VigorBX 2000 Series
IPPBX Firewall Router
Quick Start Guide

Version: 1.0

Firmware Version: V3.8.1_RC4a

(For future update, please visit DrayTek web site)

Date: August 10, 2015

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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 tore-store 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.

European Community Declarations

Manufacturer: DrayTek Corp.
Address: No. 26, Fu Shing Road, HuKou Township, HsinChu Industrial Park, Hsin-Chu County, Taiwan 303
Product: VigorBX 2000 Series

DrayTek Corp. declares that VigorBX 2000 Series of routers are in compliance with the following essential requirements and other relevant provisions of R&TTE 1999/5/EC, ErP 2009/125/EC and RoHS 2011/65/EU.

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.

This product is designed for DSL, POTS and 2.4GHz/5GHz WLAN network throughout the EC region and Switzerland with restrictions in France. Please see the user manual for the applicable networks on your product.

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.

More update, please visit www.draytek.com.

Due to the US Patent No. 7,127,048, the DSL and VoIP applications on Vigor BX 2000 series can not be allowed to promote and to sell in the USA.

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

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1. Introduction

The VigorBX 2000 is an VDSL2 router with IP PBX function and 2nd Ethernet WAN. This 2nd WAN can connect to DSL/Cable modem or fiber media converter for policy-based load-balance, fail-over and BoD (Bandwidth on Demand); it also 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.

With hardware-based implementation of the VPN protocols, the VigorBX 2000 supports up to 32 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.

VigorBX 2000 can provide up to 50 extensions setup to let all registered IP phones in LAN or remote sites around the world to have unlimited free calls through Internet. Moreover, VigorBX 2000 is able to establish multiple networking architectures corresponding to your current desire and future needs of growing communication. Its PSTN compatibility lets you move from simple VoIP solution such as IP phone and Softphone to integrate with comprehensive networking infrastructure, such as Analog phone line any time you need.
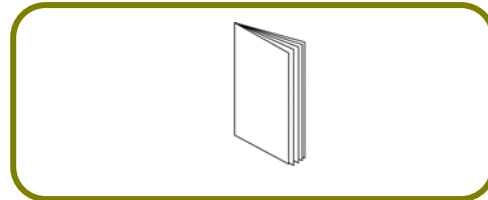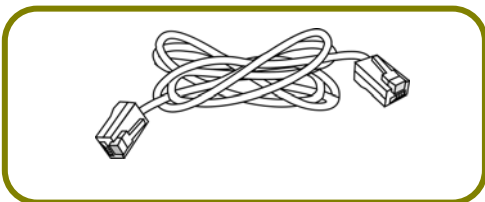
2. Package Content

Take a look at the package content. If there is anything missed or damaged, please contact DrayTek or dealer immediately.
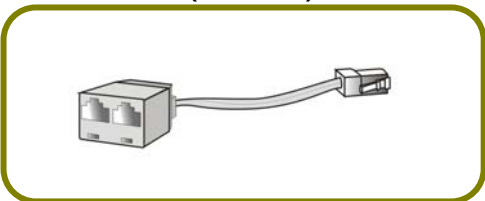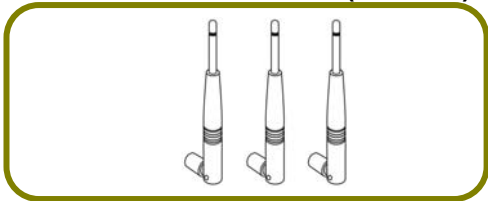
VigorBX2000

Quick Start Guide

RJ-45 to RJ-45 Cable (Annex B)

RJ-11 to RJ-45 Cable (Annex B)
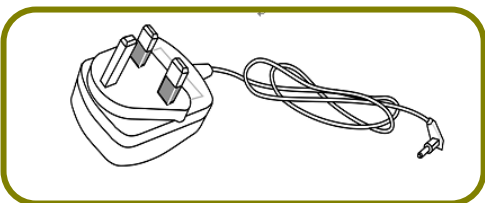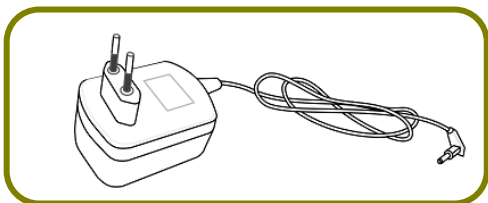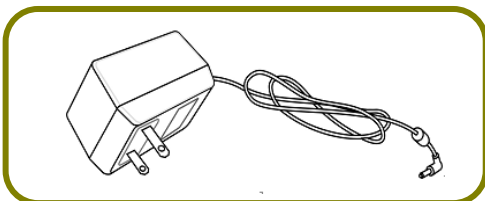**RJ-11 to RJ-11 Cable (Annex A)**

Phone Adapter

Antenna (ac models)

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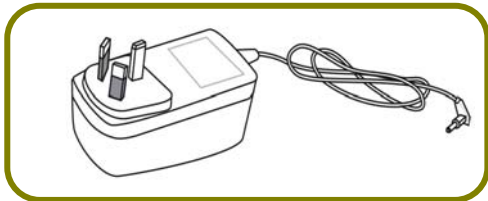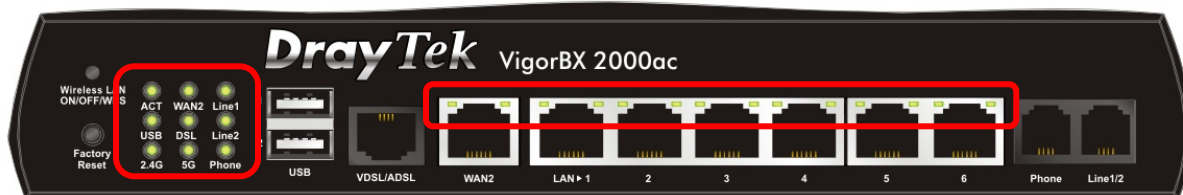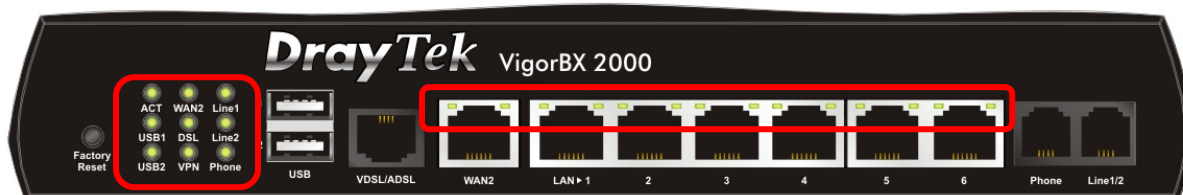
UK-type Power Adapter

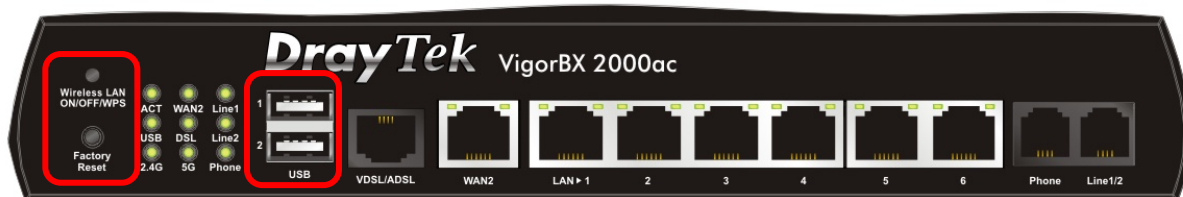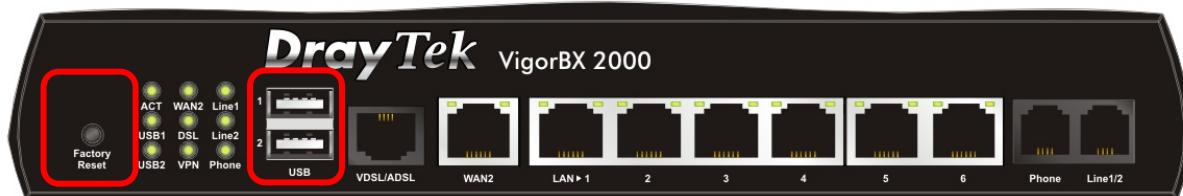**EU-type Power Adapter**

USA/Taiwan-type Power Adapter

AU/NZ-type Power Adapter

3. Panel Explanation

LED	Status	Explanation
ACT (Activity)	Blinking	The router is powered on and running normally.
	Off	The router is powered off.
USB1~USB2 / USB	On	A USB device is connected and active.
	Blinking	The data is transmitting.
WAN 2	On	The WAN2 connection is ready.
	Blinking	It will blink while transmitting data.
DSL	On	The router is ready to access Internet through DSL link.
	Blinking	Slowly: The modem is ready. Quickly: The connection is training.
VPN	On	VPN tunnel is up and down.
	Off	VPN services are disabled.
	Blinking	Traffic is passing through VPN tunnel.
2.4G/5G	On	Wireless access point with bandwidth of 2.4GHz/5GHz is ready.
	Blinking	It will blink slowly while wireless traffic goes through. ACT and WLAN LEDs blink quickly and simultaneously when WPS is working, and will return to normal condition after two minutes. (You need to setup WPS within 2 minutes.)
Line1~Line2	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.
Phone	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.
LED on Connector			
WAN 2	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/1000Mbps.

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LAN 1~LAN6	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps.

| Interface	Description
Wireless LAN ON/OFF/WPS	Wireless band will be switched /changed according to the button pressed and released. For example, ● 2.4G (On) and 5G (On) – in default. ● 2.4G (Off) and 5G (On) – pressed and released the button once. ● 2.4G (On) and 5G (Off) – pressed and released the button twice. ● 2.4G (Off) and 5G (Off) – pressed and released the button three times. When WPS function is enabled by web user interface, press this button for more than 2 seconds to wait for client's device making network connection through WPS.
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.
USB1~USB2	Connecter for a USB device (for 3G/4G USB Modem or printer).
VDSL/ADSL	Connecter for accessing the Internet through VDSL/ADSL.
WAN2	Connecter for remote networked devices.
LAN1~LAN6	Connecters for local networked devices.
Phone	Connecter for PSTN phone.
Line1/2	Connector for PSTN life line.
PWR	Connecter for a power adapter.
ON/OFF	Power Switch.

4. Hardware Installation

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

Before starting to configure the router, you have to connect your devices correctly.
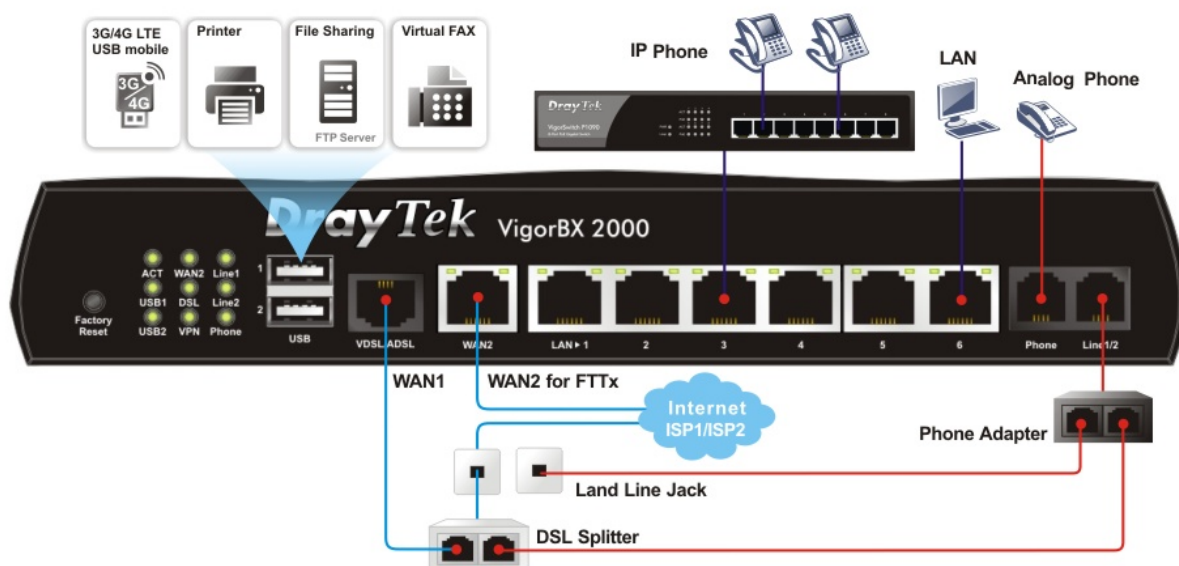
1. Connect the ADSL interface to the external ADSL splitter with an ADSL line cable. Then, connect Line interface (or the Phone Adapter connecting to Line1/2) to the external ADSL splitter.

    For second WAN, connect the cable Modem/DSL Modem/Media Converter to WAN2 port of router with Ethernet cable (RJ-45).

2. Connect one end of an Ethernet cable (RJ-45) to one of the **LAN** ports of the router and the other end of the cable (RJ-45) into the Ethernet port on your computer.

3. Connect the telephone sets with phone lines (for using VoIP function). For the model without phone ports, skip this step.

4. Connect one end of the power adapter to the router's power port on the rear panel, and the other side into a wall outlet.

5. Power on the device by pressing down the power switch on the rear panel.

6. The system starts to initiate. After completing the system test, the **ACT** LED will light up and start blinking.

    (For the detailed information of LED status, please refer to section 3. Panel Explanation)

Caution	Each of the Phone ports can be connected to an analog phone only. Do not connect the phone ports to the telephone wall jack. Such connection might damage your router.

5. Software Configuration

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

5.1 Quick Start Wizard for Network Connection

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. Make sure your PC connects to the router correctly.

Note	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**. A pop-up window will open to ask for username and password. Please type "admin/admin" as the Username/Password and click **Login**.

Note	If you fail to access to the web configuration, please go to "Trouble Shooting" for detecting and solving your problem.

3. Now, the **Main Screen** will pop up. Click **Wizards>>Quick Start Wizard**.

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

4. Enter the login password on the field of **New Password** and retype it on the field of **Confirm Password**. Then click **Next** to continue.

5. On the next page as shown below, please select the WAN interface (WAN 1 to WAN4) that you use. If DSL interface is used, please choose WAN1; if Ethernet interface is used, please choose WAN2. If USB interface is used, choose WAN3/WAN4. For WAN2, choose **Auto negotiation** as the physical type for your router. Here we take WAN1 as an example. Then, click **Next** for next step.

Quick Start Wizard

WAN Interface

WAN Interface:	WAN1 ▼
Display Name:	
Physical Mode:	ADSL / VDSL2
Physical Type:	Auto negotiation ▼
VLAN Tag insertion **(ADSL)**:	Disable ▼
VLAN Tag insertion **(VDSL2)**:	Disable ▼

[< Back] [Next >] [Finish] [Cancel]

6. On the next page as shown below, please select the appropriate protocol **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

Protocol	PPPoE / PPPoA ▼

For ADSL Only:

Encapsulation	PPPoE LLC/SNAP ▼	
VPI	0	[Auto detect]
VCI	33	

Fixed IP	○ Yes ⊙ No(Dynamic IP)
IP Address	
Subnet Mask	
Default Gateway	
Primary DNS	8.8.8.8
Second DNS	8.8.4.4

[< Back] [Next >] [Finish] [Cancel]

PPPoE/PPPoA: If you click **PPPoE or PPPoA** as the protocol, after clicking **Next**, you will get the following web page. Please manually enter the Username/Password provided by your ISP. Then click **Next**.

Quick Start Wizard

Set PPPoE / PPPoA

WAN 1	
Service Name (Optional)	CHT
Username	85005733@hinet.net
Password	••••••••
Confirm Password	••••••••

[< Back] [Next >] [Finish] [Cancel]

MPoA/Static or Dynamic IP: If you choose **MPoA/Static or Dynamic IP** as the protocol, type in the IP address information originally provided by your ISP. Then click **Next** for next step.

Quick Start Wizard

Connect to Internet

WAN 1	
Protocol	MPoA / Static or Dynamic IP

For ADSL Only:		
Encapsulation	1483 Bridged IP LLC	
VPI	0	[Auto detect]
VCI	33	

Fixed IP	⦿ Yes ◯ No(Dynamic IP)
IP Address	172.16.3.151
Subnet Mask	255.255.255.0
Default Gateway	172.16.3.7
Primary DNS	8.8.8.8
Second DNS	8.8.4.4

[< Back] [Next >] [Finish] [Cancel]

7. 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:	ADSL / VDSL2
VPI:	0
VCI:	33
Protocol / Encapsulation:	1483 Bridge LLC
Fixed IP:	Yes
IP Address:	172.16.3.151
Subnet Mask:	255.255.255.0
Default Gateway:	172.16.3.7
Primary DNS:	8.8.8.8
Secondary DNS:	8.8.4.4

[< Back] [Next >] [Finish] [Cancel]

5.2 IPPBX Wizard for VoIP

IPPBX Wizard can guide the user to configure the required settings for this router within several steps. All the settings, also, can be configured by using **IP PBX** menu. However, the wizard is the most convenient and easy method for users.

1. Click **Wizards>>IPPBX Wizard**.

2. You can get the first screen as shown below.

Available settings are explained as follows:

Item	Description
Extension Group Name	Type a name as a display for this extension group.
Extension Group Number	Type the number of extension for such group.
Start Number of the	Type the start extension number for such group.

extension Group	
Number of extension in this group	Type the total number of the extension for such group.
Extension Password in this group	Type the password for this extension group, which will be used in registration done by IP Phone.

3. When you finish the settings of group name, group number, start number, number of extension fields, please click **OK** to save them.

IPPBX Wizard

Extension & Groups Setup : Index 1

Extension Group Name:	Healthcare	(for example : sales)
Extension Group Number:	204	(for example : 100)
Start Number of the extension Group:	2051	(for example : 101)
Number of extensions in this group:	10	(for example : 10, max = 20)
Extension Password in this group:		
	OK	

4. The new added group will be displayed on the screen. You can set **20** groups for using in different conditions. Then click **Next** to access into next web page.

Index	Group Name	Group Extension	Hunt List(Max 20 Extension)
1.	Healthcare	204	2051-2060
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

5. This page allows you to set profiles for **12** SIP outside lines at one time.

Sip Trunk Setup : Index 1

Profile Name:		(11 characters max.)
Domain/Realm:		(63 characters max.)
Proxy:		(63 characters max.)
Account Number/Name:		(63 characters max.)
Password:		(63 characters max.)
Trunk number:	001	(3 characters max.)

OK

Index	Profile Name	Domain/Realm	Proxy	Account Number/Name	Trunk Number
1.					001
2.					002
3.					003
4.					004
5.					005
6.					006
7.					007
8.					008
9.					009
10.					010
11.					011
12.					012

< Back   Next >   Finish   Cancel

Available settings are explained as follows:

Item	Description
Profile Name	Type a name for this profile for identifying.
Domain/Realm	Set the domain name or IP address of the SIP Registrar server.
Proxy	Set domain name or IP address of SIP proxy server. By the time you can type **:port number** after the domain name to specify that port as the destination of data transmission (e.g., **nat.draytel.org:5065**)
Account Number/Name	Enter your account name of SIP Address, e.g. every text before @.
Password	Type the password which will be used in registration for SIP service for this profile.
Trunk Number	There are two ways to dial outside lines for an extension number. First, dial a short number and wait for a while. When dial tone appears, please dial the real outside line number. Second, dial a short number and then the real outside line number without waiting for dial tone. The short number is defined here as Trunk Number.

6. When you finish the settings of profile name, domain/realm, proxy, account number/name, password and trunk number fields, please click **OK** to save them.

7. The new added profile will be displayed on the screen.

8. Click **Next** to access into next web page. The following page allows you to set office hours including starting point, ending point on duty day(s).

Available settings are explained as follows:

Item	Description
When do you start working in the morning	Use the drop down menu to choose the time as the starting point in the morning.
When do you have a rest at noon	Use the drop down menu to choose the time as the ending point in the morning.
When do you start working in the afternoon	Use the drop down menu to choose the time as the starting point in the afternoon.
When do you leave the office	Use the drop down menu to choose the time as the ending point in the afternoon.
Is this schedule available at the weekend	If such schedule will be available in the weekend, simply click **Yes**, otherwise, click **No**.

9. When you finish the settings, click **Finish** to save the settings and exit the wizard.

6. Customer Service

If the router 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.