



Vigor2110 Series Broadband Firewall Router Quick Start Guide

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Date: 2008/09/01

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Safety Instructions and Approval

Safety Instructions

- Read the installation guide thoroughly before you set up the router.
- The router is a complicated electronic unit that may be repaired only be authorized and qualified personnel. Do not try to open or repair the router yourself.
- Do not place the router in a damp or humid place, e.g. a bathroom.
- Do not stack the routers.
- The router should be used in a sheltered area, within a temperature range of +5 to +40 Celsius.
- Do not expose the router to direct sunlight or other heat sources. The housing and electronic components may be damaged by direct sunlight or heat sources.
- Do not deploy the cable for LAN connection outdoor to prevent electronic shock hazards.
- Keep the package out of reach of children.
- When you want to dispose of the router, please follow local regulations on conservation of the environment.

Warranty

We warrant to the original end user (purchaser) that the router will be free from any defects in workmanship or materials for a period of two (2) years from the date of purchase from the dealer. Please keep your purchase receipt in a safe place as it serves as proof of date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, we will, at our discretion, repair or replace the defective products or components, without charge for either parts or labor, to whatever extent we deem necessary to restore the product to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal value, and will be offered solely at our discretion. This warranty will not apply if the product is modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions. The warranty does not cover the bundled or licensed software of other vendors. Defects which do not significantly affect the usability of the product will not be covered by the warranty. We reserve the right to revise the manual and online documentation and to make changes from time to time in the contents hereof without obligation to notify any person of such revision or changes.

Be a Registered Owner

Web registration is preferred. You can register your Vigor router via <http://www.draytek.com>.

Firmware & Tools Updates

Due to the continuous evolution of DrayTek technology, all routers will be regularly upgraded. Please consult the DrayTek web site for more information on newest firmware, tools and documents.

<http://www.draytek.com>

European Community Declarations

Manufacturer: DrayTek Corp.
Address: No. 26, Fu Shing Road, HuKou County, HsinChu Industrial Park, Hsin-Chu, Taiwan 303
Product: Vigor2110 Series Router

DrayTek Corp. declares that Vigor2110 Series of routers are in compliance with the following essential requirements and other relevant provisions of R&TTE Directive 1999/5/EEC.

The product conforms to the requirements of Electro-Magnetic Compatibility (EMC) Directive 2004/108/EC by complying with the requirements set forth in EN55022/Class B and EN55024/Class B.

The product conforms to the requirements of Low Voltage (LVD) Directive 2006/95/EC by complying with the requirements set forth in EN60950-1.

Regulatory Information

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the use is encouraged to try to correct the interference by one of the following measures:

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device may accept any interference received, including interference that may cause undesired operation.

Please visit http://www.draytek.com/about_us/R_TTE_Certification.php.



This product is designed for POTS and 2.4GHz WLAN network throughout the EC region and Switzerland with restrictions in France. Please see the user manual for the applicable networks on your product.

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1. Introduction

The Vigor2110 series features advanced bandwidth control mechanism such as IP-layer QoS, NAT Session Limitation, Bandwidth Borrowed, etc., to allow easy, flexible, reliable access control and bandwidth management.

The SPI (Stateful Packet Inspection) firewall uses object-based design to make settings of firewall policies easy. The CSM (Content Security Management) feature allows more precise and efficient access control for URL/Web Content Filtering, IM (Instant Messenger) and P2P (Peer to Peer) applications.

Vigor2110 supports up to 2 VPN tunnels using advanced protocols such as IPSec/PPTP/L2TP/L2TP over IPSec with AES/DES/3DES for encryption and MD5/SHA-1 for authentication.

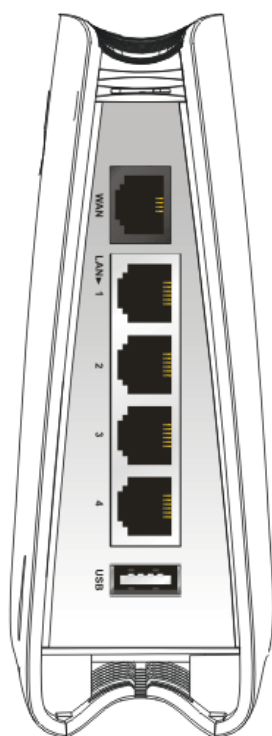
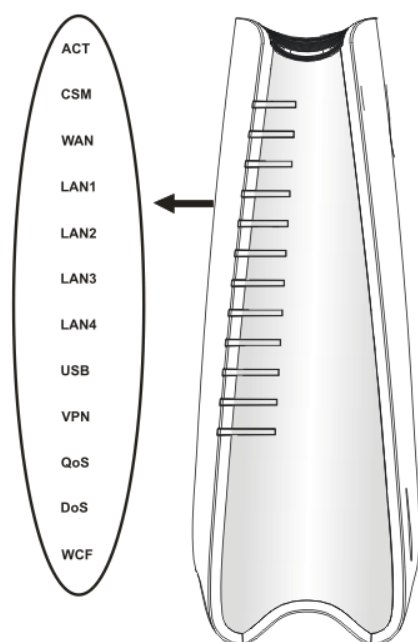
Vigor2110 'n' models comply with 802.11n Draft-n standards. They support WEP/WPA/WPA2 encryption and MAC Address Control, Wireless LAN Isolation. The Wireless Rate Control function can adjust the data rate of each wireless station (client).

Vigor2110 'V' models provide two analogue phone connectors and one line port. It supports multiple SIP registrars with high flexible configuration and call handing options.

In addition, Vigor2110 series supports USB interface for connecting USB printer to share printer or USB storage device for sharing files. Vigor2110 series provides two-level management to simplify the configuration of network connection. The user mode allows user accessing into WEB interface via simple configuration. However, if users want to have advanced configurations, they can access into WEB interface through admin mode.

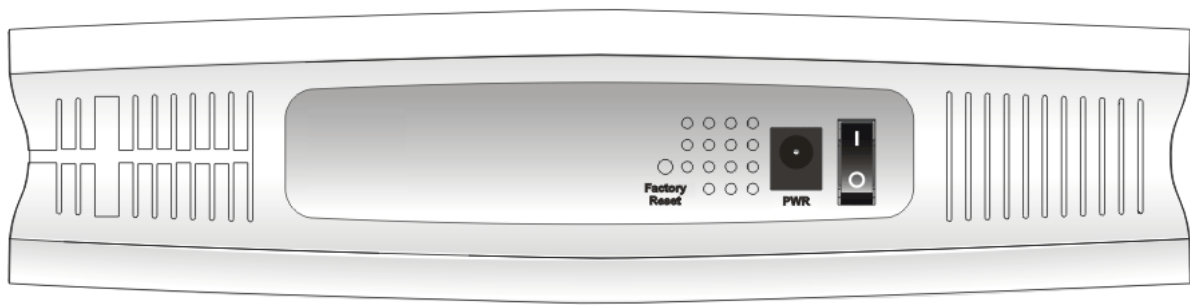
1.1 Panel Explanation

1.1.1 For Vigor2110



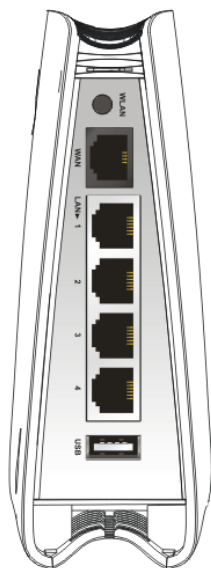
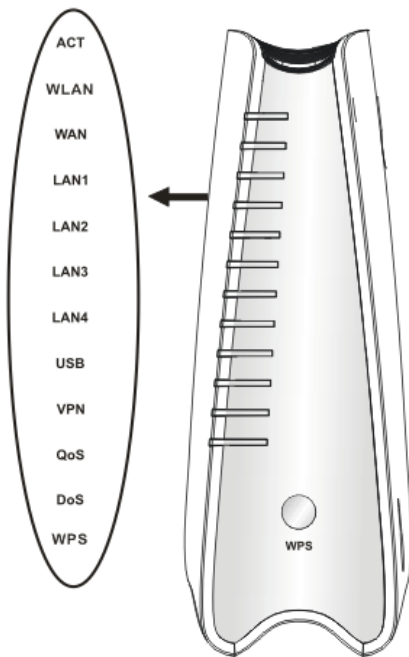
LED	Status	Explanation
ACT (Activity)	Blinking	The router is powered on and running normally.
	Off	The router is powered off.
CSM	On	The profile(s) of CSM (Content Security Management) for IM/P2P, URL/Web Content Filter application can be enabled from Firewall >>General Setup . (Such profile must be established under CSM menu).
WAN	On	The WAN port is connected.
	Blinking	It will blink while transmitting data.
LAN 1/2/3/4	On	The port is connected.
	Off	The port is disconnected.
	Blinking	The data is transmitting.
USB	On	A USB device is connected and active.
	Blinking	The data is transmitting.
VPN	On	The VPN tunnel is active.
QoS	On	The QoS function is active.
DoS	On	The DoS/DDoS function is active.
	Blinking	It will blink while detecting an attack.
WCF	On	The profile(s) of CSM (Content Security Management) for Web Content Filter application can be enabled from Firewall >>General Setup . (Such profile must be established under CSM menu)

Interface	Description
WAN	Connector for accessing the Internet.
LAN (1-4)	Connectors for local networked devices.
USB	Connector for USB storage device (Pen Driver/Mobile HD) or printer.

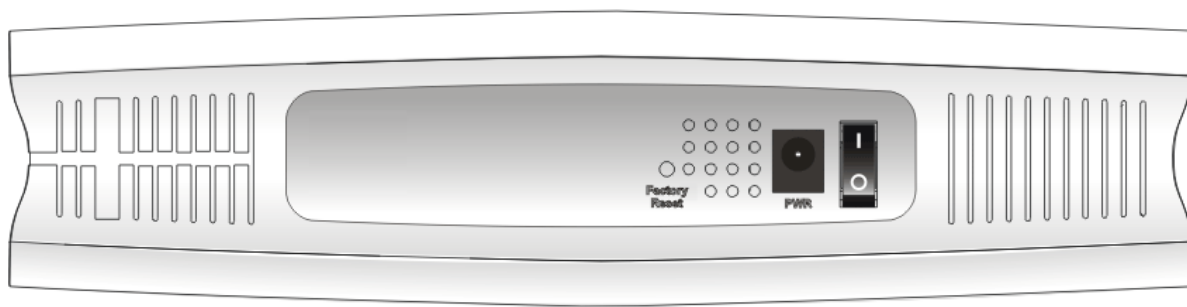


Interface	Description
Factory Reset	Restore the default settings. Usage: Turn on the router (ACT LED is blinking). Press the hole and keep for more than 5 seconds. When you see the ACT LED begins to blink rapidly than usual, release the button. Then the router will restart with the factory default configuration.
PWR	Connector for a power adapter.
ON/OFF	Power Switch.

1.1.2 For Vigor2110n

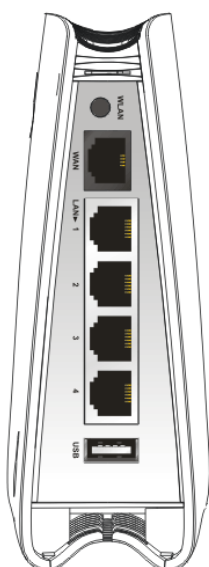
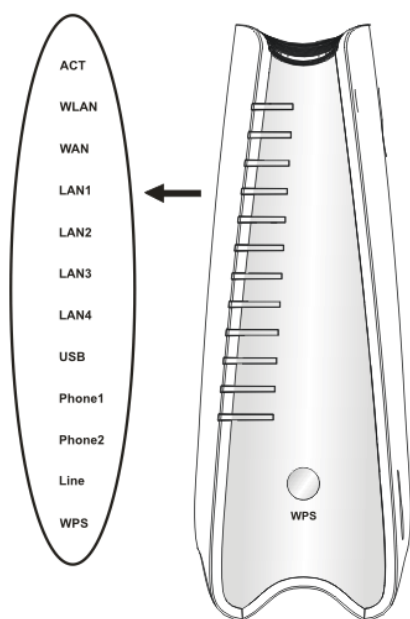


LED	Status	Explanation
ACT (Activity)	Blinking	The router is powered on and running normally.
	Off	The router is powered off.
WLAN	On	Wireless access point is ready.
	Blinking	It will blink while wireless traffic goes through.
WAN	On	The WAN port is connected.
	Blinking	It will blink while transmitting data.
LAN 1/2/3/4	On	The port is connected.
	Off	The port is disconnected.
	Blinking	The data is transmitting.
USB	On	A USB device is connected and active.
	Blinking	The data is transmitting.
VPN	On	The VPN tunnel is active.
QoS	On	The QoS function is active.
DoS	On	The DoS/DDoS function is active.
	Blinking	It will blink while detecting an attack.
WPS	On	The WPS is on.
	Off	The WPS is off.
	Blinking	Waiting for wireless client sending requests for connection about two minutes.
WPS Button	On	Press this button for 2 seconds to wait for client device making network connection through WPS. When the LED lights up, the WPS connection will be on.
	Off	The WPS is off.
	Blinking	Waiting for wireless client sending requests for connection about two minutes.
Interface	Description	
WLAN	Press the button once to enable (WLAN LED on) or disable (WLAN LED off) wireless connection.	
WAN	Connector for accessing the Internet.	
LAN (1-4)	Connectors for local networked devices.	
USB	Connector for USB storage (Pen Driver /Mobile HD) or printer.	



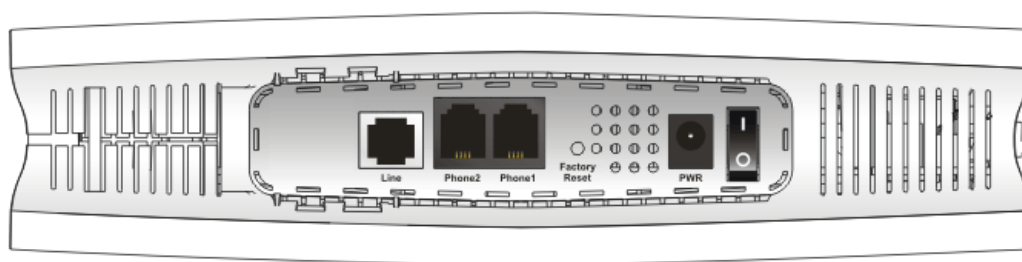
Interface	Description
Factory Reset	Restore the default settings. Usage: Turn on the router (ACT LED is blinking). Press the hole and keep for more than 5 seconds. When you see the ACT LED begins to blink rapidly than usual, release the button. Then the router will restart with the factory default configuration.
PWR	Connector for a power adapter.
ON/OFF	Power Switch.

1.1.3 For Vigor2110Vn



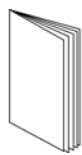
LED	Status	Explanation
ACT (Activity)	Blinking	The router is powered on and running normally.
	Off	The router is powered off.
WLAN	On	Wireless access point is ready.
	Blinking	It will blink while wireless traffic goes through.
WAN	On	The WAN port is connected.
	Blinking	It will blink while transmitting data.
LAN 1/2/3/4	On	The port is connected.
	Off	The port is disconnected.
	Blinking	The data is transmitting.
USB	On	A USB device is connected and active.
	Blinking	The data is transmitting.
Phone1/ Phone2	On	The phone connected to this port is off-hook.
	Off	The phone connected to this port is on-hook.
	Blinking	A phone call comes.
Line	On	A PSTN phone call comes (in and out). However, when the phone call is disconnected, the LED will be off about six seconds later.
	Off	There is no PSTN phone call.
WPS	On	The WPS is on.
	Off	The WPS is off.
	Blinking	Waiting for wireless client sending requests for connection about two minutes.
WPS Button	On	Press this button for 2 seconds to wait for client device making network connection through WPS. When the LED lights up, the WPS connection will be on.
	Off	The WPS connection is off.
	Blinking	Waiting for wireless client sending requests for connection about two minutes.

Interface	Description
WLAN	Press the button once to enable (WLAN LED on) or disable (WLAN LED off) wireless connection.
WAN	Connector for accessing the Internet.
LAN (1-4)	Connectors for local networked devices.
USB	Connector for USB storage (Pen Driver/Mobile HD) or printer.

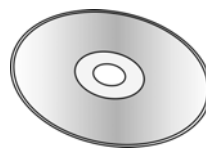


Interface	Description
Line	Connector for PSTN life line.
Phone2/Phone1	Connector of analog phone for VoIP communication.
Factory Reset	Restore the default settings. Usage: Turn on the router (ACT LED is blinking). Press the hole and keep for more than 5 seconds. When you see the ACT LED begins to blink rapidly than usual, release the button. Then the router will restart with the factory default configuration.
PWR	Connector for a power adapter.
ON/OFF	Power Switch.

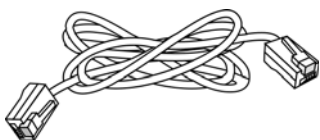
1.2 Package Content



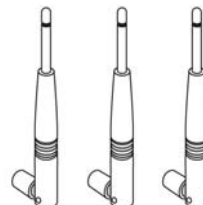
1 Quick Start Guide



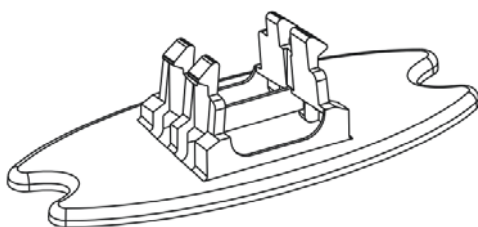
2 CD



3 RJ-45 Cable (Ethernet)

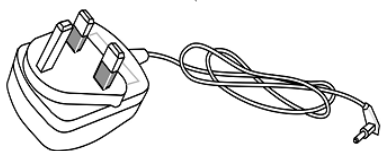


4 Antenna (n models)

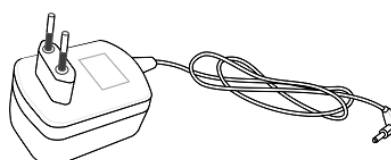


5 Stand

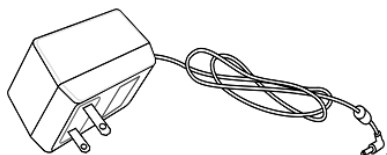
- 6** The type of the power adapter depends on the country that the router will be installed.
* The maximum power consumption is **17-23 Watt**.



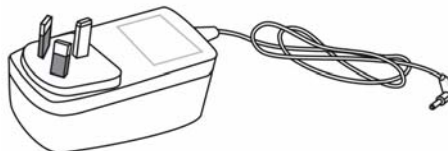
UK-type Power Adapter



EU-type Power Adapter



USA/Taiwan-type Power Adapter



AU/NZ-type Power Adapter

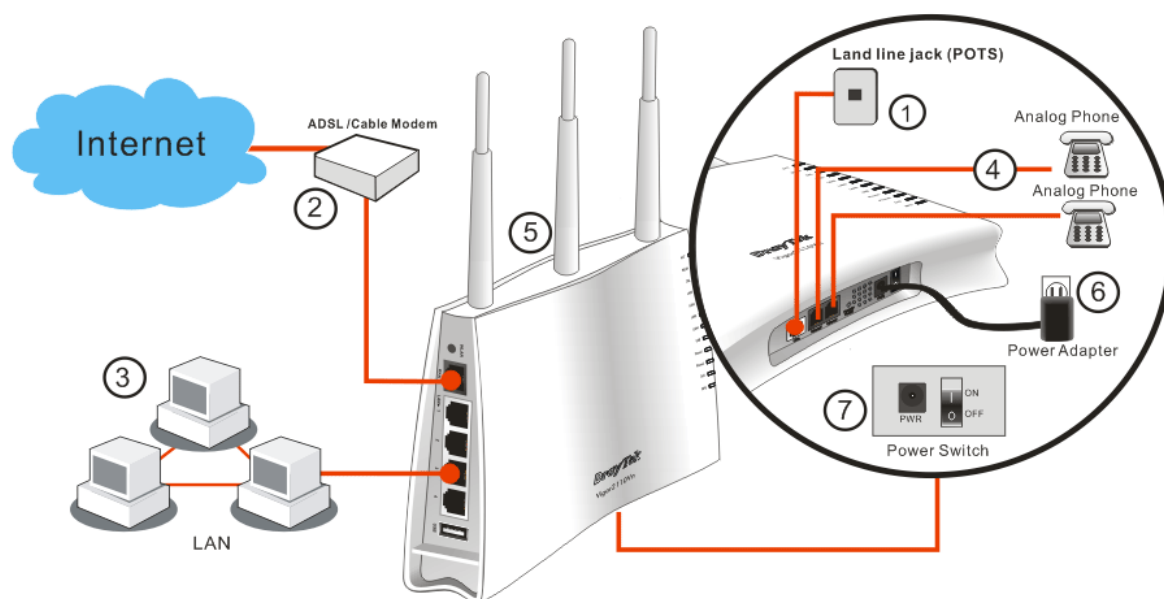
2. Installing Your Router

This section will guide you to install the router through hardware connection and configure the router's settings through web browser.

2.1 Hardware Installation

Before starting to configure the router, you have to connect your devices correctly.

1. Connect Line port to land line jack with a RJ-11 cable (Vn model).
2. Connect this device to a modem with an Ethernet cable.
3. Connect one port of 4-port switch to your computer with a RJ-45 cable. This device allows you to connect 4 PCs directly.
4. Connect Phone port to a conventional analog telephone.
5. Connect detachable antennas to the router for Vigor2110 series (n model).
6. Connect one end of the power cord to the power port of this device. Connect the other end to the wall outlet of electricity.
7. Power on the router.
8. Check the **ACT** and **WAN**, **LAN** LEDs to assure network connections.



(For the detailed information of LED status, please refer to section 1.1.)

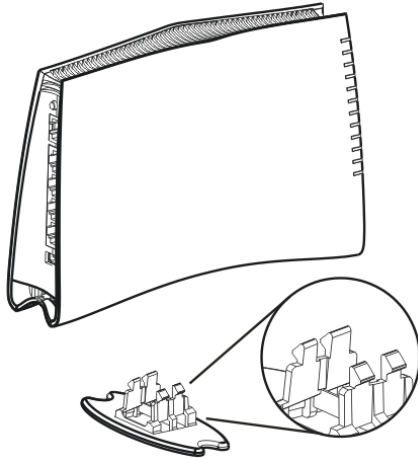
Caution:

1. Each of the Phone ports can be connected to an analog phone only. Do not connect the phone ports to the land line jack. Such connection might damage your router.
 2. When the power is shutdown, VoIP phone will be disconnected. However, a phone set connected to Phone 2 port can be used as the traditional telephone for the line will be guided to land line jack via the router (loop through).
-

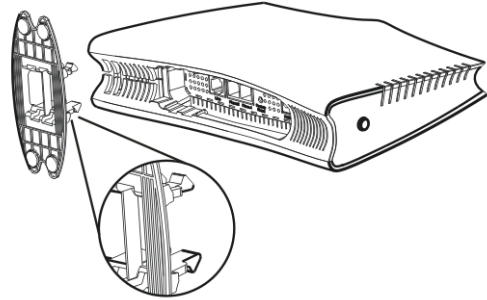
Stand Installation

The Vigor2110 must be placed erectly. Therefore you have to install a stand onto the router to make it standing firmly. Please follow the figures listed below to finish the installation.

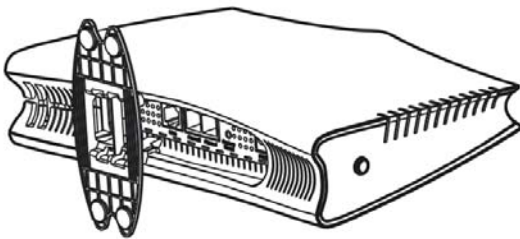
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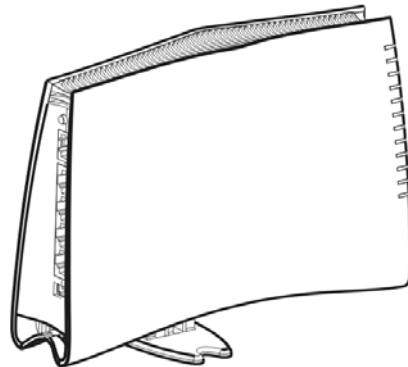
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③

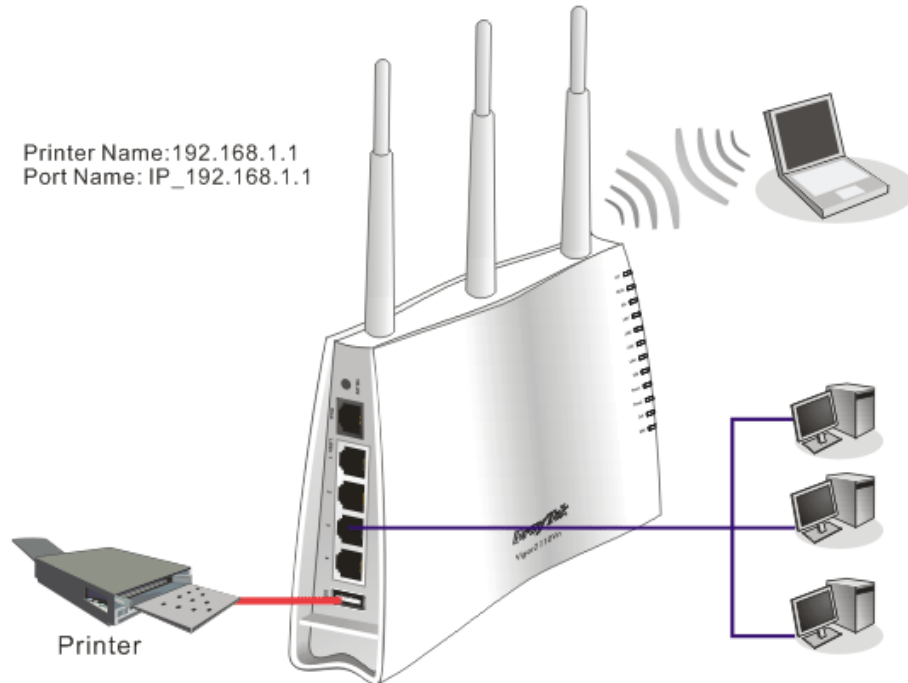


④



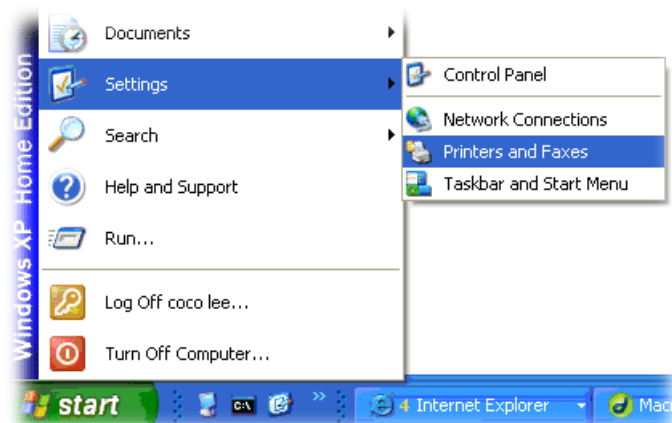
2.2 Printer Installation

You can install a printer onto the router for sharing printing. All the PCs connected this router can print documents via the router. The example provided here is made based on Windows XP/2000. For Windows 98/SE/Vista, please visit www.draytek.com.

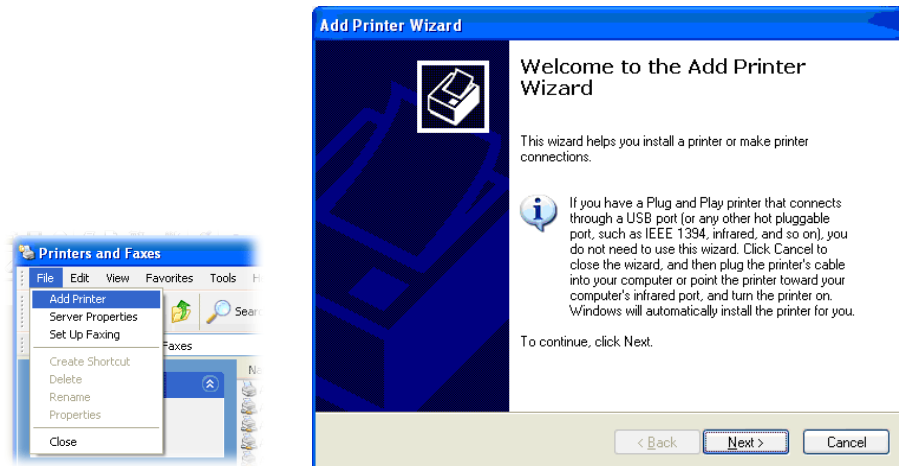


Before using it, please follow the steps below to configure settings for connected computers (or wireless clients).

1. Connect the printer with the router through USB port.
2. Open **Start->Settings-> Printer and Faxes**.



3. Open **File->Add a New Computer**. A welcome dialog will appear. Please click **Next**.



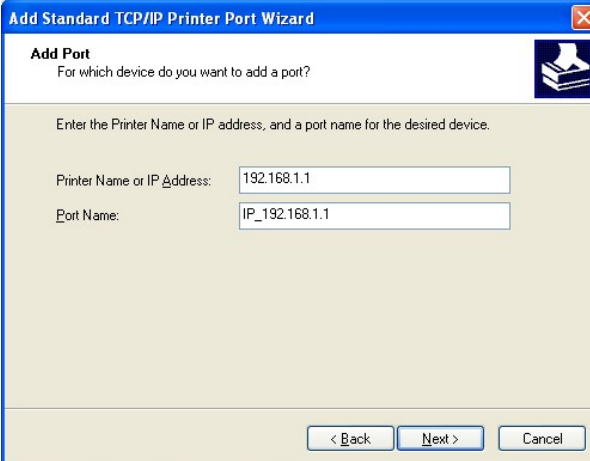
4. Click **Local printer attached to this computer** and click **Next**.



5. In this dialog, choose **Create a new port Type of port** and use the drop down list to select **Standard TCP/IP Port**. Click **Next**.

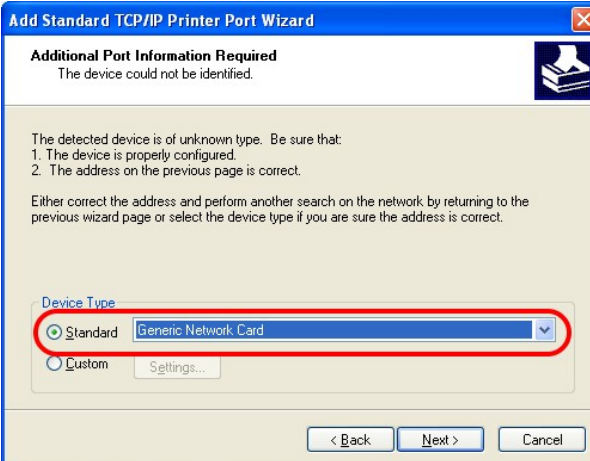


6. In the following dialog, type **192.168.1.1** (router's LAN IP) in the field of **Printer Name or IP Address** and type **IP_192.168.1.1** as the port name. Then, click **Next**.



The screenshot shows the 'Add Standard TCP/IP Printer Port Wizard' dialog box, specifically the 'Add Port' step. The title bar reads 'Add Standard TCP/IP Printer Port Wizard'. The main heading is 'Add Port' with a subtext 'For which device do you want to add a port?'. Below this, it says 'Enter the Printer Name or IP address, and a port name for the desired device.' There are two text input fields: 'Printer Name or IP Address:' containing '192.168.1.1' and 'Port Name:' containing 'IP_192.168.1.1'. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

7. Click **Standard** and choose **Generic Network Card**.



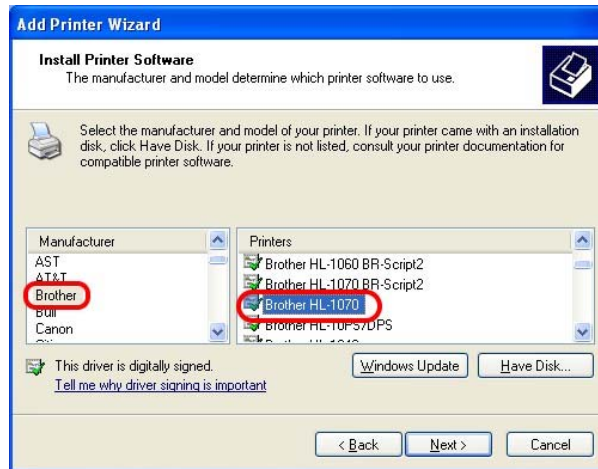
The screenshot shows the 'Add Standard TCP/IP Printer Port Wizard' dialog box, specifically the 'Additional Port Information Required' step. The title bar reads 'Add Standard TCP/IP Printer Port Wizard'. The main heading is 'Additional Port Information Required' with a subtext 'The device could not be identified.' Below this, it says 'The detected device is of unknown type. Be sure that:' followed by a list: '1. The device is properly configured.' and '2. The address on the previous page is correct.' It then says 'Either correct the address and perform another search on the network by returning to the previous wizard page or select the device type if you are sure the address is correct.' There is a 'Device Type' section with two radio buttons: 'Standard' (selected) and 'Custom'. Next to 'Standard' is a dropdown menu showing 'Generic Network Card'. There is also a 'Settings...' button. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

8. Then, in the following dialog, click **Finish**.

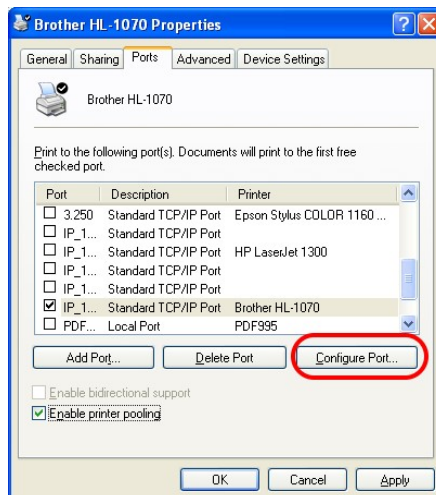


The screenshot shows the 'Add Standard TCP/IP Printer Port Wizard' dialog box, specifically the 'Completing the Add Standard TCP/IP Printer Port Wizard' step. The title bar reads 'Add Standard TCP/IP Printer Port Wizard'. The main heading is 'Completing the Add Standard TCP/IP Printer Port Wizard'. Below this, it says 'You have selected a port with the following characteristics.' There is a list of characteristics: 'SNMP: No', 'Protocol: RAW, Port 9100', 'Device: 192.168.1.1', 'Port Name: IP_192.168.1.1', and 'Adapter Type: Generic Network Card'. At the bottom, it says 'To complete this wizard, click Finish.' There are three buttons at the bottom: '< Back', 'Finish', and 'Cancel'.

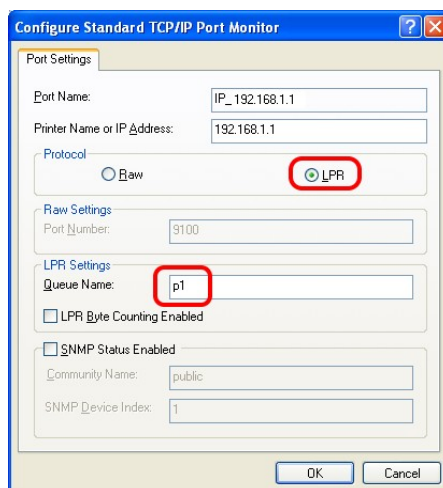
9. Now, your system will ask you to choose right name of the printer that you installed onto the router. Such step can make correct driver loaded onto your PC. When you finish the selection, click **Next**.



10. For the final stage, you need to go back to **Control Panel-> Printers** and edit the property of the new printer you have added.



11. Select "LPR" on Protocol, type **p1** (number 1) as Queue Name. Then click **OK**. Next please refer to the red rectangle for choosing the correct protocol and UPR name.



The printer can be used for printing now. Most of the printers with different manufacturers are compatible with vigor router.

Note 1: Some printers with the fax/scanning or other additional functions are not supported. If you do not know whether your printer is supported or not, please visit www.draytek.com to find out the printer list. Open **Support Center->FAQ->Sort by product**; select the model of the router and click on it; find out the link of **Printer Server FAQ**; click the **What types of printers are compatible with Vigor router?** link.



Note 2: Vigor router supports printing request from computers via LAN ports but not WAN port.

3. Configuring Web Pages

To access Internet, please finish basic configuration after completing the hardware installation.

3.1 Accessing Web Page

1. Make sure your PC connects to the router correctly.



Notice: You may either simply set up your computer to get IP dynamically from the router or set up the IP address of the computer to be the same subnet as **the default IP address of Vigor router 192.168.1.1**. For the detailed information, please refer to the later section - Trouble Shooting of the guide.

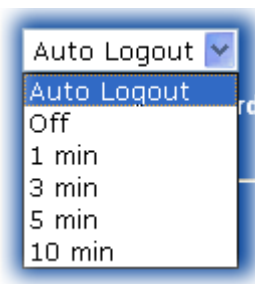
2. Open a web browser on your PC and type **http://192.168.1.1**. The following window will be open to ask for username and password.

3. For user mode, do not type any word on the window and click **Login** for the simple web pages for configuration. Yet, for admin mode, please type “admin/admin” on Username/Password and click **Login** for full configuration.



Notice: If you fail to access to the web configuration, please go to “Trouble Shooting” for detecting and solving your problem.

4. The web page can be logged out according to the chosen condition. The default setting is **Auto Logout**, which means the web configuration system will logout after five minutes without any operation. Change the setting for your necessity.



3.2 Basic Configuration

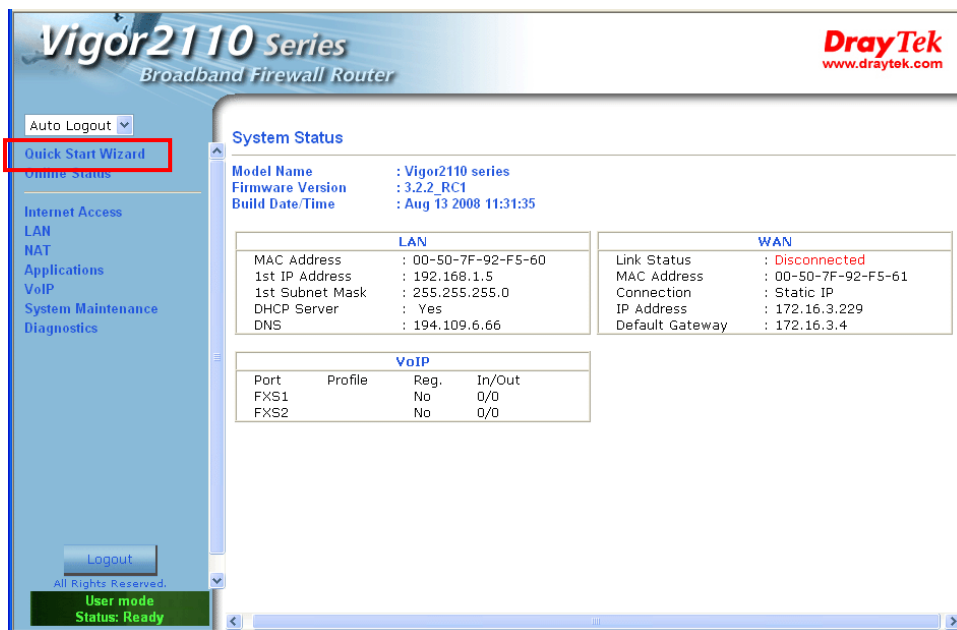
The **Quick Start Wizard** is designed for you to easily set up your router for Internet access. You can directly access the **Quick Start Wizard** via Web Configurator.

1. Open a web browser on your PC and type **http://192.168.1.1**. The system will ask you to type username/password. The displayed web pages will change according to the username and password typed. Here we take simple web pages for example. So, do not type any word on the window and click **Login**.



Notice: For advanced configuration (admin mode), please refer to User's Guide for more detailed information.

2. Now, the **Main Screen** for user operation will appear. Click **Quick Start Wizard**.



Note: The home page will change slightly in accordance with the router you have.

3. Enter the login password on the field of **New Password** and retype it on the field of **Retype New Password**. Then click **Next** to continue. After restarting the router, new password must be typed for accessing into router web page.

Quick Start Wizard

Enter login password

Please enter an alpha-numeric string as your **Password** (Max 23 characters).

New Password

Confirm Password

< Back

Next >

Finish

Cancel

4. On the next page as shown below, please select the appropriate Internet access type **according to the information from your ISP**. For example, you should select PPPoE mode if the ISP provides you PPPoE interface. Then click **Next** for next step.

Quick Start Wizard

Connect to Internet

WAN 1

Select one of the following Internet Access types provided by your ISP.

- ☒ PPPoE
- ☐ PPTP
- ☐ Static IP
- ☐ DHCP

< Back

Next >

Finish

Cancel

PPPoE: if you click PPPoE as the protocol, please manually enter the Username/Password provided by your ISP. Then click **Next**.

Quick Start Wizard

PPPoE Client Mode

WAN 1

Enter the user name and password provided by your ISP.

User Name	<input type="text" value="123"/>
Password	<input type="password" value="..."/>
Confirm Password	<input type="password" value="..."/>

< Back

Next >

Finish

Cancel

PPTP: if you click PPTP, you will get the following page. Please type in all the information originally provided by your ISP. Then click **Next** for next step.

Quick Start Wizard

PPTP Client Mode

WAN 1

Enter the user name, password, WAN IP configuration and PPTP server IP provided by your ISP.

User Name	<input type="text" value="123"/>
Password	<input type="password" value="..."/>
Confirm Password	<input type="password" value="..."/>
WAN IP Configuration	
<input type="radio"/> Obtain an IP address automatically	
<input checked="" type="radio"/> Specify an IP address	
IP Address	<input type="text" value="172.16.3.229"/>
Subnet Mask	<input type="text" value="255.255.0.0"/>
PPTP Server IP	<input type="text"/>

< Back

Next >

Finish

Cancel

Static IP: if you click Static IP, you will get the following page. Please type in the IP address information originally provided by your ISP. Then click **Next** for next step.

Quick Start Wizard

Static IP Client Mode

WAN 1
Enter the Static IP configuration provided by your ISP.

WAN IP	<input type="text" value="172.16.3.229"/>
Subnet Mask	<input type="text" value="255.255.0.0"/>
Gateway	<input type="text" value="172.16.3.4"/>
Primary DNS	<input type="text"/>
Secondary DNS	<input type="text"/> (optional)

DHCP: if you click DHCP, you will get the following page. Simply click **Next** to continue.

Quick Start Wizard

DHCP Client Mode

WAN 1
If your ISP requires you to enter a specific host name or specific MAC address, please enter it in.

Host Name	<input type="text"/>	(optional)
MAC	<input type="text" value="00"/> <input type="text" value="-50"/> <input type="text" value="-7F"/> <input type="text" value="-92"/> <input type="text" value="-F5"/> <input type="text" value="-61"/>	(optional)

- Now you can see the following screen. It indicates that the setup is complete. Different types of connection modes will have different summary. Click **Finish** and then restart the router. Afterward, you will enjoy surfing on the Internet.

Quick Start Wizard

Please confirm your settings:

WAN Interface:	WAN1
Physical Mode:	Ethernet
Physical Type:	Auto negotiation
Internet Access:	DHCP

Click **Back** to modify changes if necessary. Otherwise, click **Finish** to save the current settings and restart the Vigor router.

[< Back](#)[Next >](#)[Finish](#)[Cancel](#)

3.3 Wireless Configuration



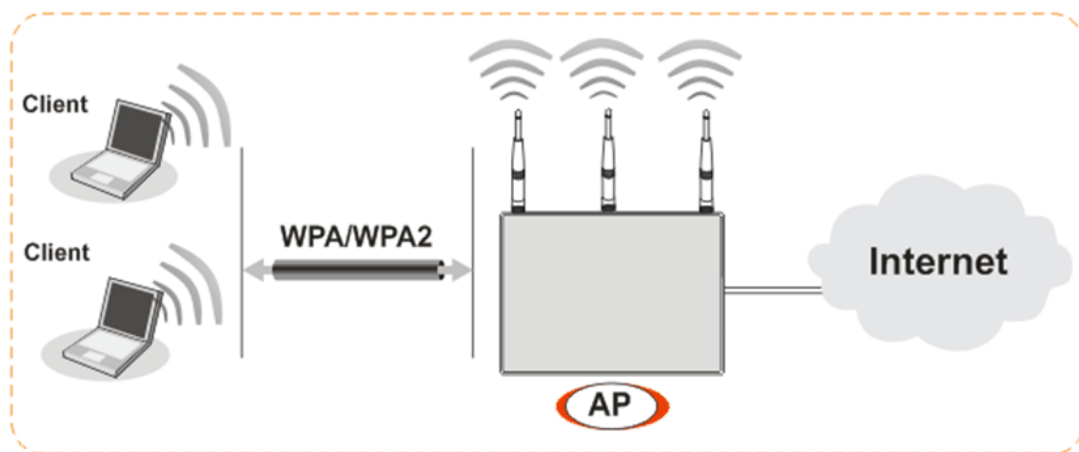
For the user of Vigor2110, please skip this section.

For operating Vigor2110n/Vn well, it is necessary for you to set the wireless LAN settings for using wireless function. Please read the following section carefully for configuring the settings for this router.

(The default value of Frequency Domain was set by factory depends on the reselling region.)

3.3.1 Basic Wireless LAN Concept

In an Infrastructure Mode of wireless network, Vigor wireless router plays a role as an **Access Point (AP)** connecting to lots of wireless clients or Stations (STA). All the STAs (clients) will share the same Internet connection with other wired hosts via Vigor wireless router.



3.3.2 General Setup

1. On the **Wireless LAN** group, select **General Setup**. The following page will be shown as below.

Wireless LAN >> General Setup

General Setting (IEEE 802.11)

☒ Enable Wireless LAN
Mode : Mixed(11b+11g+11n)

Index(1-15) in [Schedule](#) Setup: , , ,
Only schedule profiles that have the action "Force Down" are applied to the WLAN, all other actions are ignored.

SSID: DrayTek
Channel : Channel 6, 2437MHz

Packet-OVERDRIVE™
☐ Tx Burst
Note:
The same technology must also be supported in clients to boost WLAN performance.

☐ Hide SSID
☐ Long Preamble
Hide SSID: prevent SSID from being scanned.
Long Preamble: necessary for some older 802.11b devices only (lowers performance).

OK Cancel

2. Check **Enable Wireless LAN** to enable the wireless function.
3. At present, the router can connect to 11g Only, 11b Only, 11n Only, Mixed (11b+11g), Mixed (11g+11n) and Mixed (11b+11g+11n) stations simultaneously. Simply choose Mix (11b+11g+11n) mode.
4. Type in the name of the **SSID**. The default name for SSID is **DrayTek**. We suggest you change it to a particular name for your necessity.



SSID (Service Set Identifier) - It is used to name the wireless LAN for this router, and it must have the same content in client PC/notebook wireless card(s). SSID can be any text numbers or various special characters.

5. The default channel is 6. You can change it to an appropriate one if the selected channel is under serious interference.

3.3.3 Security Settings

1. On the **Wireless LAN** group, select **Security Settings**.

[Wireless LAN >> Security Settings](#)

Security Settings

Mode: Disable

WPA:

Encryption Mode: TKIP

Pre-Shared Key(PSK):

Type 8~63 ASCII character or 64 Hexadecimal digits leading by "0x", for example "cfigs01a2..." or "0x655abcd....".

WEP:

Encryption Mode: 64-Bit

☒ Key 1 :

☐ Key 2 :

☐ Key 3 :

☐ Key 4 :

For 64 bit WEP key
Type 5 ASCII character or 10 Hexadecimal digits leading by "0x", for example "AB312" or "0x4142333132".

For 128 bit WEP key
Type 13 ASCII character or 26 Hexadecimal digits leading by "0x", for example "0123456789abc" or "0x30313233343536373839414243".

2. Select an appropriate encryption mode to improve the security and privacy of your wireless data packets.

Mode: Disable

Disable

WEP

WPA/PSK

WPA2/PSK

Mixed(WPA+WPA2)/PSK

Disable	Turn off the encryption mechanism. For the security of your router, please select any one of the encryption mode here.
WEP	Accepts only WEP clients and the encryption key should be entered in WEP Key.
WPA/PSK	Accepts only WPA clients and the encryption key should be entered in PSK.
WPA2/PSK	Accepts only WPA2 clients and the encryption key should be entered in PSK.
Mixed (WPA+WPA2)/PSK	Accepts WPA and WPA2 clients simultaneously and the encryption key should be entered in PSK.

3. For **WPA** encryption, type in 8~63 ASCII characters or 64 Hexadecimal digits leading by 0x, for example "0123456789ABCD...." or "0x321253abcde....." on the field of **Pre-Shared Key (PSK)**. WPA encrypts each frame transmitted from the radio using the Pre-Shared Key (PSK) which entered from this panel.

4. As to **WEP** encryption, select 64-bit or 128-bit as the encryption mode. For 64bits WEP key, type in 5 ASCII characters or 10 hexadecimal digitals leading by 0x, for example, ABCDE or 0x4142434445. And for 128bits WEP key, type in 13 ASCII characters or 26 hexadecimal digits leading by 0x, for example, ABCDEFGHIJKLM or 0x4142434445464748494A4B4C4D. Only one WEP key can be selected and allows user to type in the characters.
5. Click **OK** to save settings.

Be aware that for the communication, all wireless devices must support the same encryption bit length and share the same key. If WEP mode is selected, only one of four preset keys can be selected at one time.

4. Trouble Shooting

This section will guide you to solve abnormal situations if you cannot access into the Internet after installing the router and finishing the web configuration. Please follow sections below to check your basic installation status stage by stage.

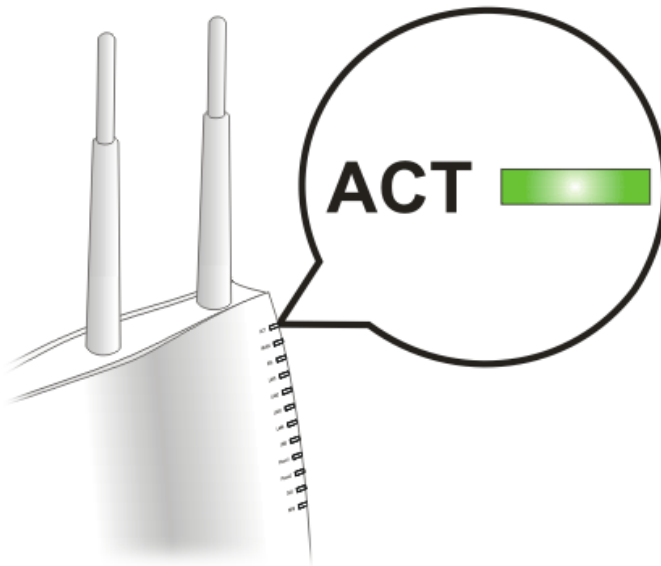
- Checking if the hardware status is OK or not.
- Checking if the network connection settings on your computer are OK or not.
- Pinging the router from your computer.
- Checking if the ISP settings are OK or not.
- Backing to factory default setting if necessary.

If all above stages are done and the router still cannot run normally, it is the time for you to contact your dealer for advanced help.

4.1 Checking If the Hardware Status Is OK or Not

Follow the steps below to verify the hardware status.

1. Check the power line and LAN cable connections. Refer to “**2.1 Hardware Installation**” for details.
2. Turn on the router. Make sure the **ACT LED** blink once per second and the correspondent **LAN LED** is bright.



3. If not, it means that there is something wrong with the hardware status. Simply back to “**2.1 Hardware Installation**” to execute the hardware installation again. And then, try again.

4.2 Checking If the Network Connection Settings on Your Computer Is OK or Not

Sometimes the link failure occurs due to the wrong network connection settings. After trying the above section, if the link is still failed, please do the steps listed below to make sure the network connection settings is OK.

For Windows

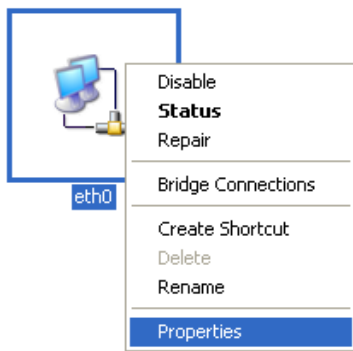


The example is based on Windows XP. As to the examples for other operation systems, please refer to the similar steps or find support notes in www.draytek.com.

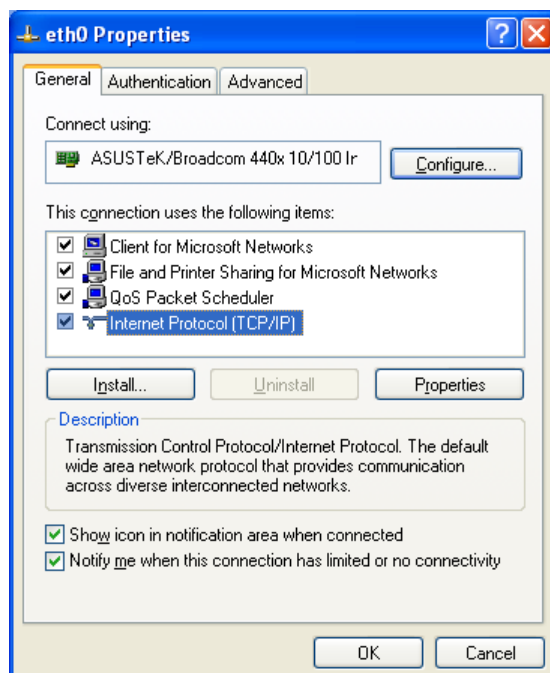
1. Go to **Control Panel** and then double-click on **Network Connections**.



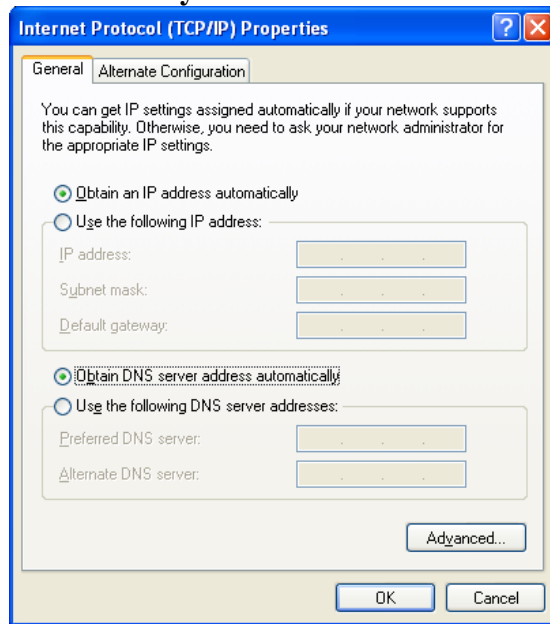
2. Right-click on **Local Area Connection** and click on **Properties**.



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

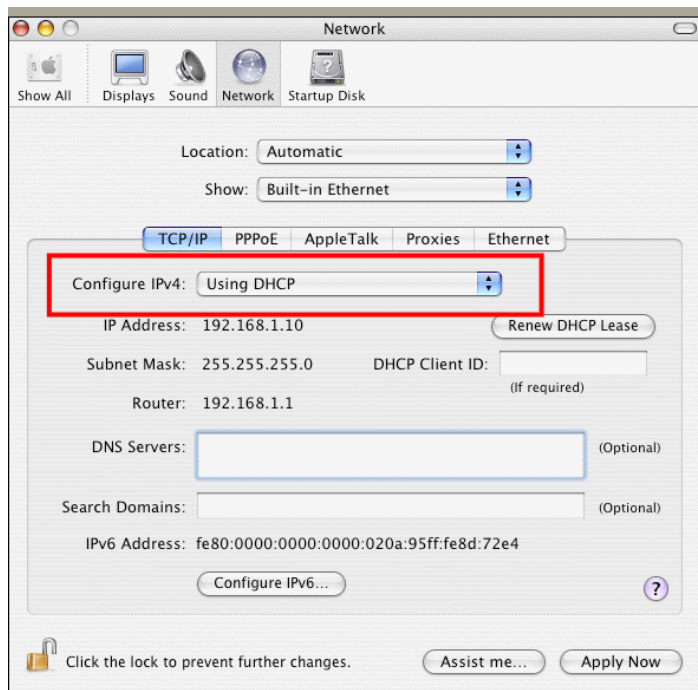


4. Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**.



For MacOS

1. Double click on the current used MacOS on the desktop.
2. Open the **Application** folder and get into **Network**.
3. On the **Network** screen, select **Using DHCP** from the drop down list of Configure IPv4.



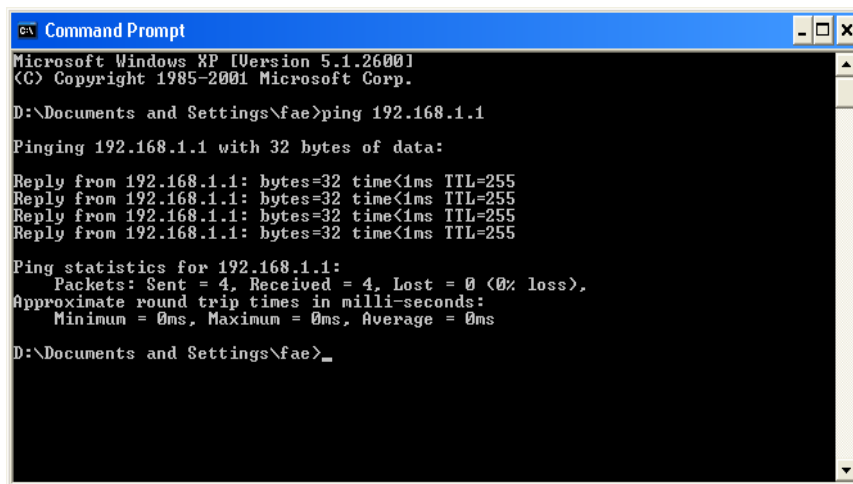
4.3 Pinging the Router from Your Computer

The default gateway IP address of the router is 192.168.1.1. For some reason, you might need to use “ping” command to check the link status of the router. **The most important thing is that the computer will receive a reply from 192.168.1.1.** If not, please check the IP address of your computer. We suggest you setting the network connection as **get IP automatically**. (Please refer to the section 4.2)

Please follow the steps below to ping the router correctly.

For Windows

1. Open the **Command Prompt** window (from **Start menu> Run**).
2. Type **command** (for Windows 95/98/ME) or **cmd** (for Windows NT/2000/XP/Vista). The DOS command dialog will appear.



```

C:\> Command Prompt
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

D:\Documents and Settings\fae>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

D:\Documents and Settings\fae>_

```

3. Type **ping 192.168.1.1** and press [Enter]. If the link is OK, the line of “**Reply from 192.168.1.1:bytes=32 time<1ms TTL=255**” will appear.
4. If the line does not appear, please check the IP address setting of your computer.

For MacOs (Terminal)

1. Double click on the current used MacOs on the desktop.
2. Open the **Application** folder and get into **Utilities**.
3. Double click **Terminal**. The Terminal window will appear.
4. Type **ping 192.168.1.1** and press [Enter]. If the link is OK, the line of “**64 bytes from 192.168.1.1: icmp_seq=0 ttl=255 time=xxxx ms**” will appear.

```

Terminal — bash — 80x24
Last login: Sat Jan  3 02:24:18 on ttty1
Welcome to Darwin!
Vigor10:~ draytek$ ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1): 56 data bytes
64 bytes from 192.168.1.1: icmp_seq=0 ttl=255 time=0.755 ms
64 bytes from 192.168.1.1: icmp_seq=1 ttl=255 time=0.697 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=255 time=0.716 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=255 time=0.731 ms
64 bytes from 192.168.1.1: icmp_seq=4 ttl=255 time=0.72 ms
^C
--- 192.168.1.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.697/0.723/0.755 ms
Vigor10:~ draytek$

```

4.4 Checking If the ISP Settings are OK or Not

Open **Internet Access** page and then check whether the ISP settings are set correctly. Click PPPoE/PPPoA/MPoA/Multi-PVCs link to review the settings that you configured previously.

Internet Access

- PPPoE
- Static or Dynamic IP
- PPtP/L2TP

For PPPoE Users

1. Check if the **Enable** option is selected.
2. Check if **Username** and **Password** are entered with correct values that you **got from** your **ISP**.

[Internet Access >> PPPoE](#)

PPPoE Client Mode

PPPoE Setup

PPPoE Link ☒ Enable ☐ Disable

ISP Access Setup

Username

Password

Index(1-15) in [Schedule](#) Setup:

=> , , ,

PPP/MP Setup

PPP Authentication

☒ Always On

Idle Timeout second(s)

IP Address Assignment Method

(IPCP)

Fixed IP ☐ Yes ☒ No (Dynamic IP)

Fixed IP Address

☒ Default MAC Address

☐ Specify a MAC Address

MAC Address:

OK

For Static Users

1. Check if the **Enable** option for Broadband Access is selected.

[Internet Access >> Static or Dynamic IP](#)

Static or Dynamic IP (DHCP Client)

Access Control
Broadband Access ☒ Enable ☐ Disable

Keep WAN Connection
☐ Enable PING to keep alive
PING to the IP
PING Interval minute(s)

WAN physical type
Auto negotiation

RIP Protocol
☐ Enable RIP

WAN IP Network Settings

☐ Obtain an IP address automatically
Router Name
Domain Name
* : Required for some ISPs

☒ **Specify an IP address**
IP Address
Subnet Mask
Gateway IP Address

☒ Default MAC Address
☐ Specify a MAC Address
MAC Address:

DNS Server IP Address
Primary IP Address
Secondary IP Address

2. Check if **WAN IP Network Settings** is set appropriately.
3. Check if **IP Address**, **Subnet Mask** and **Gateway** are set correctly (must identify with the values from your ISP) if you choose **Specify an IP address**.

For PPTP Users

1. Check if the **Enable** option for **PPTP Link** is selected.

[Internet Access >> PPTP](#)

PPTP Client Mode

PPTP Setup
PPTP Link ☒ Enable ☐ Disable
PPTP Server
ISP Access Setup
Username
Password

Index(1-15) in [Schedule Setup](#):
=> , , ,

PPP Setup
PPP Authentication
☒ Always On
Idle Timeout second(s)

IP Address Assignment Method (IPCP)
Fixed IP ☐ Yes ☒ No (Dynamic IP)
Fixed IP Address

WAN IP Network Settings
☐ Obtain an IP address automatically
☒ Specify an IP address
IP Address
Subnet Mask

2. Check if **PPTP Server**, **Username**, and **Password** are set correctly (must identify with the values from your ISP).

Check if **WAN IP Network Settings** are set properly. If you select **Specify an IP address**, you have to type in the values of **IP Address** and **Subnet Mask** manually. Be sure the values that you type identify with the values from your ISP.

4.5 Backing to Factory Default Setting If Necessary

Sometimes, a wrong connection can be improved by returning to the default settings. Try to reset the router by software or hardware. Such function is available in **Admin Mode** only.



Warning: After pressing **factory default setting**, you will lose all settings you did before. Make sure you have recorded all useful settings before you pressing.

Software Reset

You can reset the router to factory default via Web page.

Go to **System Maintenance** and choose **Reboot System** on the web page. The following screen will appear. Choose **Using factory default configuration** and click **OK**. After few seconds, the router will return all the settings to the factory settings.

[System Maintenance >> Reboot System](#)

[Reboot System](#)

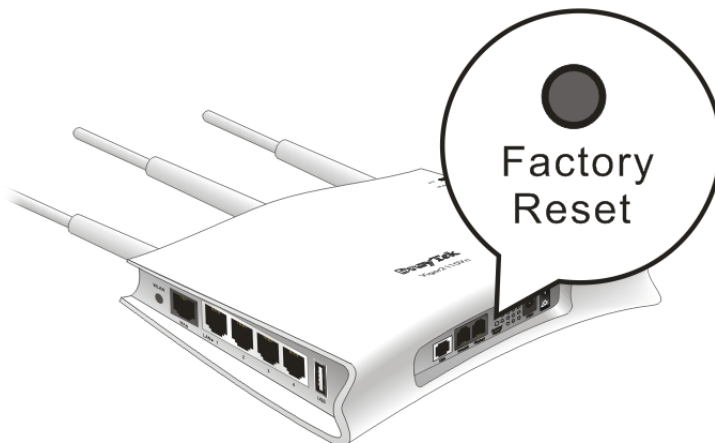
Do you want to reboot your router ?

- ☒ Using current configuration
- ☐ Using factory default configuration

OK

Hardware Reset

While the router is running (ACT LED blinking), press the **Factory Reset** button and hold for more than 5 seconds. When you see the **ACT** LED blinks rapidly, please release the button. Then, the router will restart with the default configuration.



After restore the factory default setting, you can configure the settings for the router again to fit your personal request.

4.6 Contacting Your Dealer

If the router still cannot work correctly after trying many efforts, please contact your dealer for further help right away. For any questions, please feel free to send e-mail to support@draytek.com.