.100 - 192.168.100.200 [Show Client](#)

Static DHCP: Disabled [Set Static DHCP](#)

DNS Server:

Domain Name:

802.1d Spanning Tree: Disabled

Clone MAC Address: 000000000000


[Apply Changes](#) [Reset](#)

Items	Information
IP Address	The IP of your AP LAN port (default 192.168.100.1).
Subnet Mask	Subnet Mask of you LAN (default 255.255.255.0). All devices on the network must have the same subnet mask to communicate on the network.
Default Gateway	Enter the IP Address of the AP in your network.
DHCP	DHCP stands for Dynamic Host Configuration Protocol. It is a protocol for assigning dynamic IP addresses “automatically.” You can select to use this AP as a DHCP client or DHCP server. To give your LAN client an IP, you have to enable “DHCP Server”. If not, manual setting up your client IP is necessary when you want to use the AP as your client’s default gateway.
DHCP Client Range	Specify the DHCP Client IP address range (default start from 150 and end to 200). You can also click the “Show Client” button to list those connected DHCP clients.

Static DHCP	This function is only available when you use this AP as a DHCP server. This AP may automatically assign the static DHCP address to the specific clients.
DNS Server	The server of the Domain Name System.
Domain Name	(Optional) The name of your local domain.
802.1d Spanning Tree	To prevent from network loops and preserve the quality of bridged network.
Clone MAC Address	This feature does not change the actual MAC address on the AP, but instead changes the MAC address reported by Wireless AP to client requests. To Change the MAC address, enter it in the text box.

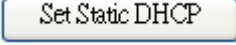
* Please click on the **Apply Changes** button or the **Reset** button to save/reset the configurations.

1. Active DHCP Client List

This is the window that pops up after clicking the  button. It shows the information of IP/MAC address and expire time of the DHCP clients that have connected with this device.



2. Static DHCP Setup

This is the window that pops up after clicking the  button. Click on the list to change configuration. To delete the station on the list, mark the check box in the select item and click the "Delete Selected". If you want to delete all stations on the list, click "Delete All" to remove all of them.

The screenshot shows a web browser window titled "Static DHCP Setup - Windows Internet Explorer". The address bar shows "http://192.168.100.1/tcpip_staticdhcp.asp". The page has a purple background and contains the following elements:

- Static DHCP Setup** (Section Header)
- This page allows you reserve IP addresses, and assign the same IP address to the network device with the specified MAC address any time it requests an IP address. This is almost the same as when a device has a static IP address except that the device must still request an IP address from the DHCP server.
- Form Fields:**
 - IP Address:
 - MAC Address:
 - Comment:
- Buttons:** "Apply Changes" and "Reset"
- Static DHCP List:**

IP Address	MAC Address	Comment	Select
------------	-------------	---------	--------
- Buttons:** "Delete Selected", "Delete All", and "Reset"

The browser's status bar at the bottom shows "Done", "Internet", and "100%".

3.6 Log

This System Log page shows the information of the current activities on the AP. To enable system log function:

1. Mark the "Enable Log" checkbox.
2. To see all information of the system, select the "system all" checkbox.
To see wireless information only, select the "wireless" checkbox.
To send the log information to a certain note, select the "Enable Remote Log" checkbox and fill in the IP address in the "Log Server IP Address" box.
3. Click the button to activate. You could also click the button to refresh the log information or click the button to clean the log table.

System Log

This page can be used to set remote log server and show the system log.

☐ Enable Log

☐ system all ☐ wireless ☐ 11s

☐ Enable Remote Log Log Server IP Address:

3.7 Statistics

This page allows users to get information of data transferring condition, and monitor the status and performance of this AP including receiving and sending packets. To see the latest report, click

button.

Statistics

This page shows the packet counters for transmission and reception regarding to wireless and Ethernet networks.

Wireless LAN	<i>Sent Packets</i>	2064
	<i>Received Packets</i>	218817
Ethernet LAN	<i>Sent Packets</i>	2087
	<i>Received Packets</i>	6548

3.8 Upgrade Firmware

Sometimes a new firmware may be issued to upgrade the system of this device. You could upgrade the firmware you got in this page. To upgrade the firmware, please click on the

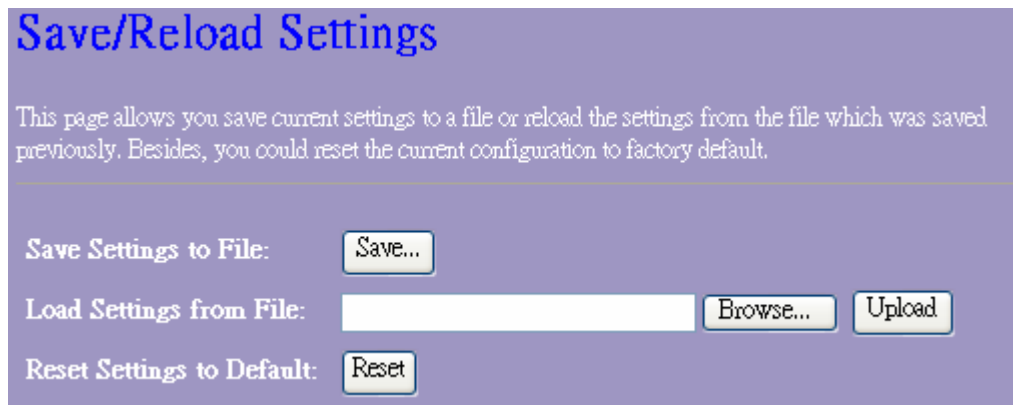
button, locate the firmware in your computer and then click the button to execute.




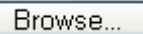


The screenshot shows a web page titled "Upgrade Firmware" in blue text. Below the title, a message states: "This page allows you upgrade the Access Point firmware to new version. Please note, do not power off the device during the upload because it may crash the system." A horizontal line separates the message from the controls. There is a "Select File:" label followed by a text input field and a "Browse..." button. Below these, there are two buttons: "Upload" and "Reset".

3.9 Save/Reload Setting


The Save/Reload Setting page allows users to backup and download the configuration status of the device or restore the factory default configuration.

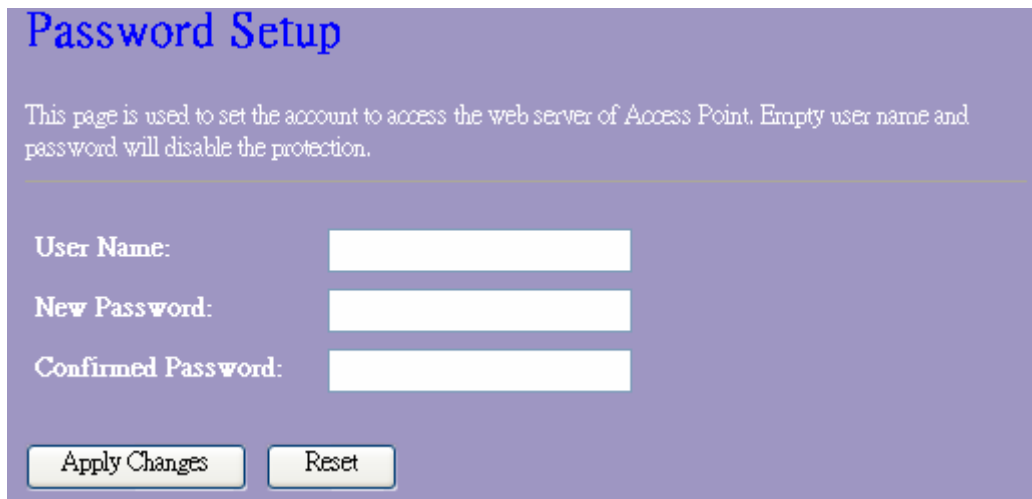


The screenshot shows a web page titled "Save/Reload Settings" in blue text. Below the title, a message states: "This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default." A horizontal line separates the message from the controls. There are three rows of controls: 1) "Save Settings to File:" with a "Save..." button; 2) "Load Settings from File:" with a text input field, a "Browse..." button, and an "Upload" button; 3) "Reset Settings to Default:" with a "Reset" button.

Items	Information
Save Settings to File	Click on the  button to save the currently configure settings.
Load Settings from File	Click  to select the file that you save, and then click  to start the process. Please wait for it to complete.
Reset Settings to Default	Click  to start the process and it will be completed till the status LED starts blinking.

3.10 Password

To set up the Administrator Account information, enter the Username, New password, and reenter the password on the text box. Don't forget to click  to save the configuration.



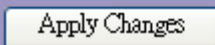
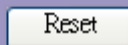
Password Setup

This page is used to set the account to access the web server of Access Point. Empty user name and password will disable the protection.

User Name:


New Password:

Confirmed Password:

3.11 System Time


This page allows you to setup the current system time. click Copy Computer Time will synchronize the system time.

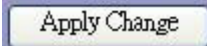
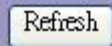


System Time Setting

This page allows you setup the current system time.

Current Time : Yr 2010 Mon 6 Day 21 Hr 16 Mn 41 Sec 33



3.12 Logout

This page is used to logout. Click the “Apply Change” button to log out the system and save your changes simultaneously.

A screenshot of a web page with a purple background. At the top, the word "Logout" is written in blue. Below it, the text "This page is used to logout." is displayed. A horizontal line separates this from the question "Do you want to logout ?" in white. At the bottom, there is a button labeled "Apply Change" with a yellow background and a blue border.

Logout

This page is used to logout.

Do you want to logout ?

Apply Change

Product Specifications:

Standard	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u
Interface	LAN:2 ports 10/100 Mbps Ethernet, RJ-45 1* fixed antenna (Standard 2.0 dBi) 1* reset to factory default button 1* WPS button
Antenna	Antenna type: Dipole Antenna connector type: Fixed
Cable Connections	RJ-45 (10BASE-T): Category 3,4,5 UTP RJ-45 (100BASE-TX): Category 5 UTP
Transmission Mode	Auto-Negotiation (Full-duplex, Half-duplex)
Security	64/128-bit WEP, WPA, WPA2
Network Data Rate	802.11b: 1,2,5.5, and 11Mbps 802.11g: 6,9,12,18,24,36,48 and 54Mbps 802.11n: up to 150 Mbps
Receiver Sensitivity	802.11n Typical -68 dBm 802.11g Typical -73 dBm 802.11b Typical -84 dBm
Transmit Power	16dBm typically @ 802.11b 14dBm typically @ 802.11g 13dBm typically @ 802.11n
LED indications	1*PWR, 1*SYS, 1*WLAN, 2*LAN
Power Supply	External Power Adapter, 5V/ 0.6A
Channel	USA 11, Europe 13, Japan 14
Range Coverage	Indoor: 35~100 meters Outdoor: 100~300 meters
Temperature	Operating: 0°C ~ 40°C (32°~104°F) Storage: -20°C ~ 70°C (-4°~158°F)
Humidity	Operating: 10% ~ 90% RH, non-condensing Storage: 5%~90% RH, non-condensing
EMI Certification	FCC, CE, VCCI Class B