IAP-620 Series

IEEE 802.11 a/b/g/n Access Point

User's Manual

Version 1.0

July, 2012

www.oring-networking.com

COPYRIGHT NOTICE

TRADEMARKS

is a registered trademark of ORing Industrial Networking Corp.

All other trademarks belong to their respective owners.

REGULATORY COMPLIANCE STATEMENT

Product(s) associated with this publication complies/comply with all applicable regulations. Please refer to the Technical Specifications section for more details.

WARRANTY

ORing warrants that all ORing products are free from defects in material and workmanship for a specified warranty period from the invoice date (5 years for most products). ORing will repair or replace products found by ORing to be defective within this warranty period, with shipment expenses apportioned by ORing and the distributor. This warranty does not cover product modifications or repairs done by persons other than ORing-approved personnel, and this warranty does not apply to ORing products that are misused, abused, improperly installed, or damaged by accidents.

Please refer to the Technical Specifications section for the actual warranty period(s) of the product(s) associated with this publication.

DISCLAIMER

Information in this publication is intended to be accurate. ORing shall not be responsible for its use or infringements on third-parties as a result of its use. There may occasionally be unintentional errors on this publication. ORing reserves the right to revise the contents of this publication without notice.

CONTACT INFORMATION

ORing Industrial Networking Corp.

3F., No.542-2, Zhongzheng Rd., Xindian Dist., New Taipei City 23148, Taiwan (R.O.C.)
Tel: +886-2-2218-1066 // Fax: +886-2-2218-1014
Website: www.oring-networking.com

Technical Support

E-mail: support@oring-networking.com

Sales Contact

E-mail: sales@oring-networking.com (Headquarters)
sales@oring-networking.com.cn (China)

Table of Content

Getting to Know Your Access Point

1.1 About the ORing Access Point

IAP-620/IAP-620+ is reliable IEEE802.11a/b/g/n WLAN with 2 ports LAN Access Point. It can be configured to operate in AP/Client/Bridge/AP-Client mode. You can configure IAP-620/IAP-620+ by Windows Utility or WEB interfaces via LAN port or WLAN interface. IAP-620/IAP-620+ provides dual Ethernet ports in switch mode, so you can use Daisy Chain to reduce the usage of Ethernet switch ports. Therefore, IAP-620/IAP-620+ is one of the best communication solutions for wireless application.

1.2 Software Features

- High Speed Air Connectivity: WLAN interface support up to 300Mbps link speed connection
- Highly Security Capability: WEP/WPA/WPA2/802.1x supported
- Support AP/Client/Bridge/AP-Client Mode
- Switch Mode Supported: Daisy Chain support to reduce usage of switch ports
- Secured Management by HTTPS
- Event Warning by Syslog, Email, SNMP Trap, Relay and Beeper

1.3 Hardware Features

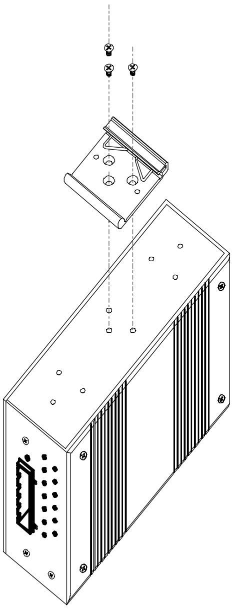
- Fully Compliant with IEEE802.3af (Power Device at ETH2, IAP-620+ only)
- Redundant Power Inputs: Dual 12~48 VDC on terminal block
- 10/100Base-T(X) Ethernet port
- Casing: IP-30
- Dimensions(W x D x H) : 52 mm(W)x 106 mm(D)x 144 mm(H)
- Operating Temperature: -10 to 60^{o}C
- Storage Temperature: -40 to 85^{o}C
- Operating Humidity: 5% to 95%, non-condensing

Hardware Installation

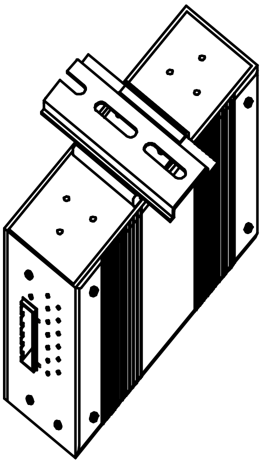
2.1 Installation AP on DIN-Rail

Each AP has a DIN-Rail kit on rear panel. The DIN-Rail kit helps AP to fix on the DIN-Rail. It is easy to install the AP on the DIN-Rail:

Step 1: Slant the AP and mount the metal spring to DIN-Rail.



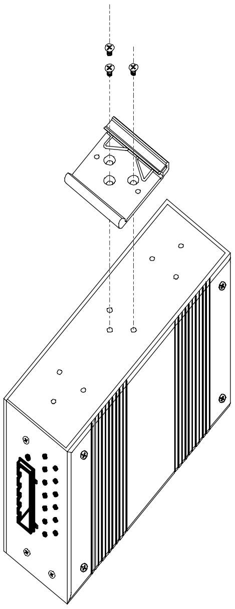
Step 2: Push the AP toward the DIN-Rail until you heard a "click" sound.



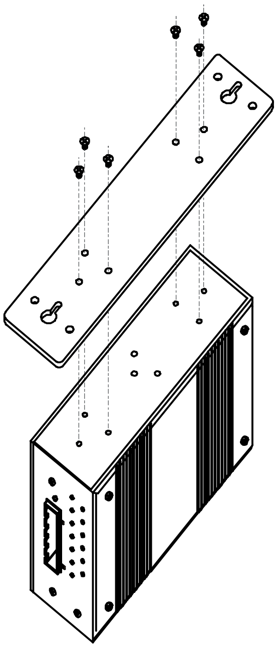
2.2 Wall Mounting Installation

Each AP has another installation method to fix the AP. A wall mount panel can be found in the package. The following steps show how to mount the AP on the wall:

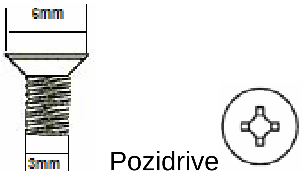
Step 1: Remove DIN-Rail kit.



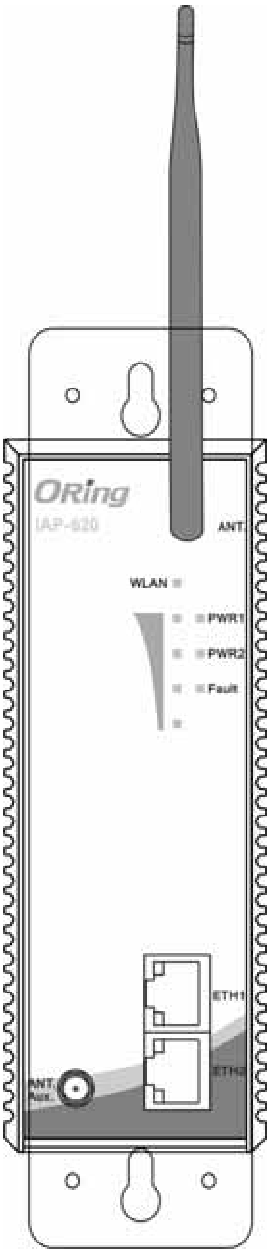
Step 2: Use 6 screws that can be found in the package to combine the wall mount panel. Just like the picture shows below:



The screws specification shows in the following two pictures. In order to prevent the AP from any damage, the screws should not larger than the size that used in IAP-620 / 620+.



Step 3: Mount the combined AP on the wall.



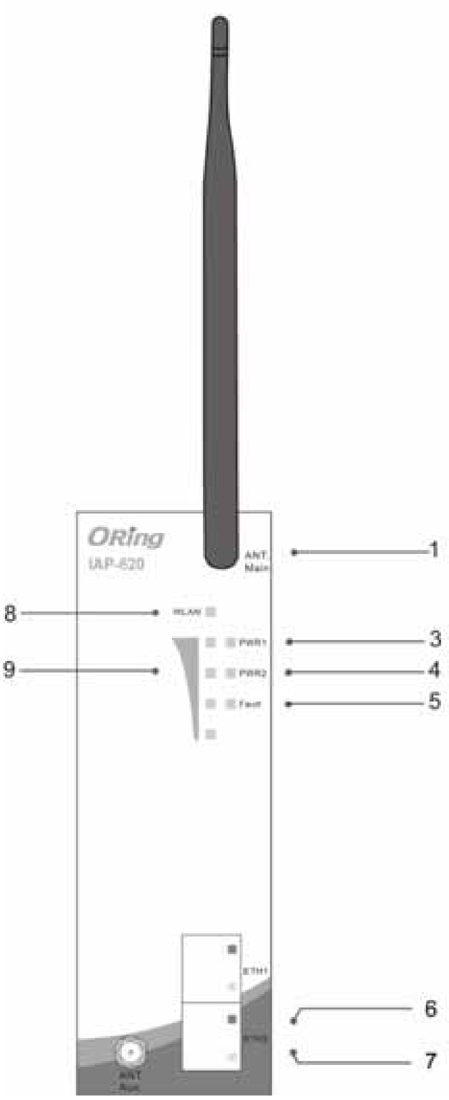
Hardware Overview

3.1 Front Panel

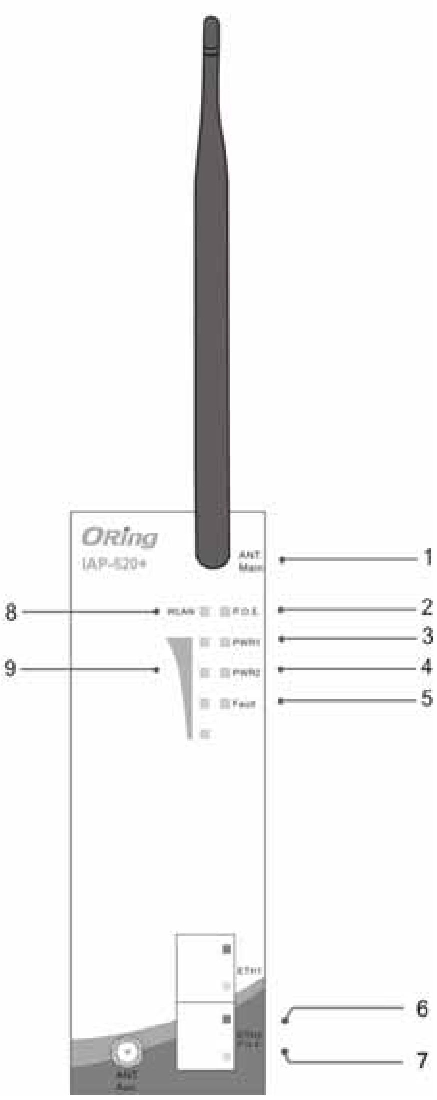
The following table describes the labels that stick on the IAP-620/IAP-620+.

Port	Description
10/100 RJ-45 fast Ethernet ports	2 10/100Base-T(X) RJ-45 fast Ethernet ports support auto-negotiation. Default Setting : Speed: auto
PoE P.D. Port	ETH2 of IAP-620+ compliant with IEEE802.3af PoE specifications
ANT.	Reversed SMA connector for high gain external antenna.

IAP-620



IAP-620+



1 2.4/5 GHz antenna with typical 3.0 dBi antenna.

2 LED for PoE power and system status. When the PoE power links, the green LED will be light on.

3 LED for PWR1 and system status. When the PWR1 links, the green LED will be light on.

4 LED for PWR2 and system status. When the PWR2 links, the green LED will be light on.

5 LED for Fault Relay. When the fault occurs, the amber LED will be light on.

6 10/100Base-T(X) Ethernet ports. (IAP-620+ contains P.D. function of PoE)

7 LED for Ethernet ports status.

8 LED for WLAN link status.

9 LED for WLAN signal strength..

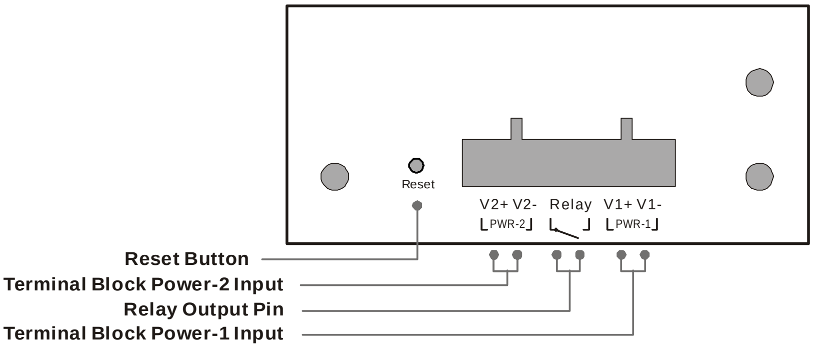
3.2 Front Panel LEDs

LED	Color	Status	Description
P.O.E. **(IAP-620+)**	Green/Red	Green On	PoE power connected.
		Green blinking	Device been located
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
PWR1	Green/Red	Green On	DC power 1 activated.
		Green blinking	Device been located
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
PWR2	Green/Red	Green On	DC power 2 activated.
		Green blinking	Device been located
		Red blinking	Indicates an IP conflict, or DHCP or BOOTP server did not respond properly
Fault	Amber	On	Fault relay. Power failure or Port down/fail.
WLAN	Green	On	WLAN activated.
		Blinking	WLAN Data transmitted.
WLAN Strength	Green	On	WLAN signal strength. 1<25%, 2<50%, 3<75%, 4<100%
10/100Base-T(X) Fast Ethernet ports			
10Mbps LNK/ACT	Amber	On	Port link up at 10Mbps.
		Blinking	Data transmitted.
100Mbps LNK/ACT	Green	On	Port link up at 100Mbps.
		Blinking	Data transmitted.

3.3 Bottom Panel

The bottom panel components of IAP-620 / 620+ are showed as below:

1. Terminal block includes: PWR1, PWR2 (12 ~ 48V DC) and Relay output (1A@24VDC).
2. Reset bottom. Push the button 3 seconds for reset; 5 seconds for factory default.

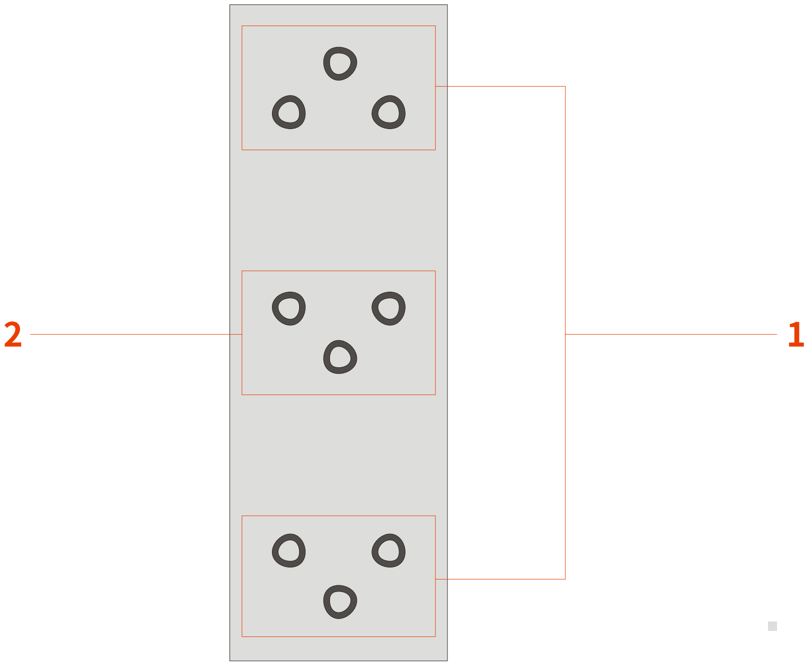


Bottom panel of IAP-620 / 620+

3.4 Rear Panel

The rear panel components of IAP-620 / 620+ are showed as below:

1. Screw holes for wall mount kit.
2. DIN-Rail kit



Rear panel of IAP-620 / 620+

Cables and Antenna

4.1 Ethernet Cables

The IAP-620/IAP-620+ WLAN AP has two 10/100Base-T(X) Ethernet ports. According to the link type, the AP use CAT 3, 4, 5,5e UTP cables to connect to any other network device (PCs, servers, switches, routers, or hubs). Please refer to the following table for cable specifications.

Cable Types and Specifications

Cable	Type	Max. Length	Connector
10Base-T	Cat. 3, 4, 5 100-ohm	UTP 100 m (328 ft)	RJ-45
100Base-T(X)	Cat. 5 100-ohm UTP	UTP 100 m (328 ft)	RJ-45

4.2 100Base-T(X)/10Base-T Pin Assignments

With 100Base-T(X)/10Base-T cable, pins 1 and 2 are used for transmitting data, and pins 3 and 6 are used for receiving data.

RJ-45 Pin Assignments

Pin Number	Assignment
1	TD+
2	TD-
3	RD+
4	P.O.E. power input +
5	P.O.E. power input +
6	RD-
7	P.O.E. power input -
8	P.O.E. power input -

The IAP-620/IAP-620+ supports auto MDI/MDI-X operation. You can use a straight-through cable to connect PC and AP. The following table below shows the 10Base-T/ 100Base-T(X) MDI and MDI-X port pin outs.

MDI/MDI-X pins assignment

Pin Number	MDI port	MDI-X port
1	TD+(transmit)	RD+(receive)
2	TD-(transmit)	RD-(receive)
3	RD+(receive)	TD+(transmit)
4	P.O.E. power input +	P.O.E. power input +
5	P.O.E. power input +	P.O.E. power input +
6	RD-(receive)	TD-(transmit)
7	P.O.E. power input -	P.O.E. power input -
8	P.O.E. power input -	P.O.E. power input -

Note: "+" and "-" signs represent the polarity of the wires that make up each wire pair.

4.3 Wireless Antenna

2.4GHz/5.8GHz antenna is used for IAP-620/IAP-620+ and connected with a reversed SMA connector. External RF cable and antenna also can be applied with this connector.

Management Interface

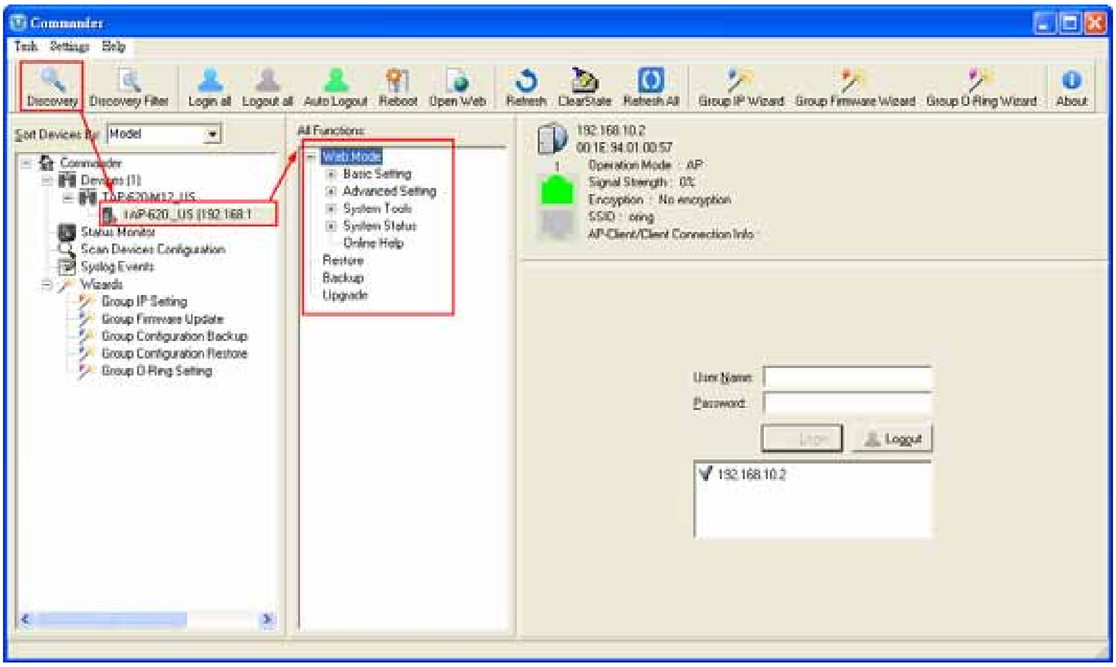
5.1 Explore IAP-620/IAP-620+

5.1.1 Open-Vision_Commander

IAP-620/IAP-620+ can also be configure through ORing's Windows utility Open-Vision

Step 1: Open the commander and click "Discover", the AP devices will show on the list.

Step 2: Choose your access point, and it will show the AP function tree. Simultaneity, you can login and then set the AP.



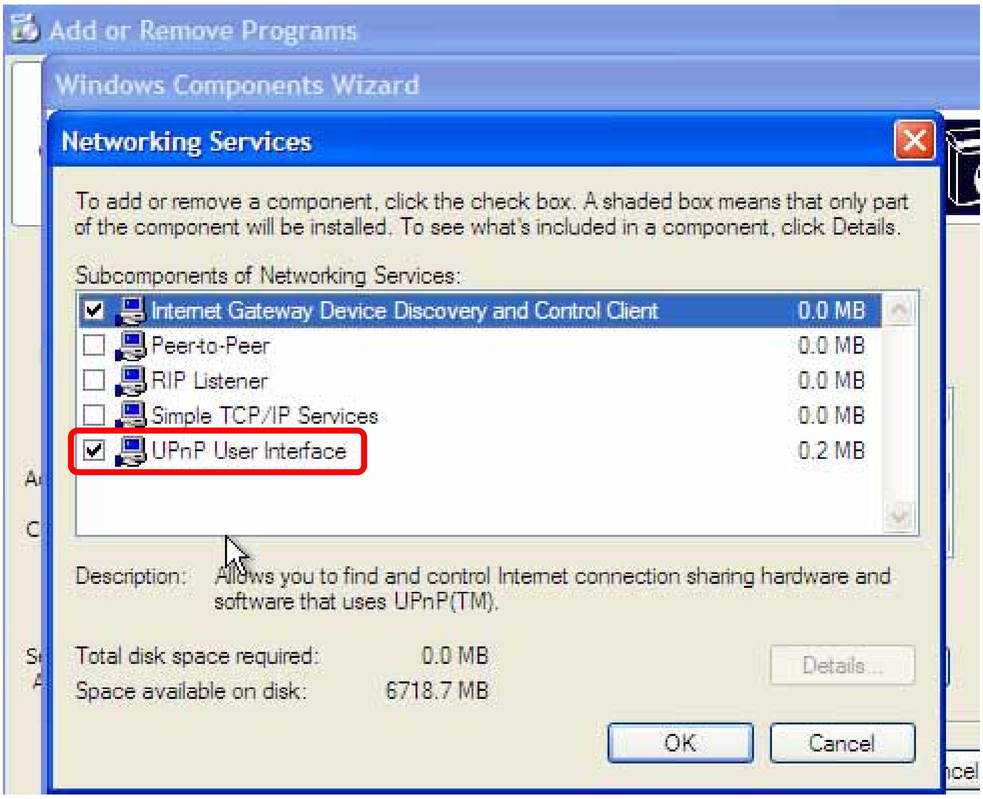
192.168.10.2
00:1E:94:01:00:57
Operation Mode : AP
Signal Strength : 0%
Encryption : No encryption
SSID : oring
AP-Client/Client Connection Info :

192.168.10.2

User interface of commander

5.2 UPnP Equipment

Step 1: To check whether the UPnP UI of the computer is connected to the IAP-620/IAP-620+, go to **Control Panel > Add or Remove Programs > Windows Components Wizard > Networking Servers > UPnP User Interface** and pitch on the UPnP User Interface.



Add or Remove Programs

Windows Components Wizard

Networking Services

To add or remove a component, click the check box. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.

Subcomponents of Networking Services:

☑	Internet Gateway Device Discovery and Control Client	0.0 MB
□	Peer-to-Peer	0.0 MB
□	RIP Listener	0.0 MB
□	Simple TCP/IP Services	0.0 MB
☑	UPnP User Interface	0.2 MB

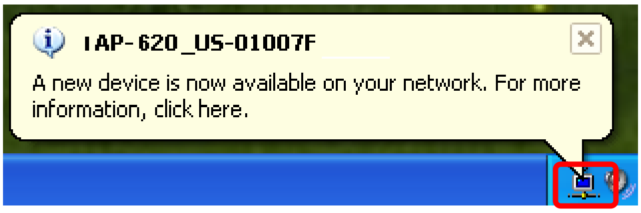
Description: Allows you to find and control Internet connection sharing hardware and software that uses UPnP(TM).

Total disk space required: 0.0 MB

Space available on disk: 6718.7 MB

UPnP configuration page

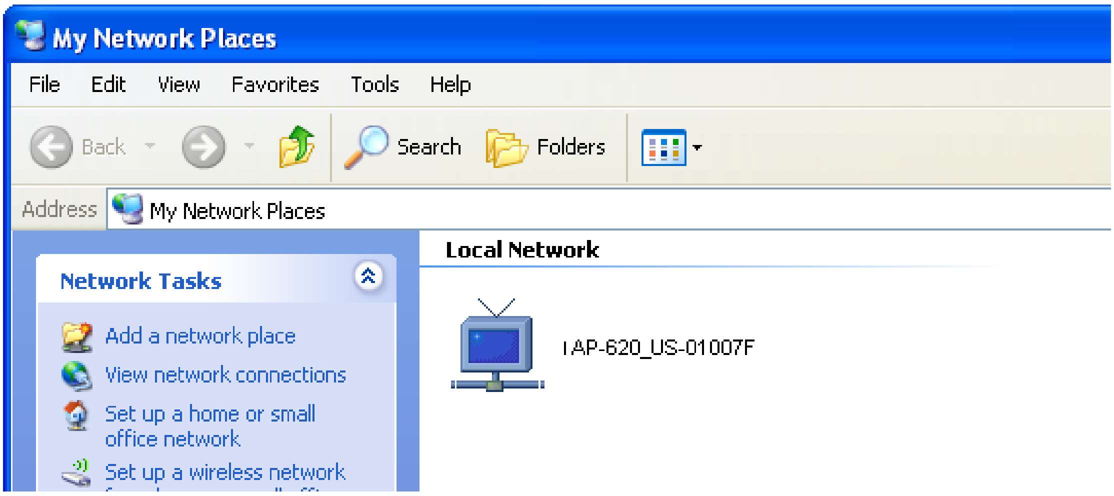
Step 2: At the right-below corner of the computer, you will find a sign of the UPnP equipment.



IAP-620_US-01007F

A new device is now available on your network. For more information, click here.

Step 3: Click the sign of the UPnP equipment, then you will find the UPnP equipment in the network neighborhood.



My Network Places
File Edit View Favorites Tools Help
Back
Search
Folders
Address My Network Places
Network Tasks
Add a network place
View network connections
Set up a home or small office network
Set up a wireless network
Local Network
IAP-620_US-01007F

Step 4: Right click the UPnP equipment to choose "Properties", it will show as the following pictures:

Step 5: Right click the UPnP equipment or double click the UPnP equipment to transfer; it will go to the web page.

5.3 Configuration by Web Browser

This section introduces the configuration by Web browser.

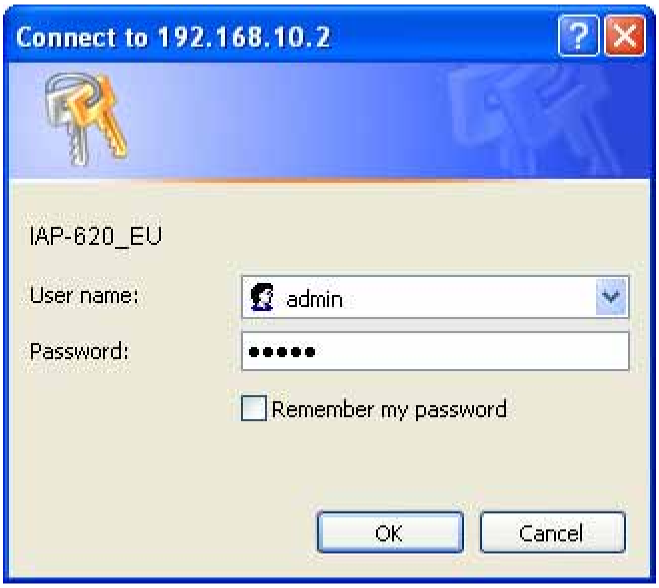
5.4 About Web-Based Management

An embedded HTML web site resides in flash memory in the system. It contains advanced management features and allows you to manage the AP from anywhere on the network through a standard web browser such as Microsoft Internet Explorer.

The Web-Based Management function supports Internet Explorer 5.0 or later. It is based on Java Applets with an aim to reduce network bandwidth consumption, enhance access speed and present an easy viewing screen.

Note: By default, IE5.0 or later version does not allow Java Applets to open sockets. You need to explicitly modify the browser setting in order to enable Java Applets to use network ports.

Through the front section's information, you will see as follows, enter your user name **(admin)** and your password **(admin)**, and then click **OK** to continue.



Connect to 192.168.10.2

IAP-620_EU

User name: admin

Password: ●●●●●

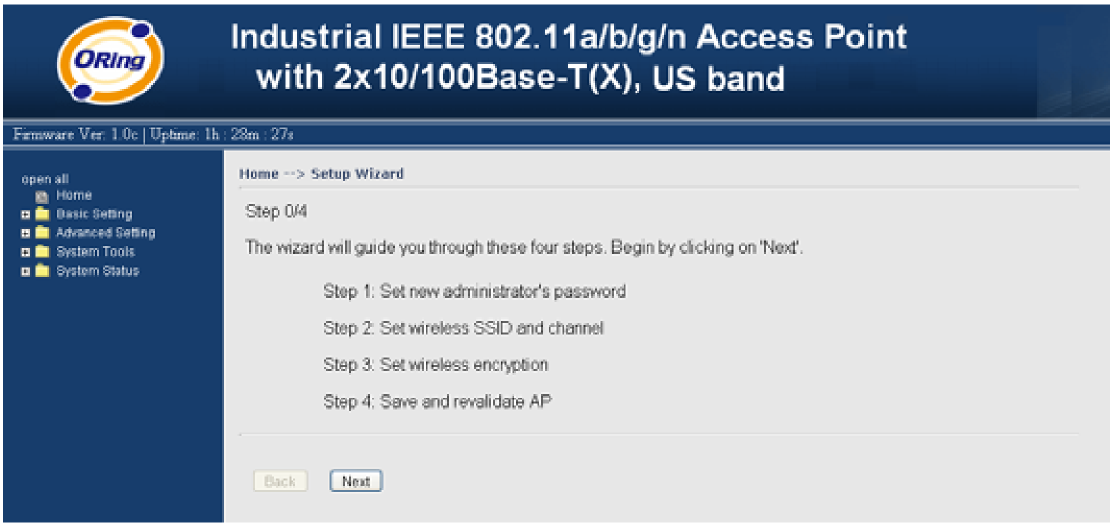
□ Remember my password

Login screen

For security reasons, we strongly suggest you change the password. Click on **System Tools > Administrator** and modify the password.

5.5 Main Interface

The **Home** screen will appear. Please click "Run Wizard" to go to the **Home > Setup Wizard** page to quick install the AP.



Industrial IEEE 802.11a/b/g/n Access Point with 2x10/100Base-T(X), US band

Firmware Ver: 1.0c | Uptime: 1h : 28m : 27s

Home --> Setup Wizard

Step 0/4

The wizard will guide you through these four steps. Begin by clicking on 'Next'.

Step 1: Set new administrator's password

Step 2: Set wireless SSID and channel

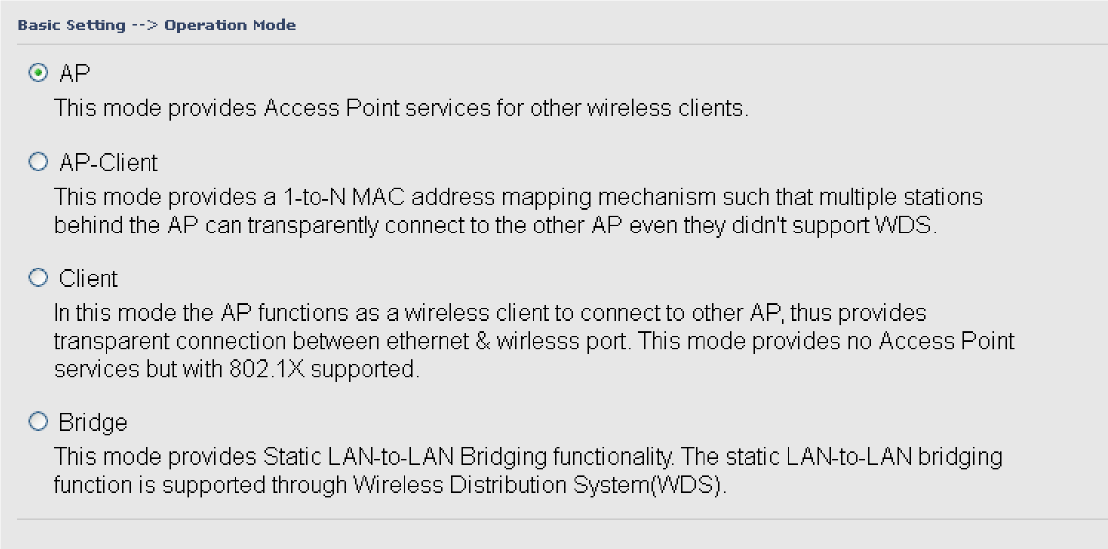
Step 3: Set wireless encryption

Step 4: Save and revalidate AP

Main interface

5.5.1 Basic Setting

Setting Operation Mode



Basic Setting --> Operation Mode

● AP
This mode provides Access Point services for other wireless clients.

○ AP-Client
This mode provides a 1-to-N MAC address mapping mechanism such that multiple stations behind the AP can transparently connect to the other AP even they didn't support WDS.

○ Client
In this mode the AP functions as a wireless client to connect to other AP, thus provides transparent connection between ethernet & wirlesss port. This mode provides no Access Point services but with 802.1X supported.

○ Bridge
This mode provides Static LAN-to-LAN Bridging functionality. The static LAN-to-LAN bridging function is supported through Wireless Distribution System(WDS).

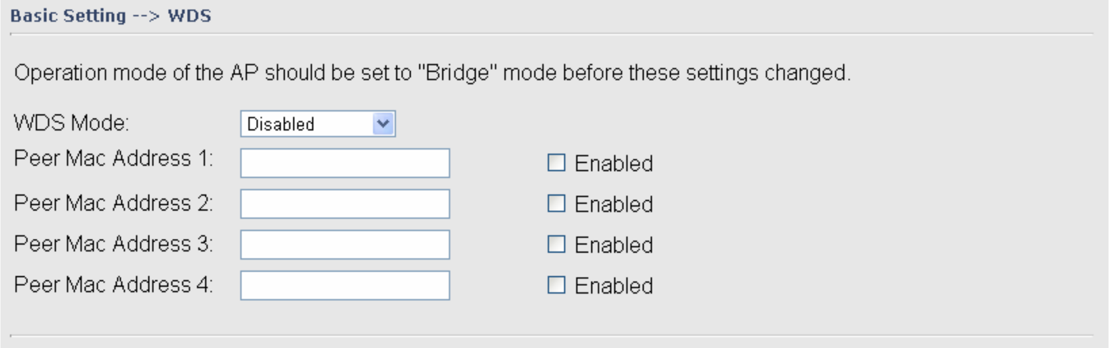
Operation mode interface

The following table describes the labels in this screen.

Label	Description
AP	This mode provides Access Point services for other wireless clients.
AP-Client	The AP-Client function provides a 1-to-N MAC address mapping mechanism such that multiple stations behind the AP can transparently connect to the other AP even they didn't support WDS.
Client	In this mode the AP functions as a wireless client to connect to other AP, thus provides transparent connection between Ethernet & wireless port. This mode provides no Access Point services but with 802.1X supported.
Bridge	This mode provides Static LAN-to-LAN Bridging functionality. The static LAN-to-LAN bridging function is supported through Wireless Distribution System (WDS).

In each mode, the IAP-620/IAP-620+ forwards packet between its Ethernet interface and wireless interface for wired hosts on the Ethernet side, and wireless hosts on the wireless side.

Setting WDS (Bridge Mode)



Basic Setting --> WDS

Operation mode of the AP should be set to "Bridge" mode before these settings changed.

WDS Mode: Disabled

Peer Mac Address 1: ☐ Enabled

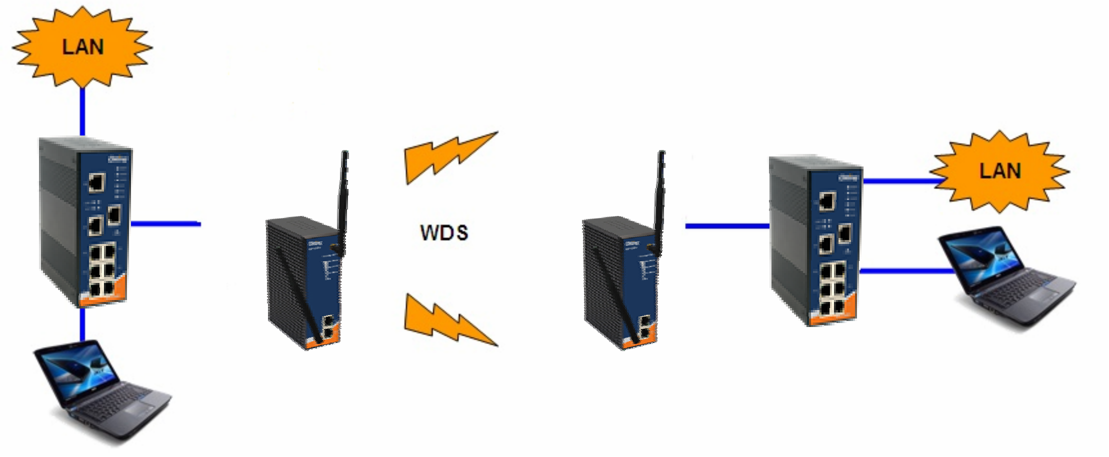
Peer Mac Address 2: ☐ Enabled

Peer Mac Address 3: ☐ Enabled

Peer Mac Address 4: ☐ Enabled

WDS setting interface

This type of wireless link is established between two IEEE 802.11 access points. Wireless packets transmitted along the WDS link comply with the IEEE 802.11 WDS (Wireless Distribution System) format at the link layer.



Point-to-Point WDS Link

The following table describes the labels in this screen.

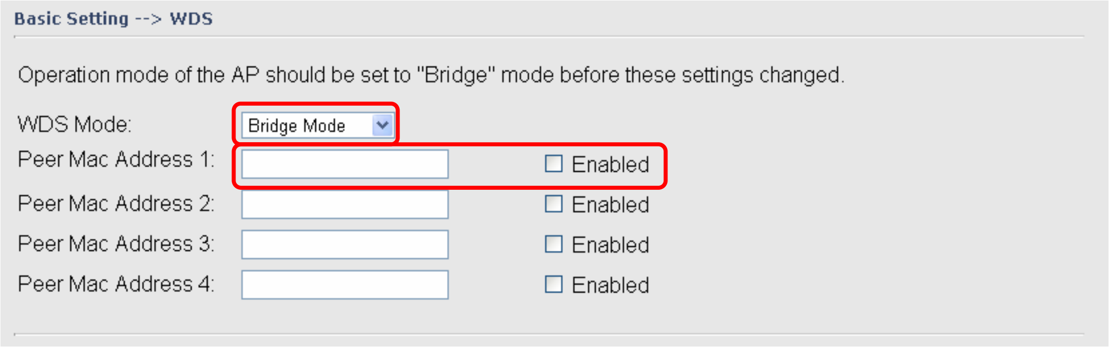
Label	Description
WDS Mode	This mode provides Static LAN-to-LAN Bridging functionality. The static LAN-to-LAN bridging function is supported through Wireless Distribution System (WDS).
Peer MAC Address	Set the Mac address of other access point(s). Simultaneity, choose on "Enable".

First of all, if APs link with WDS mode, it should obey the following rules:

1. LAN IP Address should set different IP in the same network.

2. All AP's DHCP Server should set shutdown.
3. WDS should set Enable.
4. Each AP should have the same setting except 'Peer Mac Address' set to the other's Mac address
5. At wireless web setting Security and Channel should be the same,
6. AP's distance should be limited within a certainty area.

WDS –Bridge Mode



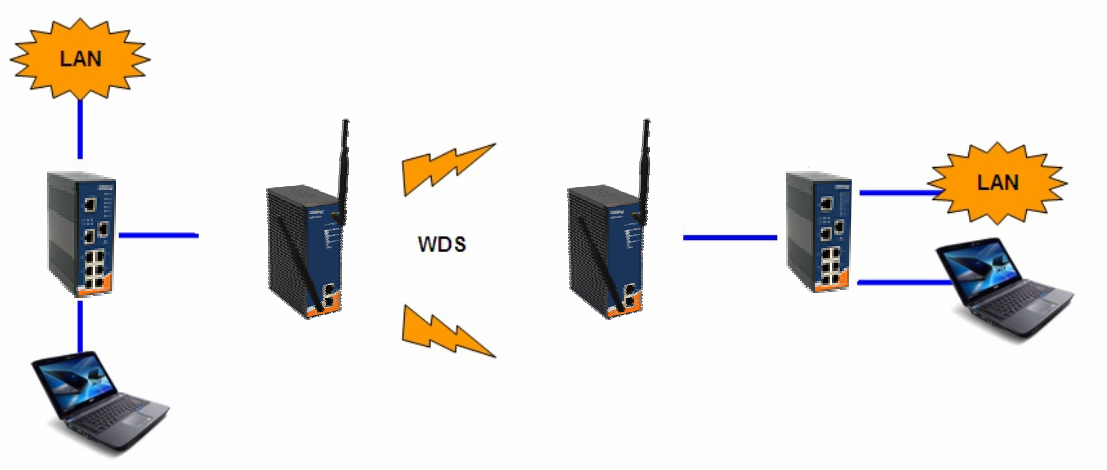
Basic Setting --> WDS

Operation mode of the AP should be set to "Bridge" mode before these settings changed.

WDS Mode:	Bridge Mode	
Peer Mac Address 1:		□ Enabled
Peer Mac Address 2:		□ Enabled
Peer Mac Address 3:		□ Enabled
Peer Mac Address 4:		□ Enabled

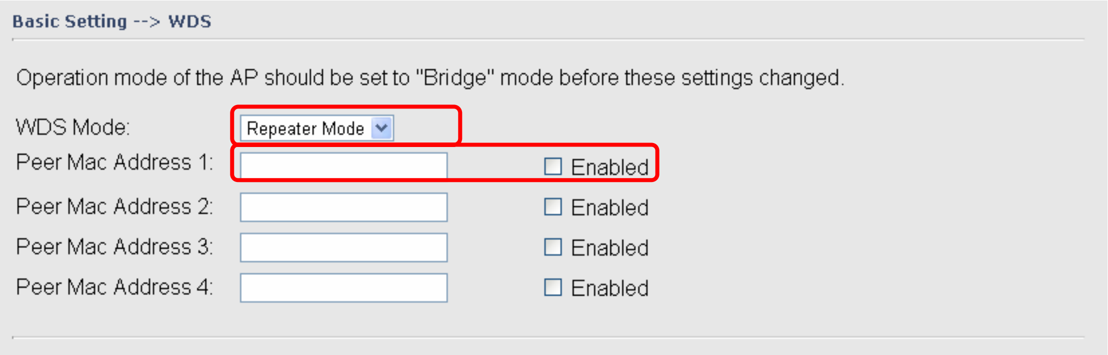
The peer WDS APs are according to the MAC address listed in "Peer Mac Address" fields.

The working principle of **Bridge Mode** as follows:



In the figure, the AP behaves as a standard bridge that forwards traffic between WDS links (links that connect to other AP/wireless bridges) and an Ethernet port. As a standard bridge, the AP learns MAC addresses of up to 64 wireless or 128 total wired and wireless network devices, which are connected to their respective Ethernet ports to limit the amount of data to be forwarded. Only data destined for stations which are known to reside on the peer Ethernet link, multicast data or data with unknown destinations need to be forwarded to the peer AP via the WDS link.

WDS –Repeater Mode



Basic Setting --> WDS

Operation mode of the AP should be set to "Bridge" mode before these settings changed.

WDS Mode: Repeater Mode

Peer Mac Address 1: □ Enabled

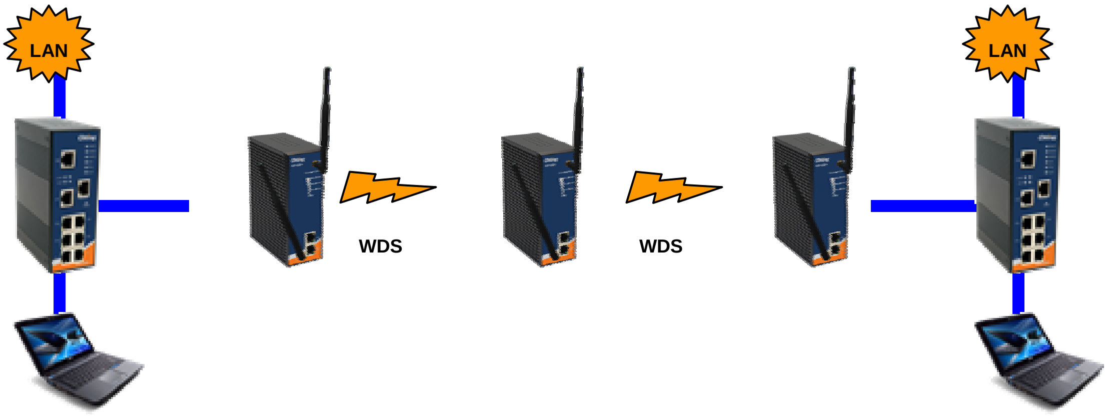
Peer Mac Address 2: □ Enabled

Peer Mac Address 3: □ Enabled

Peer Mac Address 4: □ Enabled

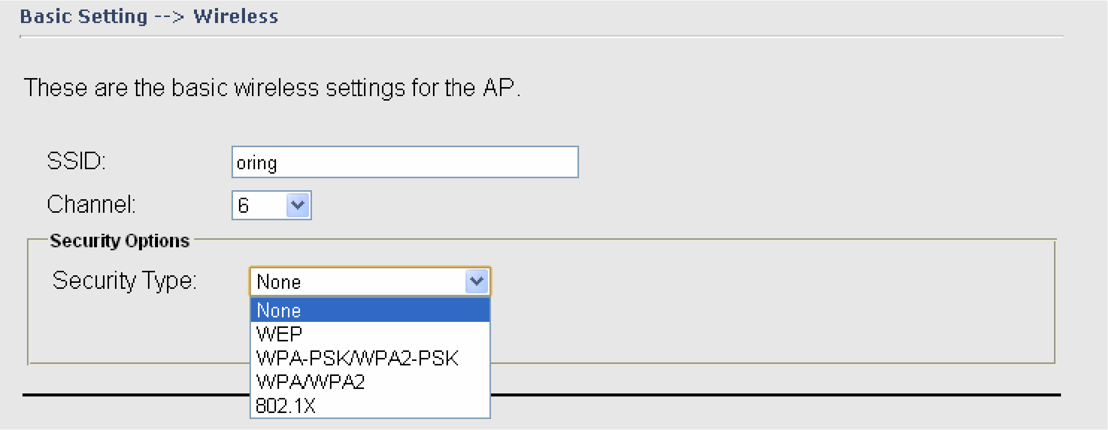
The peer WDS APs are according to the MAC address listed in "Peer Mac Address" fields.

The working principle of **Repeater Mode** as follows:



In the figure, Repeater is used to extend the range of the wireless infrastructure by forwarding traffic between associated wireless stations and another repeater or AP connected to the wired LAN.

Setting Wireless



Basic Setting --> Wireless

These are the basic wireless settings for the AP.

SSID: oring

Channel: 6

Security Options

Security Type: None

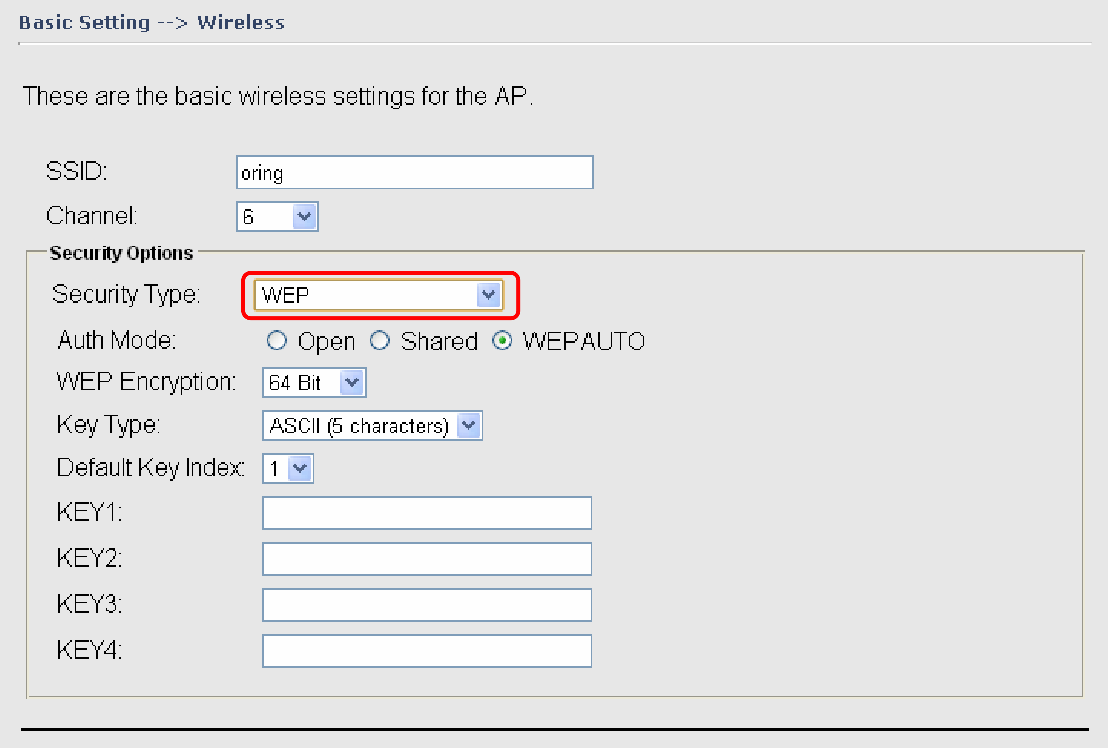
The following table describes the labels in this screen.

Label	Description
SSID	Service Set Identifier Default is the default setting. The SSID is a unique name that identifies a network. All devices on the network must share the same SSID name in order to communicate on the network. If you change the SSID from the default setting, input your new SSID name in this field.
Channel	Channel 6 is the default channel, input a new number if you want to change the default setting. All devices on the network must be set to the same channel to communicate on the network.
Security options	Select the type of security for your wireless network at **Security Type:** **None:** Select for no security. **WEP:** Select for security WEP. **WPA-PSK/WPA2-PSK:** Select for security WPA-PSK or WPA2-PSK without a RADIUS server. **WPA/WPA2:** Select for WPA or WPA2 (Wi-Fi Protected Access) authentication in conjunction with a RADIUS server. **802.1x:** Authentication through RADIUS server

Security Type – None

No security protection on your wireless LAN access.

Security Type – WEP



Basic Setting --> Wireless

These are the basic wireless settings for the AP.

SSID: oring

Channel: 6

Security Options

Security Type: WEP

Auth Mode: ○ Open ○ Shared ● WEPAUTO

WEP Encryption: 64 Bit

Key Type: ASCII (5 characters)

Default Key Index: 1

KEY1:

KEY2:

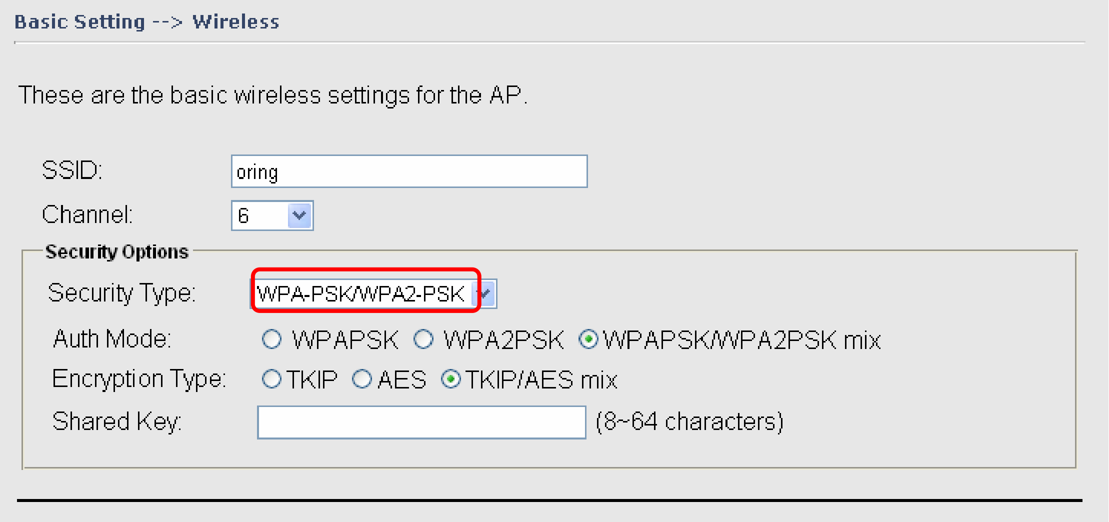
KEY3:

KEY4:

1. Security Type: Select **WEP**
2. WEP Encryption: Select 64 Bit or 128 Bit WEP encryption.
3. Key Type: Select ASCII or Hex key type.
4. Default Key Index: Select one of the keys to be the active key.
5. Key 1-4: Input up to four encryption keys.

ASCII (American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127. **Hex** digits consist of the numbers 0-9 and the letters A-F.

Security Type – WPA-PSK/WPA2-PSK



Basic Setting --> Wireless

These are the basic wireless settings for the AP.

SSID: oring

Channel: 6

Security Options

Security Type: WPA-PSK/WPA2-PSK

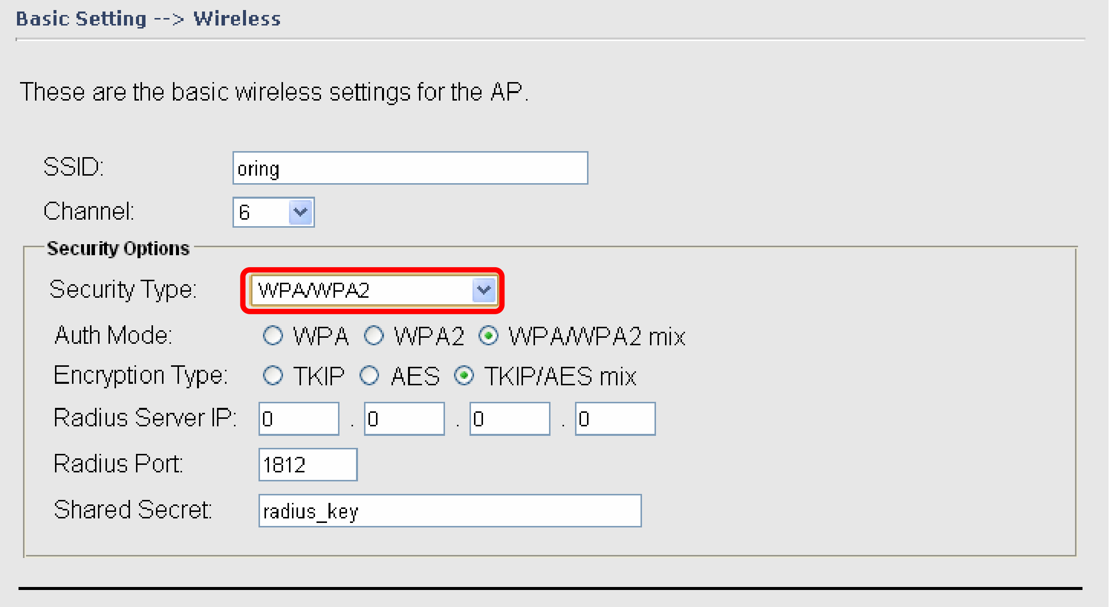
Auth Mode: ○ WPAPSK ○ WPA2PSK ● WPAPSK/WPA2PSK mix

Encryption Type: ○ TKIP ○ AES ● TKIP/AES mix

Shared Key: (8~64 characters)

1. Security Type: Select **WPA-PSK/WPA2-PSK**.
2. Encryption Type: Select **TKIP** or **AES** encryption.
3. Share Key: Enter your password. The password can be between 8 and 64 characters.

Security Type – WPA /WPA2



Basic Setting --> Wireless

These are the basic wireless settings for the AP.

SSID: oring

Channel: 6

Security Options

Security Type: WPA/WPA2

Auth Mode: ○ WPA ○ WPA2 ● WPA/WPA2 mix

Encryption Type: ○ TKIP ○ AES ● TKIP/AES mix

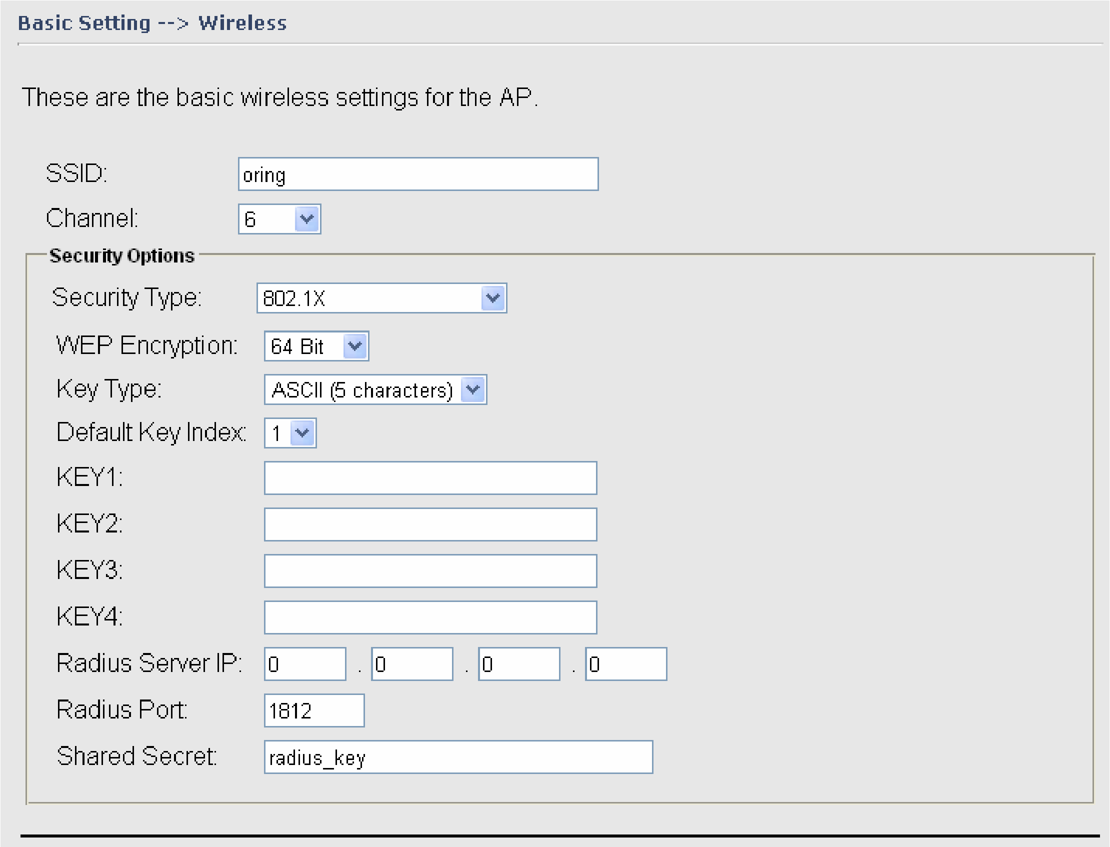
Radius Server IP: 0 . 0 . 0 . 0

Radius Port: 1812

Shared Secret: radius_key

1. Security Type: Select **WPA/WPA2**
2. Radius Server IP: Enter the IP address of the RADIUS Server.
3. Port: Enter the RADIUS port (1812 is default).
4. Shared Secret: Enter the RADIUS password or key.

Security Type – 802.1x



Basic Setting --> Wireless

These are the basic wireless settings for the AP.

SSID: oring

Channel: 6

Security Options

Security Type: 802.1X

WEP Encryption: 64 Bit

Key Type: ASCII (5 characters)

Default Key Index: 1

KEY1:

KEY2:

KEY3:

KEY4:

Radius Server IP: 0 . 0 . 0 . 0

Radius Port: 1812

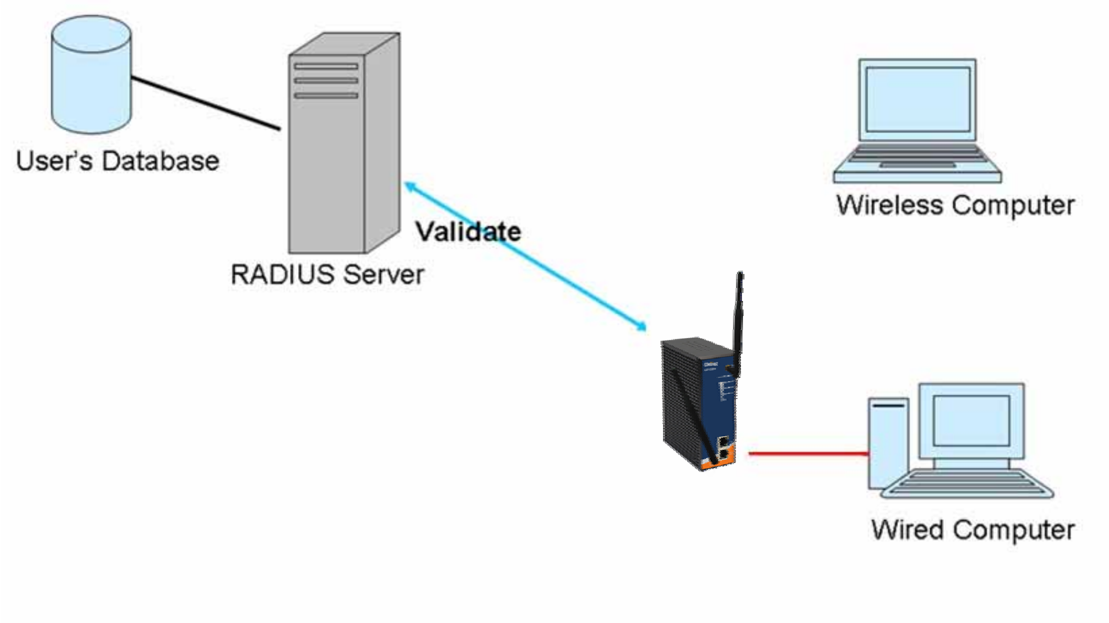
Shared Secret: radius_key

1. Security Type: Select **802.1x**
2. WEP Encryption: Select 64 Bit or 128 Bit WEP encryption.
3. Key Type: Select ASCII or Hex key type.
4. Default Key Index: Select one of the keys to be the active key.
5. Key 1-4: Input up to four encryption keys.
6. Radius Server IP: Enter the IP address of the RADIUS Server.
7. Port: Enter the RADIUS port (1812 is default).
8. Shared Secret: Enter the RADIUS password or key.

RADIUS (Remote Authentication Dial-in User Service) is the industrial standard agreement, and it is used to provide an identify verification. The Radius customer (is usually a dial-in server, VPN server or wireless point) send your proof and the conjunction parameter to the Radius server by Radius news. The Radius server validates the request of the Radius customer, and return Radius news to back.

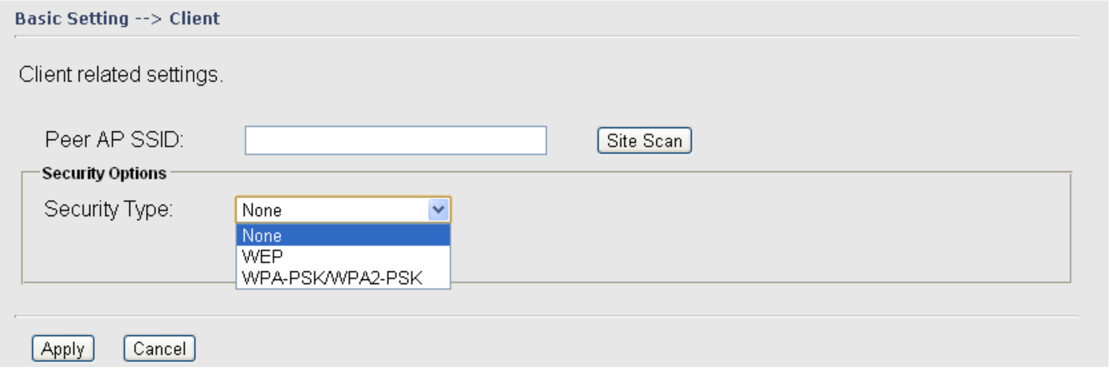
Radius server validates your proof, also carry on the authorization. So the Radius server received by ISA server responded (point out the customer carries proof to be not granted) and it means that the Radius server did not authorize you to carry. Even if the proof has already passed an identify verification, the ISA server may also refuse you to carry a claim according to the authorization strategy of the Radius server.

The principle of the Radius server shows in the following pictures:



Client

The **Basic setting—> Client** page is mainly set the client which through the SSID and Security to connect to other AP. In this mode, the Security Type should be the same with the AP Server.



Basic Setting --> Client

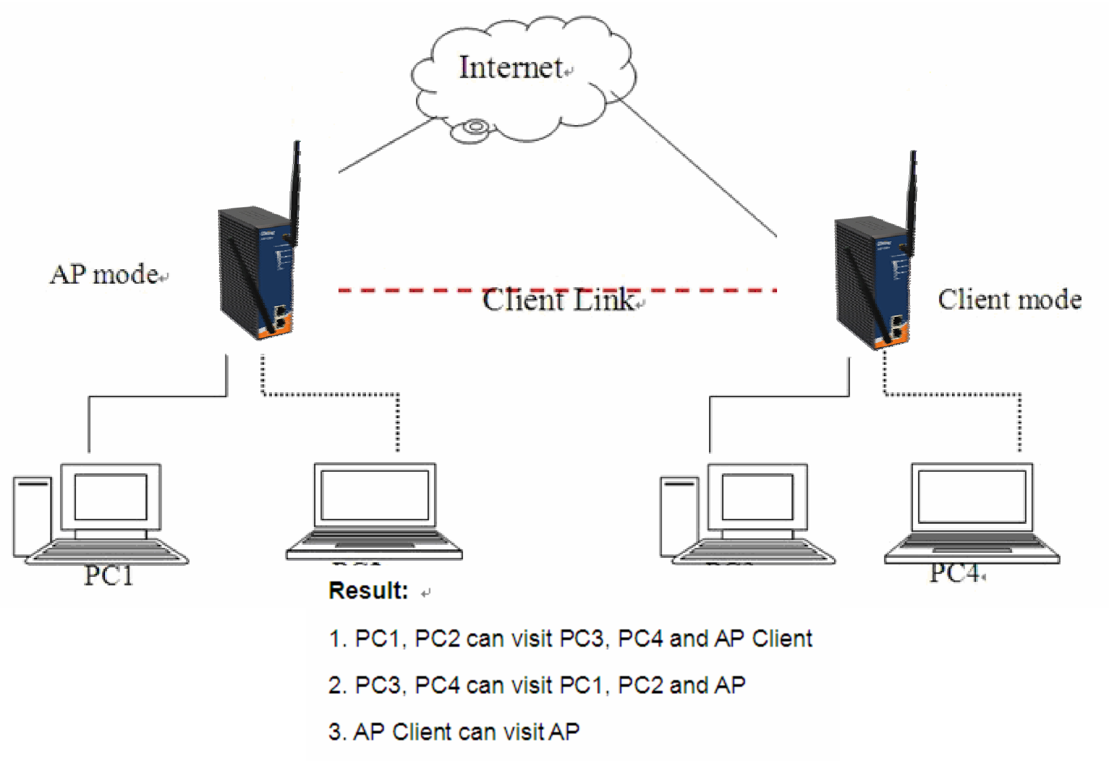
Client related settings.

Peer AP SSID: [ ] Site Scan

Security Options

Security Type: None

The principle of the AP-Client/Client mode shows in the following pictures:



Result:

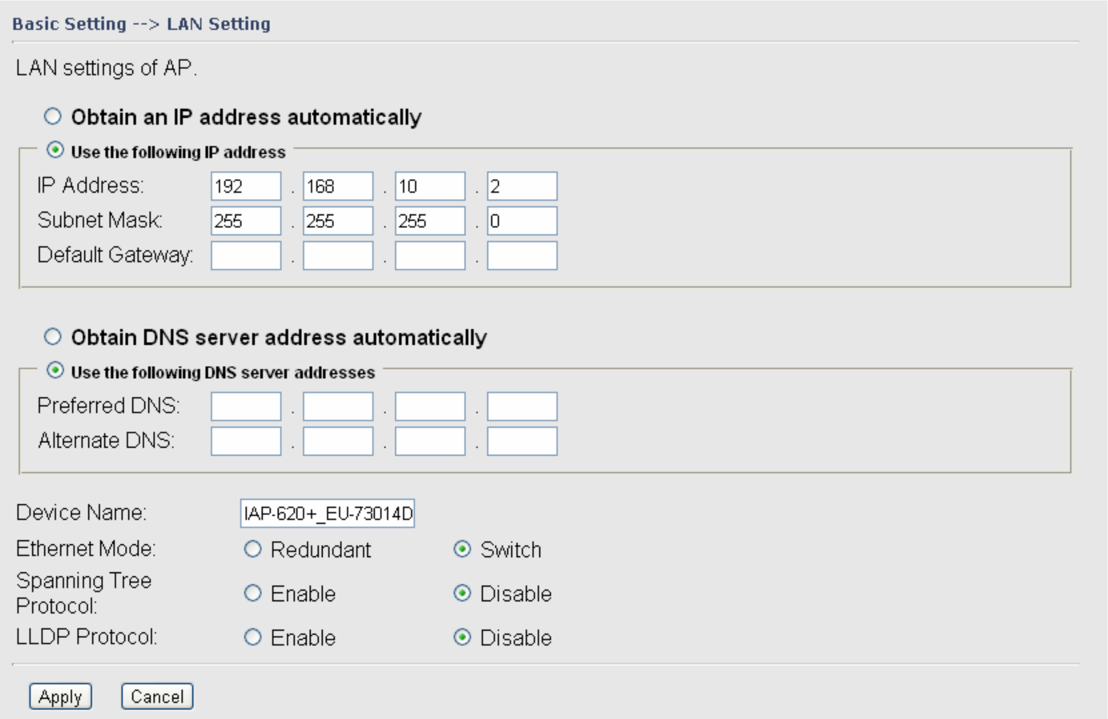
1. PC1, PC2 can visit PC3, PC4 and AP Client
2. PC3, PC4 can visit PC1, PC2 and AP
3. AP Client can visit AP

The following table describes the labels in this screen.

Label	Description
Peer AP SSID	Enter the other AP which used for AP mode.
Site Scan	You can scan the APs which used for AP mode in the certainty area
Security Type	Set the same security with the AP which you want to connect.

LAN Setting

The **Basic Setting > LAN Setting** page is mainly set IP address for LAN interface. To access the AP normally, a valid IP address of your LAN should be specified to the LAN interface. The default IP setting is DHCP server (Obtain an IP address automatically).



Basic Setting --> LAN Setting

LAN settings of AP.

○ Obtain an IP address automatically

● Use the following IP address

IP Address: 192 . 168 . 10 . 2

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses

Preferred DNS: . . .

Alternate DNS: . . .

Device Name: IAP-620+_EU-73014D

Ethernet Mode: ○ Redundant ● Switch

Spanning Tree Protocol: ○ Enable ● Disable

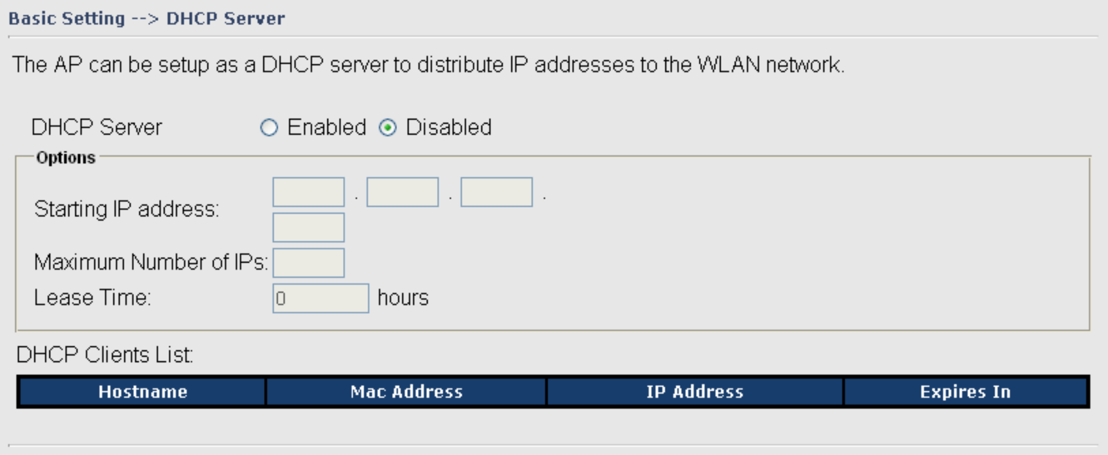
LLDP Protocol: ○ Enable ● Disable

The following table describes the labels in this screen.

Label	Description
Obtain an IP address automatically	Select this option if you would like to obtain an IP address automatically assigned by DHCP server in your network
Use the following IP address	Select this option if you are manually assigning an IP address. **IP Address:** There is a default IP address in the AP, and you can input a new IP address. **Subnet Mask:** 255.255.255.0 is the default Subnet Mask. All devices on the network must have the same subnet mask to communicate on the network. **Default Gateway:** Enter the IP address of the router in your network.
Obtain DNS server address automatically	This option is selected by DHCP server.
Use the following DNS	This option is selected by manually set

server addresses	**Preferred DNS:** There is a default DNS server, and you can input another new DNS server. **Alternate DNS:** There is a default DNS server, and you can input another new DNS server.

Setting DHCP Server



Basic Setting --> DHCP Server

The AP can be setup as a DHCP server to distribute IP addresses to the WLAN network.

DHCP Server ○ Enabled ● Disabled

Options

Starting IP address: . . .

Maximum Number of IPs:

Lease Time: 0 hours

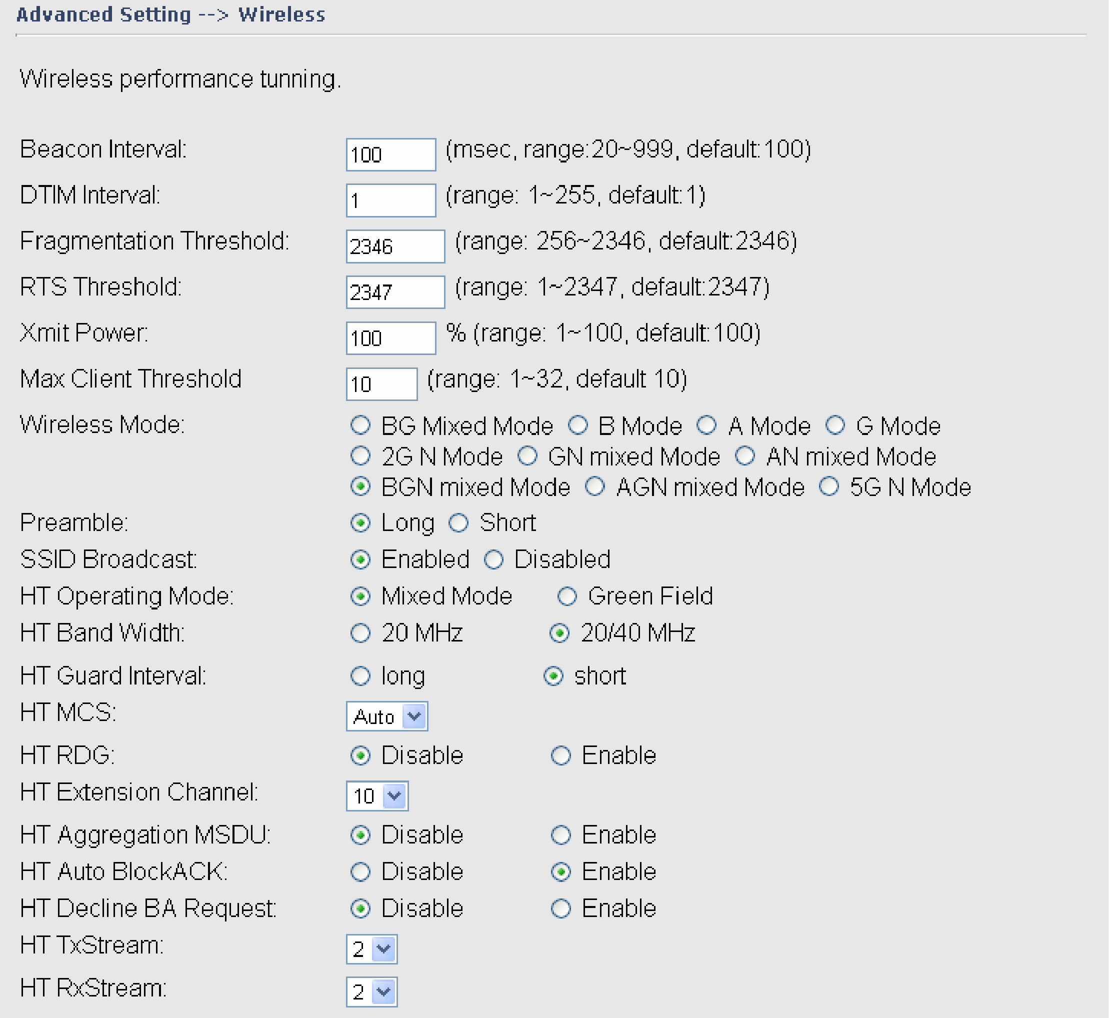
DHCP Clients List:

Hostname	Mac Address	IP Address	Expires In

The following table describes the labels in this screen.

Label	Description
DHCP Server	Enable or Disable the DHCP Server function. Enable – the AP will be the DHCP server on your local network
Start IP Address	The dynamic IP assign range. Low IP address is the beginning of the dynamic IP assigns range. For example: dynamic IP assign range is from 192.168.1.100 to 192.168.1.200. 192.168.1.100 will be the Start IP address.
Maximum Number of IPs	The dynamic IP assign range. High IP address is the end of the dynamic IP assigns range. For example: dynamic IP assign range is from 192.168.1.100 to 192.168.1.200. **100** will be entering into textbox.
Lease Time (Hour)	It is the time period that system will reset the dynamic IP assignment to ensure the dynamic IP will not been occupied for a long time or the server doesn't know that the dynamic IP is idle.
DHCP Clients List	List the devices on your network that are receiving dynamic IP addresses from the IAP-620/IAP-620+.

5.5.2 Advanced Setting Wireless



Advanced Setting --> Wireless

Wireless performance tunning.

Beacon Interval:	100 (msec, range:20~999, default:100)
DTIM Interval:	1 (range: 1~255, default:1)
Fragmentation Threshold:	2346 (range: 256~2346, default:2346)
RTS Threshold:	2347 (range: 1~2347, default:2347)
Xmit Power:	100 % (range: 1~100, default:100)
Max Client Threshold	10 (range: 1~32, default 10)
Wireless Mode:	○ BG Mixed Mode ○ B Mode ○ A Mode ○ G Mode ○ 2G N Mode ○ GN mixed Mode ○ AN mixed Mode ● BGN mixed Mode ○ AGN mixed Mode ○ 5G N Mode
Preamble:	● Long ○ Short
SSID Broadcast:	● Enabled ○ Disabled
HT Operating Mode:	● Mixed Mode ○ Green Field
HT Band Width:	○ 20 MHz ● 20/40 MHz
HT Guard Interval:	○ long ● short
HT MCS:	Auto
HT RDG:	● Disable ○ Enable
HT Extension Channel:	10
HT Aggregation MSDU:	● Disable ○ Enable
HT Auto BlockACK:	○ Disable ● Enable
HT Decline BA Request:	● Disable ○ Enable
HT TxStream:	2
HT RxStream:	2

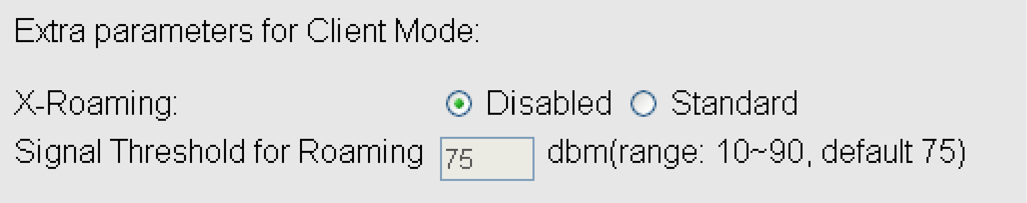
The following table describes the labels in this screen.

Label	Description
Beacon Interval	The default value is 100. The Beacon Interval value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the AP to synchronize the wireless network. 50 is recommended in poor reception.
DTIM Interval	The default value is 1. This value, between 1 and 255 milliseconds, indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the AP has buffered broadcast or multicast messages for associated clients, it sends the next DTIM

	with a DTIM Interval value. Its clients hear the beacons and awaken to receive the broadcast and multicast messages.
Fragmentation Threshold	This value should remain at its default setting of 2346. The range is 256-2346 bytes. It specifies the maximum size for a packet before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly increase the Fragmentation Threshold. Setting the Fragmentation Threshold too low may result in poor network performance. Only minor modifications of this value are recommended.
RTS Threshold	This value should remain at its default setting of 2347. The range is 0-2347 bytes. Should you encounter inconsistent data flow, only minor modifications are recommended. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled. The AP sends Request to Send (RTS) frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission.
Xmit Power	This value ranges from 1 - 100 percent, default value is 100 percent. A safe increase of up to 60 percent would be suitable for most users. Higher power settings are not recommended for users due to excess heat generated by the radio chipset, which can affect the life of the AP.
Wireless Network Mode	You can select 802.11 a/b/g/n wireless mode mix or single
Transmission Rate	The default setting is **Auto**. The range is from 1 to 300Mbps. The rate of data transmission should be set depending on the speed of your wireless network. You can select from a range of transmission speeds, or keep the default setting, Auto, to have the AP automatically use the fastest possible data rate and enable the Auto-Fallback feature. Auto-Fallback will negotiate the best possible connection speed between the AP and a wireless client.
Preamble	Values are Long and Short, default value is Long. If your wireless device supports the short preamble and you are having trouble getting it to communicate with other 802.11b devices, make sure that it is set to use the long preamble
SSID Broadcast	When wireless clients survey the local area for wireless networks

	to associate with, they will detect the SSID broadcast by the AP. To broadcast the AP SSID, keep the default setting, Enable. If you do not want to broadcast the AP SSID, then select Disable.
Signal Threshold for Roaming	Roaming signal threshold setting. When signal below this value AP will roaming to another client target which the same SSID, security option and signal strongest within the environment.(This value just effect on client-mode equipment)
Max Client Threshold	Max number of client equipment setting. When client number over this value AP will reject roaming equipment connection.(This value just effect on AP-mode equipment)

X-Roaming



Extra parameters for Client Mode:

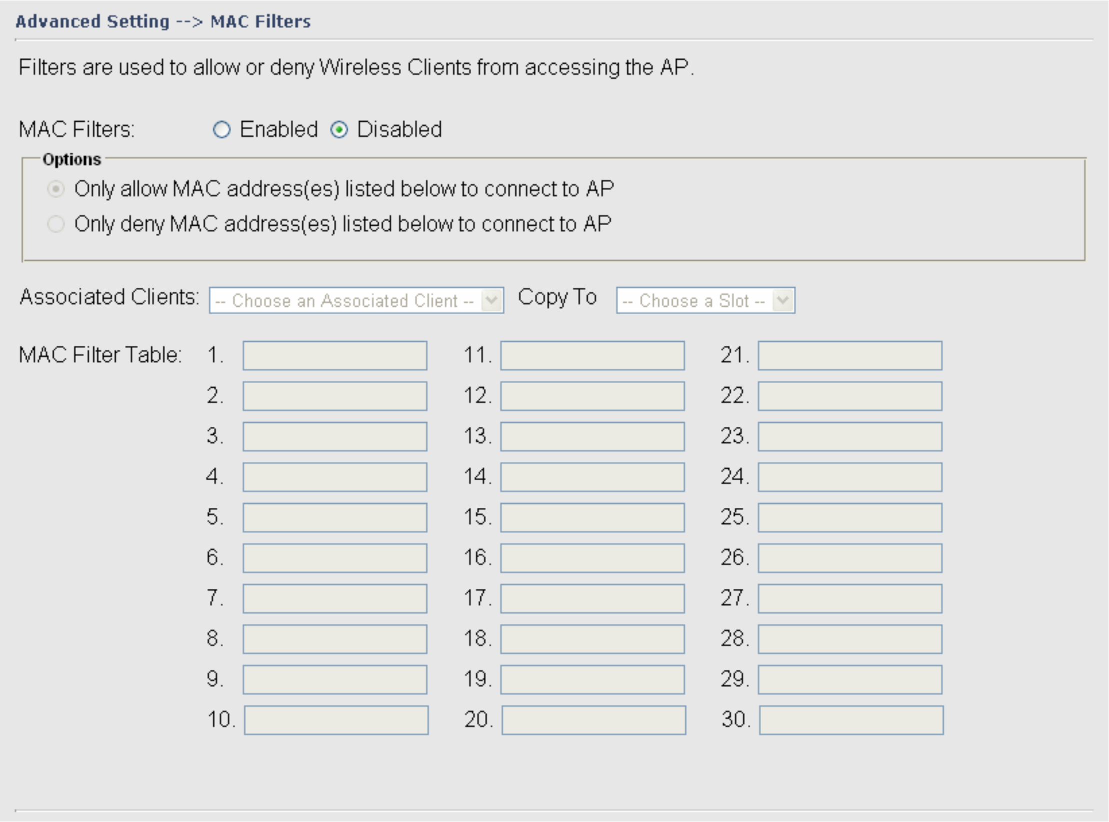
X-Roaming: ● Disabled ○ Standard

Signal Threshold for Roaming 75 dbm(range: 10~90, default 75)

X-Roaming	**Disable:** Disable X-Roaming protocol. **Standard:** Roaming group does not require the same wireless channel, but slower to switch than the "fixed channel" mode **Fixed channel:** Roaming group must be required the same wireless channel, but faster to switch than the "Standard" mode
Roaming Signal Threshold	Roaming signal threshold setting. When signal below this value AP will roaming to another client target which the same SSID, security option and signal strongest within the environment.(This value just effect on client-mode equipment)

MAC Filter

Use **Advanced Setting > MAC Filters** to allow or deny wireless clients, by their MAC addresses, from accessing the IAP-620/IAP-620+. You can manually add a MAC address or select the MAC address from **Connected Clients** that are currently connected to the AP.



Advanced Setting --> MAC Filters

Filters are used to allow or deny Wireless Clients from accessing the AP.

MAC Filters: ○ Enabled ● Disabled

Options

● Only allow MAC address(es) listed below to connect to AP

○ Only deny MAC address(es) listed below to connect to AP

Associated Clients: -- Choose an Associated Client -- Copy To -- Choose a Slot --

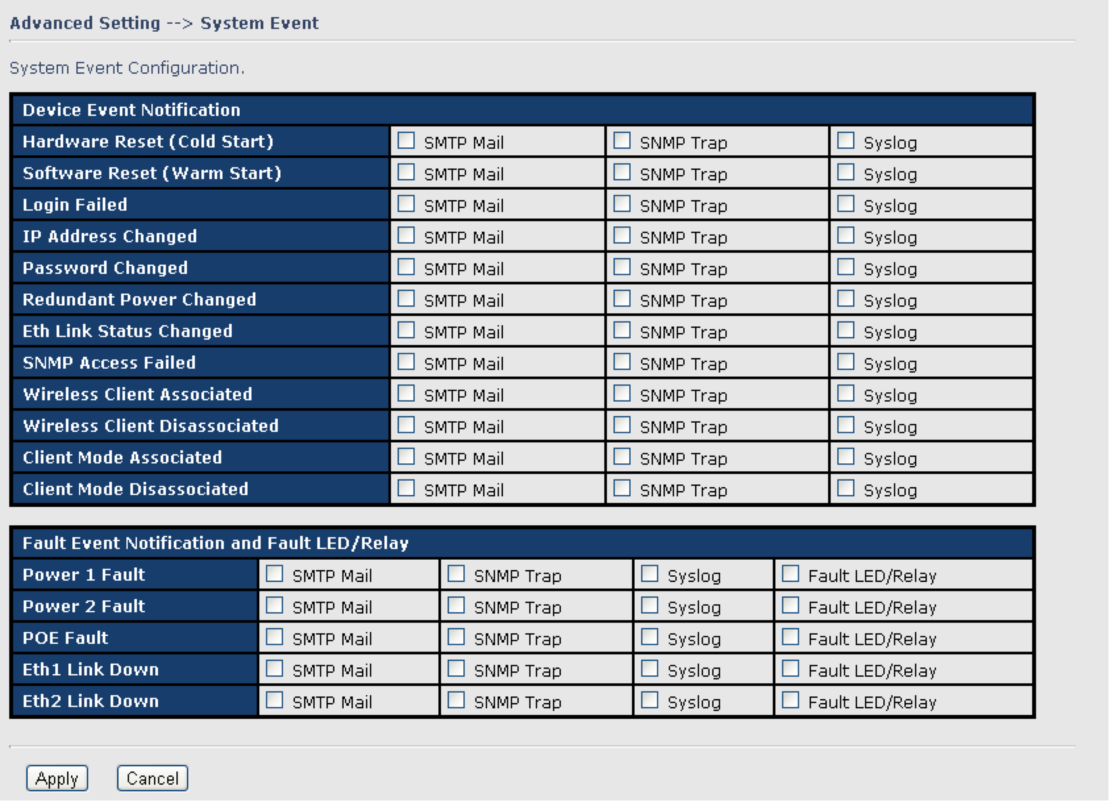
MAC Filter Table: 1. – 30.

The following table describes the labels in this screen.

Label	Description
MAC Filter	Enable or disable the function of MAC filter. MAC address allowed or denied option is selected by you.
MAC Filter List	This list will display the MAC addresses that are in the selected filter.
Connected Clients	This list will display the wireless MAC addresses that linked with AP.
MAC Address	MAC addresses need to be added to or clear from MAC filter list.
Apply	Click Apply to set the configurations.

System Event

When the AP event triggered, the notification procedure will be performed according to the type of the event. Which notification would be performed depends on the selection of corresponding option in the **Advanced Setting > System Event** page.



Advanced Setting --> System Event

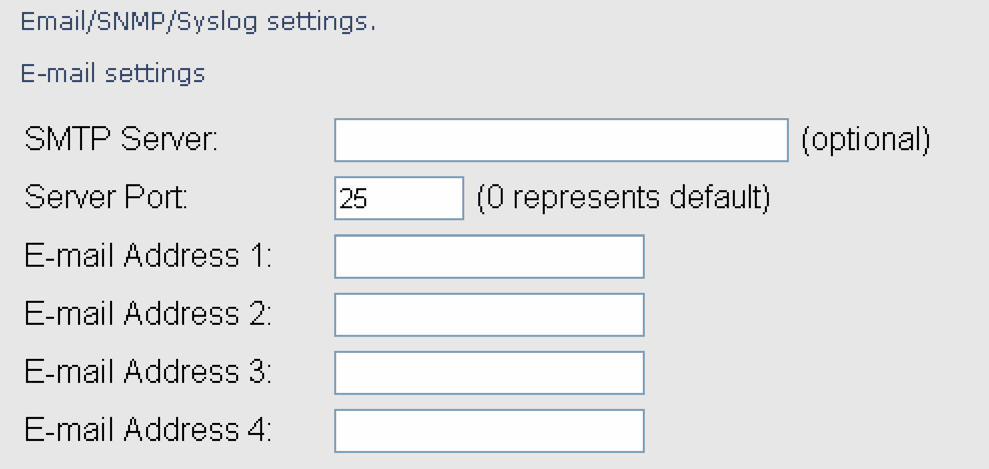
System Event Configuration.

Device Event Notification			
Hardware Reset (Cold Start)	□ SMTP Mail	□ SNMP Trap	□ Syslog
Software Reset (Warm Start)	□ SMTP Mail	□ SNMP Trap	□ Syslog
Login Failed	□ SMTP Mail	□ SNMP Trap	□ Syslog
IP Address Changed	□ SMTP Mail	□ SNMP Trap	□ Syslog
Password Changed	□ SMTP Mail	□ SNMP Trap	□ Syslog
Redundant Power Changed	□ SMTP Mail	□ SNMP Trap	□ Syslog
Eth Link Status Changed	□ SMTP Mail	□ SNMP Trap	□ Syslog
SNMP Access Failed	□ SMTP Mail	□ SNMP Trap	□ Syslog
Wireless Client Associated	□ SMTP Mail	□ SNMP Trap	□ Syslog
Wireless Client Disassociated	□ SMTP Mail	□ SNMP Trap	□ Syslog
Client Mode Associated	□ SMTP Mail	□ SNMP Trap	□ Syslog
Client Mode Disassociated	□ SMTP Mail	□ SNMP Trap	□ Syslog

Fault Event Notification and Fault LED/Relay				
Power 1 Fault	□ SMTP Mail	□ SNMP Trap	□ Syslog	□ Fault LED/Relay
Power 2 Fault	□ SMTP Mail	□ SNMP Trap	□ Syslog	□ Fault LED/Relay
POE Fault	□ SMTP Mail	□ SNMP Trap	□ Syslog	□ Fault LED/Relay
Eth1 Link Down	□ SMTP Mail	□ SNMP Trap	□ Syslog	□ Fault LED/Relay
Eth2 Link Down	□ SMTP Mail	□ SNMP Trap	□ Syslog	□ Fault LED/Relay

System events record the activities of the AP system. When the setting changes or action performs, the event will be sent to administrator by email. A trap will also be sent to SNMP server. The Syslog will record the event locally and may send the log remotely to a Syslog server. If serious event occurred, such as the power failure or link down, the fault LED will be switched on as warning.

Email Settings



Email/SNMP/Syslog settings.

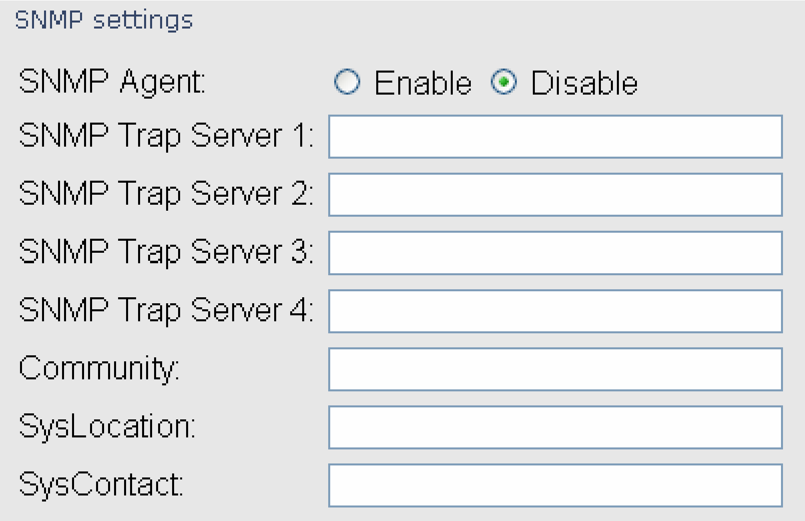
E-mail settings

SMTP Server:		(optional)
Server Port:	25	(0 represents default)
E-mail Address 1:		
E-mail Address 2:		
E-mail Address 3:		
E-mail Address 4:		

The following table describes the labels in this screen.

Label	Description
SMTP Server	Simple Message Transfer Protocol, enter the backup host to use if primary host is unavailable while sending mail by SMTP server.
Server Port	Specify the port where MTA can be contacted via SMTP server.
E-mail Address 1-4	Inputs specify the destination mail address.

SNMP Settings



SNMP settings

SNMP Agent: ○ Enable ● Disable

SNMP Trap Server 1:

SNMP Trap Server 2:

SNMP Trap Server 3:

SNMP Trap Server 4:

Community:

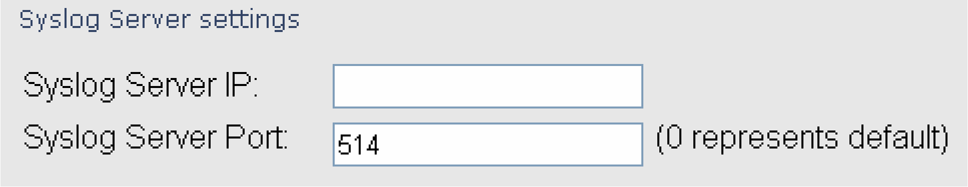
SysLocation:

SysContact:

The following table describes the labels in this screen.

Label	Description
SNMP Agent	SNMP (Simple Network Management Protocol) Agent is a service program that runs on the access point. The agent provides management information to the NMS by keeping track of various operational aspects of the AP system. Turn on to open this service and off to shutdown it.
SNMP Trap Server 1-4	Specify the IP of trap server, which is the address to which it will send traps AP generates.
Community	Community is essentially password to establish trust between managers and agents. Normally "public" is used for read-write community.
SysLocation	Specify sysLocation string.
SysContact	Specify sysContact string.

Syslog Server Settings



Syslog Server settings

Syslog Server IP:

Syslog Server Port: 514 (0 represents default)

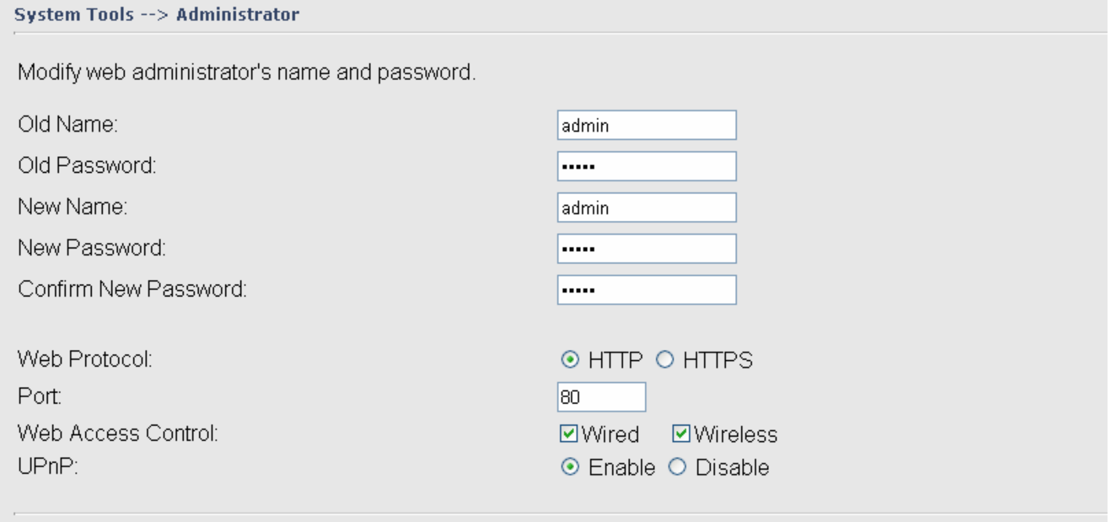
The following table describes the labels in this screen.

Label	Description
Syslog Server IP	Not only the syslog keeps the logs locally, it can also log to remote server. Specify the IP of remote server. Leave it blank to disable logging remotely.
Syslog Server Port	Specify the port of remote logging. Default port is 514.

5.5.3 System Tools

Administrator

In this page, you can change the username and password. The new password must be typed twice to confirm (the default Name and Password is "**admin**" and "").



System Tools --> Administrator

Modify web administrator's name and password.

Old Name:	admin
Old Password:	•••••
New Name:	admin
New Password:	•••••
Confirm New Password:	•••••
Web Protocol:	● HTTP ○ HTTPS
Port:	80
Web Access Control:	☑ Wired ☑ Wireless
UPnP:	● Enable ○ Disable

The following table describes the labels in this screen.

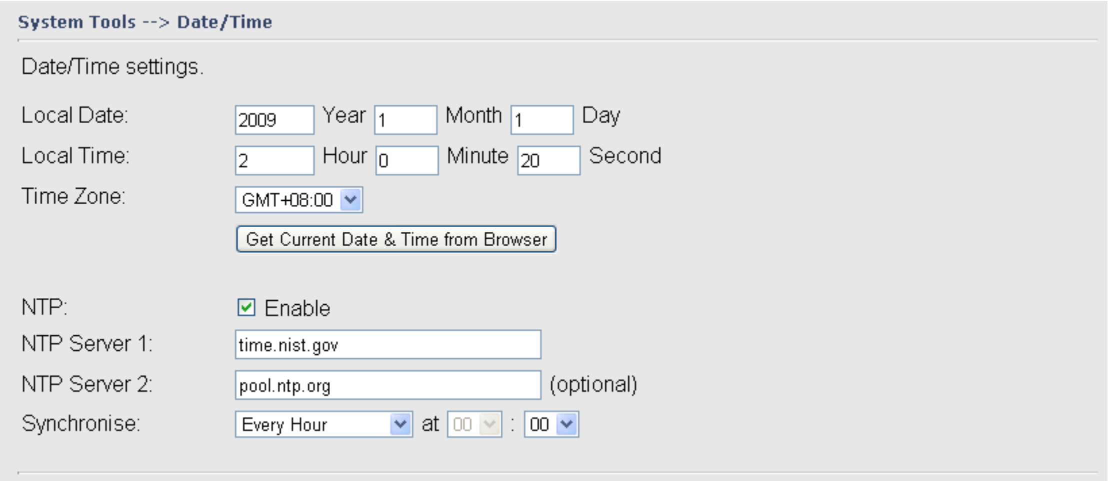
Label	Description
Old Name	This field displays the old login name. It's read only. The default value of login name is "admin".
Old Password	Before making a new setting, you should provide the old password for a verify check. Acceptable inputs of this field contains '0-9', 'a-z', 'A-Z' and must be between 0 to 15 characters in length. The factory default value of login password is null.
New Name	Enter a new login name. Acceptable inputs of this field contains '0-9', 'a-z', 'A-Z' and must be between 1 to 15 characters in length. This field can not accept null input.
New Password	Enter a new login password. Acceptable inputs of this field contains '0-9', 'a-z', 'A-Z' and must be between 0 to 15 characters in length.
Confirm New Password	Retype the password to confirm it. Acceptable inputs of this field contains '0-9', 'a-z', 'A-Z' and must be between 0 to 15 characters in length.
Web Protocol	Choose on the protocol for web. The default value is **HTTP**, if you want the web pages' security is better, choose the **HTTPS**

	protocol.
Port	Corresponding to the Web protocol, there is a default port (HTTP: 80, HTTPS: 443). And you can enter another number which should be in range of 1-65535.
Web Access Control	Choose the checkbox of the Wired and Wireless; you can visit the web page through the mode you choose.
UPnP	Pitch on “Enable”, and the UPnP will display in the right-behind corner.

HTTPS (HTTP over SSL) is a Web protocol developed by Netscape and built into its browser that encrypts and decrypts user page requests as well as the pages that are returned by the Web server.

Date & Time

In this page, set the date & time of the device. The correct date & time will be helpful for logging of system events. A NTP (Network Time Protocol) client can be used to synchronize date & time with NTP server.



System Tools --> Date/Time

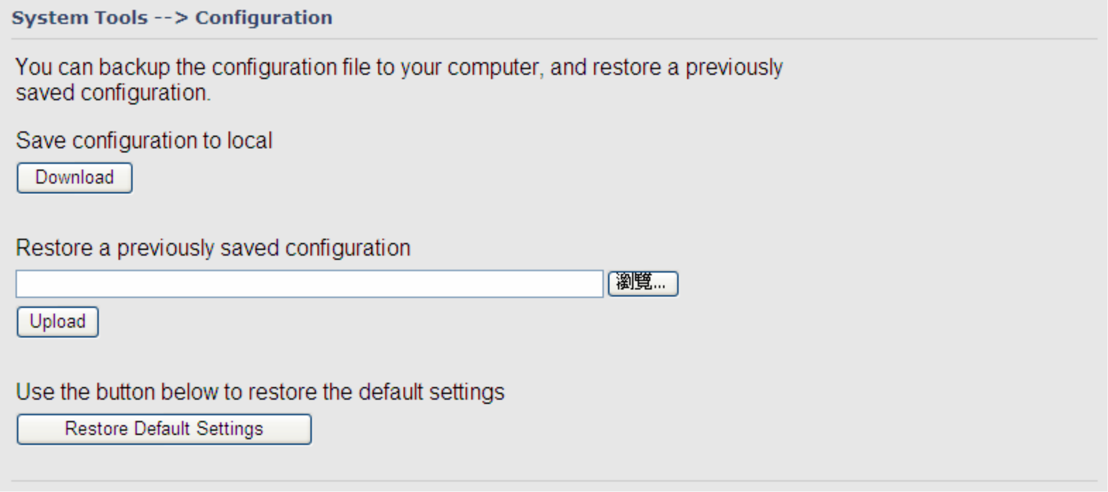
Date/Time settings.

Local Date:	2009 Year 1 Month 1 Day
Local Time:	2 Hour 0 Minute 20 Second
Time Zone:	GMT+08:00
	Get Current Date & Time from Browser
NTP:	☑ Enable
NTP Server 1:	time.nist.gov
NTP Server 2:	pool.ntp.org (optional)
Synchronise:	Every Hour at 00 : 00

The following table describes the labels in this screen.

Label	Description
Local Date	Set local date manually.
Local Time	Set local time manually.
Time Zone	Select the time zone manually
Get Current Date & Time from Browser	Click this button, you can set the time from browser.
NTP	Enable or disable NTP function to get the time from the NTP server.
NTP Server 1	The initial choice about NTP Server.
NTP Server 2	The second choice about NTP Server.
Synchronize	Set the time, and the AP's time synchronize with the NTP Server at the time

Configuration



System Tools --> Configuration

You can backup the configuration file to your computer, and restore a previously saved configuration.

Save configuration to local

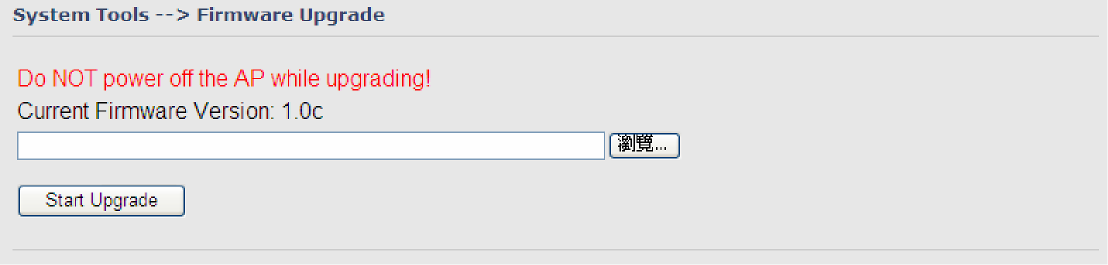
Restore a previously saved configuration

Use the button below to restore the default settings

The following table describes the labels in this screen.

Label	Description
Download configuration	The current system settings can be saved as a file onto the local hard drive.
Upload configuration	The saved file or any other saved setting file can be uploaded back on the AP. To reload a system settings file, click on **Browse** to browse the local hard drive and locate the system file to be used. Click **Upload** when you have selected the file to be loaded back onto the AP.
Restore Default Settings	You may also reset the IAP-120 / 120+ back to factory settings by clicking on **Restore Default Settings**. Make sure to save the unit's settings before clicking on this button. You will lose your current settings when you click this button.

Firmware Upgrade



System Tools --> Firmware Upgrade

Do NOT power off the AP while upgrading!

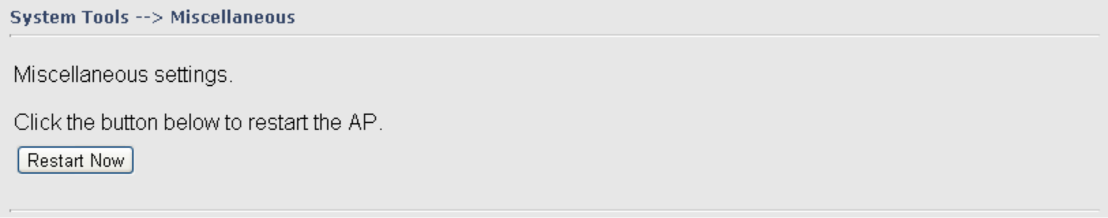
Current Firmware Version: 1.0c

New firmware may provide better performance, bug fixes or more functions. To upgrade, you need a firmware file correspond to this AP model. It will take several minutes to upload and upgrade the firmware. After the upgrade is done successfully, the access point will reboot and get revalidated.

Notice: DO NOT POWER OFF THE AP OR PRESS THE RESET BUTTON WHILE THE FIRMWARE IS BEING UPGRADED.

Miscellaneous

If you want restart the access point through the **Warm Reset**, click **Restart Now** to restart the AP.



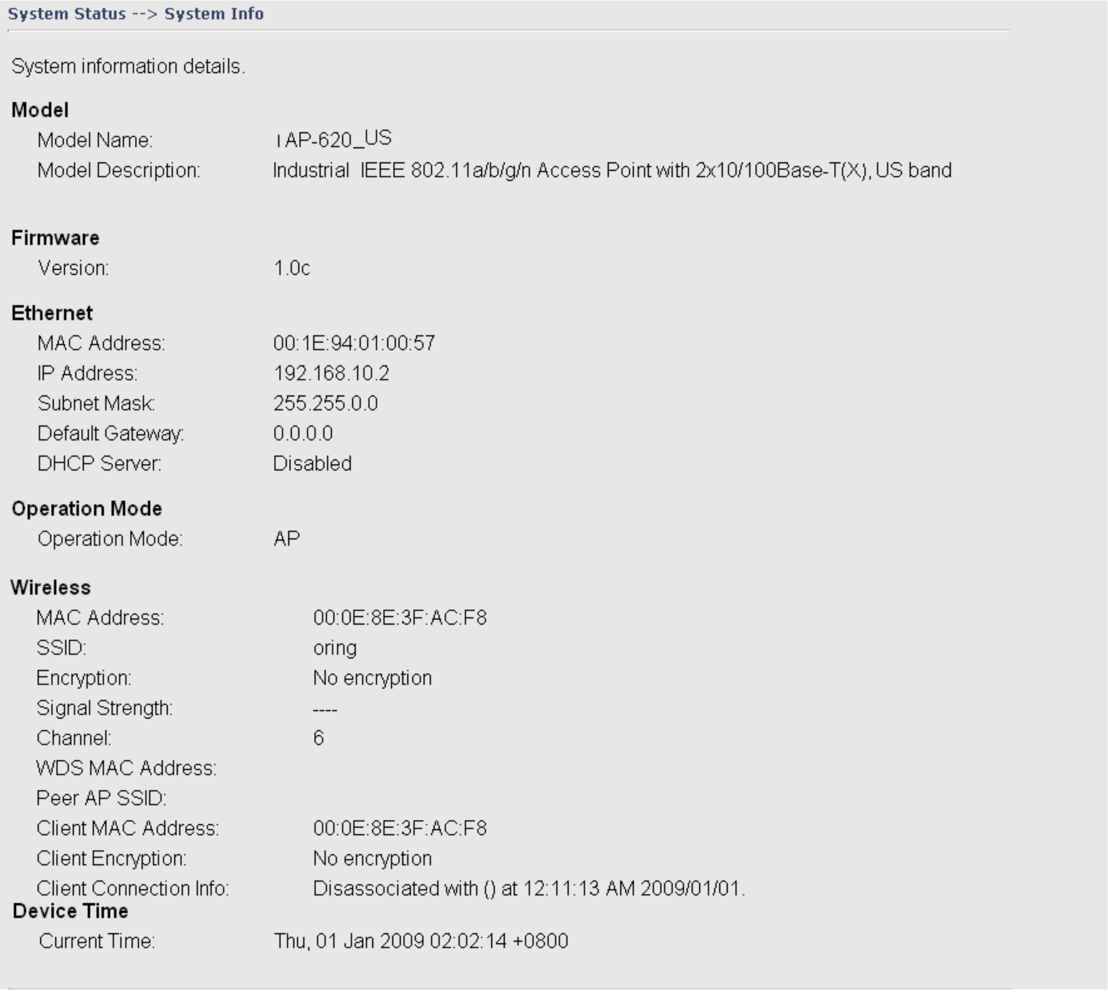
System Tools --> Miscellaneous

Miscellaneous settings.

Click the button below to restart the AP.

5.5.4 System Status

System Info



System Status --> System Info

System information details.

Model

Model Name: IAP-620_US

Model Description: Industrial IEEE 802.11a/b/g/n Access Point with 2x10/100Base-T(X), US band

Firmware

Version: 1.0c

Ethernet

MAC Address: 00:1E:94:01:00:57

IP Address: 192.168.10.2

Subnet Mask: 255.255.0.0

Default Gateway: 0.0.0.0

DHCP Server: Disabled

Operation Mode

Operation Mode: AP

Wireless

MAC Address: 00:0E:8E:3F:AC:F8

SSID: oring

Encryption: No encryption

Signal Strength: ----

Channel: 6

WDS MAC Address:

Peer AP SSID:

Client MAC Address: 00:0E:8E:3F:AC:F8

Client Encryption: No encryption

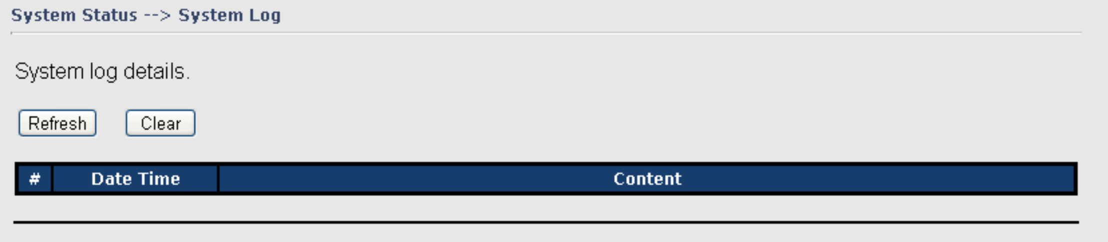
Client Connection Info: Disassociated with () at 12:11:13 AM 2009/01/01.

Device Time

Current Time: Thu, 01 Jan 2009 02:02:14 +0800

This page displays the current information for the IAP-620/IAP-620+. It will display model name, as well as firmware version, Ethernet, Wireless info and device time.

System Log



System Status --> System Log

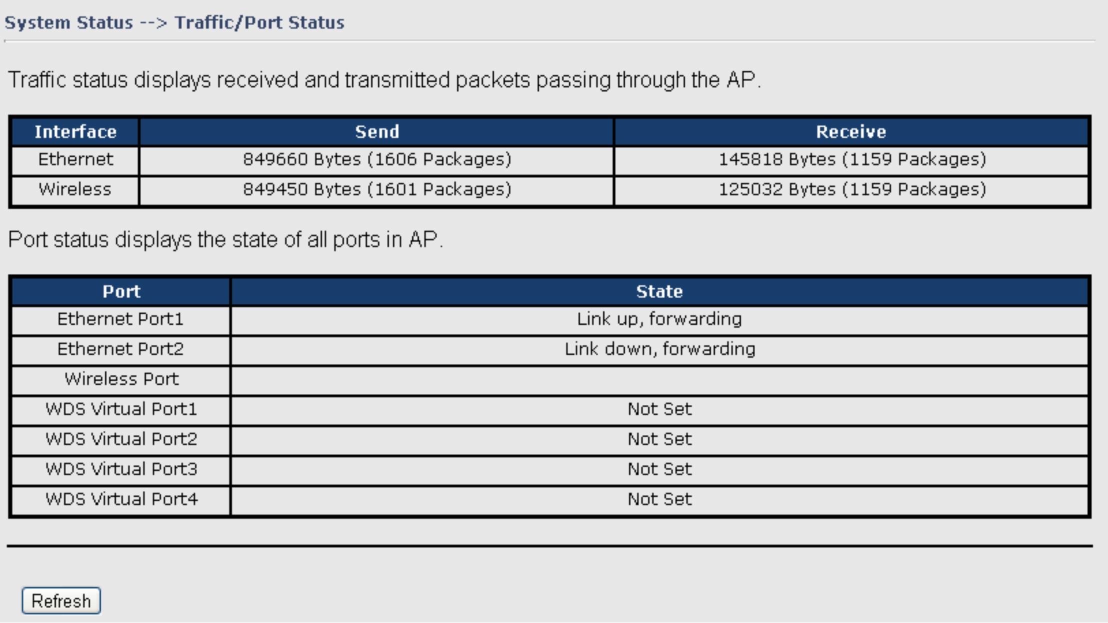
System log details.

#	Date Time	Content

The system log tracks the important events and setting changes of the AP. If the AP is rebooted, the logs are automatically cleared.

Click the button '**Refresh**' to refresh the page; Click the button '**Clear**' to clear log entries.

Traffic Statistics



System Status --> Traffic/Port Status

Traffic status displays received and transmitted packets passing through the AP.

Interface	Send	Receive
Ethernet	849660 Bytes (1606 Packages)	145818 Bytes (1159 Packages)
Wireless	849450 Bytes (1601 Packages)	125032 Bytes (1159 Packages)

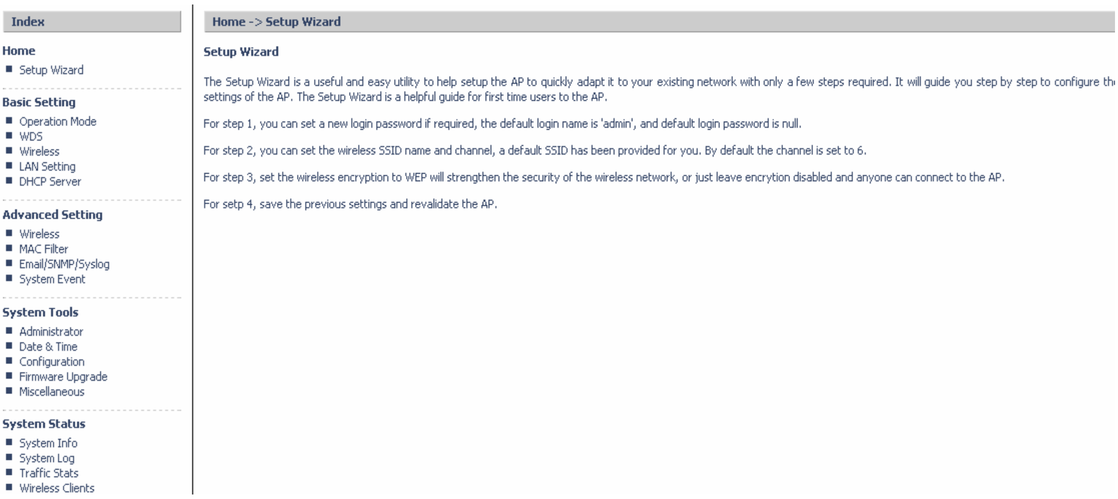
Port status displays the state of all ports in AP.

Port	State
Ethernet Port1	Link up, forwarding
Ethernet Port2	Link down, forwarding
Wireless Port	
WDS Virtual Port1	Not Set
WDS Virtual Port2	Not Set
WDS Virtual Port3	Not Set
WDS Virtual Port4	Not Set

This page displays the network traffic statistics for both received and transmitted packets through the Ethernet port and wireless connections associated with the AP. Simultaneity, the traffic counter will reset by the device rebooting.

5.5.5 Online Help

Click on any item in the **Online Help** screen for more information.



Setup Wizard

The Setup Wizard is a useful and easy utility to help setup the AP to quickly adapt it to your existing network with only a few steps required. It will guide you step by step to configure th settings of the AP. The Setup Wizard is a helpful guide for first time users to the AP.

For step 1, you can set a new login password if required, the default login name is 'admin', and default login password is null.

For step 2, you can set the wireless SSID name and channel, a default SSID has been provided for you. By default the channel is set to 6.

For step 3, set the wireless encryption to WEP will strengthen the security of the wireless network, or just leave encrytion disabled and anyone can connect to the AP.

For setp 4, save the previous settings and revalidate the AP.

Technical Specifications

LAN Interface	
RJ45 Ports	2 x 10/100Base-T(X), Auto MDI/MDI-X
PoE P.D. (Power Device)	Present at ETH2 of IAP-620+ ETH2 act as Power Device (IEEE802.3af): IEEE 802.3af compliant input interface Power consumption: 8Watts max. Over load & short circuit protection Isolation Voltage: 1000 VDC min. Isolation Resistance: 10^8 ohms min
Protocols	IP, TCP, UDP, DHCP, BOOTP, ARP/RARP, DNS, SNMP MIB II, HTTPS, SNMPV1/V2, Trap, Private MIB
WLAN Interface	
Operating Mode	AP/Client/Bridge/AP-Client
Antenna and Connector	2 antennas with 3dBi for 5GHz and 2dBi for 2.4GHz in reverse SMA connector
Radio Frequency Type	DSSS, OFDM
Modulation	IEEE802.11a/n: OFDM with BPSK, QPSK, 16QAM, 64QAM IEEE802.11b: CCK, DQPSK, DBPSK IEEE802.11g/n: OFDM with BPSK, QPSK, 16QAM, 64QAM
Frequency Band	America / FCC: 2.412~2.462 GHz (11 channels) 5.180~5.240 GHz & 5.745~5.825 GHz (9 channels) Europe CE / ETSI: 2.412~2.472 GHz (13 channels) 5.180~5.240 GHz (4 channels) Japan(JP): 2.412~2.484 GHz (13 channels) 5.180~5.240 GHz (4 channels) Canada(CA): 2.412~2.462 GHz (11 channels) *5.180~5.825 GHz (21 channels)
Transmission Rate	802.11b: 1/2/5.5/11 Mbps

	802.11a/g: 6/9/12/18/24/36/48/54 Mbps 802.11n(40MHz): UP to 300 Mbps
Transmit Power	**<Average Power>** 802.11a:13dBm ±1.5dBm@54Mbps 802.11b:16dBm ±1.5dBm@11Mbps 802.11g:14dBm ±1.5dBm@54Mbps 802.11n(2.4G@20MHz):13dBm ±1.5dBm 802.11n(2.4G@40MHz):12dBm ±1.5dBm 802.11n(5G@20MHz):12dBm ±1.5dBm 802.11n(5G@40MHz):12dBm ±1.5dBm **<Peak Power>** 802.11a:25dBm ±1.5dBm@54Mbps 802.11b:21dBm ±1.5dBm@11Mbps 802.11g:22dBm ±1.5dBm@54Mbps 802.11n(2.4G@20MHz):22dBm ±1.5dBm 802.11n(2.4G@40MHz):20dBm ±1.5dBm 802.11n(5G@20MHz):25dBm ±1.5dBm 802.11n(5G@40MHz):23dBm ±1.5dBm
Receiver Sensitivity	802.11a: -68dBm ±2dBm@54Mbps 802.11b: -82dBm ±2dBm@11Mbps 802.11g: -68dBm ±2dBm@54Mbps 802.11n(2.4G@20MHz, MCS15): -64dBm ±2dBm 802.11n(2.4G@40MHz, MCS15): -60dBm ±2dBm 802.11n(5G@20MHz, MCS15): -64dBm ±2dBm 802.11n(5G@40MHz, MCS15): -60dBm ±2dBm
Encryption Security	WEP: (64-bit, 128-bit key supported) WPA/WPA2:802.11i (WEP and AES encryption) WPA-PSK (256-bit key pre-shared key supported) TKIP encryption
Wireless Security	SSID broadcast disable
LED Indicators	PWR 1(2) (PoE, IAP-620+) / Ready: 1) Red On: Power is on and booting up. 2) Green On: Power is on and functioning normally. ETH 1(2) Link / ACT: Orange ON/Blinking: 10 Mbps Ethernet Green ON/Blinking: 100 Mbps Ethernet WLAN Link/ACT: Green

	WLAN Strength:1<25%, 2<50%, 3<75%, 4<100% Fault: Power or LAN link down (Red)
Power Requirements	
Power Input Voltage	Dual power inputs PWR1/2: 12 ~ 48VDC in 6-pin Terminal Block
Reverse Polarity Protection	Present
Power Consumption	6 Watts
Environmental	
Operating Temperature	-10 to 60°C
Storage Temperature	-40 to 85°C
Operating Humidity	5% to 95%, non-condensing
Mechanical	
Dimensions(W x D x H)	52 mm(W)x 106 mm(D)x 144 mm(H)
Casing	IP-30 protection
Regulatory Approvals	
EMS	EN61000-4-2 (ESD), EN61000-4-3 (RS), EN61000-4-4 (EFT), EN61000-4-5 (Surge), EN61000-4-6 (CS), EN61000-4-8, EN61000-4-11
Shock	IEC60068-2-27, EN61373
Free Fall	IEC60068-2-32
Vibration	IEC60068-2-6, EN61373
Rail Traffic	EN50155
Cooling	EN60068-2-1

*Due to market segmentation, DFS Channels (5.260GHz to 5.700GHz) is only available in Canada

Compliance

FCC Statement

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.

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment. This device should be operated with minimum distance 20cm between the device and all persons. Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Industry Canada - Class B This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matérial brouilleur: "Appareils Numériques," NMB-003 édictée par l'Industrie.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'opération est soumise aux deux conditions suivantes: (1) cet appareil ne peut causer d'interférences,et (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer fonctionnement du dispositif.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that permitted for successful communication.

Afin de réduire les interférences radio potentielles pour les autres utilisateurs, le type d'antenne et son gain doivent être choisie que la puissance isotrope rayonnée équivalente (PIRE) est pas plus que celle premise pour une communication réussie

RF exposure warning: The equipment complies with RF exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Avertissement d'exposition RF: L'équipement est conforme aux limites d'exposition aux RF établies pour un incontrôlés environnement. L'antenne (s) utilisée pour ce transmetteur ne doit pas être co-localisés ou fonctionner en conjonction avec toute autre antenne ou transmetteur.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.