

# **IP-COM®**



Wireless N150 Long  
Range AP/Router  
Model No.: P115AP

## **User Guide**

## Copyright Statement

**IP-COM** is the registered trademark of Shenzhen IP-COM Technology Co., Ltd. All the products and product names mentioned herein are the trademarks or registered trademarks of their respective holders. Copyright of the whole product as integration, including its accessories and software, belongs to Shenzhen IP-COM Technology Co., Ltd. Without prior expressed written permission from Shenzhen IP-COM Technology Co., Ltd, any individual or party is not allowed to copy, plagiarize, reproduce, or translate it into other languages.

All photos and product specifications mentioned in this manual are for references only. Upgrades of software and hardware may occur; IP-COM reserves the right to revise this publication and to make changes in the content hereof without obligation to notify any person or organization of such revisions or changes. If you would like to know more about our product information, please visit our website at [www.ip-com.com.cn](http://www.ip-com.com.cn)

# TABLE OF CONTENTS

<b>CHAPTER 1 PRODUCT OVERVIEW.....</b>	<b>5</b>
1.1 FEATURES .....	5
1.2 PACKAGE CONTENT .....	6
1.3 PANEL OVERVIEW.....	7
<b>CHAPTER 2 HARDWARE INSTALL .....</b>	<b>10</b>
2.1 HARDWARE INSTALL.....	10
2.1.1 Connect device to a power source.....	10
2.1.2 Network Connection.....	10
2.2 QUICK SETUP .....	13
2.2.1 AP Mode.....	14
2.2.2 Router Mode .....	16
2.2.3 Universal Repeater Mode.....	19
<b>CHAPTER 3 NETWORK SETUP.....</b>	<b>24</b>
3.1 LAN SETTINGS .....	24
3.2 WAN SETTINGS.....	24
3.3 MAC CLONE.....	27
3.4 DHCP .....	29
3.5 WAN MEDIUM TYPE.....	30

<b>CHAPTER 4 WIRELESS SETTINGS.....</b>	<b>33</b>
4.1 BASIC .....	33
4.2 SECURITY.....	35
4.2.1 WPA-PSK.....	35
4.2.2 WPA2-PSK.....	36
4.2.3 WEP .....	36
4.3 WDS.....	37
4.4 OPTIMUM POSITION SETUP .....	42
4.5 ADVANCED SETTINGS .....	43
4.6 ACCESS CONTROL.....	44
4.7 CONNECTIONSTATUS.....	46
<b>CHAPTER 5 ADVANCED APPLICATIONS .....</b>	<b>47</b>
5.1 BANDWIDTH SETTINGS.....	47
5.2 CONNECTION STATUS .....	48
5.3 DDNS .....	48
5.4 VIRTUAL SERVER .....	50
5.5 DMZ HOST .....	52
5.6 UPnP.....	52
5.7 ROUTING TABLE .....	53
5.8 STATIC ROUTING .....	54
<b>CHAPTER 6 SECURITY SETTINGS .....</b>	<b>55</b>

6.1 MAC ADDRESS FILTER .....	55
6.2 CLIENT FILTER.....	56
6.3 URL FILTER.....	59
6.4 REMOTE WEB MANAGEMENT .....	61
<b>CHAPTER 7 SNMP .....</b>	<b>62</b>
<b>CHAPTER 8 SYSTEM TOOLS .....</b>	<b>63</b>
8.1 SYSLOG .....	63
8.2 STATISTICS .....	63
8.3 TIME & DATE .....	64
8.4 CHANGE PASSWORD .....	65
8.5 BACKUP .....	66
8.6 RESTORE .....	66
8.7 FIRMWARE UPDATE .....	67
8.8 RESTORE TO FACTORY DEFAULT .....	68
8.9 REBOOT .....	68
<b>APPENDIX 1 TCP/IP SETTINGS .....</b>	<b>70</b>
<b>APPENDIX 2 GLOSSARY .....</b>	<b>77</b>
<b>APPENDIX 3 FAQs .....</b>	<b>79</b>
<b>APPENDIX 4 SAFETY AND EMISSION STATEMENT.....</b>	<b>82</b>

# Chapter 1 Product Overview

Thanks for purchasing this P115AP Wireless N150 Outdoor Long Range AP/Router.

The IP-COM P115AP is an outdoor long range wireless AP/router with wireless speed up to 150M. Combining the function of a wireless router, wireless AP, WISP, Client+AP and WDS, etc. the device nicely stands out in outdoor long range wireless connections, P2P, P2MP networking, wireless monitoring applications and much more. The P115AP is housed in an IP64 water/dust-proof enclosure. Also, it is lightning proof and power tunable. In addition to internal antenna design, it comes with an optional external antenna connector for DIY or upgrade. Plus, it is PoE capable and can be reset remotely.

## 1.1 Features

- Compliant with IEEE802.11n and backward compatible with IEEE802.11g/b
- Up to 150Mbps over 2.4G
- 5 operating modes: Wireless Router, Wireless AP, Wireless WAN (WISP), Universal Repeater (Client+AP) and Bridge
- Internal 10dBi directional antenna; plus optional external RP-SMA antenna connector for DIY or upgrade (To use an external antenna, you must first shift antenna type from internal to external on wireless module)
- Power tunable at 3 levels: high, medium and low
- Able to be powered by a passive PoE injector; flexibly deploy your AP at ease
- 6000V lightning proof design (bidirectional);
- Provides encryption methods of 64-/128-bit WEP, WPA-PSK and WPA2-PSK, etc to secure your wireless network
- Provides 1 WAN/LAN/PoE interchangeable port and 1 separate LAN port
- Wireless Roaming technology to ensure high-efficiency wireless

connectivity

- Access Control based on MAC address
- Provides logs to record device's usage status
- Watchdog helps to recover system upon network failure
- Able to reset AP using the Reset button on the PoE injector
- Allow/disallow specified PCs on LAN to access Internet while operating in Router Mode
- Support virtual server and DMZ host when operating in Router Mode
- Support internal firewall to block attacks from hackers when operating in Router Mode

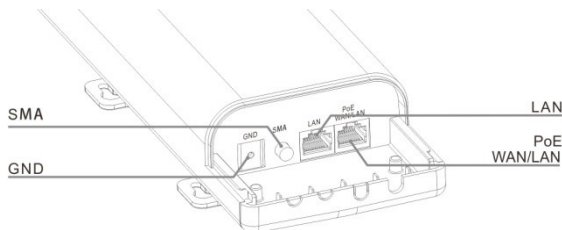
## **1.2 Package Content**

Unpack the box and verify the following items:

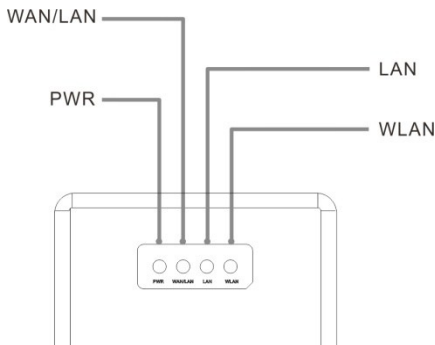
- P115AP x 1
- Screw x 2
- Nylon Ligature x 2
- Plastic Bag x 2
- Ethernet Cable x 1
- Power Adapter x 1
- Injector x 1
- Installation Guide x 1
- CD x 1

If any of the above items are incorrect, missing, or damaged, please contact your local reseller for immediate replacement.

## 1.3 Panel Overview



- **LAN/WAN/POE:** Provides 1 WAN/LAN/PoE interchangeable port, which functions as a WAN/PoE interchangeable port in router mode and a LAN/PoE port in AP mode.
- **LAN:** Provides 1 10/100M LAN port.
- **SMA interface:** RP-SMA connector for external antenna.
- **GND:** Connect GND port on device to the ground using a copper wire for better lightning-proof.

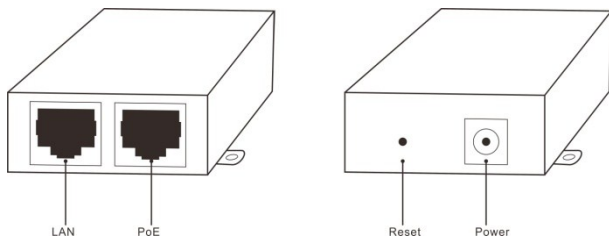




**LEDs are described as below:**

LED	Status	Description
PWR	A solid blue light	Device has electrical power
WAN/LAN	A solid blue light	Ethernet cable is connected
	A blinking blue light	Transferring data
LAN	A solid blue light	Ethernet cable is connected
	A blinking blue light	Transferring data
WLAN	Blue	Transmitting wireless signal at a high power level
	Pink	Transmitting wireless signal at a medium power level
	Red	Transmitting wireless signal at a low power level

## Injector Overview



- **POE:** Power over Ethernet port.
- **LAN/WAN:** 100M Ethernet port.
- **Reset:** Pressing it for 8-10s restores device to factory default settings.
- **Power:** Power connector.

## Chapter 2 Hardware Install

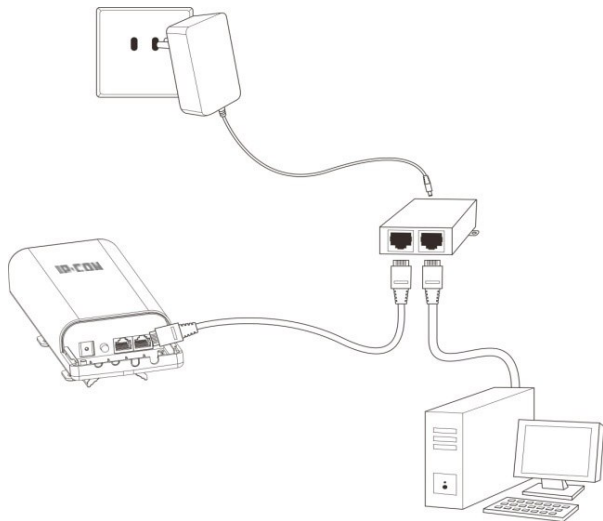
### 2.1 Hardware Install

Before you start configuring the device, follow below steps to install device. For extended wireless coverage, use an external omni-directional antenna and place device in the center of the area for better performance; to implement long range P2P or P2MP wireless bridge, use the internal directional antenna and position device properly for better performance.

#### 2.1.1 Connect device to a power source

The device comes with a PoE injector. Please use it to power the device.

#### 2.1.2 Network Connection



1. Connect the LAN/WAN/POE port on device to the PoE port on the injector using an Ethernet cable.
2. Connect PC to injector's LAN port using an Ethernet cable or wirelessly to the device via the SSID (The default SSID can be found on the label on the back of the device and is not encrypted by default).

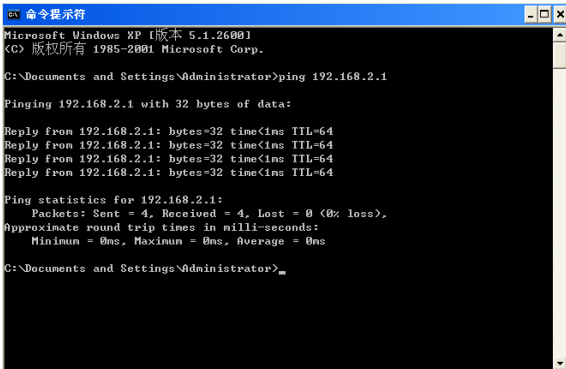
**Note:**

Device operates in AP mode by default. So you need to manually configure a static IP address for your PC. AP's LAN IP address is preset to 192.168.2.1 by default. So your PC's IP address should be 192.168.2.X (where X is any number between 2~254). For IP address configuration, see **Appendix 1**.

3. Use the Ping command to check the connectivity between your device and PC. Click Start -> Run, enter cmd and press Enter or click OK to enter interface below.

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.
C:\Documents and Settings\Administrator>
```

#### 4. Input **ping 192.168.2.1** and press **Enter**.



```
GV 命令提示符
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ping 192.168.2.1

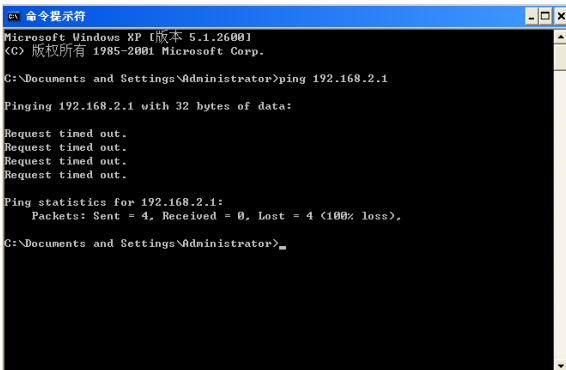
Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time<1ms TTL=64
Reply from 192.168.2.1: bytes=32 time<1ms TTL=64
Reply from 192.168.2.1: bytes=32 time<1ms TTL=64
Reply from 192.168.2.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Administrator>
```

If you get a screen as shown in the screenshot above, your PC and device are interconnected.



```
GV 命令提示符
Microsoft Windows XP [版本 5.1.2600]
(C) 版权所有 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrator>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Documents and Settings\Administrator>
```

If you get a screen as shown in the screenshot above, your PC and device are not interconnected. Please follow below steps to troubleshoot the problem.

##### 1) Verify Ethernet cable connection

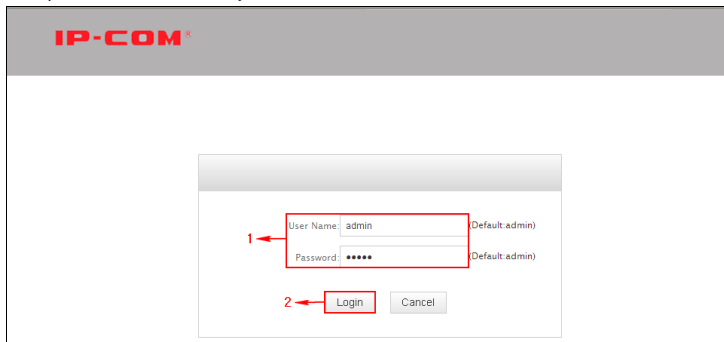
The LAN LED on the device and PC's adapter LED should be on.

## 2) Verify TCP/IP settings on your PC

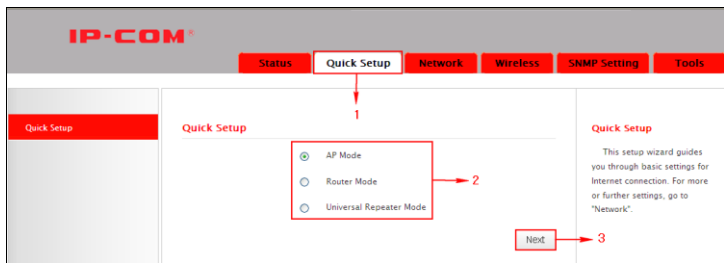
To access device web utility while operating in AP mode or universal repeater mode, manually configure a static IP address for the PC. Just note that the IP address you configure must be on the same net segment as device LAN IP address. While in router mode, you can either manually specify an IP address for the PC or set it to **Obtain an IP address automatically**.

## 2.2 Quick Setup

The device is configurable and manageable through a web browser. Launch a web browser, in the address bar, input **192.168.2.1** and press **Enter**. Enter **admin** in both **User Name** and **Password** fields (Both default user name and password are admin).



Click **Login** on the login window, and then click **Quick Setup**. Select a proper mode for device to operate on from **AP Mode**, **Router Mode** and **Universal Repeater Mode**.

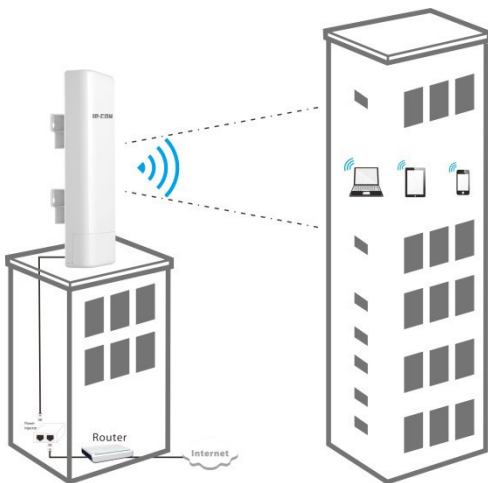


### Operating Mode Overview:

- **AP Mode:** In this mode, the device converts the wired signal into wireless signals, extending existing network coverage. It works as a central access point for multiple wireless clients (generally, wireless adapters) concurrently.
- **Router Mode:** Operating in this mode, device functions as a regular wireless router. It supports PPPoE, dynamic IP (DHCP) , PPTP, L2TP and static IP Internet connection types and provide DHCP server feature that dynamically assigns IP addresses to DHCP-client-capable PCs for Internet connection sharing. Wireless WAN (WISP) and WDS features are available in this mode.
- **Universal Repeater Mode (Client+AP) :** Device wirelessly bridges an uplink device to repeat wireless and extend coverage.

#### 2.2.1 AP Mode

See below for the typical network topology. Position device properly according to practical network environment.



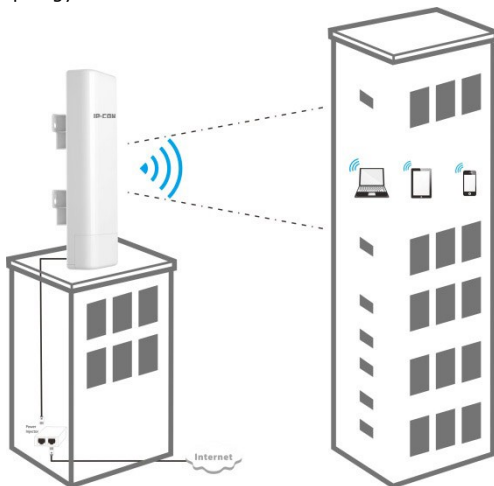
1. Connect the LAN/WAN/POE port on device to the POE port on the injector.
2. Connect the LAN port on the PoE injector to an uplink switch or router.
3. All PCs in the range will then be able to connect to this SSID wirelessly for Internet access.

Device operates in AP mode by default, so simply follow the topology above to establish the network. To configure other features like wireless, simply access the device web management utility. For details, see **Chapter 4**



### 2.2.2 Router Mode

Typical Topology:



1. Connect the LAN/WAN/POE port on device to the POE port on the injector.
  2. Connect the LAN port on PoE injector to ISP.
  3. All PCs in the range will then be able to connect to this SSID wirelessly for Internet access.
1. Select **Router Mode**, click **Next** and then configure basic wireless settings including SSID, channel and security.

- **SSID:** A SSID (Service Set Identifier) is the public name of a wireless network.
  - **Channel:** For an optimal wireless performance, you may select the least interferential channel. It is advisable that you select an unused channel or **Auto** to let device detect and select the best possible channel for your wireless network to operate on from the drop-down list. The default is **Auto**.
  - **Security Mode (Encryption Algorithm):** Select a proper encryption algorithm: WEP, WPA-PSK or WPA/WPA2-PSK. For more information, see **Chapter 4**.
2. Click **Next** and select a proper Internet connection type, say, **PPPoE**, **Static IP** or **DHCP**.

The screenshot shows the IP-COM Quick Setup interface. At the top, there is a navigation bar with tabs: Status, Quick Setup, Network, Wireless, Advanced, Security, SNMP Setting, and Tools. The 'Quick Setup' tab is selected. On the left, there is a sidebar with a 'Quick Setup' button. The main content area is titled 'Quick Setup' and contains the following fields: 'Internet Connection Type:' with a dropdown menu showing 'PPPoE' (annotated with a red box and arrow 1), 'User Name' (annotated with a red box and arrow 2), 'Password' (annotated with a red box and arrow 2), and 'MTU:' with a text box showing '1492' and '(Default: 1492)'. At the bottom right, there are 'Previous' and 'Next' buttons (the 'Next' button is annotated with a red box and arrow 3). On the far right, there is a text box that reads: 'This setup wizard guides you through basic settings for Internet connection. For more or further settings, go to "Network".'

**PPPoE:** Select PPPoE (Point to Point Protocol over Ethernet) if you used to connect to the Internet using a broadband connection that requires a PPPoE user name and a PPPoE password. Simply enter the user name and password provided by your ISP in corresponding fields. If your ISP (Internet Service Providers) requires end-user's MAC address to access their network, you will then need to copy the registered MAC address to the device using the MAC Clone feature. Contact your ISP for help if you have any questions about these parameters.

**Static IP:** Select Static IP if your ISP provides all the needed IP info. You will need to enter the provided IP address, subnet mask, gateway address, and DNS address(es) in corresponding fields. If your ISP (Internet Service Providers) requires end-user's MAC address to access their network, you will then need to copy the registered MAC address to the device using the MAC Clone feature. Contact your ISP for help if you have any questions about these parameters.

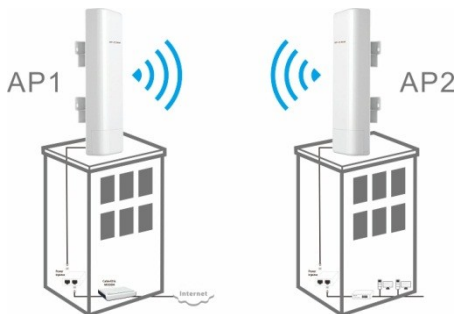
**DHCP:** Select DHCP (Dynamic IP) if you can access Internet as soon as your computer directly connects to an Internet-enabled ADSL/Cable modem. For this type, no configurations are required.

Click **Next** and then **Finish**. Click **OK** and device will restart and will then operate in **Router Mode**. Now set your local PCs to **Obtain an IP address automatically**.

IP-COM®							
Status	Quick Setup	Network	Wireless	Advanced	Security	SNMP Setting	Tools
Quick Setup	<div>Quick Setup</div> <div>Configurations Complete!</div> <div><input type="button" value="Previous"/> <input type="button" value="Complete"/></div>					<div>Quick Setup</div> <div>This setup wizard guides you through basic settings for Internet connection. For more or further settings, go to "Network".</div>	

### 2.2.3 Universal Repeater Mode

#### Typical Topology:



AP1 that operates in **Router Mode** has connected to Internet. AP2 connects to AP1 using the **Universal Repeater Mode**. So, clients that connect to AP2 can also access Internet.

1. Select **Universal Repeater Mode** on **Quick Setup** screen and then click **Next**.
2. Click **Scan** and all wireless networks in the area will be displayed. Select the SSID (the name of a wireless network) you wish to connect, say, **IP-COM\_2**, and then click **Next**.

**Quick Setup**

SSID:

MAC:  (Example: C8-3A-35-3C-10-B8)

Channel:

Security Mode:

☒ Disabled

☐ WEP

☐ WPA-PSK/WPA2-PSK

**Quick Setup**

This setup wizard guides you through basic settings for Internet connection. For more or further settings, go to "Network".

SSID, MAC address and channel fields will be populated automatically.

<input type="radio"/>	IP-COM_0869DE	C8:3A:35:52:5E:E4	11	wep/wpa	-68 dBm
<input type="radio"/>	Tenda_000294	C8:3A:35:00:02:94	11	none	-73 dBm
<input type="radio"/>	Tenda_4AD788	C8:3A:35:4A:D7:88	11	none	-81 dBm
<input type="radio"/>	Fly100	C8:3A:35:F5:98:10	11	wep/wpa	-79 dBm
<input checked="" type="radio"/>	IP-COM_2	C8:3A:35:13:05:18	6	wep/wpa	-81 dBm
<input type="radio"/>	123	C8:3A:35:38:DD:E1	11	none	-62 dBm

3. What you need to do is to configure the security settings. For example, the **Security Mode**, **Security Key** and **Key Update Interval** for the SSID **IP-COM\_2** is **WPA-PSK**, **12345678** and **3600s**, simply enter them.

## Quick Setup

SSID: IP-COM\_2

MAC: C8:3A:35:13:05:18 (Example: C8:3A:35:3C:10:B8)

Channel: 6

Security Mode:

☐ Disabled☐ WEP☒ WPA-PSK/WPA2-PSK

Security Mode: WPA-PSK

Cipher Type: AES

Security Key: 12345678

Key Update Interval: 3600

Scan

Previous

Next

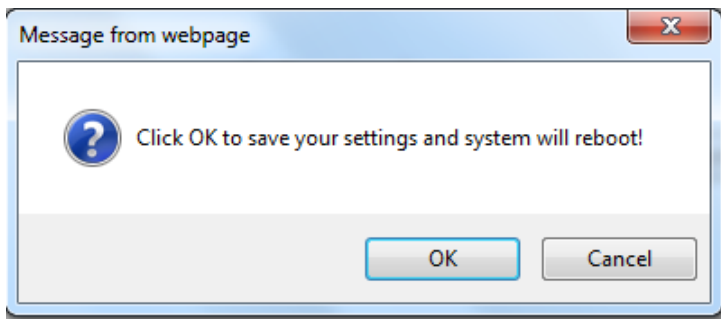
4. Click **Next** and configure wireless settings for the device. Device **MUST** operate on the same channel as the uplink AP for successful implementation of the feature. The channel field on device greyed out in this mode. SSID and security settings are configurable (both can be different from the uplink device).

The screenshot shows the IP-COM Quick Setup interface. At the top, there is a navigation bar with tabs: Status, Quick Setup (selected), Network, Wireless, Advanced, Security, SNMP Setting, and Tools. The main content area is divided into three sections. The left section is a sidebar with a 'Quick Setup' tab. The middle section is titled 'Quick Setup' and contains the following fields: 'SSID' with the value 'IP-COM' (labeled 1), 'Channel' with the value '6', 'Security Mode' with 'WPA - PSK/WPA2-PSK' selected (labeled 2), and 'Security Key' with the value '87654321'. At the bottom right of the middle section are 'Previous' and 'Next' buttons (labeled 3). The right section contains a 'Quick Setup' heading and a paragraph: 'This setup wizard guides you through basic settings for Internet connection. For more or further settings, go to "Network".'

5. Click **Next** and then **Finish**. Click **OK** and device will restart and will then operate in **Universal Repeater Mode**.

Now set your local PCs to **Obtain an IP address automatically** and these PCs will then use IP/gateway/DNS addresses assigned by the uplink device to access Internet.

The screenshot shows the IP-COM Quick Setup interface after configuration. The navigation bar is the same. The main content area is divided into three sections. The left section is a sidebar with a 'Quick Setup' tab. The middle section is titled 'Quick Setup' and contains the text 'Configurations Complete!'. At the bottom right of the middle section are 'Previous' and 'Complete' buttons. The right section contains a 'Quick Setup' heading and a paragraph: 'This setup wizard guides you through basic settings for Internet connection. For more or further settings, go to "Network".'





## Chapter 3 Network Setup

This chapter mainly explains LAN settings in AP Mode, Universal Repeater Mode and Router Mode, as well as WAN settings, MAC Clone, DHCP server and WAN Medium Type (Wired or Wireless WAN).

### 3.1 LAN Settings

**IP-COM®**

Status Quick Setup **Network** Wireless Advanced Security SNMP Setting Tools

**LAN**

LAN Settings

Use this section to configure your router's LAN IP settings.

MAC Address: C8:3A:35:F5:96:48

IP Address: 192.168.2.1

Subnet Mask: 255.255.255.0

Save Cancel

**LAN**

IP Address: Router's LAN IP address. All LAN PC's default gateway must be set to this address.

Subnet Mask: Router's LAN subnet mask, commonly, 255.255.255.0. All LAN PC's subnet mask must be set to this value.

Note:

- **IP Address:** Device's LAN IP address, 192.168.2.1 by default. You can change it according to your needs; just remember to use the new one to log on to the device's web utility if you changed it.
- **Subnet Mask:** Device's LAN subnet mask, 255.255.255.0 by default.
- **Note:** If you change the device's LAN IP address, you must use the new one to log on to the web-based configuration utility. To synchronize system time in AP Mode and Universal Repeater Mode, make sure your device's LAN IP address is on the same net segment as the uplink device, and set gateway and DNS addresses the same as uplink device's IP address.

### 3.2 WAN Settings

WAN settings are only available in Router Mode.

## PPPoE

**WAN**

Internet Connection Type:  → 1

User Name:

Password:  → 2 ☐ Display Key

MPPE: ☐

MTU:  (Default: 1492)

→ 3

**WAN**

Dynamic IP: Select it to obtain IP settings automatically for Internet connection if your ISP does not give you any IP or account info.

Static IP: Select it if your ISP provides you with IP info. Enter IP address, subnet mask, Primary DNS and secondary DNS info, etc provided by your ISP in corresponding fields.

PPPoE: Select it if your ISP is using a PPPoE connection and enter PPPoE user name and password info provided by your ISP.

- **Internet connection Type:** Displays the current Internet connection type.
- **User Name:** Enter the User Name provided by your ISP.
- **Password:** Enter the password provided by your ISP.
- **MPPE:** Microsoft Point-to-Point Encryption (MPPE) is a protocol for encrypting data across Point-to-Point Protocol (PPP) and virtual private network (VPN) links. By default it is disabled. However if ISP enables MPPE on his PPPoE server, you must also enable it on the device. Consult your ISP, if you don't know whether he has enabled the MPPE or not.
- **MTU:** Maximum Transmission Unit. DO NOT change it from the factory default of 1492 unless necessary. You may need to change it for optimal performance with some specific websites or application software that cannot be opened or enabled; in this case, try 1450, 1400, etc.

## Static IP

**WAN**

Internet Connection Type: Static IP 1

IP Address: 0.0.0.0

Subnet Mask: 0.0.0.0

Gateway: 0.0.0.0 2

Primary DNS Server: 0.0.0.0

Secondary DNS Server: 0.0.0.0

MTU: 1500 (Default: 1500)

3 Save Cancel

**WAN**

Dynamic IP: Select it to obtain IP settings automatically for Internet connection if your ISP does not give you any IP or account info.

Static IP: Select it if your ISP provides you with IP info. Enter IP address, subnet mask, Primary DNS and secondary DNS info, etc provided by your ISP in corresponding fields.

PPPoE: Select it if your ISP is using a PPPoE connection and enter PPPoE user name and password info provided by your ISP.

MTU: Maximum Transmission Unit. The default value varies according

If your ISP assigns a fixed IP address to you, then select Static IP, and enter the IP address, subnet mask, primary DNS and secondary DNS (optional) info provided by your ISP in corresponding fields.

- **IP Address:** Enter the WAN IP address provided by your ISP. Consult your ISP if you are not clear.
- **Subnet Mask:** Enter WAN Subnet Mask provided by your ISP. The default is 255.255.255.0.
- **Gateway:** Enter the WAN Gateway provided by your ISP. Consult your ISP if you are not clear.
- **Primary DNS Server:** Enter the DNS address provided by your ISP.
- **Secondary DNS Server:** Enter the other DNS address if your ISP provides 2 such addresses (optional).
- **MTU:** Maximum Transmission Unit. DO NOT change it from the factory default of 1500 unless necessary. You may need to change it for optimal performance with some specific websites or application software that cannot be opened or enabled; in this case, try 1450, 1400, etc.

## DHCP (Dynamic IP)

Select DHCP (Dynamic IP) if you can access Internet as soon as your computer directly connects to an Internet-enabled ADSL/Cable modem. Device will automatically obtain an IP address from ISP.

**IP-COM®**

Status Quick Setup **Network** Wireless Advanced Security SNMP Setting Tools

LAN

**WAN**

MAC Clone

DHCP

WAN Medium Type

**WAN**

Internet Connection Type: Dynamic IP Dynamic IP → 1

MTU: 1500 (Default: 1500)

Save Cancel ← 2

**Dynamic IP:** Select it to obtain IP settings automatically for Internet connection if your ISP does not give you any IP or account info.

**Static IP:** Select it if your ISP provides you with IP info. Enter IP address, subnet mask, Primary DNS and secondary DNS info, etc provided by your ISP in corresponding fields.

## 3.3 MAC Clone

This section allows you to configure Device's WAN MAC address. This feature is only available in Router Mode.

**IP-COM®**

Status Quick Setup **Network** Wireless Advanced Security SNMP Setting Tools

LAN

WAN

**MAC Clone**

DHCP

WAN Medium Type

**MAC Address Clone**

MAC Address: C83A35F59749

Restore to Factory Default MAC Clone MAC

Save Cancel

**MAC Clone**

WAN MAC Address: The device's WAN MAC address seen from the Internet side by your ISP. Normally you don't need to change its default value. However, some ISPs may require a bound MAC address (not router's default WAN MAC) for Internet connection authentication and shall give you a valid MAC. In this case, simply enter such MAC in the WAN MAC Address field, save/apply the changes to activate the new WAN MAC.

Normally you don't need to change device's default WAN MAC address.

However, some ISPs may bind client PC's MAC address for Internet connection authentication. In this case, simply enter the bound MAC in the WAN MAC Address field or click "Copy My PC's MAC" (or Clone MAC) to copy your PC's MAC to the device.

- **MAC Address:** Config device's WAN MAC address and click **Save** to save your settings.
- **Clone MAC:** Click to automatically copy your local PC's MAC address to the device as device's new WAN MAC address.
- **Restore to Factory Default MAC:** Reset Device's WAN MAC to factory default.

### 3.4 DHCP

The Dynamic Host Configuration Protocol (DHCP) is an automatic configuration protocol used on IP networks. If you enable the built-in DHCP server on this device, it will automatically configure TCP/IP protocol settings for all DHCP-Client-enabled PCs in your LAN (Namely, PCs are set to "Obtain an IP address automatically" and "Obtain DNS server address automatically"), including IP address, subnet mask, gateway and DNS etc, eliminating the need for manual intervention.

- **DHCP Server:** enable or disable the device's DHCP server feature. If enabled, the DHCP server will assign IP addresses to requesting clients.
- **Start IP Address:** Specify the starting IP address for the DHCP server IP assignment.
- **End IP Address:** Specify the ending IP address for the DHCP server IP assignment.
- **Primary DNS Server:** Specify a primary DNS address for requesting clients.
- **Secondary DNS Server:** Specify a secondary DNS address for

requesting clients. This field is optional.

- **Lease Time:** The length of time for the IP address lease. Configuring a proper lease time improves the efficiency for the DHCP server to reclaim disused IP addresses.
- **For example:** If the lease time is set to one hour, then the DHCP server will reclaim disused IP addresses every hour.

## 3.5 WAN Medium Type

Here you can select a proper WAN medium type to use: Wireless WAN (WISP) or Wired WAN to connect to the uplink device. Internet connection types are the same for the two medium types.

- **Wired WAN:** Connect to uplink device via an Ethernet cable.
- **Wireless WAN:** Connect to uplink device (WISP AP) wirelessly.

Please do following the steps as below if you connect to the Internet wirelessly.

1. Select **Wireless WAN (WISP)** and click **Scan**. Currently available wireless networks will then be displayed.

2. Select the SSID you wish to connect and SSID, MAC address and

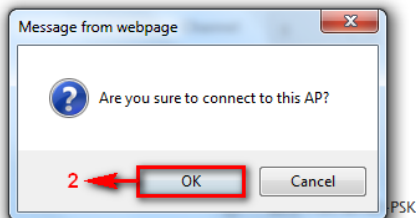
channel fields will then be automatically populated. For example, the security mode (encryption algorithm) and security key for the SSID IP-COM\_2 is WPA-PSK, and 12345678 3600s, simply enter them and click **Save**.

### WAN Medium Type

☐ Wired WAN ☒ Wireless WAN

SSID:

MAC:



Selected	SSID	MAC Address	Channel	Security	Signal Strength
<input type="radio"/>	MobileWiFi-bdf3	78:F5:FD:B7:BD:F3	6	wep/wpa	-67 dBm
<input type="radio"/>	Tenda_158178	C8:3A:35:15:81:78	6	wep/wpa	-51 dBm
<input type="radio"/>	Tenda_txj	C8:3A:35:10:20:30	6	wep/wpa	-41 dBm
<input checked="" type="radio"/>	IP-COM_2	C8:3A:35:13:05:18	6	wep/wpa	-22 dBm

Figure 1



☐ Wired WAN ☒ Wireless WAN

SSID: IP-COM\_2

MAC: C8:3A:35:13:05:18

Channel: 6

Security Settings

☐ None

☐ WEP

☒ WPA-PSK/WPA2-PSK

WPA/WPA2: WPA-PSK

Authentication Type: AES

Security Key: 12345678

Key Update Interval: 3600

Scan

Save Cancel

Figure 2

- Click **OK** and device will restart and will then operate in Wireless WAN (also known as WISP Mode).

**Note:**

When operating in **Wireless WAN (WISP Mode)**, make sure device is operating on the same channel as the uplink device (WISP AP). While SSID and security settings on device are not required so.

## Chapter 4 Wireless Settings

This chapter mainly presents wireless settings, including basic wireless settings, security, WDS, access control settings and connection status.

### 4.1 Basic

- **Wireless:** Check to enable the wireless feature.
- **Antenna:** Select to use internal antenna or external antenna.
- **SSID:** This is the public name of your wireless network. This field does not allow Chinese characters and special characters: ; \ ~ , " & %, etc.
- **SSID Broadcast:** Select "Enable"/"Disable" to make your wireless network visible/ invisible to any wireless clients within coverage when they perform a scan to see what's available. When disabled, this SSID becomes invisible to any wireless clients within the coverage. Manually enter the SSID if you want to connect to it.
- **802.11 Mode:** Select a wireless network mode.  
11b mode: Select it if you have only Wireless-B clients in your wireless

network.

**11g mode:** Select it if you have only Wireless-G clients in your wireless network.

- **11b/g mixed mode:** Select it if you have only Wireless-B and Wireless-G clients in your wireless network.
- **11b/g/n mixed mode:** Select it if you have Wireless-b/g/n clients in your wireless network.
- **Channel:** For an optimal wireless performance, you may select the least interferential channel. It is advisable that you select an unused channel or **Auto** to let device detect and select the best possible channel for your wireless network to operate on from the drop-down list.
- **Channel Bandwidth:** Select a proper channel bandwidth to enhance wireless performance. When there are 11b/g and 11n wireless clients, please select the 802.11n mode of 40M frequency band; when there are only non-11n wireless clients, select 20M frequency band mode; when the wireless network mode is 11n mode, please select 20/40 frequency band to boost its throughput.
- **TX Power:** Select a proper transmission power level for device (Low power: 100mW, medium power: 200mW, high power: 300mW). The default TX power level is **High**.
- **Extension Channel:** It is used to ensure N speed for 802.11n devices on the network.
- **WMM-Capable:** WMM is QoS for your wireless network. Enabling this option may better stream wireless multimedia data (such as video or audio).
- **ASPD Capable:** Select to enable/disable the auto power saving mode.

## 4.2 Security

This section allows you to secure your wireless network to block unauthorized accesses and malicious packet sniffing. For better security, it is advisable to use the WPA-AES encryption.

### 4.2.1 WPA-PSK

The WPA protocol implements the majority of the IEEE 802.11i standard. It enhances data encryption through the Temporal Key Integrity Protocol (TKIP) which is a 128-bit per-packet key, meaning that it dynamically generates a new key for each packet. WPA also includes a message integrity check feature to prevent data packets from being hampered with. Only authorized network users can access the wireless network. WPA adopts enhanced encryption algorithm over WEP.

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic  
**Security**  
WDS  
Optimum Position  
Advanced  
Access Control  
Connection Status

**Security Settings**

☐ None  
☐ WEP  
☒ WPA-PSK/WPA2-PSK

Authentication Type: WPA-PSK

Cipher Type: AES

Security Key: \*\*\*\*\* ☐ Display Key  
(8-63 ASCII or 64 hex characters)

Key Renewal Interval: 3600

**Security**

None: Disable wireless security feature.  
WEP: Wired equivalent privacy. Authentication Type: Select either "Open" or "Shared". Key Format: Select either "ASCII" or "Hex". Key Select: Select a WEP key from below. Key Content: Enter a WEP key. Note that the key format and length must match what is specified hereon. Key Length: Select either 64-bit or 128-bit. Selecting "None" deactivates corresponding WEP Key.

- **Cipher Type:** Select AES (advanced encryption standard), or TKIP (temporary key integrity protocol).
- **Security Key:** Enter a security key, which must be between 8-63 ASCII characters long or 64 HEX characters long.
- **Key Renewal Interval:** Specify a valid time interval for the key to be updated.

### 4.2.2 WPA2-PSK

The later WPA2 protocol features compliance with the full IEEE 802.11i standard and uses Advanced Encryption Standard (AES) in addition to TKIP encryption protocol to guarantee better security than that provided by WEP or WPA.

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic

**Security**

WDS

Optimum Position

Advanced

Access Control

Connection Status

**Security Settings**

☐ None  
☐ WEP  
☒ WPA-PSK/WPA2-PSK

Authentication Type: WPA2-PSK

Cipher Type: AES

Security Key:  ☐ Display Key

(8-63 ASCII or 64 hex characters)

Key Renewal Interval:

**Security**

None: Disable wireless security feature.

WEP: Wired equivalent privacy. Authentication Type: Select either "Open" or "Shared". Key Format: Select either "ASCII" or "Hex". Key Select: Select a WEP key from below. Key Content: Enter a WEP key. Note that the key format and length must match what is specified hereon. Key Length: Select either 64-bit or 128-bit. Selecting "None" deactivates corresponding WEP Key.

- **Cipher Type:** Select AES (advanced encryption standard) or TKIP (temporary key integrity protocol) & AES.
- **Security Key:** Enter a security key, which must be between 8-63 ASCII characters long or 64 HEX characters long.
- **Key Renewal (Update) Interval:** Specify a valid time interval for the key to be updated.

### 4.2.3 WEP

WEP is intended to provide data confidentiality comparable to that of a traditional wired network.

**Security Settings**

☐ None  
☒ WEP

Authentication Type: Open

WEP Key Format: ASCII

Key Select	Key Content	Key Length
Key 1 : <input checked="" type="radio"/>	*****	64-bit
Key 2 : <input type="radio"/>	*****	64-bit
Key 3 : <input type="radio"/>	*****	64-bit
Key 4 : <input type="radio"/>	*****	64-bit

**Security**

None: Disable wireless security feature.

WEP: Wired equivalent privacy. Authentication Type: Select either "Open" or "Shared". Key Format: Select either "ASCII" or "Hex". Key Select: Select a WEP key from below. Key Content: Enter a WEP key. Note that the key format and length must match what is specified hereon. Key Length: Select either 64-bit or 128-bit. Selecting "None" deactivates corresponding WEP Key.

WPA-PSK, WPA2-PSK includes AES and TKIP encryption types. Security

- **Authentication Type:** Select a proper authentication type.
- **WEP Key Format:** Select a proper key format: HEX or ASCII.
- **Key Select:** Select a key from the preset keys 1-4 for current use.

## 4.3 WDS

WDS Bridge Mode: wireless distribution system (WDS) is a system enabling the wireless interconnection of access points in an IEEE 802.11 network. It allows a wireless network to be expanded using multiple access points without the traditional requirement for a wired backbone to link them. Note: The Access Points you select **MUST** support WDS. Select **Wireless AP** from **WDS Mode** and **Enable** from **WDS Status** to enter screen below:

- **WDS Mode:** Select Repeater or Bridge. When operating in Bridge mode, other wireless clients (excluding bridge participants) will not be able to connect to the device; when operating in Repeater mode, other wireless clients will still be able to connect to the device via SSID.
- **WDS Status:** Select Enable or Disable.
- **Scan:** Click to scan wireless networks (SSIDs and BSSID) in the area after you enable the WDS feature.
- **Remote Bridge's MAC Address:** Enter the MAC address of the wireless device you want to connect (link partner).

Take two P115APs as an example to illustrate WDS implementation.  
Select **Repeater** from **WDS Mode** and **Enable** from **WDS Status**.

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic  
Security  
**WDS**  
Optimum Position  
Advanced  
Access Control  
Connection Status

**WDS**

WDS Mode: Repeater → 1

WDS Status: Enable → 2

Scan → 3

Remote Bridge's MAC Address:

Save Cancel

**WDS**

The WDS (Wireless Distribution System) feature enables wireless Aps or wireless routers to extend an existing wireless network to wider coverage. Wireless devices working in WDS mode must be on the same channel and have identical security settings. WDS consists of AP and bridge modes. Select the best mode based on your network environment.

To ensure that both link partners operate on an identical channel, DO NOT select Auto. Both sides must share identical channel, ssid, security settings

1 Directly enter the MAC address of the link partner if you already know it and then click **OK**.

2 Enable **scan** on one associated device to search for the link partner.

1) Click **Scan**.



## WDS

WDS Mode: Repeater

WDS Status: Enable

Close

Remote Bridge's MAC Address:

Selected	SSID	MAC	Channel	Security	Signal Strength
<input checked="" type="checkbox"/>	IP-COM_2	C8:3A:35:13:05:18	6	wep/wpa	-68 dBm
<input type="checkbox"/>	guest12	00:B0:0C:17:EB:F3	2	none	-60 dBm

2

Save

Cancel

2) Select the SSID you wish to connect, click **Save** and its MAC address will then be added automatically to device.

IP-COM®

StatusQuick SetupNetworkWirelessAdvancedSecuritySNMP SettingTools

BasicSecurityWDSOptimum PositionAdvancedAccess ControlConnection Status

WDS

WDS Mode: Repeater  
WDS Status: Enable  
Scan  
Remote Bridge's MAC Address: C8-3A-35-13-05-18  
  
  
  
  
SaveCancel

WDS

The WDS (Wireless Distribution System) feature enables wireless Aps or wireless routers to extend an existing wireless network to wider coverage. Wireless devices working in WDS mode must be on the same channel and have identical security settings. WDS consists of AP and bridge modes. Select the best mode based on your network environment.  
To ensure that both link partners operate on an identical channel, DO NOT select Auto. Both sides must share identical channel,ssid,security settings and password for successful implementation of the WDS

Click **Save** to save your settings. And then configure same settings on the bridge partner device. When **up** appears, you have successfully connected to it.

**Note:**

WDS feature can only be implemented between 2 WDS-capable wireless devices. Plus, SSID, channel, security settings and security key must be exactly the same on both such devices.

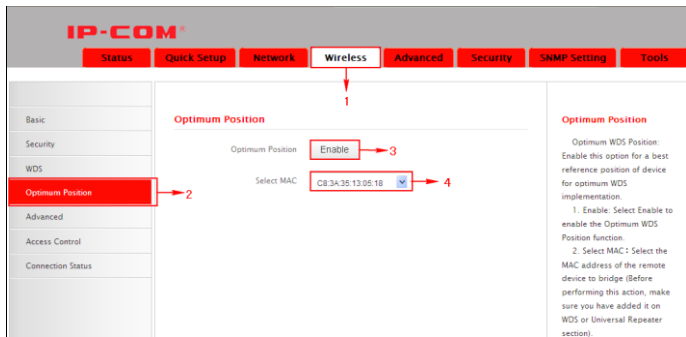
To authenticate on wireless client access, go to Wireless -> Security. After you finish the configurations, remember to reboot the device for proper WDS communication.

3. Each device can bridge up to 4 wireless devices.

## 4.4 Optimum Position Setup

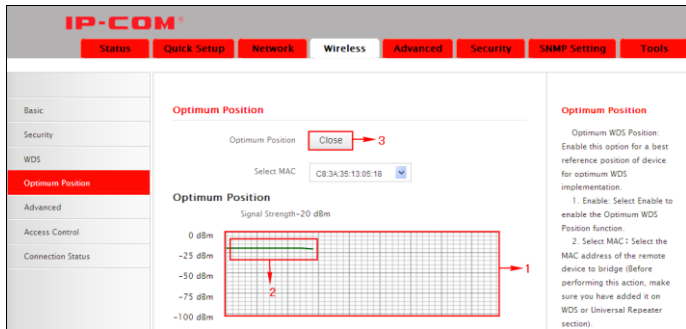
**Optimum Position:** Enable this option for a best reference position of device for optimum performance.

1. Click **Wireless** -> **Optimum Position** to enter the configuration interface.



2. Select **Enable** to enable the **Optimum Position** function.

**Select MAC:** Select the MAC address of the remote device to bridge. (Before performing this action, make sure you have added it on **WDS** or **Universal Repeater** section)



Place and hold the device in different places for a certain period of time (5 seconds is recommended), observe signal strength change from the graph. Position device exactly where as it is when strongest signal appears on the graph.



Note:

1. The smallest signal strength absolute value on vertical axis indicates best signal strength.
2. When you have positioned the device ideally for bridge, remember to disable the **Optimum WDS Position** function. So it may not affect your wireless performance.

## 4.5 Advanced Settings

This section allows you to configure advanced settings, including AP Isolation, Beacon interval, Fragment threshold, RTS threshold and DTIM interval, etc, for your wireless networks.

- **AP Isolation:** Isolates clients connecting to master SSID.
- **Beacon Interval:** A time interval between any 2 consecutive Beacon packets sent by an Access Point to synchronize a wireless network. Do NOT change the default value of 100 unless necessary.
- **Fragment Threshold:** Specify a Fragment Threshold value. Any wireless packet exceeding the preset value will be divided into several

fragments before transmission. DO NOT change the default value of 2346 unless necessary.

- **RTS Threshold:** If a packet exceeds such set value, RTS/CTS scheme will be used to reduce collisions. Set it to a smaller value provided that there are distant clients and interference. For normal SOHO, it is recommended to keep the default value unchanged; otherwise, device performance may be degraded.
- **DTIM Interval:** A DTIM (Delivery Traffic Indication Message) Interval is a countdown informing clients of the next window for listening to broadcast and multicast messages. When such packets arrive at device's buffer, the device will send DTIM (delivery traffic indication message) and DTIM interval to wake clients up for receiving these packets.

## 4.6 Access Control

The MAC-based Wireless Access Control feature can be used to allow or disallow clients to connect to your wireless network.

**IP-COM®**

Status Quick Setup Network Wireless Advanced Security SNMP Setting Tools

Basic  
Security  
WDS  
Optimum Position  
Advanced  
**Access Control**  
Connection Status

**Wireless Access Control**

Access Control: Disabled **Enable** → 1

Filter Mode: ☐ Deny Access to Wireless Network  
☒ **Allow Access to Wireless Network** → 2

ID	MAC Address	Status	Description	Edit
----	-------------	--------	-------------	------

Page 1

3 → **Add** Save Delete all

**Access Control**

Wireless Access Control:  
"Disable" means to deactivate the Wireless Access Control feature. "Allow Access to Wireless Network" means PCs at specified MAC addresses are allowed to connect to your wireless network, while "Deny Access to Wireless Network" means PCs at specified MAC addresses are blocked to your wireless network. Select "Add" to add new MAC address entry.

- **Access Control:** Disabled by default. Click Enable to enable the feature.
- **Deny Access to Wireless Network:** Block only PCs at specified MAC addresses from connecting to your wireless network.
- **Allow Access to Wireless Network:** Allow only PCs at specified MAC addresses to connect to your wireless network.

Click **Add** and below screen appears:

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic  
Security  
WDS  
Optimum Position  
Advanced  
**Access Control**  
Connection Status

**Wireless Access Control**

Use the Wireless Access Control feature to manage client's access to your wireless network.

MAC Address:  → 1

Description:  → 2

Status:  → 3

4 ←

**Access Control**

Wireless Access Control:  
"Disable" means to deactivate the Wireless Access Control feature. "Allow Access to Wireless Network" means PCs at specified MAC addresses are allowed to connect to your wireless network, while "Deny Access to Wireless Network" means PCs at specified MAC addresses are blocked to your wireless network. Select "Add" to add new MAC address entry.

- **MAC Address:** Enter the MAC address of a wireless client.
- **Description:** Briefly describe the current entry/rule.
- **Status:** Select **Enable** or **Disable**.
- Up to 6 rules can be added.

**Example:** To allow only the PC at the MAC address of 00:90:4C:85:11:05 to connect to your wireless network, do as follows:

1. Click **Add**, enter **00:90:4C:85:11:05** in the **MAC Address** field, select **Enable** and then click **Save** as seen in the screenshot below.

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic  
Security  
WDS  
Optimum Position  
Advanced  
**Access Control**  
Connection Status

**Wireless Access Control**

Use the Wireless Access Control feature to manage client's access to your wireless network.

MAC Address: 00 : 90 : 4C : 85 : 11 : 05

Description: 1

Status:

**Access Control**

Wireless Access Control:  
"Disable" means to deactivate the Wireless Access Control feature. "Allow Access to Wireless Network" means PCs at specified MAC addresses are allowed to connect to your wireless network, while "Deny Access to Wireless Network" means PCs at specified MAC addresses are blocked to your wireless network. Select "Add" to add new MAC address entry.

2. You will be redirected to the initial page of this feature. The rule you just added will be displayed there. Select **Allow Access to Wireless Network** and **Enable** as seen in the screenshot below:

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic  
Security  
WDS  
Optimum Position  
Advanced  
**Access Control**  
Connection Status

**Wireless Access Control**

Access Control: Disabled **Enable**

Filter Mode: ☒ Deny Access to Wireless Network  
☐ Allow Access to Wireless Network

ID	MAC Address	Status	Description	Edit
1	00:90:4C:85:11:05	Enable	1	<a href="#">Change</a> <a href="#">Delete</a>

Page 1

[Add](#) [Save](#) [Delete all](#)

**Access Control**

Wireless Access Control: "Disable" means to deactivate the Wireless Access Control feature. "Allow Access to Wireless Network" means PCs at specified MAC addresses are allowed to connect to your wireless network, while "Deny Access to Wireless Network" means PCs at specified MAC addresses are blocked to your wireless network. Select "Add" to add new MAC address entry.

## 4.7 ConnectionStatus

This section displays the info of connected wireless clients including MAC addresses and encryption info, etc.

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Basic  
Security  
WDS  
Optimum Position  
Advanced  
Access Control  
**Connection Status**

**Connection Status**

This section displays wireless client info.

MAC Address	Status	Security	SSID
C8:3A:35:CA:62:DD	Connected	None	IP-COM

[Refresh](#)

**Connection Status**

This section displays wireless client info.

## Chapter 5 Advanced Applications

The **Advanced** tab only works on router mode, it has the following 7 submenus: Bandwidth Settings, Connection Status, DDNS, Virtual Server, DMZ Host, UPnP, Routing Table and Static Routing.

### 5.1 Bandwidth Settings

Bandwidth control is used for limit internal network speed. It supports IP address range configuration. Click Add and below screen will appear.

- **Enable:** Check/uncheck to enable/disable current entry.
- When disabled, corresponding entry will not take effect though existing in fact.
- **IP Range:** Enter a single IP or an IP range.
- **Uplink Bandwidth:** Max uplink traffic.
- **Downlink Bandwidth:** Max downlink traffic.
- **Description:** Briefly describe the current rule, the Max number of rule is 10.



## 5.2 Connection status

Showing the current connection information, which is client IP address, MAC address and connection mode.

**IP-COM®**

Status Quick Setup Network **Wireless** Advanced Security SNMP Setting Tools

Bandwidth Control

**Connection Status**

DDNS

Virtual Server

DMZ Host

UPnP

Routing Table

Static Routing

**Connection Status**

This section displays client info and connection status, etc.

IP Address	MAC Address	Medium Type(Wired/Wireless)
192.168.2.199	C8 3A 35 CA 62 DD	Wireless
192.168.2.100	C8 3A 35 D5 75 A6	Wired

Refresh

This section displays the info of currently connected clients (if any) including IP and MAC addresses, etc.

## 5.3 DDNS

Dynamic DNS or DDNS is a method of updating, in real time, a Domain Name System (DNS) to point to a changing IP address on the Internet. This is used to provide a persistent domain name for a resource that may change location on the network.

**IP-COM®**

Status Quick Setup Network Wireless **Advanced** Security SNMP Setting Tools

Bandwidth Control

Connection Status

**DDNS**

Virtual Server

DMZ Host

UPnP

Routing Table

Static Routing

**DDNS**

DDNS: ☐ Enable ☒ Disable

Service Provider: dyndns Register

User Name:

Password:

Domain Name:

Status: Disconnected

Save Cancel

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc...) using a fixed domain name assigned by a DDNS service provider.

Simply click Register to register a domain name and then enter the user name and password given by the DDNS service provider on this router, and your friends can use this registered domain name to access your local server no matter what your IP address is.

1、Mostly, broadband ISP (Internet service provider) only provide client with Dynamic IP address. While DDNS knows every change on IP address and Banding it with well-known name, so others users can use well-known name to communicate with the client.

2、DDNS can help you setup virtual server in your company or home.

- Service Provider: Select the DDNS service provider you are using, support no-ip, dyndns.
- User Name: Enter the DDNS user name registered with your DDNS service provider.
- Password: Enter the DDNS Password registered with your DDNS service provider.
- Domain Name: Enter the DDNS domain name with your DDNS service provider.

For example: If you have registered a DDNS service from no-ip.com for a web server on the host at 192.168.2.10 and get below info:

User Name	IP-COM
Password	123456
Domain Name	ip-com.zapto.org

First set a mapping rule on Virtual Server interface (For details, see Virtual Server section) and then enter the registered user name, password and domain name as shown below:

**DDNS**

DDNS: ☒ Enable ☐ Disable

Service Provider:  ☒ Register

User Name:

Password:

Domain Name:

Status: Disconnected

**DDNS**

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc.) using a fixed domain name assigned by a DDNS service provider.

Simply click Register to register a domain name and then enter the user name and password given by the DDNS service provider on this router, and your friends can use this registered domain name to access your local server no matter what your IP address is.

Then Click Save to save the settings.

Simply input "http://ip-com.zapto.org" in a launched web browser and your web server will be accessible.

## 5.4 Virtual Server

Defines the mapping between the service port range of WAN access and LAN server, all of the WAN ports used within the scope of access will be re-positioned to the LAN network server specified by IP address.

**Virtual Server**

This section allows you to config virtual server settings.

ID	Ext Port-Int Port	Private IP	Protocol	Enable	Delete
1	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="text"/>	Both <input type="button" value="v"/>	<input type="checkbox"/>	<input type="checkbox"/>

Common Service Port:   ID

**Virtual Server**

Ext Port-Int Port: WAN service port.

Enable: Select to activate a selected entry.

Delete: Click "Delete" and "Save" to remove a selected entry.

Add to: Adds a common service port to corresponding fields of a given entry.

- **Ext Port-Int Port:** WAN service port. Internal LAN PC port corresponding mapped to an external port.
- **Private IP:** The IP address of a computer used as a server in LAN.
- **Protocol:** Includes TCP, UDP and Both. Select "Both" if you are not sure about which protocol to use.
- **Enable:** The corresponding entry takes effect only if you.
- checked this option.
- **Delete:** Clear all settings of this item.
- **Common Service Port:** The well-known protocol ports are listed in the drop-down list. Select one and select a sequence number in the ID drop-down list and then click "Add", this port will be added automatically to the ID list. For other well-known service ports that are not listed, you can manually add them to the list.
- **Add to:** Add the selected well-known port to the policy ID.

For Example: you can build a WEB server on your computer and set the router's port range forwarding to enable your friends to access to your computer. Suppose that your WEB server or your computer's static IP address is 192.168.2.100, and you wish your friends can access the server through the default port 80 and adopts TCP protocol.

**IP-COM®**

Status Quick Setup Network Wireless Advanced Security SNMP Setting Tools

Bandwidth Control  
Connection Status  
DDNS  
**Virtual Server**  
DMZ Host  
UPnP  
Routing Table  
Static Routing

**Virtual Server**

This section allows you to config virtual server settings.

ID	Ext Port-Int Port	Private IP	Protocol	Enable	Delete
1	80 - 80	192.168.2.100	Both	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2			Both	<input type="checkbox"/>	<input type="checkbox"/>
3			Both	<input type="checkbox"/>	<input type="checkbox"/>
4			Both	<input type="checkbox"/>	<input type="checkbox"/>
5			Both	<input type="checkbox"/>	<input type="checkbox"/>
6			Both	<input type="checkbox"/>	<input type="checkbox"/>
7			Both	<input type="checkbox"/>	<input type="checkbox"/>
8			Both	<input type="checkbox"/>	<input type="checkbox"/>

Common Service Port: DNS(53) Add to ID 1

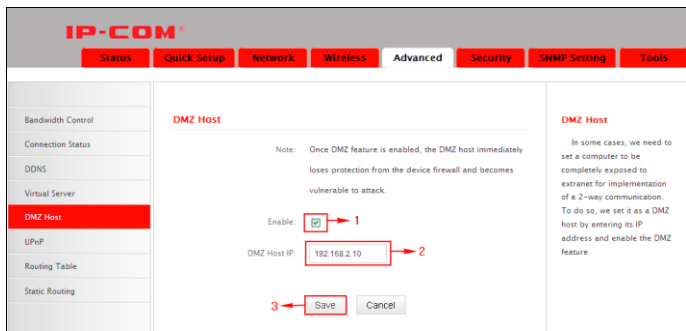
**Virtual Server**

Ext Port-Int Port: WAN service port.  
Enable: Select to activate a selected entry.  
Delete: Click "Delete" and "Save" to remove a selected entry.  
Add to: Adds a common service port to corresponding fields of a given entry.

**Notice:** If you set the service port of the virtual server as 80, you must set the Web Management port on Remote Web Management screen to be any value except 80 such as 8080. Otherwise, there will be a conflict to disable the virtual server.

## 5.5 DMZ Host

The DMZ Settings screen allows one local computer to be exposed to the Internet for use of a special-purpose service such as Internet gaming or videoconferencing. DMZ hosting forwards all the ports at the same time to one PC.



- **DMZ Host IP:** The IP address of the LAN computer you want to set as DMZ host.
- **Enable:** Check to enable the DMZ host.

### For example:

Set the computer at the IP address of 192.168.2.10 as DMZ host to connect another host on the Internet for intercommunication.

**Notice:** When the DMZ host is enabled, the firewall settings of the DMZ host will not function.

## 5.6 UPnP

With the UPnP (Universal Plug and Play) function, the internal host can

request the router to process some special port switching so as to enable the external host to visit the resources of the internal host.

UPnP works in Windows XP, Windows ME or later (Note: Operational system needs to be integrated with or installed with DirectX 9.0) or in an environment with installed application software that supports UPnP.

**UPnP**

Enable UPnP ☒ → 1

2 ← Save Cancel

**UPnP**

UPnP (Universal Plug and Play) feature allows a network device to discover and connect to other devices on the network. Presently, it is only supported by such operational systems as Windows XP and Windows 7 or later.

**Enable UPnP:** Click the checkbox to enable the UPnP.

## 5.7 Routing Table

This page shows the router's core routing table.

**Routing Table**

Destination Network	Subnet Mask	Gateway	metric	Interface
192.168.2.0	255.255.255.0	0.0.0.0	0	LAN

Refresh

**Routing Table**

This section displays routing info.

The main duty for a router is to look for a best path for every data packet, and transfer this data packet to a destination station. In order to fulfill this function, many transferring paths, i.e. routing table, are saved in the router, for choosing when needed.

## 5.8 Static Routing

This page is used to set the router's static routing under router mode. Click Add, the following page you will see.

- **Destination Network:** The destination host or IP segment you visit.
- **Subnet Mask:** Enter the subnet mask, generally it is 255.255.255.0
- **Getaway:** The entry IP address of the next router.
- **Interface:** If destination need go through WAN port, then set it as WAN. Otherwise, set it as LAN.

## Chapter 6 Security Settings

### 6.1 Mac Address Filter

Security Settings only fits for Wireless Router Mode.

To better manage PCs in LAN, you can use the MAC Address Filter function to allow/disallow such PCs to access to Internet. In Filter Mode, you can choose Disable, Allow Access to Internet, and Deny Access to Internet.

If you choose Allow Access to Internet, you will see the following configuration page.

**MAC Filter**

Filter Mode: Allow Access to Internet

Select: (1)

Enable: ☐

Description:

MAC Address:

Time: 00:00 00:00 ~ 00:00 00:00

Day: ☐ Every day ☐ Sun ☐ Mon ☐ Tue ☐ Wen ☐ Thu ☐ Fri ☐ Sat

Delete: Clear

Save Cancel

**MAC Filter**

To better manage computers in your LAN network, you can use the MAC Address Filter feature to control these computers' access to Internet. For details, see User Guide.

To clear an existing filter rule, select it and click Clear, and then the Save button.

Deny/Allow: Disallow/allow specified MACs to access Internet.

Note: 00:00~00:00 means all the time.

- **Filter Mode:** Select Deny or Allow according to your own needs.
- **Deny Access to Internet:** Disallow only PCs at specified MAC addresses to access Internet. Other PCs are allowed.
- **Allow Access to Internet:** Allow only PCs at specified MAC addresses to access Internet. Other PCs are denied.



- **Select:** Select a number (indicating a corresponding entry) from the drop-down menu. Up to 10 rules can be set.
- **Enable:** Check/uncheck to enable/disable the corresponding entry.
- **Description:** Enter a meaningful name to you for corresponding entry.
- **MAC Address:** Enter the PC's MAC address that you want to filter out.
- **Time:** Select a time range for the corresponding entry to take effect, or else the default time is 00:00~00:00, which means the entry will be effective all the day.
- **Day:** select a day or several days for the corresponding entry to take effect.
- **Example :** To allow a PC at the MAC address of 00:00:4C:77:88:99 to access Internet from 00:00 to 18 : 00 everyday, configure same settings on the screenshot below on your device:

The screenshot shows the IP-COM web interface with the 'MAC Filter' tab selected. The configuration form is titled 'MAC Filter' and includes the following fields and options:

- Filter Mode:** A dropdown menu set to 'Allow' (labeled 1).
- Select:** A dropdown menu showing '(1)' (labeled 2).
- Enable:** A checked checkbox (labeled 3).
- Description:** A text box containing '1' (labeled 4).
- MAC Address:** A series of six input boxes containing '00', '00', '4C', '77', '88', and '99' (labeled 5).
- Time:** Two time selection boxes set to '00' and '18' (labeled 6).
- Day:** A checked checkbox for 'Every day' and checkboxes for 'Sun', 'Mon', 'Tue', 'Wen', 'Thu', 'Fri', and 'Sat' (labeled 7).
- Delete:** A 'Clear' button.
- Save/Cancel:** 'Save' and 'Cancel' buttons at the bottom (labeled 8).

On the right side of the page, there is a 'MAC Filter' section with explanatory text: 'To better manage computers in your LAN network, you can use the MAC Address Filter feature to control these computers' access to Internet. For details, see User Guide. To clear an existing filter rule, select it and click Clear, and then the Save button. Deny/Allow: Disallow/allow specified MACs to access Internet. Note: 00:00~00:00 means all the time.'

Click **Save** to save the settings.

## 6.2 Client Filter

To better manage PCs in LAN, you can allow or disallow such PCs to access

certain ports on Internet using the Client Filter functionality.

**Client Filter**

Filter Mode: Deny Access to Internet

Select: (1)

Enable: ☐

Description:

Start IP:

End IP:

Port:

Traffic Type: Both

Time: 00 : 00 - 00 : 00

Day: ☐ Every day ☐ Sun ☐ Mon ☐ Tue ☐ Wen ☐ Thu ☐ Fri ☐ Sat

**Client Filter**

To better manage computers in LAN, you can use the Client Filter functionality to regulate LAN computers' access to Internet. For details, see User Guide.

To clear an existing filter rule filter rule, select it and click the "Clear" button, and then the "Save" button.

Deny/Allow: Disallow/allow a specified IP or IP range to access Internet.

Note: 00:00-00:00 means all the time.

- **Filter Mode:** Select Deny or Allow according to your own needs.
- **Disable:** disable the corresponding entry.
- **Deny Access to Internet:** Disallow PCs at specified IP addresses to access certain ports on Internet.
- **Allow Access to Internet:** Allow only PCs at specified IP addresses to access certain ports on Internet.
- **Select:** Select a number (indicating a filter rule) from the drop-down menu. Up to 10 rules can be set.
- **Enable:** Check/uncheck to enable/disable the corresponding entry.
- **Description:** Enter a meaningful name to yourself for a new filter rule.
- **Start IP:** Enter a starting IP address.
- **End IP:** Enter an ending IP address.
- **Port:** Enter TCP/UDP protocol port number (s); it can be a range of ports or a single port from 1 to 65534.
- **Traffic Type:** Select a protocol or protocols for the traffic (TCP/UDP/Both).
- **Time:** Select a time range for the rule to take effect.

- **Day:** Select a day or several days for the rule to take effect.
- **Example:** To forbid PCs within the IP address range of 192.168.2.20--192.168.2.30 to visit websites from 9:00 to 18:00, do as follows:

### Client Filter

The screenshot shows the 'Client Filter' configuration interface. It includes the following fields and annotations:

- Filter Mode:** A dropdown menu set to 'Deny'. An arrow labeled '1' points to the dropdown arrow.
- Select:** A dropdown menu set to '(1)'. An arrow labeled '2' points to the dropdown arrow.
- Enable:** A checkbox that is checked. An arrow labeled '3' points to the checkbox.
- Description:** A text input field containing '1'.
- Start IP:** A text input field containing '192.168.2.20'.
- End IP:** A text input field containing '192.168.2.30'. An arrow labeled '4' points to this field.
- Port:** Two text input fields, both containing '80', separated by a tilde '~'.
- Traffic Type:** A dropdown menu set to 'Both'.
- Time:** A time range selector showing '09' : '00' ~ '18' : '00'. An arrow labeled '5' points to the rightmost dropdown arrow.
- Day:** A row of checkboxes for 'Every day', 'Sun', 'Mon', 'Tue', 'Wen', 'Thu', and 'Fri'. The checkboxes for 'Mon', 'Tue', 'Wen', 'Thu', and 'Fri' are checked. An arrow labeled '6' points to this row.
- Delete:** A button labeled 'Clear'.
- Save:** A button labeled 'Save'. An arrow labeled '7' points to this button.
- Cancel:** A button labeled 'Cancel'.

Click Save to save the settings.

## 6.3 URL Filter

To better control LAN PCs, you can use the URL filter functionality to allow or disallow such PC to access certain websites within a specified time range.

In Filter Mode, you can choose Disable, Allow Access to Websites, and Deny Access to Websites. You will see the page below.

- **Filter Mode:** Select Deny or Allow according to your own needs.
- **Deny Access to Websites:** Disallow PCs at specified IP addresses to access websites with certain URL string.
- **Allow Access to Websites:** Allow PCs at specified IP addresses to access websites with certain URL string.
- **Select:** Select a number (indicating a filter rule) from the drop-down menu. Up to 10 rules can be set.
- **Description:** Enter a meaningful name to yourself for a new filter rule.
- **Start IP:** Enter a starting IP address.
- **End IP:** Enter an ending IP address.
- **URL String:** Enter domain names or a part of a domain name that

needs to be filtered out.

- **Time:** Select a time range for the corresponding entry to take effect.
- **Day:** select a day or several days for the corresponding entry to take effect.
- **Example:** To forbid PCs within the IP addresses range of 192.168.2.20--192.168.2.30 on your LAN to visit websites whose URL contains "sina", "baidu" and "163" from 00 : 00 to 18 : 00 on working days: Monday- Friday, then do as follows:

**URL Filter**

Filter Mode: Deny Access to Websites 1

Select: (1) 2

Enable: ☒ 3

Description: 1

Start IP: 192.168.2.20 4

End IP: 192.168.2.30

URL String: baidu,sina,163 5

Time: 00 : 00 ~ 18 : 00 6

Day: ☐ Every day ☐ Sun ☒ Mon ☒ Tue ☒ Wen ☒ Thu ☒ Fri 7

Sat

Delete: Clear

8 Save Cancel

Click **Save** to save the settings.

## 6.4 Remote Web Management

The Remote Web management allows the Router to be configured from the Internet by a web browser.

- **Enable:** Select whether to enable the Remote Web-based Management feature.
- **Port:** Remote admin port; the port used by trusted hosts from Internet or other external networks to access and manage the device remotely via a web browser.
- **IP address :** Enter a trusted IP address of a PC from Internet or other external networks which you want to authorize to manage the device remotely via a web browser.

### Notice:

1. To access the device via port 8080, enter `http://x.x.x.x:8080` where "x.x.x.x" represents the the device's Internet IP address and 8080 is the remote admin port. Assuming the device's Internet IP address is 220.135.211.56, then, simply replace the "x.x.x.x" with "220.135.211.56" (namely, `http://220.135.211.56:8080`).
2. Leaving the IP address field at "0.0.0.0" makes the device remotely accessible to all the PCs on Internet or other external networks; populating it with a specific IP address, say, 218.88.93.33, makes the device only remotely accessible to the PC at the specified IP address.

## Chapter 7 SNMP

Simple Network Management Protocol (SNMP) is a popular protocol for network management. It is widely used in local area networks (LAN) for collecting information, and managing and monitoring, network devices. For using this function, please enable it and provide the information which the following page need.

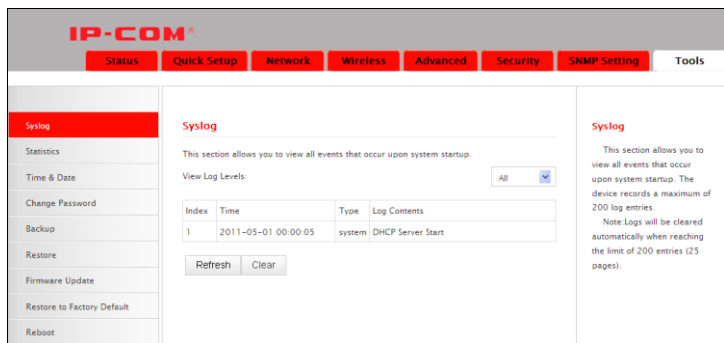
- **System contact** : Set the name to access the AP. Usually set the administrator's name.
- **Device Name** : Set the AP's name, such as IP-COM\_P115AP.
- **Location** : Set the AP's network location.
- **Read Community** : Indicates the community read access string to permit reading this AP's SNMP information. The default is Public.

## Chapter 8 System tools

This section focuses on how to maintain AP, including Syslog, Statistics, Time & Date, Change Password, Backup, Restore, Firmware Update, Restore to Factory Default, Reboot.

### 8.1 Syslog

The section is to view the system log. You can view the various statuses after system startup and check whether there's network attack. If the log is over 200 records, it will clear them automatically.



**IP-COM®**

Status Quick Setup Network Wireless Advanced Security SNMP Setting Tools

**Syslog**

Statistics  
Time & Date  
Change Password  
Backup  
Restore  
Firmware Update  
Restore to Factory Default  
Reboot

**Syslog**

This section allows you to view all events that occur upon system startup.

View Log Levels: All

Index	Time	Type	Log Contents
1	2011-05-01 00:00:05	system	DHCP Server Start

Refresh Clear

**Syslog**

This section allows you to view all events that occur upon system startup. The device records a maximum of 200 log entries.

Note: Logs will be cleared automatically when reaching the limit of 200 entries (25 pages).

- **Refresh:** Click this button to update the log.
- **Clear:** Click this button to clear the current log.

### 8.2 Statistics

Statistics is only for routing mode. This section will display the LAN IP addresses and the corresponding packet traffic status of the local network.



IP-COM®

Status

Quick Setup

Network

Wireless

Advanced

Security

SNMP Setting

Tools

Syslog

Statistics

Time & Date

Change Password

Backup

Restore

Firmware Update

Restore to Factory Default

Reboot

Statistics

Enable Traffic Statistics: ☐

Rate Unit: KB/s

Display in Order

Refresh

Clear

Display in descending order of downstream rate

ID	IP Address	↑Bytes	↓Bytes	↑Rate	↓Rate	Connections
<div>Save</div> <div>Cancel</div>						

Statistics

Statistics displays traffic usage by PCs on your LAN.

- **Enable Traffic Statistics:** Tick this box to enable the network user traffic statistics. If there is no need to, we suggest turn off this function.
- **Refresh:** Click this button to update the statistic list.

## 8.3 Time & Date

IP-COM®

Status

Quick Setup

Network

Wireless

Advanced

Security

SNMP Setting

Tools

Syslog

Statistics

Time & Date

Change Password

Backup

Restore

Firmware Update

Restore to Factory Default

Reboot

Time and Date

This section assists you in setting the device current time; you can either select to set the time and date manually or update it from Internet automatically.

☒

Sync with Internet time servers

Sync Interval:

30 minutes

Time Zone:

(GMT+01:00)Amsterdam, Berlin, Bern, F

Note: GMT time will be updated automatically only when the device is connected to Internet

Set Time and Date Manually:

2011

Year

05

Month

01

Day

04

Hour

03

Minute

47

Second

Sync with Your PC

Save

Cancel

Time & Date

This section assists you in setting the device's current time; you can either select to set the time and date manually or update it from Internet automatically.

Note: The configured time and date information lose when the device is powered off. However, it will be updated automatically when the router connects to the Internet. To activate time-based features (e.g. firewall), the time and date info shall be set correctly first, either manually or automatically.

64

This section is to select the time zone for your location. You can select your own time or obtain the standard GMT time from Internet.

- **Sync with Internet time servers** :Obtain the standard GMT time from Internet automatically.
- **Sync Interval:** System time synchronization interval. Please choose according to your need, the system default cycle time is half an hour.
- **Time Zone:** Select your time zone from the drop-down menu.
- **Sync with Your PC:** Customize the time of the device the same with your PC.

## 8.4 Change Password

IP-COM®							
Status	Quick Setup	Network	Wireless	Advanced	Security	SNMP Setting	Tools
Syslog							
Statistics							
Time & Date							
<b>Change Password</b>							
Backup							
Restore							
Firmware Update							
Restore to Factory Default							
Reboot							

### Change Password

Note: Default password is admin, We recommend you to change it for better security. The password allows a maximum of 14 characters in length and no space.

Old User Name:

Old Password:

New User Name:

New Password:

Confirm New Password:

### Change Password

Default password is admin, We recommend you to change it for better security. Otherwise, anyone in your network can access this utility to change your settings.

Old Password: If you first time use the router, enter "admin". If you already changed it and unfortunately forgot, restore the router to factory defaults.

New Password: Input a new password. It MUST only consist of 3~14 characters without any space.


Confirm New Password: Re-enter the new password.

This section is to set a new user name and password to better secure your device and network. Type in correct parameters in the blank and click **save** to finish the username and password settings.

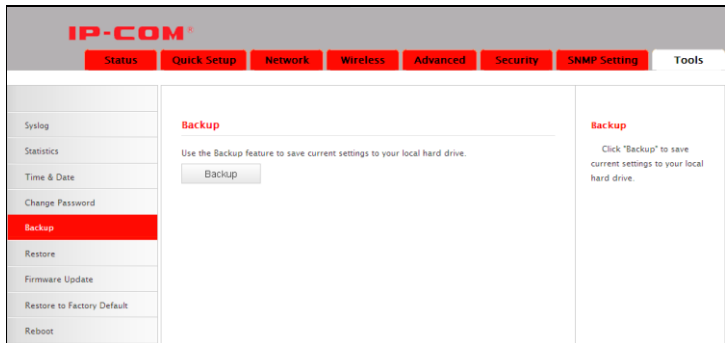
- **Old User Name:** Enter the old username.
- **Old Password:** Enter the old password.
- **New User Name:** Enter a new user name for the device.
- **New Password:** Enter a new password for the device.

65

- **Confirm New Password:** Re-enter to confirm the new password.

 **Note :** It is highly recommended to change the password to secure your network and the device.

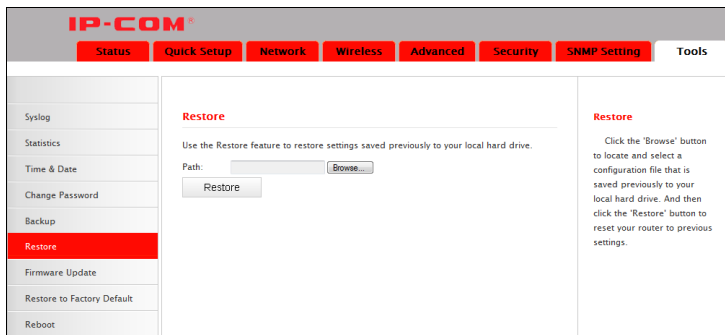
## 8.5 Backup



The screenshot shows the IP-COM web interface. At the top, there is a navigation bar with the IP-COM logo and several menu items: Status, Quick Setup, Network, Wireless, Advanced, Security, SNMP Setting, and Tools. Below this is a sidebar with a list of configuration options: Syslog, Statistics, Time & Date, Change Password, Backup (highlighted in red), Restore, Firmware Update, Restore to Factory Default, and Reboot. The main content area is titled 'Backup' and contains the following text: 'Use the Backup feature to save current settings to your local hard drive.' Below this text is a single button labeled 'Backup'. On the right side of the main content area, there is a smaller section also titled 'Backup' with the text: 'Click "Backup" to save current settings to your local hard drive.'

**Backup:** Click this button to back up the device's configurations.

## 8.6 Restore



The screenshot shows the IP-COM web interface. At the top, there is a navigation bar with the IP-COM logo and several menu items: Status, Quick Setup, Network, Wireless, Advanced, Security, SNMP Setting, and Tools. Below this is a sidebar with a list of configuration options: Syslog, Statistics, Time & Date, Change Password, Backup, Restore (highlighted in red), Firmware Update, Restore to Factory Default, and Reboot. The main content area is titled 'Restore' and contains the following text: 'Use the Restore feature to restore settings saved previously to your local hard drive.' Below this text, there is a 'Path:' label followed by a text input field and a 'Browse...' button. Below the input field is a button labeled 'Restore'. On the right side of the main content area, there is a smaller section also titled 'Restore' with the text: 'Click the "Browse" button to locate and select a configuration file that is saved previously to your local hard drive. And then click the "Restore" button to reset your router to previous settings.'

**Choose File:** Click this button to browse the directory where you backup or save the device's settings.

**Restore:** Click this button to restore the device's configurations.

## 8.7 Firmware Update

By upgrading the router's software, you will get more stable version and appreciation of the routing function.

The screenshot shows the IP-COM router's web management interface. At the top, there is a navigation bar with tabs: Status, Quick Setup, Network, Wireless, Advanced, Security, SNMP Setting, and Tools. The 'Tools' tab is selected, and within it, the 'Firmware Update' option is highlighted in the left sidebar. The main content area is titled 'Firmware Update' and contains the following steps and information:

- Step1:** Download the latest firmware from [www.tenda.cn](http://www.tenda.cn).
- Step2:** Click Browse to locate and select the downloaded firmware.
- Step3:** Click the button Update to upgrade your device.

Below the steps, there is a section for file selection:

Select a firmware file:

Current Firmware Version: V1.0.1.23\_en\_IPE02

Current Firmware Date: Aug 6 2013

On the right side of the interface, there is a note:

**Firmware Update**

Use this section to update your router's firmware for better functionality or new features. The device will reboot automatically when updating is complete.


Note: Do not power off the router or disconnect Ethernet cable while upgrading, otherwise it may be permanently damaged. Upgrading takes about 2 minutes. When it is complete, the device will reboot automatically.

### Firmware Update Steps :

On the Firmware Upgrade screen, click the **Choose File** button and find the new firmware file.

Click **Update** button, and follow the on-screen instructions.

After the upgrade is completed, the device will reboot automatically.

 **Note:** Do not power off the system during the firmware upgrade to avoid damaging the device. The upgrade process will take a few minutes, please wait patiently.

## 8.8 Restore to Factory Default

**IP-COM®**

Status Quick Setup Network Wireless Advanced Security SNMP Setting Tools

Syslog  
Statistics  
Time & Date  
Change Password  
Backup  
Restore  
Firmware Update  
**Restore to Factory Default**  
Reboot

**Restore Factory Default**

To restore factory defaults, click the "Restore Factory Default" button below.

Restore Factory Default

**Restore to Factory Default**

If you enable this option, all current settings will be deleted and be restored to factory default values.  
Default Username: admin  
Default Password: admin  
Default IP Address: 192.168.2.1  
Default Subnet Mask: 255.255.255.0

**Restore to Factory Default:** Click this button is to reset all configurations to the default values. It means the device will lose all the settings you have set.

### Factory Default Settings:

- **User Name:** admin
- **Password:** admin
- **IP Address:** 192.168.2.1
- **Subnet Mask:** 255.255.255.0

## 8.9 Reboot

This page is used to reboot the device. Rebooting the device makes the settings configured go into effect. This process will take about one minute.

IP-COM®

StatusQuick SetupNetworkWirelessAdvancedSecuritySNMP SettingTools

SyslogStatisticsTime & DateChange PasswordBackupRestoreFirmware UpdateRestore to Factory DefaultReboot

Reboot

Click the button Reboot to restart your router.

Reboot

Reboot

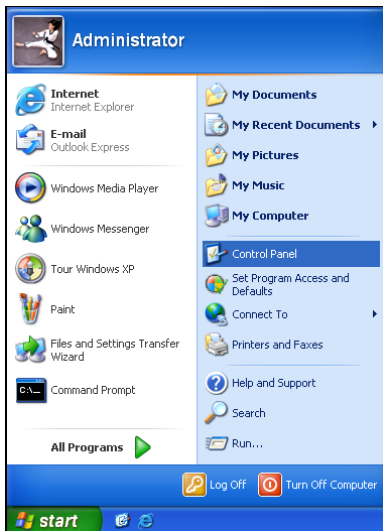
Rebooting the device activates new settings, and connections will be disconnected automatically during the progress.

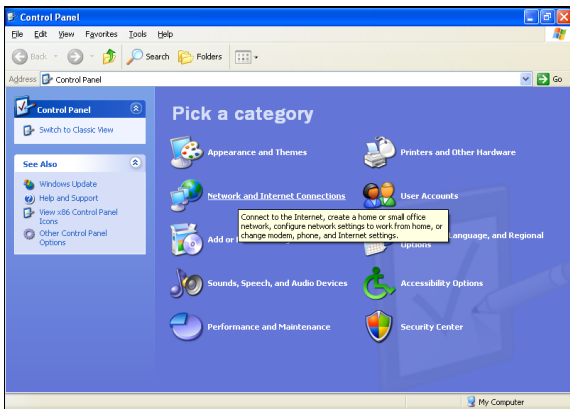
**Reboot:** Click this button to reboot the device.

## Appendix 1 TCP/IP Settings

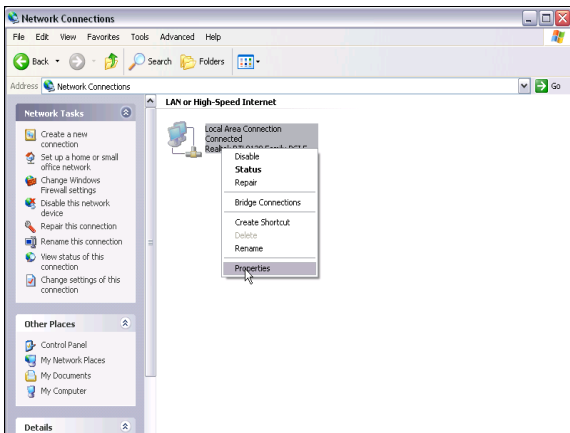
If you are using Windows XP, do as follows:

1. From the desktop, click **Start > Control Panel > Network and Internet Connections**.



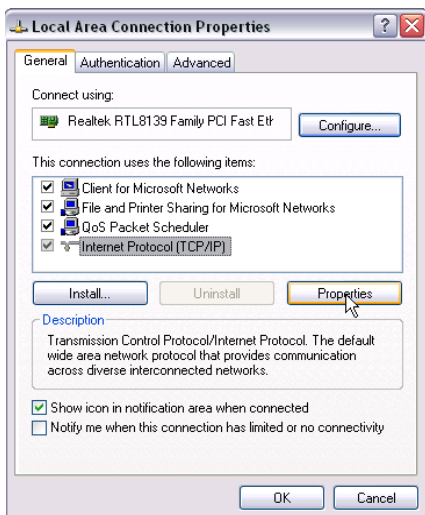


2. Right-click on the **Local Area Connection** and select **Properties**.

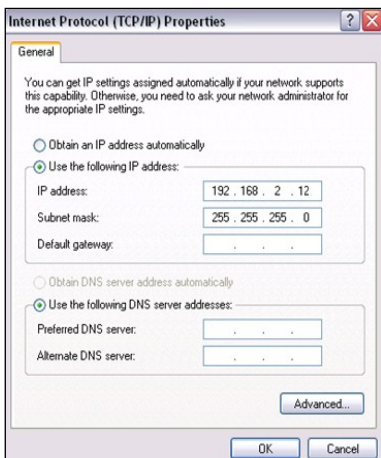




3. Select **Internet Protocol (TCP/IP)** and click **Properties**.



4. Select **Use the following IP address**.



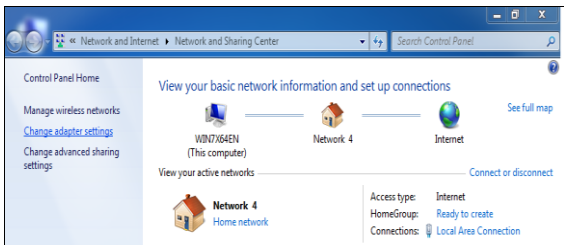
**IP address:** Enter 192.168.2.xxx where xxx can be any number between 2 and 253).

**Subnet mask:** Enter 255.255.255.0.

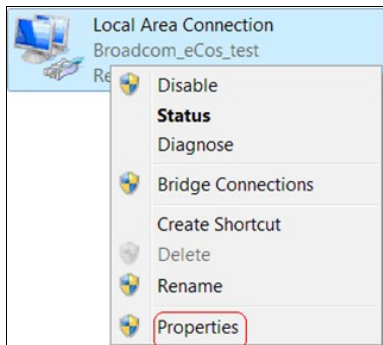
Click **OK** twice to save your settings.

If you are using Windows 7, do as follows:

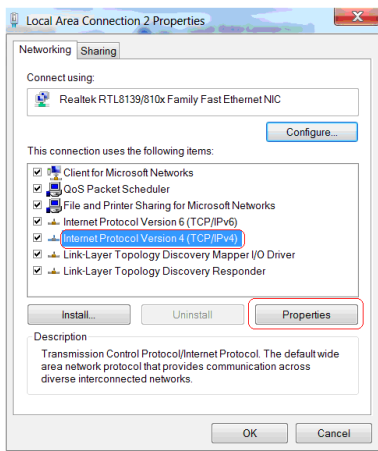
1. Click on **Start-> Control Panel -> Network and Internet-> Network and Sharing Center**. Click **Change adapter settings**.



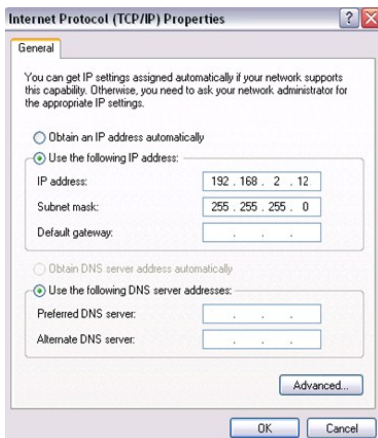
2. Right-click on the **Local Area Connection** and select **Properties**.



3. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties** or directly double-click on **Internet Protocol Version 4 (TCP/IPv4)**.



4. Select **Use the following IP address**.



**IP address:** Enter 192.168.2.xxx where xxx can be any number between 2 and 253).

**Subnet mask:** Enter 255.255.255.0.

Click **OK** twice to save your settings.

## **Appendix 2 Glossary**

### **Channel**

A communication channel, also known as channel, refers either to a physical transmission medium such as a wire or to a logical connection over a multiplexed medium such as a radio channel. It is used to transfer an information signal, such as a digital bit stream, from one or more transmitters to one or more receivers. If there is only one AP in the range, select any channel you like. The default is Auto.

If there are several APs coexisting in the same area, it is advisable that you select a different channel for each AP to operate on, minimizing the interference between neighboring APs. For example, if 3 American-standard APs coexist in one area, you can set their channels respectively to 1, 6 and 11 to avoid mutual interference.

### **SSID**

Service set identifier (SSID) is used to identify a particular 802.11 wireless LAN. It is the name of a specific wireless network. To let your wireless network adapter roam among different APs, you must set all Aps' SSID to the same name.

Wired Equivalent Privacy (WEP) is a security algorithm for IEEE 802.11 wireless networks with the intention to provide data confidentiality comparable to that of a traditional wired network. WEP, recognizable by the key of 10 or 26 hexadecimal digits, is widely in use. WEP uses the stream cipher RC4 for confidentiality,[5] and the CRC-32 checksum for integrity. Standard 64-bit WEP uses a 40-bit key (also known as WEP-40), which is concatenated with a 24-bit initialization vector (IV) to form the RC4 key. The extended 128-bit WEP protocol uses a 104-bit key size (WEP-104). A 152-bit WEP is available from some vendors. Static WEP encryption allows to include 4 WEP

Keys while dynamic WEP encryption changes WEP key dynamically.

## **WPA/WPA2**

The WPA protocol implements the majority of the IEEE 802.11i standard. It enhances data encryption through the Temporal Key Integrity Protocol (TKIP) which is a 128-bit per-packet key, meaning that it dynamically generates a new key for each packet. WPA also includes a message integrity check feature to prevent data packets from being hampered with. Only authorized network users can access the wireless network.

The later WPA2 protocol features compliance with the full IEEE 802.11i standard and uses Advanced Encryption Standard (AES) in addition to TKIP encryption protocol to guarantee better security than that provided by WEP or WPA. Currently, WPA is supported by Windows XP SP1.

## Appendix 3 FAQs

This section provides solutions to problems that may occur during installation and operation of the device. Read the following if you are running into problems. If your problem is not covered here, please go to our website of [www.ip-com.com.cn](http://www.ip-com.com.cn) or e-mail to [ip-com@ip-com.com.cn](mailto:ip-com@ip-com.com.cn) for help.

### **1. Q: I entered the device's LAN IP address in the web browser but cannot access the utility. What should I do?**

A: 1) Verify physical connectivity by checking whether a corresponding port's link LED lights up. If not, try a different cable. Note that an illuminated light does NOT ALWAYS indicate successful connectivity.

2) In **Router Mode**, you must use a wireless network adapter to connect to the device, as the **LAN/WAN** Ethernet port works as a **WAN** port for Internet connection; while in **AP Mode, Universal Repeater Mode**, you must specify an IP address (192.168.2.2~192.168.2.253) on your PC to connect to the device. 3) Click **Start-->Run**, enter **cmd** and then input **ping 192.168.2.1** to check the connectivity status between your PC and device. If ping succeeds, then check whether the Proxy Server feature is enabled on your browser. If enabled, disable it immediately. In case that ping fails, press and hold the "RESET" button on your device for 7 seconds to restore factory default settings, and then run "ping192.168.2.1" again. Contact our technical support for help if the problem still exists after you tried all the above.

### **2. Q: What should I do if I forget the login password to my device?**

A: Reset your device by pressing the Reset button on the PoE injector for 8~10 seconds. Note: All settings will be deleted and restored to factory defaults once you pressed the Reset button.

### **3. Q: My computer shows an IP address conflict error after having connected to the device. What should I do?**

A: 1) Check if there are other DHCP servers present in your LAN. If there are other DHCP servers except your router, disable them immediately.

2) The default IP address of the device is 192.168.2.1; make sure this



address is not used by another PC or device. In case that two computers or devices share the same IP addresses, change either to a different address.

**4. Q: My computer can neither log in to the device nor access Internet, and there is a yellow triangle with an exclamation mark shown in the network adapter icon on the right bottom corner of my computer desktop; how am I supposed to deal with it?**

A: This problem occurs because your network card has not been assigned with an IP address. If your computer is set to obtain an IP address automatically, please ensure that the router's DHCP function is enabled. DHCP can automatically assign an IP address to your computer. If there is no DHCP server available on your network, please set a static IP address and fill in gateway and DNS, otherwise you cannot access Internet.

**5. Q: How do I share resources on my computer with users on Internet through the device?**

A: To let Internet users access internal servers on your LAN such as e-mail server, Web, FTP, via the device, use the "Virtual Server" feature. To do so, follow steps below:

Step 1: Create your internal server, make sure the LAN users can access these servers and you need to know related service ports, for example, port for Web server is 80; FTP is 21; SMTP is 25 and POP3 is 110.

Step 2: Click "Virtual Server" and select "Port Range Forwarding" (also known as Port Forwarding on some devices) on device's web interface.

Step 3: Input the Start Port/External Port, say, 80.

Step 4: Input the End Port/Internal Port, say, 80.

Input the internal server's IP address. For example, assuming that your Web server's IP address is 192.168. 2.10, then simply input it.

Step 5: Select a communication protocol used by your internal host: TCP, UDP or ICMP and enable the rule.

Step 6: Save your settings.

For your reference, we collected a list of some well-known service ports as follows:

For your reference, we collected a list of some well-known service ports as follows:

Server	Protocol	Service Port
Web Server	TCP	80
FTP Server	TCP	21
Telnet	TCP	23
NetMeeting	TCP	1503、1720
SKype	TCP/UDP	File Send:6891-6900(TCP) Voice:1863、6901(TCP) Voice:1863、5190(UDP)
PPTP VPN	TCP	1723
Iphone5.0	TCP	22555
SMTP	TCP	25
POP3	TCP	110

If your problems are not covered here, please feel free to go to [www.ip-com.com.cn](http://www.ip-com.com.cn) . to find solutions or email your problems to: [ip-com@ip-com.com.cn](mailto:ip-com@ip-com.com.cn) . We will be more than happy to help you out as soon as possible.

IP-COM Networks, Inc  
No. 34-1 Shilong Road  
Shiyan Town, Bao'an District  
Shenzhen 518108,China  
Tel: +86-755-8170-7803  
Fax: +86-755-2765-7178  
Email: [marketing@ip-com.com.cn](mailto:marketing@ip-com.com.cn)  
<http://www.ip-com.com.cn>

## **Appendix 4 Safety and Emission Statement**



### **CE Mark Warning**

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures. This device complies with EU 1999/5/EC.

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable.



### **FCC Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radiofrequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user

will be required to correct the interference at his own expense.

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

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment.

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable