

DrayTek

Vigor2100 Series **Broadband Router**

Quick start guide V1.0



Vigor2100 Series Quick Start Guide

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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 by 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.
- 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.
- 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 three (3) 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>. Alternatively, fill in the registration card and mail it to the address found on the reverse side of the card.

**Firmware &
Tools Updates**

Due to the continuous evolution of DrayTek ADSL & Router 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: Vigor2100 Series Residential Broadband Routers

DrayTek Corp. declares that Vigor2100 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 89/336/EEC 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 73/23/EEC by complying with the requirements set forth in EN60950.

The Vigor2100VG/G are designed for the WLAN 2.4GHz network throughput EC region, Switzerland, and the restrictions of France.

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 user is encouraged to try to correct the interference by one of the following measures:

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

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

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

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1. Introduction



- Easy Internet-sharing of your broadband connection
- Robust firewall to help protect your network from external attacks

For Vigor2100VG/V:

- Making regular phone calls over your broadband connection by simply plugging in your phone.
- QoS-assured VoIP facilities to deliver superior quality.
- Automatic failover for your Public Switched Telephone Network (PSTN) during power cuts.

For Vigor2100VG/G:

- 802.11g Compliant Wireless LAN access with security features.

1.1 Brief Overview

The Vigor2100 series broadband router/Firewall with a VoIP phone port, an Internet access solution for your LAN, which provides you with the shared web surfing and countless value-added features, such as Firewall, Security, VoIP, and 802.11g Wireless LAN (up to 54Mbps for Vigor2100VG and Vigor2100G only). These are all in a reliable one-box solution.

Model comparison chart:

	Vigor 2100V	Vigor2100G	Vigor2100VG
Broadband Router	*	*	*
VoIP	*	-	*
Wireless AP	-	*	*

What does "PSTN life line" perform on Vigor2100V and Vigor2100VG?

The Vigor2100V and Vigor2100VG have a "Line" port on the rear panel for connecting to a PSTN (regular analogue) line. The Loop Through option can be used to set an alternate telephone number for your contact on the PSTN, which the Vigor2100V and Vigor2100VG will dial instead of the SIP account if you lose ADSL access or power to the Vigor2100V and Vigor2100VG. Hence, the PSTN line can act as a lifeline (backup mechanism) for VoIP calls. The lifeline mechanism is activated automatically but can also be manually configured.

1.2 Specifications

For Vigor2100V/VG

VoIP (Voice over IP)

- ◆ Supports one FXS(phone) port
- ◆ G.168 line echo-cancellation
- ◆ Gain control
- ◆ Jitter buffer
- ◆ Voice Codec: G.711 A/μ law, G.726, G.723.1, G.729 A/B, VAD/CNG
- ◆ Tone generation and detection: DTMF, Dial, Busy, Ring back
- ◆ Protocol: SIP, RTP/RTCP

For Vigor2100VG/G

Wireless Access Point

- ◆ IEEE802.11b/g compliant
- ◆ Wireless client list
- ◆ Wireless security:
 - 64/128 bits WEP encryption
 - WPA/WPA2* PSK (IEEE802.1i)
 - MAC address access control
 - Hidden SSID
- ◆ Access point discovery*
- ◆ Wireless LAN isolation*
- ◆ WDS*

LAN

- ◆ 4-port 10/100M Base-TX Ethernet switch
- ◆ DHCP server for IP assignment (up to 253 users)
- ◆ DNS cache and proxy

WAN/Internet

- ◆ One 10/100M Base-TX port with a RJ-45 connector
- ◆ Quick Start Wizard for Internet access
 - DHCP client for cable service
- ◆ Static IP address assignment for fixed IP networks
- ◆ PPPoE client

E-mail Detection

- ◆ LED flashes to indicate E-mail is waiting on your mail server (POP3)

Network Features

- ◆ DHCP client/relay/server
- ◆ Dynamic DNS
- ◆ Call schedule
- ◆ Radius client
- ◆ UPnP

Firewall Facilities

- ◆ NAT/PAT, DMZ host, port-redirect/open port
- ◆ SPI (Stateful Packet Inspection)
- ◆ DoS/DDoS protection
- ◆ Flexible URL content filtering
- ◆ Rule-based packet filtering
- ◆ E-mail alert and logging via syslog
- ◆ VPN pass through

Router Management

- ◆ Quick Start Wizard
- ◆ Command Line Interface (Telnet)
- ◆ Telnet remote access support
- ◆ Built-in diagnostic function
- ◆ Firmware upgrade via TFTP/FTP
- ◆ Syslog
- ◆ SNMP management MIB-II (for Vigor2510V series)

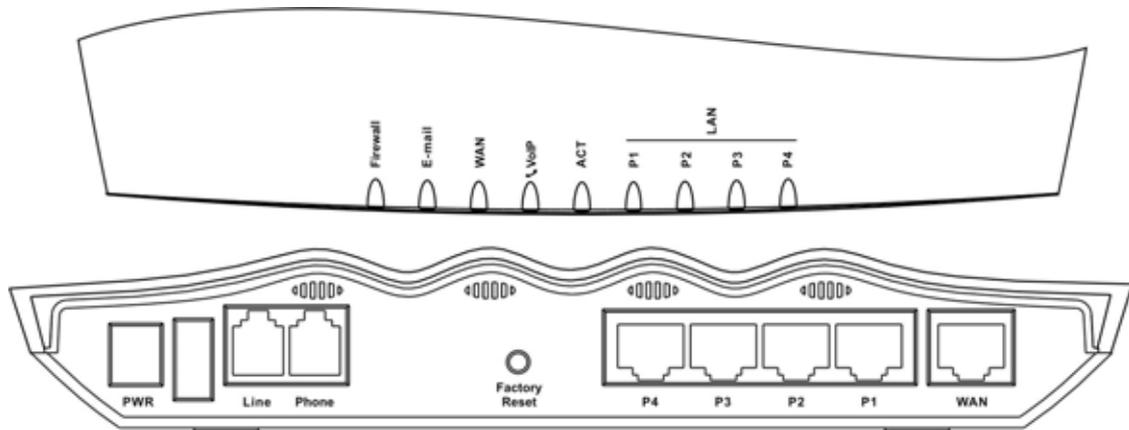
Power Consumption

- ◆ 15V DC 15Watt

*future release

1.3 Front Panel LEDs and Rear Panel Interfaces

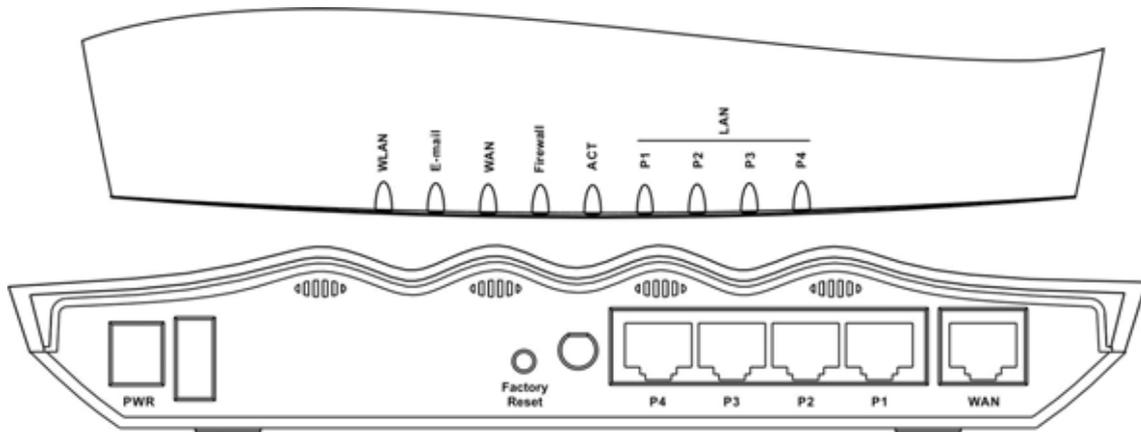
1.3.1 Vigor2100V



LED	Status	Explanation
Firewall	on	The firewall function is active.
	blinking	When encountering DoS attacks.
E-mail	blinking	When detecting one or more user-defined E-mails existing on mail server.
WAN	orange	A normal 10Mbps connection is through its corresponding port.
	green	A normal 100Mbps connection is through its corresponding port.
	blinking	Ethernet packets are transmitting.
VoIP	green	Solid light when the handset of phone is picked up (off hooked).
		Blinking per 2 seconds when phone is connected through VoIP.
	orange	Solid light when phone call is via PSTN life line.
ACT (Activity)	on	The router is powered on and running properly.
LAN (P1, P2, P3, P4)	orange	A normal 10Mbps connection is through its corresponding port.
	green	A normal 100Mbps connection is through its corresponding port.
	blinking	Ethernet packets are transmitting.

Interface	Description
PWR	Connect the included power adapter to the power outlet.
Line	Connect to the analog phone line for PSTN life line.
Phone	Connect to the analog phone for VoIP communication.
WAN	Connect the Cable/ADSL modem to access the Internet.
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 the ACT LED begins to blink rapidly, release the button. Then the router will restart with the factory default configuration.
P1, P2, P3, P4	Connect to the local network devices.

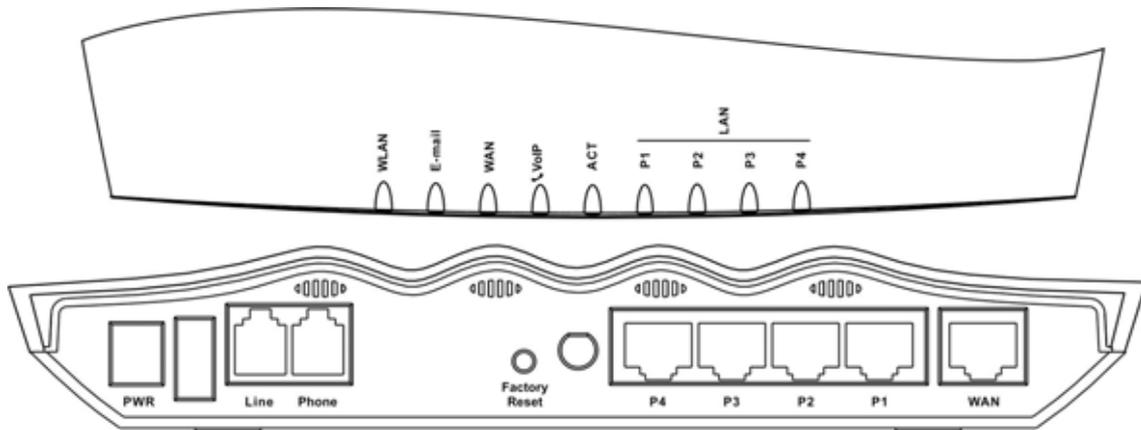
1.3.2 Vigor2100G



LED	Status	Explanation
WLAN	on	The Wireless LAN function is active.
	blinking	Data packets are transmitted over Wireless LAN.
E-mail	blinking	When detecting one or more user-defined e-mails existing on mail server.
WAN	orange	A normal 10Mbps connection is through its corresponding port.
	green	A normal 100Mbps connection is through its corresponding port.
	blinking	Ethernet packets are transmitting.
Firewall	on	The firewall function is active.
	blinking	When encountering DoS attacks.
ACT (Activity)	on	The router is powered on and running properly.
LAN (P1, P2, P3, P4)	orange	A normal 10Mbps connection is through its corresponding port.
	green	A normal 100Mbps connection is through its corresponding port.
	blinking	Ethernet packets are transmitting.

Interface	Description
PWR	Connect the included power adapter to the power outlet.
WAN	Connect the Cable/ADSL modem to access the Internet.
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 the ACT LED begins to blink rapidly, release the button. Then the router will restart with the factory default configuration.
P1, P2, P3, P4	Connect to the local network devices.

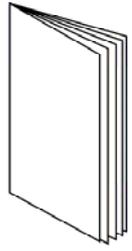
1.3.2 Vigor2100VG



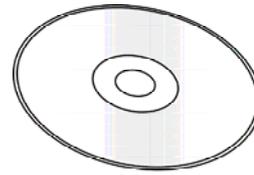
LED	Status	Explanation
WLAN	on	The Wireless LAN function is active.
	blinking	Data packets are transmitted over Wireless LAN.
E-mail	blinking	When detecting one or more user-defined e-mails existing on mail server.
WAN	orange	A normal 10Mbps connection is through its corresponding port.
	green	A normal 100Mbps connection is through its corresponding port.
	blinking	Ethernet packets are transmitting.
VoIP	green	Solid light when the handset of phone is picked up (off hooked).
		Blinking per 2 seconds when phone is connected through VoIP.
ACT (Activity)	orange	Solid light when phone call is via PSTN life line.
	on	The router is powered on and running properly.
LAN (P1, P2, P3, P4)	orange	A normal 10Mbps connection is through its corresponding port.
	green	A normal 100Mbps connection is through its corresponding port.
	blinking	Ethernet packets are transmitting.

Interface	Description
PWR	Connect the included power adapter to the power outlet.
Line	Connect to the analog phone line for PSTN life line.
Phone	Connect to the analog phone for VoIP communication.
WAN	Connect the Cable/ADSL modem to access the Internet.
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 the ACT LED begins to blink rapidly, release the button. Then the router will restart with the factory default configuration.
P1, P2, P3, P4	Connect to the local network devices.

1.4 Package Contains



Quick Start Guide



CD



UK-type power adapter



EU-type power adapter



USA/Taiwan-type power adapter



AU/NZ-type power adapter



RJ-45 Cable (Ethernet)



RJ-11 Cable for Vigor2100VG/V



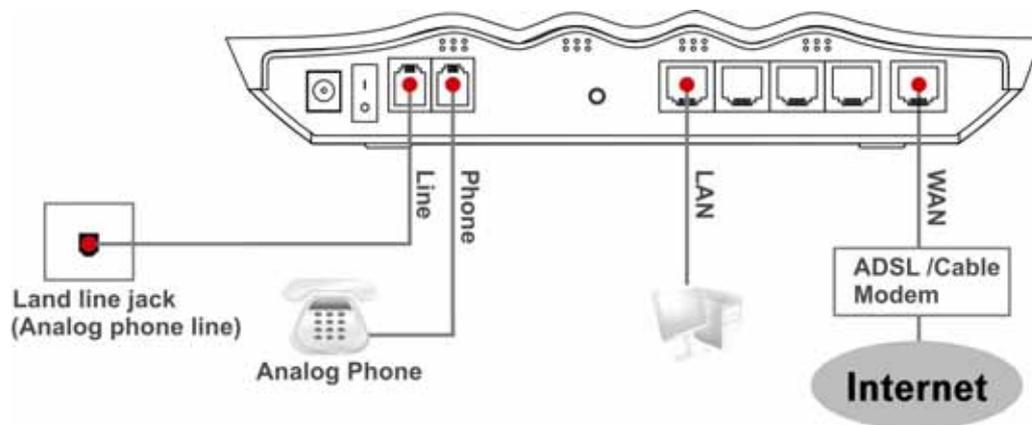
Antenna for Vigor2100VG/G

2. Quick Install Your Vigor2100 Series Router

2.1 Hardware Installation

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

1. Connect the WAN interface to the external Cable/ADSL modem with a RJ-45 cable.
2. Connect one port of 4-port switch to your computer with a RJ-45 cable.
3. For Vigor2100VG/V, connect Phone port to a conventional analog telephone, either corded or wireless (DECT), with a RJ-11 cable.
4. For Vigor2100VG/V, connect Line port to land line jack with a RJ-11 cable.
5. Connect the attached power adapter to the power port.
6. Check the ACT and WAN, LAN LEDs to assure network connections.
(Regarding the detailed LED status explanation, please refer to section 1.3)



⚠ Caution For Vigor2100VG/V, the FXS port can be connected to an analog phone only. Do not connect the FXS port to the telephone wall jack. This connection might damage your router.

2.2 Configure Your Router via Quick Start Wizard

Introduction

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

Configure Your Router via Quick Start Wizard

- Step 1.** Open the web browser on a PC which is connected to the router and then link to the gateway IP address of the router (the default setting is **192.168.1.1**). Once your link (**http://192.168.1.1**) is successful, a pop-up window will open to ask for username and password. Leave the default null value and press **OK** to continue.



 If you fail to access to the web configuration, please refer to “Trouble Shooting” guide.

- Step 2.** The **Main Menu** will pop out after completing previous step.



Step 3. Now Quick Start Wizard is switched on. Enter login password. Then click **Next** to continue.

Steps	Enter login password
1. Enter login password 2. Select Time Zone 3. Connect to the Internet 4. Summary	There is no default password. For security, please choose a set of number or character (maximum 23 characters) as your password and enter it into the Password box. New Password <input type="text"/> Retype New Password <input type="text"/>

Step 4. Select the appropriate TIME ZONE for your location.

Select Time Zone

Select the appropriate time zone for your location.

(GMT+03:00) Moscow, St. Petersburg

Step 5 Select the appropriate Internet connection type to your ISP.

Connect to the Internet

Select one of the following Internet Access type provided by your ISP. If you are not sure which one you should choose, please contact your ISP to get these information in detail.

- PPPoE
- PPTP
- Static IP
- DHCP

In terms of several Internet connection type, please follow procedures as below:

PPPoE users

Enter your user name and password provided by your ISP.

Connect to the Internet

Enter the user name and password provided by your ISP.

User Name

Password

Retype Password

Connection Type

Always On

Dial On Demand

Idle Timeout

Dial on Demand : The router will ONLY connect to your ISP on demand. By “on demand”, it means when any LAN user attempt to send data onto the Internet. When there is no data traffic, the router will close the connection to the ISP because there is no demand.

Idle timeout: This is the time setting If there being no Internet traffic for a period, for example 10 minutes.

Always On: The router will keep a permanent connection to the ISP automatically.

PPTP users

Enter your user name and password provided by your ISP.

Connect to the Internet

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

User Name

Password

Retype Password

WAN IP Configurations

Obtain an IP address automatically

Specify an IP address

IP Address . . .

Subnet Mask . . .

PPTP Server IP . . .

Obtain an IP address automatically: Set the WAN interface as a DHCP

client that will ask for the IP network settings from the DHCP server or PPTP-enabled DSL modem.

Specify an IP address: If you are not sure whether there are any DHCP services on the WAN interface, you can manually assign an IP address to the interface. Note that the IP Address and Subnet Mask should be assigned within the same network as the PPTP-enabled DSL modem.

Static IP

Enter the static (fixed or permanent) IP address that your ISP offers to you.

Connect to the Internet

Enter the Static IP configuration provided by your ISP.

WAN IP	<input type="text" value="172"/>	<input type="text" value="16"/>	<input type="text" value="2"/>	<input type="text" value="84"/>
Subnet Mask	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="255"/>	<input type="text" value="0"/>
Gateway	<input type="text" value="172"/>	<input type="text" value="16"/>	<input type="text" value="2"/>	<input type="text" value="5"/>
Primary DNS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Secondary DNS	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/> (optional)

WAN IP address: this is the IP address assigned by your ISP for your router. You shall specify the IP address of the router here. e.g. 172.16.2.84

Subnet Mask: an address code that determines the size of the network; this is the subnet mask of the router, when seen by external users on the Internet (including your ISP). The subnet mask is provided by your ISP. e.g. 255.255.255.0

Gateway IP Address: an IP address forwards Internet traffic from your local area network (LAN) . e.g. 172.16.2.5

DNS Server IP address: you must specify DNS server IP address here if your ISP has the said address. If you do not specify it, the router will automatically apply default DNS Server IP address: 194.109.6.66 to this field.

DHCP

Some Cable ISPs require user to provide or specify MAC address for access authentication purpose. You can either manually enter the MAC address in the MAC Address fields or clone from your network adapter.

Connect to the Internet

If your ISP require you to enter a specific host name or specific MAC address, please enter it in. The **Clone MAC Address** button is used to copy the MAC address of your Ethernet adapter to the Vigor2100V.

Host Name (optional)

MAC 00 - 50 - 7F - 00 - 00 - 01
(optional)

Step 6 Review the summary of settings.

Summary

Please find your settings :

Internet Access : PPPoE

Time Zone : (GMT-12:00) Eniwetok, Kwajalein

Click **Back** to modify changes if necessary. Otherwise, click **Finish** to save the current settings and restart the Vigor2100V.

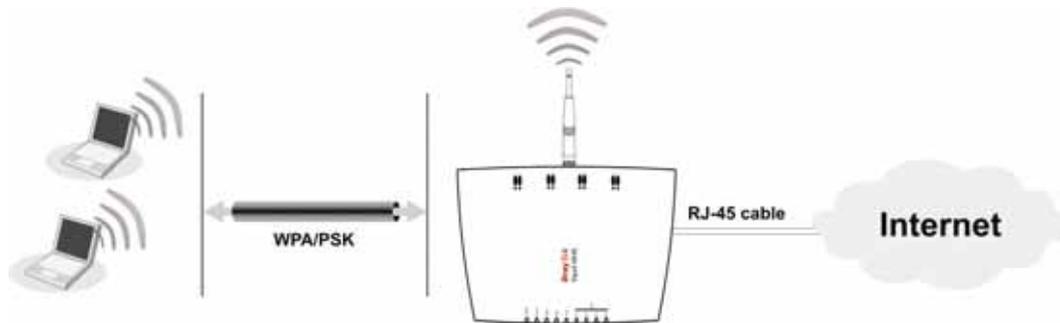
Vigor2100VG/V apply efficient codecs designed to make the best use of available bandwidth. Vigor2100VG/V also equip with **automatic QoS assurance**. QoS Assurance assists to assign higher priority to voice traffic via Internet for better talking/hearing enjoyment. To achieve that, you will always have the required inbound and outbound bandwidth that is prioritized exclusively for Voice traffic over Internet. Your data will arrive a little bit later in a tolerable manner.



On the bottom of Web Configurator window, you can find messages showing the system interaction with you.

- **“Ready”** indicates the system is ready for you to input settings.
- **“Settings Saved”** means your settings are saved once you click “Finish” or “OK” button.

3. Wireless LAN Settings(for G models)



This section will guide you to operate the capabilities of Wireless LAN instantly on the router. Please follow the menu tree of the **Wireless LAN** configuration below to set up wireless function.

Wireless LAN >> **General Settings**
Security
Access Control
Station List

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

3.1 General Settings

Click **General Settings** to configure the Service Set Identifier (SSID) and wireless channel.

<input checked="" type="checkbox"/> Enable Wireless LAN
Mode : <input type="text" value="Mixed(11b+11g)"/>
Scheduler (1-15) <input type="text"/> , <input type="text"/> , <input type="text"/> , <input type="text"/>
SSID : <input type="text" value="default"/>
Channel : <input type="text" value="Channel 6, 2437MHz"/>
<input type="checkbox"/> Hide SSID
<input type="checkbox"/> Long Preamble
SSID : wireless LAN Service Set ID.
Hide SSID : the scanning tool can't read the SSID when sniffing radio.
Channel : select the frequency channel of wireless LAN.
Long Preamble: enable this only when meeting connectivity problems for some old 802.11b devices; otherwise, it reduces the performance.

1. **Enable Wireless LAN:**
Check the box to enable wireless function.
2. **Mode:**
Select an appropriate wireless mode.
 - ◆ **Mixed (11b+11g):** The radio can support both IEEE802.11b and IEEE802.11g protocols simultaneously.
 - ◆ **11g-only:** The radio only supports IEEE802.11g protocol.
 - ◆ **11b-only:** The radio only supports IEEE802.11b protocol.
3. **Scheduler:**
Set the wireless LAN to work at some time interval only. You may choose up to 4 out of 15 schedules that should be defined under **Advanced Setup > Call Schedule Setup**. Please refer to the User's Guide.
4. **SSID and Channel:**
The default SSID is "default". We suggest you change it to a particular name. In this case, SSID was changed to "DrayTek".
 - ◆ **SSID (Service Set Identifier):** It is used to name the wireless LAN, and must have the same content in client PC/notebook wireless card(s). SSID can be any text numbers or various special characters.
 - ◆ **Channel:** A wireless channel for the router. The default channel is 6. You can change it to more appropriate one if the selected channel is under serious interference.
5. **Hide SSID:**
Check it to prevent from wireless sniffing and make it harder for unauthorized clients to join your wireless LAN.

3.2 Security

Click **Security** to configure the security options.

Mode:	WEP Only
WPA:	
Encryption Mode:	TKIP
Pre-Shared Key(PSK)	*****
<p>Type 8-63 ASCII character or 64 Hexadecimal digits leading by "0x", for example "cfgs01a2..." or "0x655abcd...".</p>	
WEP:	
Encryption Mode:	64-Bit
Use	WEP Key
<input checked="" type="radio"/> Key 1 :	*****
<input type="radio"/> Key 2 :	*****
<input type="radio"/> Key 3 :	*****
<input type="radio"/> Key 4 :	*****
<p>For 64 bit WEP key Type 5 ASCII character or 10 Hexadecimal digits leading by "0x", for example "AB312" or "0x4142333132".</p>	
<p>For 128 bit WEP key Type 13 ASCII character or 26 Hexadecimal digits leading by "0x", for example "0123456789abc" or</p>	

1. **Mode:**

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

- ◆ **Disable:** Turn off the encryption mechanism.
- ◆ **WEP Only:** Accepts only WEP clients and the encryption key should be entered in WEP Key.
- ◆ **WEP or WPA/PSK:** Accepts WEP and WPA clients simultaneously and the encryption key should be entered in WEP Key and PSK respectively.
- ◆ **WPA/PSK Only:** Accepts only WPA clients and the encryption key should be entered in PSK.

2. **WPA:**

The WPA encrypts each frame transmitted from the radio using the pre-shared key (PSK) which entered from this panel.

Pre-Shared Key (PSK): Either 8~63 ASCII characters or 64 Hexadecimal digits leading by 0x can be entered. For example "0123456789ABCD...." or "0x321253abcde.....".

3. **WEP:**

- ◆ **64-Bit:** For 64bits WEP key, either 5 ASCII characters or 10 hexadecimal digitals leading by 0x can be entered. For example, ABCDE or 0x4142434445.
- ◆ **128-Bit:** For 128bits WEP key, either 13 ASCII characters or 26 hexadecimal digits leading by 0x can be entered. For example, ABCDEFGHIJKLM or 0x4142434445464748494A4B4C4D.

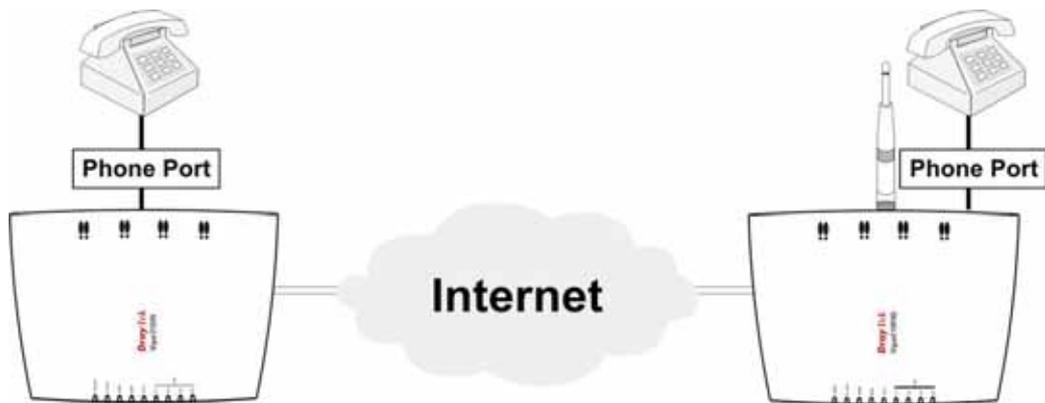


128-Bit WEP is securer than 64-Bit, but has more encryption/decryption overhead. To communicate, all wireless devices must support the same WEP encryption bit size and have the same key. Only one key out of four preset keys can be selected at one time. The keys can be entered either in ASCII or in Hexadecimal. To indicate which key you wish to use, click the circle under **Use** next to the key.

4. VoIP Settings (for V models)

Hardware Connection

The Vigor2100VG/V have one FXS port, the “Phone” port on the rear panel. As mentioned in previous section 2.1 Hardware Installation, you will have to connect it to a conventional analog telephone, either corded or wireless (DECT).



Before you start to talk

SIP is an end-to-end, signaling protocol that establishes user presence and mobility in VoIP structure. Every one who wants to talk using SIP protocol will need a “SIP Address”. The standard format of SIP Address is

display name<username @ domain name of SIP Registrar >.

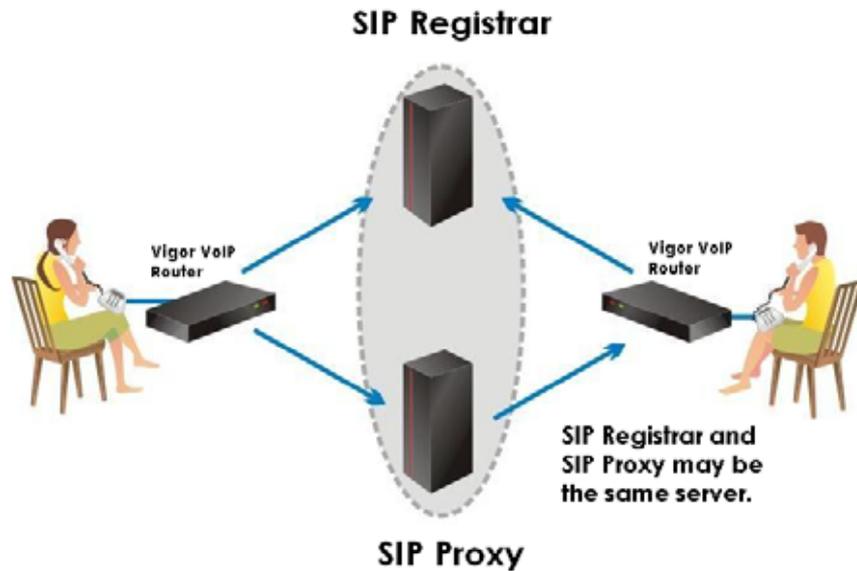
It is very similar to a URL so some may call it “SIP URL”.

Usually there will be two types of calling scenario, as illustrated below:

1. Calling via SIP Servers

First, the Vigor VoIP routers of yours will have to register to a SIP Registrar by sending registration messages. Then, both of your calls will be forwarded to each other by SIP proxy.

If you both register to the same SIP Registrar, then it will be illustrated as below:



The major benefit of this mode is that you don't have to memorize your friend's IP address, which might change very frequently if it's dynamic. Instead of that, you will only have to using **dial plan** or directly dial your friend's **account name** if you are with the same SIP Registrar. Please refer to the Example 1 and 2 in the 4.3 Calling Scenario.

2. Peer-to-Peer

Before calling, you have to know your friend's **IP Address**. The Vigor VoIP Routers will build connection between each other. Please refer to the Example 3 in the 4.3 Calling Scenario.



The menu tree of the **VoIP** configuration:

```

VoIP >> DialPlan
           SIP Related Function
           CODEC / RTP / DTMF
           Voice Call Status
           QoS

```

4.1 DialPlan Setup

In this section, you can set your VoIP contacts in the “phonebook” we called DialPlan - help you to make calls quickly and easily by using “speed-dial” **Phone Number**. There are total 60 index entries in the DialPlan for you to store all your friends and family members’ SIP addresses.

For each Dial Plan, you will see the settings below:

Index No. 1

<input checked="" type="checkbox"/> Enable	
Phone Number	: 1
Display Name	: Dolly
SIP URL	: 11111 @ fwd.pulver.com
Loop through	: None
Backup Phone Number	:

OK

The detail explanation of the index window:

- | | |
|---------------------|---|
| Enable | Tick this to enable this entry. |
| Phone Number | The “Speed-dial” number of this index. This can be any number you choose, using digits 0-9 and* |
| Display Name | The “Caller-ID” that you want to be displayed on your friend’s screen. This let your friend can easily know who’s calling without memorizing lots of SIP URL Address. |
| SIP URL | Enter your friend’s SIP Address |
| Loop Through | This function provide comprehensive ways to call your friend. |

PSTN: When the router detect your Internet connection is available, the router will dial SIP URL so your call will be directed via Internet. If the Internet connection is down, Loop Through function enable the router automatically dial Backup Phone Number so your call will be directed via PSTN network. This ensures your call will always be dialed.

This is important because you don’t want your call get trapped in the VoIP mechanism. Please be sure to fill in the Backup Phone Number.

None: The router will always dial SIP URL no matter what the status of Internet connection is. It might cause your call failed due to the Internet connection might not be available.



Although the Loop Through function provides convenient live lines for your call, you might prefer None for directing all calls via Internet. Please be reminded that you can still make the call via PSTN by manually dialing “#0” first.

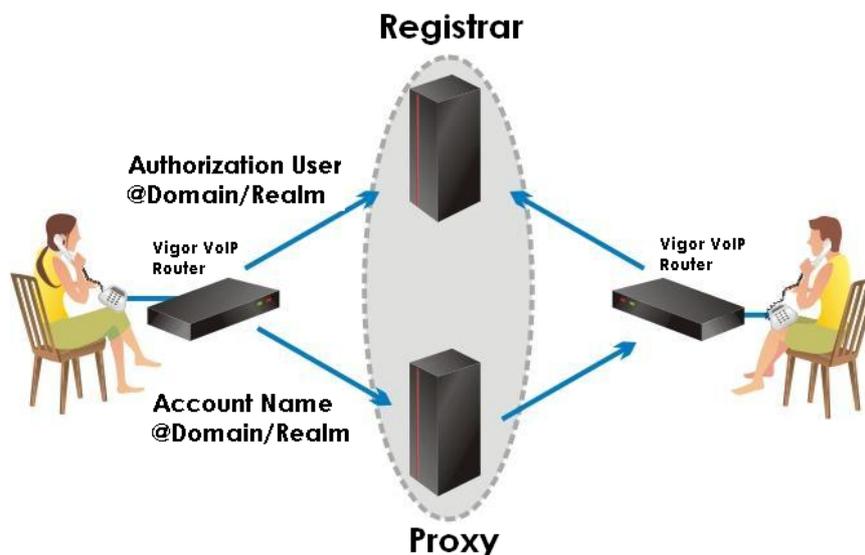
This will also work if you may wish to know in which way every call dial out so that you can count how much they save before receiving the phone bill.

Backup Phone Number The telephone number to dial if you select **PSTN** in **Loop Through**

4.2 SIP Related Function Setup

In this section, you set up your own SIP settings. When you apply for an account, your SIP service provider will give you an **Account Name** or user name, **SIP Registrar**, **Proxy**, and **Domain name**. (The last three might be the same in some case). Then you can tell your folks your SIP Address as in **Account Name@ Domain name**

As Vigor VoIP Router is turned on, it will first register with Registrar using AuthorizationUser@Domain/Realm. After that, your call will be bypassed by SIP Proxy to the destination using AccountName@Domain/Realm as identity.



Please set each field in the **SIP** and **Ports Settings** accordingly. Click **OK** to apply settings.

SIP

SIP Port	:	<input type="text" value="5060"/>	
Registrar	:	<input type="text" value="draytel.org"/>	
Proxy	:	<input type="text" value="draytel.org"/>	<input type="button" value="Duplicate"/>
Domain/Realm	:	<input type="text" value="draytel.org"/>	<input type="button" value="Duplicate"/>
<input checked="" type="checkbox"/> Stun Server	:	<input type="text"/>	

Ports Setting

Port 1			
<input checked="" type="checkbox"/> Use Registrar			
Display Name	:	<input type="text" value="Tina"/>	
Account Name	:	<input type="text" value="899999"/>	
Authorization User	:	<input type="text" value="899999"/>	<input type="button" value="Duplicate"/>
Password	:	<input type="password" value="••••••"/>	
Expiry Time	:	<input type="text" value="2 hours"/>	<input type="button" value="v"/>

The detail explanation of the SIP and Port settings window:

- SIP Port** Set the port number for sending/receiving SIP message for building a session. The default value is **5060**. Your peer must set the same value in his/her Registrar.
- Registrar** Set the domain name or IP address of the SIP Registrar server.
- Proxy** Set domain name or IP address of SIP proxy server. If this setting value is the same as Registrar, please press “Duplicate”.
- Domain/Realm** Set the domain name or IP address field of SIP Address. e.g., every text after @. If this setting value is the same as Registrar, please press “Duplicate”.
- Use Registrar** With the Registrar domain entered above, tick this box to let the Vigor2100 series use the SIP Registrar.
- Display Name** The “caller-ID” that you want to be displayed on your friend’s screen.
- Account Name** Enter your account name of SIP Address, e.g. every text before @.
- Authorization User** Enter the name or number used for SIP Authorization with SIP Registrar. If this setting value is the same as Account Name, please press “Duplicate”.
- Password** The password provided to you when you registered with a SIP service.
- Expire Time** The time duration that your SIP Registrar server keeps your registration record. Before the time expires the Vigor2100 series will send another register request to SIP Registrar again.

In the “**VoIP Call Status**” you will find an “R” indicating you have registered with your SIP server.

VoIP >> VoIP Call Status

VoIP Call Status

Channel Volume: << >>

Refresh Seconds : 10

Refresh

View Log

Channel	Status	Codec	PeerID	Connect Time	Tx Pkts	Rx Pkts	Rx Losses	Rx Jitter (ms)	In Calls	Out Calls	Volume Gain	
1	(R)	ACTIVE	729A/B	470091 <470091@fwd.pulve(40	3798	4039	186	11	2	0	5

(R) : Means you have registered your SIP server

4.3 Calling Scenario

Calling via SIP Sever

Example 1

John and David both have a SIP Address from **different** service providers.

John's SIP URL: **1234@draytel.org**

David's SIP URL: **4321@iptel.org**

1

John's settings

DialPlan index 1

Phone Number: **1111**
Display Name: **David**
SIP URL: **4321@iptel.org**

SIP Related Function

SIP Port: 5060 (default)
Registrar: **draytel.org**
Proxy: (Duplicate)
Domain/Realm: (Duplicate)
Port 1:
Use Registrar: (checked)
Display Name: john
Account Name: **1234**
Authorization User: (Duplicate)
Password: *****
Expiry Time: (use default value)

CODEC/RTP/DTMF
(use default value)

David's settings

DialPlan index 1

Phone Number:**2222**
Display Name: **John**
SIP URL:**1234@draytel.org**

SIP Related Function

SIP Port: 5060(default)
Registrar: **iptel.org**
Proxy: (Duplicate)
Domain/Realm: (Duplicate)
Port 1:
Use Registrar: (checked)
Display Name: david
Account Name: **4321**
Authorization User: (Duplicate)
Password: *****
Expiry Time: (use default value)

CODEC/RTP/DTMF
(use default value)

2

John calls David

he picks up the phone and dials **1111#**. (DialPlan Phone Number for David)

David calls John

he picks up the phone and dials **2222#** (DialPlan Phone Number for John)

Example 2

John and David both have a SIP Address from **the same** service provider.

John's SIP URL: **1234@draytel.org**

David's SIP URL: **4321@draytel.org**

1

John's settings

DialPlan index 1

Phone Number: **1111**
Display Name: **David**
SIP URL: **4321@draytel.org**

SIP Related Function

SIP Port: 5060 (default)
Registrar: **draytel.org**
Proxy: (Duplicate)
Domain/Realm: (Duplicate)
Port 1:
Use Registrar: (checked)
Display Name: john
Account Name: **1234**
Authorization User: (Duplicate)
Password: *****
Expiry Time: (use default value)

CODEC/RTP/DTMF
(use default value)

David's settings

DialPlan index 1

Phone Number:**2222**
Display Name: **John**
SIP URL:**1234@draytel.org**

SIP Related Function

SIP Port: 5060(default)
Registrar: **draytel.org**
Proxy: (Duplicate)
Domain/Realm: (Duplicate)
Port 1:
Use Registrar: (checked)
Display Name: david
Account Name: **4321**
Authorization User: (Duplicate)
Password: *****
Expiry Time: (use default value)

CODEC/RTP/DTMF
(use default value)

2

John calls David

he picks up the phone and dials **1111#**. (DialPlan Phone Number for David)

David calls John

he picks up the phone and dials **2222#** (DialPlan Phone Number for John)

Or

3

John calls David

he picks up the phone and dials **4321#**. (David's Account Name)

David calls John

he picks up the phone and dials **1234#** (John's Account Name)

Peer-to-Peer Calling

Example 3

Arnor and Paulin each have a Vigor2500V router, they can call each other without SIP Registrar. First they will have each other's IP address and assign an Account Name for the port used for calling.

Arnor's SIP URL: **1234@214.61.172.53**

Paulin's SIP URL: **4321 @ 203.69.175.24**

1

Arnor's settings

DialPlan index 1

Phone Number: **1111**
Display Name: **paulin**
SIP URL: **4321 @ 203.69.175.24**

SIP Related Function

SIP Port: 5060 (default)
Registrar: (blank)
Proxy: (blank)
Domain/Realm: (blank)
Port 1:
Use Registrar: (unchecked)
Display Name: arnor
Account Name: **1234**
Authorization User: (blank)
Password: (blank)
Expiry Time: (use default value)

CODEC/RTP/DTMF
(use default value)

Paulin's settings

DialPlan index 1

Phone Number:**2222**
Display Name: **arnor**
SIP URL: **1234@214.61.172.53**

SIP Related Function

SIP Port: 5060(default)
Registrar: (blank)
Proxy: (blank)
Domain/Realm: (blank)
Port 1:
Use Registrar: (unchecked)
Display Name: paulin
Account Name: **4321**
Authorization User: (blank)
Password: (blank)
Expiry Time: (use default value)

CODEC/RTP/DTMF
(use default value)

2

John calls David

he picks up the phone and dials **1111#**. (DialPlan Phone Number for David)

David calls John

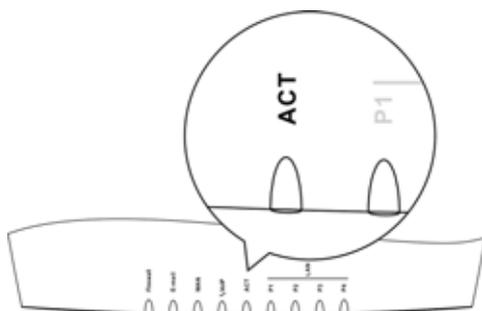
he picks up the phone and dials **2222#** (DialPlan Phone Number for John)

5. Trouble Shooting

This section will guide you to solve abnormal situations. Please follow the below steps to check your basic installation.

Step 1. Is the Hardware Status OK?

1. Check the power line and WLAN/LAN cable connections. Refer to the Quick Installation Guide “2.1 Hardware Installation” section for details.
2. Turn on the router, check if the **ACT LED** blink once per second and the correspondent **LAN LED** is bright.



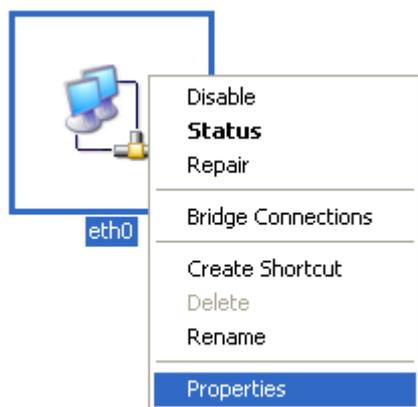
Step 2. Are the Network Connection Settings on Your PC OK?

The following example is based on Windows XP case. Regarding to the examples of other OSs, please refer to the similar steps or find support notes in www.draytek.com.

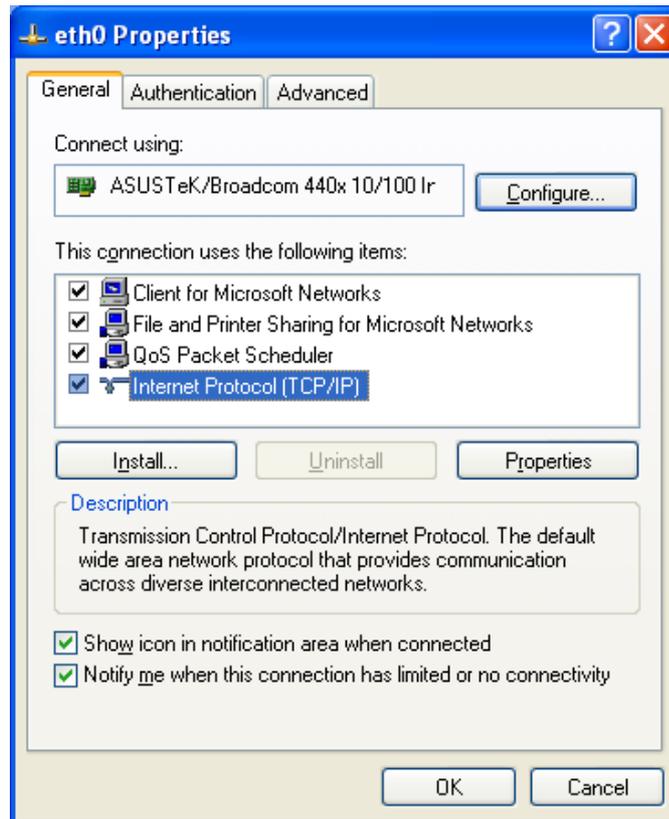
1. Go to **Control Panel** and then double-click on **Network Connections**.



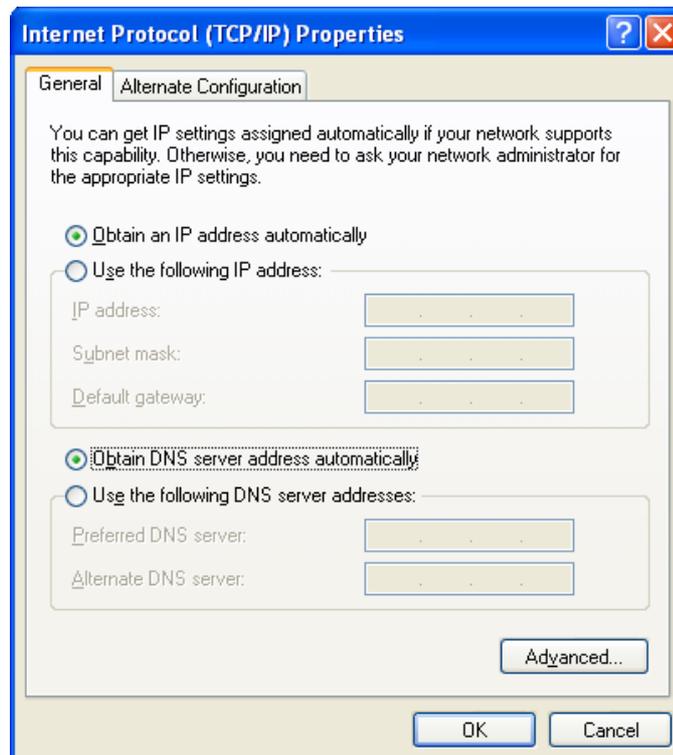
2. Right-click on **Local Area Connection** and click on **Properties**.



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



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

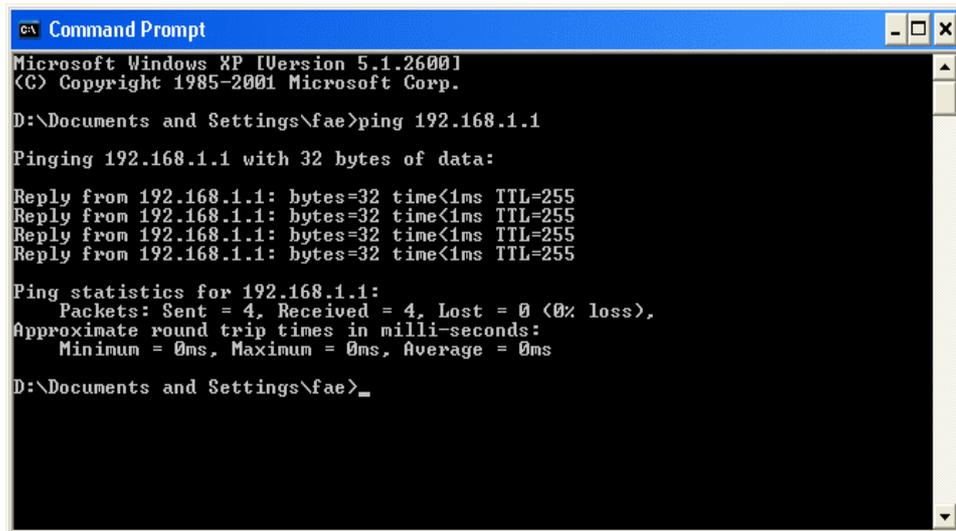


Step 3 Can You Ping the Router from PC?

The default gateway IP address of the router is 192.168.1.1. Please check that if you can ping the router correctly.

A. 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).
3. Type **ping 192.168.1.1** and press [Enter]



```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

D:\Documents and Settings\fae>ping 192.168.1.1

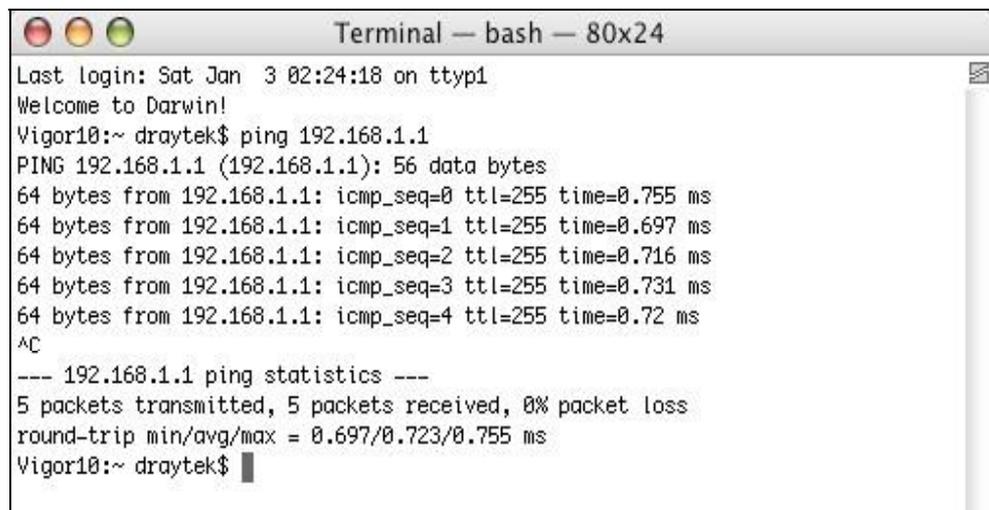
Pinging 192.168.1.1 with 32 bytes of data:

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

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>
```

B. For Mac (Terminal)



```
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$
```

The important thing is that the computer receives a reply from 192.168.1.1. If not, please check the IP address of your PC. We suggest you set the network connection as get IP automatically. (Please refer to the Step 2)

Step 4 Are the ISP Settings OK?

1. Go to the web configuration GUI and check your ISP settings.
2. Click **Internet Access Setup** items on the left frame of GUI.

A. For PPPoE Users

1. Check that whether the **Enable** option is selected.
2. Check that whether the **Username** and **Password** are entered with correct value given by your ISP.

The screenshot shows the 'PPPoE Client Mode' configuration page. It is divided into two main sections: 'PPPoE Setup' and 'PPP/MP Setup'.
PPPoE Setup:
- 'PPPoE Link' has radio buttons for 'Enable' (selected) and 'Disable'.
- 'ISP Access Setup' includes fields for 'ISP Name' (ISP Service), 'Username' (draytek), and 'Password' (masked with dots).
- 'Scheduler (1-15)' has a label '=>' followed by four empty input boxes.
PPP/MP Setup:
- 'PPP Authentication' is a dropdown menu set to 'PAP or CHAP'.
- 'Always On' is a checked checkbox.
- 'Idle Timeout' is a text box containing '-1' followed by 'second(s)'.
- 'IP Address Assignment Method (IPCP)' has radio buttons for 'Fixed IP' and 'No (Dynamic IP)' (selected).
- 'Fixed IP Address' is an empty text box.
- 'WAN physical type' is a dropdown menu set to 'Auto negotiation'.
An 'OK' button is located at the bottom center of the form.

B. For Static or Dynamic Users

1. Check that whether the **Enable** option is selected.
2. Check that whether WAN IP Network Settings is set appropriately or not. You need to enter "**Specify an IP address**", **IP Address**, **Subnet Mask**, and **Gateway IP Address** with the correct value.

The screenshot shows the 'Static or Dynamic IP (DHCP Client)' configuration page. It is divided into three main sections: 'Access Control', 'Keep WAN Connection', and 'WAN IP Network Settings'.
Access Control:
- 'Broadband Access' has radio buttons for 'Enable' and 'Disable' (selected).
Keep WAN Connection:
- 'Enable PING to keep alive' is an unchecked checkbox.
- 'PING to the IP' is a text box containing '0.0.0.0'.
- 'PING Interval' is a text box containing '0' followed by 'minute(s)'.
WAN IP Network Settings:
- 'Obtain an IP address automatically' is a selected radio button.
- 'Router Name' and 'Domain Name' are empty text boxes with asterisks.
- A note below says '* : Required for some ISPs'.
- 'Default MAC Address' is a selected radio button.
- 'Specify a MAC Address' is an unchecked radio button.
- 'MAC Address:' is a text box containing '00 . 50 . 7F : 00 . 00 . 01'.
- 'Specify an IP address' is a selected radio button.
- 'IP Address' is a text box containing '0.0.0.0'.
- 'Subnet Mask' is a text box containing '0.0.0.0'.
- 'Gateway IP Address' is an empty text box.
An 'OK' button is located at the bottom center of the form.

C. For PPTP Users

1. Check that whether the **Enable** option is selected.
2. Check that whether **PPTP Server, Username, Password** is entered the correct value given by your ISP.
3. Check that whether LAN2/WAN IP Network Settings is set appropriately or not. You need to enter "**Specify an IP address**", **IP Address** and **Subnet Mask** with the correct value.

PPTP Client Mode

PPTP Setup
PPTP Link Enable Disable
PPTP Server
ISP Access Setup
ISP Name
Username
Password
Scheduler (1-15)
=> , , ,

PPP Setup
PPP Authentication
 Always On
Idle Timeout second(s)
IP Address Assignment Method (IPCP)
Fixed IP Yes No (Dynamic IP)
Fixed IP Address
LAN2/WAN IP Network Settings
 Obtain an IP address automatically
 Specify an IP address
IP Address
Subnet Mask
WAN physical type
Auto negotiation

OK

If the router settings are correct at all, and the router still does not connect, please contact your ISP technical support representative to help you for configuration.

Step 5. Back to Factory Default Setting

Warning: After pressing the "factory default setting", you will lose all settings you did before. Make sure you have recorded all useful settings. The password of factory default is null.

A Software Reset

You can also reset router to factory default via Web configurator.

Reboot System

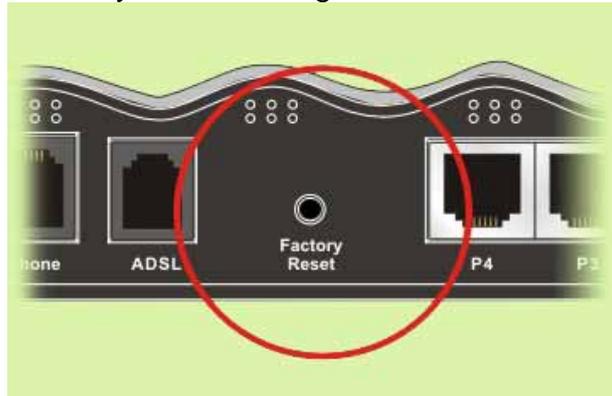
Do You want to reboot your router ?

Using current configuration
 Using factory default configuration

B Hardware Reset

While the router is running (ACT LED blinking), press the button and hold for more than 5 seconds. The ACT LED begins to blink

rapidly, then release the button. The router will restart with the factory default configuration.



After restore the factory default setting, please repeat Step 1 to Step 4 to reinstall the router. Configure the router according to your recorded settings.

If the router does not work correctly, please contact your dealer for help. For any further questions, please send e-mail to support@draytek.com