PLANET
Networking & Communication

User's Manual

802.11n Wireless VoIP Fiber Router

FRT-420SN

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CE mark Warning

The is a class B device, In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

WEEE Warning

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

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Revision

User's Manual for PLANET 802.11n Wireless VoIP Fiber Router:
Model: FRT-420SN
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Part No. EM-FRT-420SN_v1

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Chapter 1 Introduction

Overview

Integrating the cutting edge of Internet Telephony and VoIP Router manufacturing experience, PLANET now introduces the latest member of PLANET Wireless VoIP Router family: the FRT-420SN.

With growing network services such as HDTV, IPTV, voice-over-IP (VoIP) and Multimedia broadband applications, and the demand of bandwidth rises quickly. The current Broadband environment has not already accorded with needing; the FTTH (fiber-to-the-home) would be the most promising NGN (Next Generation Networking) application to fulfill the demand.

The PLANET Internet Fiber Router, FRT-420SN provides office and residential users the ideal solution for sharing a high-speed fiber Internet connection and four-10/100Mbps Fast Ethernet backbone. The Fiber Router is a perfect FTTH Digital Home Router which can provide very high performance access to Internet, both downstream and upstream up to 100Mbps through the fiber interface. The PLANET FRT-420SN supports one SFP optical connectors for WAN connection. The Fiber Router can be implemented easily for optical fiber deployment.

The FRT-420SN provides not only high-quality voice communications and wired Internet sharing capabilities but also the Access Point (AP) function for flexible wireless communication. With advanced router and VoIP DSP processor technology, the FRT-420SN is able to make calls via SIP proxy voice communications plus the IP sharing and the QoS mechanism.

By applying the FRT-420SN, home users and companies are able to save installation cost and extend the VoIP network from their previous investments in telephones, conferences and speakerphones. The FRT-420SN is equipped with two telephony interfaces, so users may register to different SIP proxy servers and establish up to 2 concurrent VoIP calls for more flexibility in the voice communications. The FRT-420SN can also be the bridge between traditional analog telephones and IP network with an extremely affordable investment.

With built-in IEEE 802.11b/g/n wireless network capability, the FRT-420SN allows any computer and wireless enabled network client connect to it without additional cabling. The 802.11n wireless capability gives users the highest speed of wireless experience ever. With an 802.11n compatible wireless adapter installed in your PC, the files can be transferred at up to 300Mbps. The radio coverage is also doubled to offer the high speed wireless connection even in a wide space of your office or house.

To secure the wireless communication, the FRT-420SN supports most up-to-date encryption: WEP, WPA-PSK and WPA2-PSK. In addition, the FRT-420SN supports WPS configuration with PBC/PIN type for users to connect to a secured wireless network easily.

Product Features

- Fiber Interface support
- Long distance connection based on optical fiber transceiver
- Complies with IEEE 802.3, IEEE 802.3u 10/100Base-TX, 100Base-FX standard

- Co-work with PLANET 100Base-FX Media Conversion
- Smart QoS mechanism to ensure the voice quality
- NAT Router, Port Forwarding, DMZ
- IP ToS (IP Precedence) / DiffServ
- Voice prompt for machine configurations
- Supports FTTH / IPTV applications

Wireless Features

- IEEE 802.11b/g/n wireless standard compliant
- Multi-mode: AP, AP-Client Mode
- Supports 64/128-bit WEP, WPA, WPA-PSK, WPA2, WPA2-PSK and 802.1x encryption
- Wireless WPS/WDS support

VoIP Features

- SIP 2.0 (RFC3261) compliant
- Up to 2 concurrent VoIP calls
- Voice codec support: G.711, G.729AB, G.723, G.276, GSM and G.722
- T.38 FAX transmission over IP network (G.711 Fax pass-through)
- In-band and out-of-band DTMF Relay (RFC 2833)
- 3-Way conference calls
- Call Waiting / Forward / Transfer / Hold / Resume
- Caller ID Detection / Generation: DTMF, BELLCORE, ETSI, BT, NTT
- Voice processing: VAD, CNG, Dynamic Jitter Buffer, G.168 Line Echo Cancellation
- SNMP v1/v2 and Auto Provision management
- Auto-Provision feature for flexible, ease-of use system integration

Package Content

The contents of your product should contain the following items:
802.11n Wireless VoIP Fiber Router
Power adapter
Quick Installation Guide
User's Manual CD

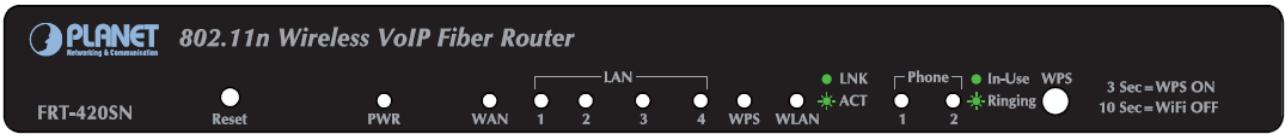
RJ-11 cable x 2

Antenna x2

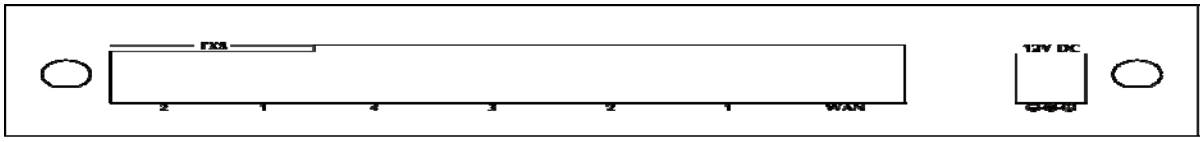
Physical Details

The following figure illustrates the each panel of FRT-420SN

Front Panel



Rear Panel



Physical Interface & Button

Front Panel LED Indicators

LED	State	Descriptions
PWR	ON	Router is power ON
	Off	Router is power Off
WAN	ON	Router network connection established
	Flashing	Data traffic on cable network
	Off	Waiting for network connection
LAN	ON	LAN is connected successfully
	Flashing	Data is transmitting
	Off	Ethernet not connected to PC
WPS	ON	The Wi-Fi Protected Setup function is starting.
	Off	The Wi-Fi Protected Setup function is close
WLAN	Flashing	Transmitting or receiving data through the Wireless LAN
	Off	Wireless LAN is no function
Phone	ON	Telephone Set is On-Hook
	Flashing	Ring Indication
	Off	Telephone Set is Off-Hook
Reset Button		- Pressing 1 second to reboot machine. - Pressing 5 seconds to reset to the factory default setting
WPS Button		- Pressing 3 seconds to start the WPS function 2 minutes for client connection. - Pressing 10 seconds to enable or disable the wireless function.

Rear Panel Indicators

FIBER SPECIFICATIONS

Product		**Internet Fiber Router**
Ports	**WAN**	1 x 100Base-FX port
	LAN	4 x 10/100Base-TX port
Optic Interface	**Connector**	**SFP**
	Mode	**Vary on module**
	Distance	**Vary on module**
Fiber-optic cable		▪ 9/125μm single-mode cable, provide long distance for 15/20/35/50km or longer (very on SFP module)

1	**WAN**	One Fiber-optic Interface, SFP connector-type
2	**LAN**	RJ-45 connector, to maintain the existing network structure, connected directly to the **PC** through **straight** CAT-5 cable
3	**FXS**	RJ-11 connector, connected directly to the analog phone.
4	**12V DC**	12V DC Power input outlet
5	**Antenna**	Used to connect the external antenna for accessing to 802.11b/g/n wireless network

Note

1. Machine LAN port default IP is http://192.168.0.1. Press **RESET** button on front panel over 5 seconds will reset the VoIP Router to factory default value. (Except speed dial and call forward settings)
2. Using the power supply that is not the one included in package will cause damage and void the warranty for this product.

Chapter 2

Preparations & Installation

Physical Installation Requirement

This chapter illustrates basic installation of Wireless VoIP Fiber Router ("**Router**" in the following term)

- Network cables. One Fiber-optic Interface, SC connector-type
- TCP/IP protocol must be installed on all PCs.

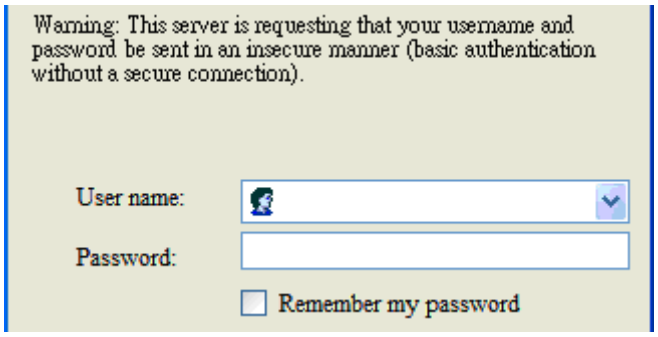
For Internet Access, an Internet Access account with an ISP, and either of a DSL or Cable modem

Administration Interface

PLANET Router provides GUI (Web based, Graphical User Interface) and utility for machine management and administration.

Web configuration access

You will connect to SIP Router via your web browser automatically. Router will prompt for logon username / password, please enter: **admin / admin** to continue machine administration.



Router will prompt for logon username/password, please enter: ***admin*** / **admin** to continue machine administration.

The default IP address of LAN port is **192.168.0.1**. (The WAN port is DHCP client mode.) You also could open your web browser, and insert ***http://192.168.0.1*** in the address bar of your web browser to logon Router web configuration page.

To start Router web configuration, you must have one of these web browsers installed on computer for management

- Microsoft Internet Explorer 6.00 or higher with Java support

Note

Please locate your PC in the same network segment (**192.168.0.x**) of Router. If you're not familiar with TCP/IP, please refer to related chapter on user's manual CD or consult your network administrator for proper network configurations.

Keypad commands

The Router series phone adapters support telephone keypad configurations, please connect analog telephone set and refer to the following table for machine network configurations.

IVR Menu Choice	Machine operation	Parameter(s)	Notes
#111#	Set DHCP client	None	WAN port will change to DHCP Client
#112xxx*xxx*xxx*xxx#	Setup Static IP Address	Use the * (star) key when entering a decimal point.	DHCP will be disabled and system will change to the Static IP type.
#113xxx*xxx*xxx*xxx#	Set Network Mask	Use the * (star) key when entering a decimal point.	Must set Static IP first.
#114xxx*xxx*xxx*xxx#	Set Gateway IP Address	Use the * (star) key when entering a decimal point.	Must set Static IP first.
#115xxx*xxx*xxx*xxx#	Set Primary DNS Server	Use the * (star) key when entering a decimal point.	Must set Static IP first.
#190#	Unlock	None	Must unlock the protect function before carry out the firmware update (#160#).
#195#	Save Network Settings	None	Must save network settings after set up network settings via keypad.
#198#	Factory Reset	None	The system will be reset to factory default value and reboot automatically.

Following keypad commands can be used to display the network settings enabled on Router via voice prompt.

IVR Menu Choice	Machine operation	Notes
#120#	Check LAN port IP Address	IVR will announce the current IP address of the LAN port.
#126#	Check WAN port IP Address	IVR will announce the current IP address of the WAN port.
#121#	Check network connection Type	IVR will announce if DHCP in enabled or disabled. (WAN port)
#122#	Check the Phone Number	IVR will announce current enabled VoIP number. (WAN port)
#123#	Check Network Mask	IVR will announce the current network mask of the Router. (WAN port)
#124#	Check Gateway IP Address	IVR will announce the current gateway IP address of the Router. (WAN port)
#125#	Check DNS Server Setting	IVR will announce the current setting in the DNS field. (WAN port)
#128#	Check Firmware Version	IVR will announce the version of the firmware running on the Router.

Following keypad commands can be used to set up the main function .

IVR Menu Choice	Machine operation	Parameter(s)	Notes
#130+first priority codec	Set First Priority Codec	01: G.711 u-Law, 02: G.711 a-Law, 03: G.729, 04: G.723 6.3K, 05: G.723 5.3K, 06: G.726 16K, 07: G.726 24K, 08: G.726 32K, 09: G.726 40K, 10: GSM-FR, 11: G.722	You can set the codec you want to the first priority. For example: **#13001#** Set G.711 u-Law to the first priority codec
#133#	Set Speaker Voice Gain	00~31, 32: Mute	For example: **#13305#** Mic Voice: 5
#134#	Set Mic Voice Gain	00~31, 32: Mute	For example: **#13410#** Mic Voice: 10
#138#	Enable call waiting	None	Enable Call waiting
#139#	Disable call waiting	None	Disable Call waiting
#140+Forward type+Forward Phone Number#	Forward Settings	Forward Type: 1: Immediate Forward 2: Busy Forward 3: No answer Forward	For example: **#1401101#** Immediate Forward to 101
#141#	Disable Forward Settings	None	

#150#	Select Default Realm	0: Realm 1, 1: Realm 2	For example: **#1501#** Set Default Proxy to Realm 2
#160#	Update firmware	None	Update firmware Must unlock the protect function (#190#) before carry out the firmware update.

Chapter 3

Network Settings

Configuring and monitoring your Router from web browser

The Router integrates a web-based graphical user interface that can cover most configurations and machine status monitoring. Via standard web browser, you can configure and check machine status from anywhere around the world.

Overview on the web interface of Router

With web graphical user interface, you may have:

- More comprehensive setting feels than traditional command line interface.
- Provides user input data fields, check boxes, and for changing machine configuration settings
- Displays machine running configuration

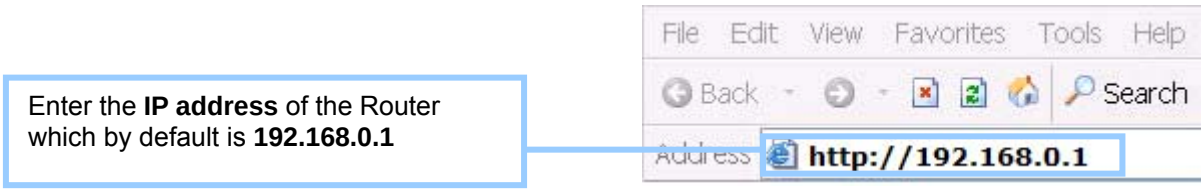
To start Router web configuration, you must have one of these web browsers installed on computer for management

- Microsoft Internet Explorer 6.00 or higher with Java support

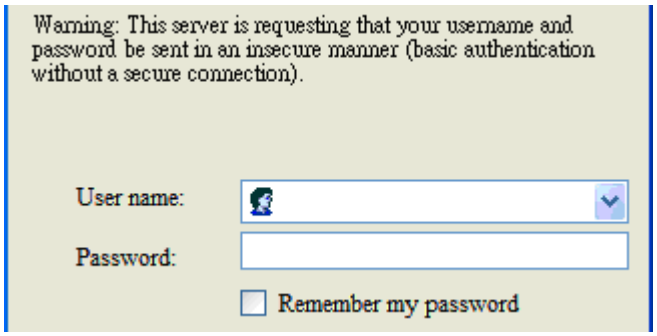
Manipulation of Router via web browser

Log on Router via web browser

After TCP/IP configurations on your PC, you may now open your web browser, and input http://192.168.0.1 (Default LAN port IP address) to logon Router web configuration page.

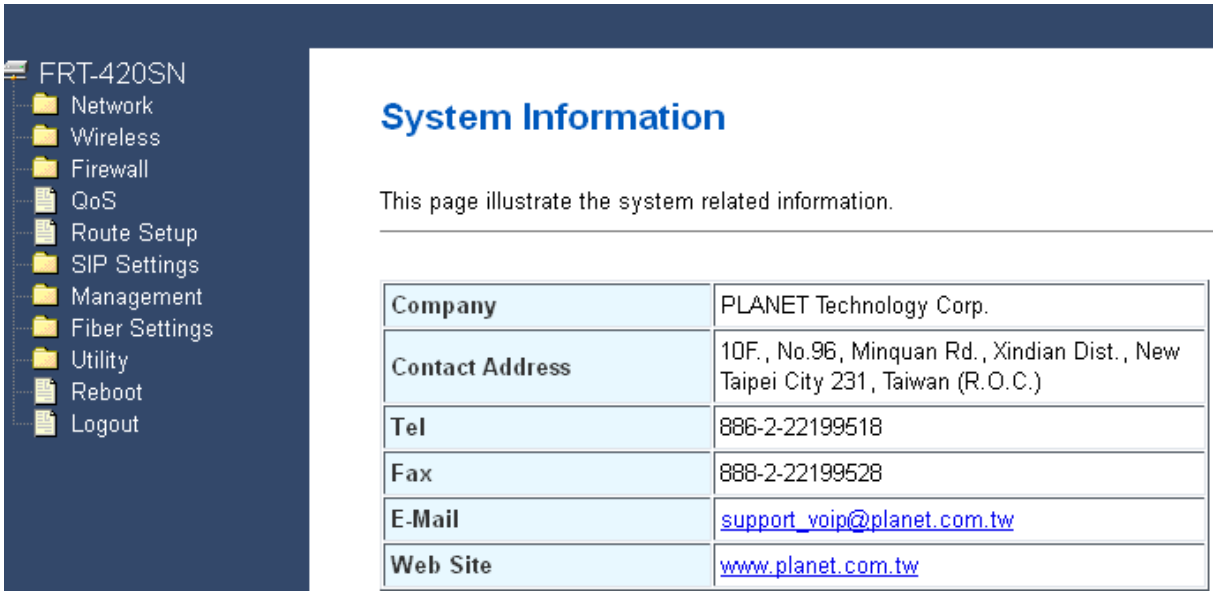


Phone Adapter will prompt for logon username/password: ***admin*** / ***admin***



Router login prompt screen

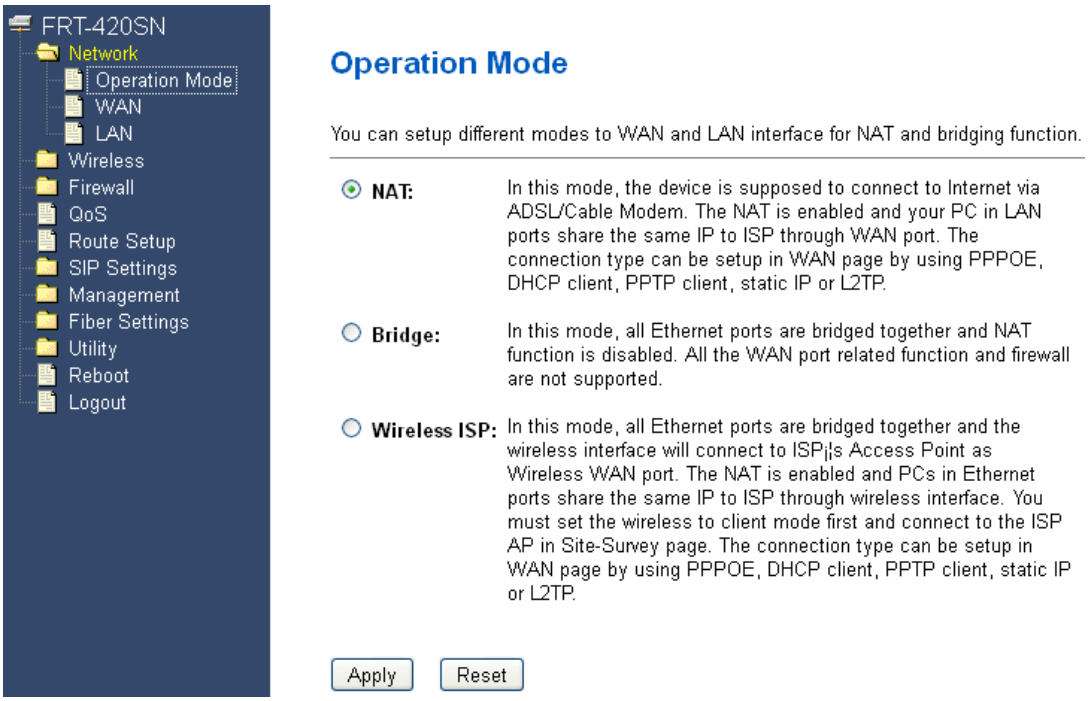
When users login the web page, users can see the general information like company…etc in this main page.



VoIP Router main page

Network Oprtation Mode

You can setup different modes to WAN and LAN interface for NAT, Bridging and Wireless ISP function



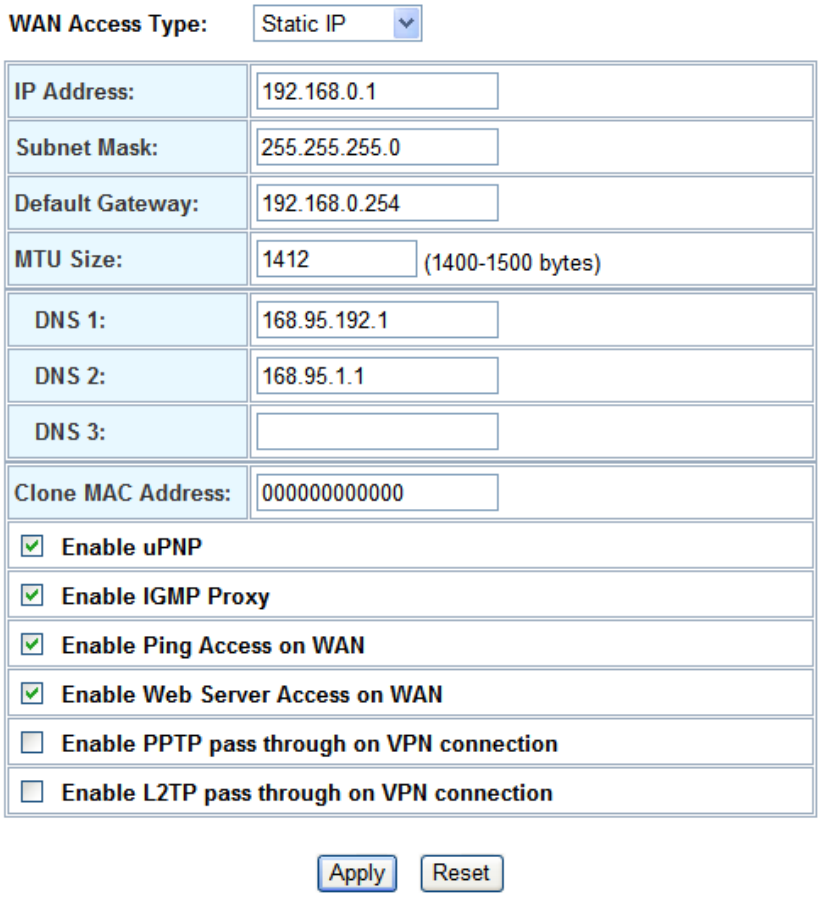
NAT	In this mode, the device is supposed to connect to internet via ADSL/Cable Modem. The NAT is enabled and your PC in LAN port shares the same IP to ISP through WAN port. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, static IP or L2TP.
Bridge	In this mode, all Ethernet ports are bridged together and NAT function is disabled. All the LAN port related function and firewall are not supported.
Wireless ISP	In this mode, all Ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in Ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPOE, DHCP client, PPTP client, static IP or L2TP.

WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Gateway. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

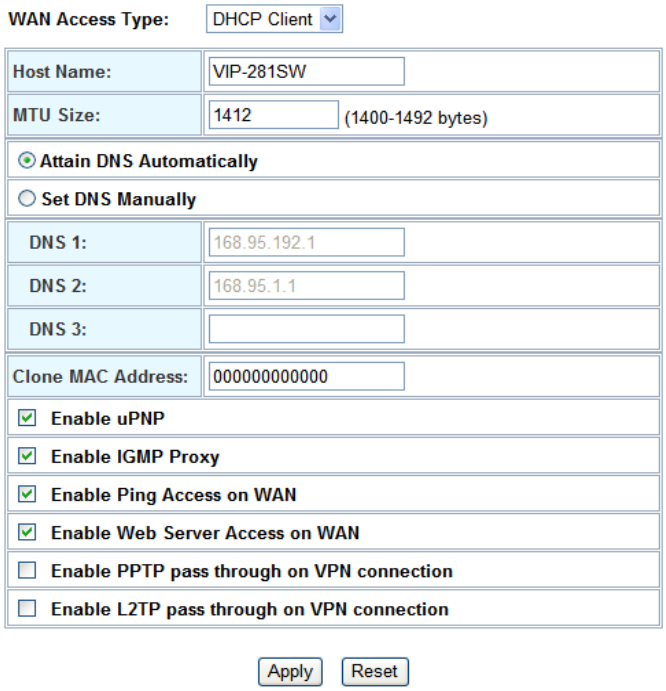
Connection Type Description –

Static IP



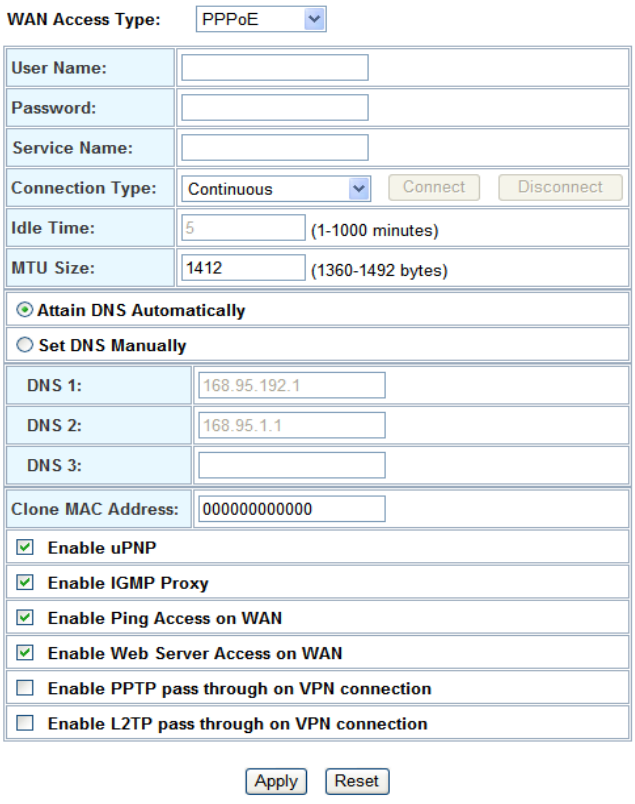
Static IP	Set WAN interface as Static IP mode.
IP Address	WAN IP Address of the Router
	Default : 192.168.0.1
Subnet Mask	WAN mask of the Router
	Default : 255.255.255.0
Default Gateway	Gateway Address of the Router
	Default : 192.168.0.254
MTU Size	Set MTU (maximum transmission unit) size
	Default : 1412
DNS1/ 2/ 3	Set three alternatives Domain Name Server for WAN interface.
	Default : Null
Clone MAC Address	To clone the MAC by manual input.
	Default : 000000000000 (Null)
Enable UPnP	Check to enable UPnP function
	Default : Disable
Enable IGMP Proxy	Check to enable the IGMP Proxy function
	Default : Enable
Enable Ping Access on WAN	If accept ICMP response via WAN port
	Default : Enable
Enable IPSec pass through on VPN connection	If accept be accessed to Web Management Interface via WAN port
	Default : Enable
Enable PPTP pass through on VPN connection	Check to enable PPTP pass through function
	Default : Disable
Enable L2TP pass through on VPN connection	Check to enable L2TP pass through function
	Default : Disable

Connection Type Description – DHCP Client



DHCP Client	Set WAN interface as DHCP mode.
Attain DNS Automatically / Set DNS Manually	Select to attain DNS automatically from server or user wants to set DNS manually.
	Default : Set DNS Manually

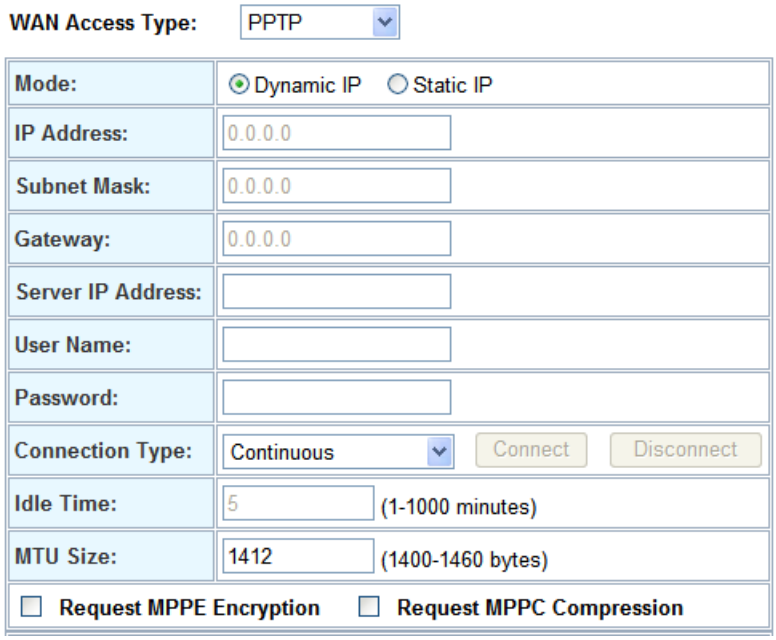
Connection Type Description – PPPoE



PPPoE	Set WAN interface as PPPoE mode.
User Name	Set user name of PPPoE connection
	Default : Null
Password	Set password of PPPoE connection
	Default : Null
Service Name	Set Service Name of PPPoE for description
	Default : Null
Connection Type	Set PPPoE connection type to be Continuous/ Connect on Demand/ Manual. If user set type as Continuous, Router will keep trying to connect to server when PPPoE disconnect. If user set type as Connect on Demand, please set following idle time, Router will check connection after this time. If user set type as Manual, Router will only connect or disconnect by press Connect or Disconnect manually.
	Default : Continuous
Idle Time	Set PPPoE connection idle time for Connect on Demand.
	Default : 5

After confirming the modification you've done, please click on the **Apply** button to apply settings effective and the Router will be reload page automatic by itsely, that you must to afresh enter the final modification IP address for logon web management.

Connection Type Description – PPTP/L2TP



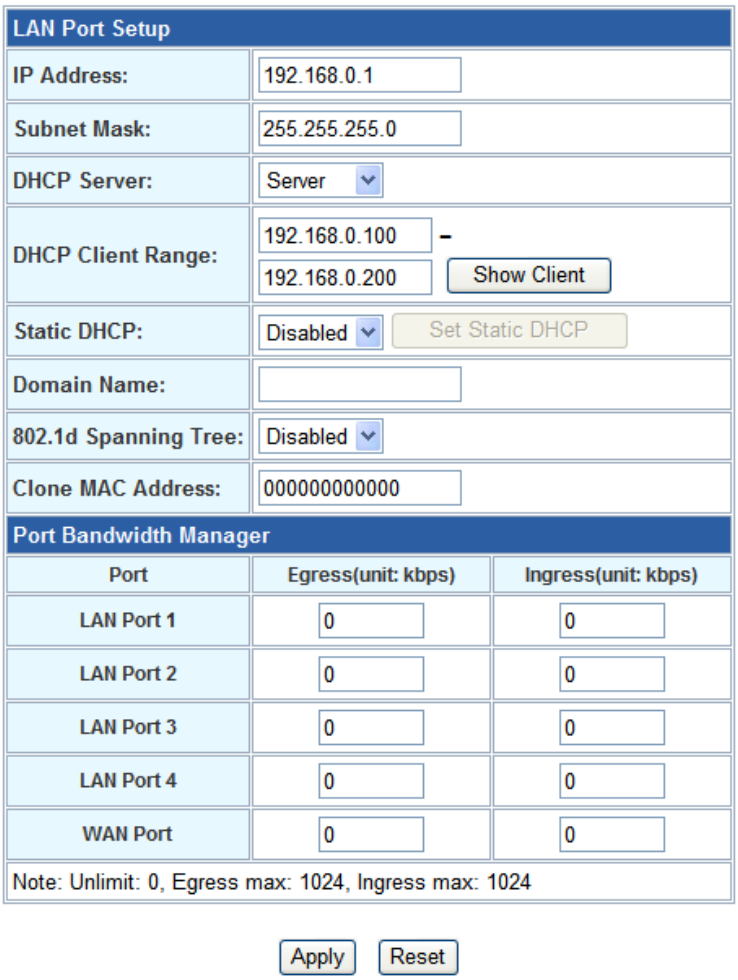
PPTP	Set LAN interface as PPTP/L2TP mode.
Mode	Set IP type if Dynamic IP or Static IP at PPTP/L2TP connection.
	Default : Dynamic IP
IP Address	WAN IP Address of the Router at **Static IP** type.
	Default : 0.0.0.0
Subnet Mask	WAN Mask of the Router at **Static IP** type.
	Default : 0.0.0.0
Gateway	Gateway of the Router
	Default : 0.0.0.0
Server IP Address	Set PPTP/L2TP Server IP address.
	Default : 0.0.0.0
User Name	Set user name of PPTP/L2TP connection
	Default : Null
Password	Set password of PPTP/L2TP connection
	Default : Null

Note

Please be noticed that the Utility Tool is only designed for the WAN environment setting. If the "**Connect Type**" is "**PPPoE**", the Utility Tool can **NOT** find the device.

LAN Interface Setup

This page is used to configure the parameters for local area network which connects to the LAN port of your Gateway. Here you may change the setting for IP address, subnet mask, DHCP, etc..



IP Address	LAN IP Address of the Router
	Default : 192.168.0.1
Subnet Mask	LAN mask of the Router
	Default : 255.255.255.0
DHCP Server	You can select **Server** or **Disable**. If you select Disable, the DHCP service of LAN port is disabled.
	Default : Server
DHCP Client Range	The first and last IP address that DHCP server assigns.
	Default : 192.168.0.100 – 192.168.0.200
Static DHCP	It allows you reserve IP addresses, and assign the same IP address to the network device with the specified MAC address any time it requests an IP address
	Default : Disable

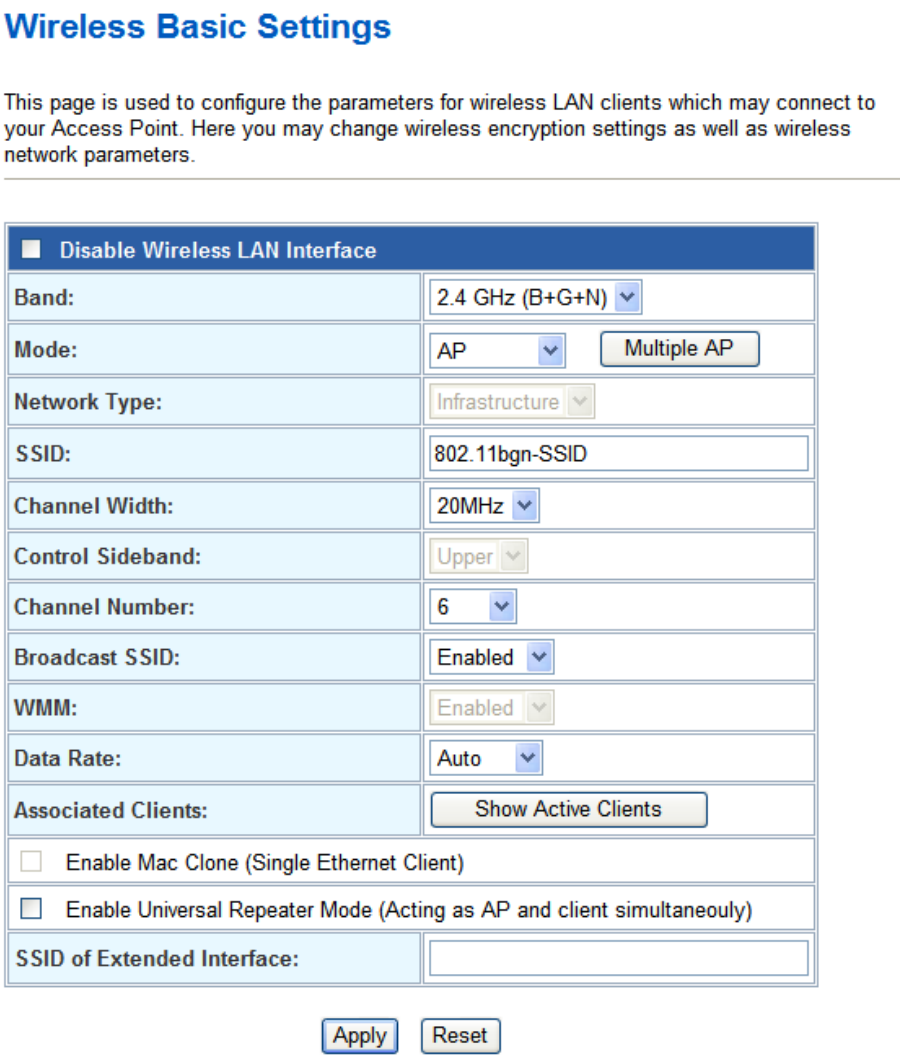
Domain Name	Set three alternatives Domain Name Server for LAN interface.
	Default : Null
802.11d Spanning Tree	Spanning Tree Protocol. You can select Enable or Disable.
	Default : Disable
Port Bandwidth Manager (WAN / LAN ports)	Show the egress and ingress total network traffic for each WAN and LAN ports
	Default : 0

Chapter 4

Wireless Settings

Basic Settings

This page is used to configure the parameters for wireless LAN clients who may connect to your Access Point. Here you may change wireless encryption settings as well as wireless network parameters.



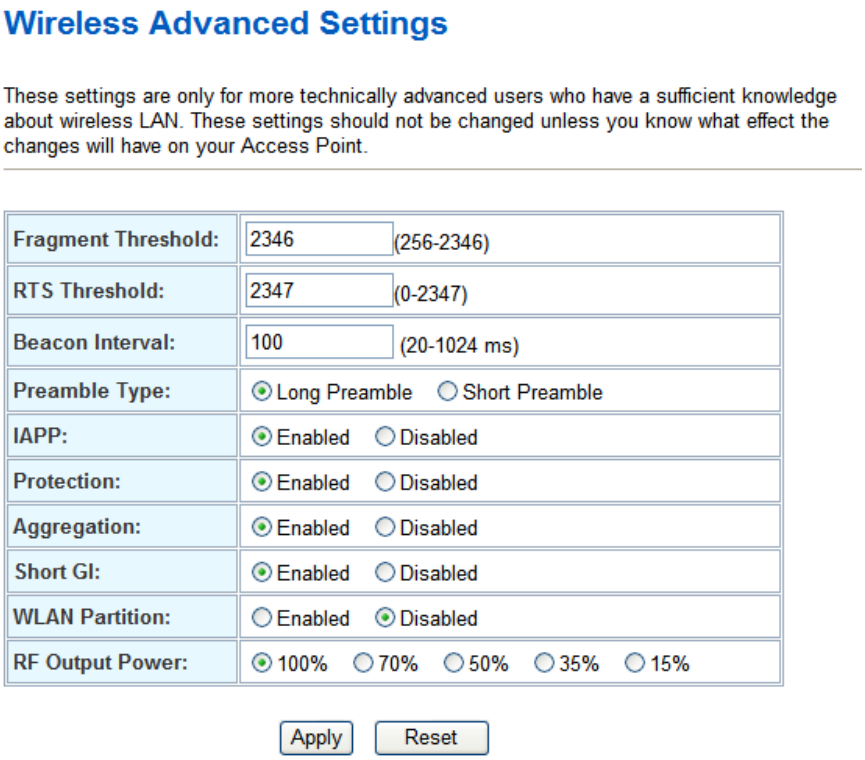
Disable Wireless LAN Interface	Enable or disable the wireless LAN.
Band	There are 6 modes: 2.4GHz (B), 2.4GHz (G), 2.4GHz (N), 2.4GHz (B+G), 2.4GHz (G+N), and 2.4GHz (B+G+N) mode. **Default :** 2.4GHz (B+G+N)

Mode	- **AP**: The AP functions as a wireless hub to which wireless clients can connect. The clients must make sure that they are configured to match the AP's wireless settings. The AP must be connected to switch or other LAN segment patch cable. - **Client**: In this mode the Router is used to access the Wireless Service Provider network by connecting wirelessly to the remote (Outdoor AP). - **WDS**: WDS operation as defined by the IEEE802.11 standard has been made available. Using WDS it is possible to wirelessly connect Access Points, and in doing so extend a wired infrastructure to locations where cabling is not possible or inefficient to implement. - **AP+WDS**: It means the device can support WDS and AP Mode simultaneously.
	Default : AP mode
Network Type -	- **Infrastructure**: The wireless LAN serves as a wireless station (infrastructure). Connected to a PC or a small LAN (no more than 5 PCs), it allows the PC or small LAN able to access the wireless network via Access Point.
	- **Ad hoc:** The wireless LAN will use the Ad hoc mode to operate.
SSID	Wireless stations associating to the access point must have the same SSID. Enter a descriptive name for the wireless LAN.
	Default : 802.11bgn-SSID
Channel Width	There are 20MHz and 40MHz bandwidths for cohesion
	Default : 20MHz
Control Sideband	Specify if the extension channel should be in the Upper or Lower sideband
	Default : Upper (Unavailable)
Channel Number	Select the appropriate channel from the list provided to correspond with your network settings. Channels differ from country to country.
	Default : 6
Broadcast SSID	If you enable "Broadcast ESSID", every wireless station located within the coverage of this access point can discover this Router easily. If you are building a public wireless network, enabling this feature is recommended. In private network, disabling "Broadcast ESSID" can provide better security.
	Default : Enable

WMM	The short of Wi-Fi Multi-Media, it will enhance the data transfer performance of multimedia contents when they're being transferred over wireless network.
	Default : Enable (Unavailable)
Data Rate	The Data Rate is the rate of data transmission for 802.11b/g/n clients. The Router will use the highest possible selected transmission rate to transmit the data packets.
	Default : Auto
	Default : Auto
Associated Clients	To show the MAC address, transmission, reception packet counters and encrypted status for each associated wireless client.
Enable Mac Clone	When set at Client mode, it provides wireless LAN to connect to a MAC address.
	Default : Disable
Enable Universal Repeater Mode	Universal Repeater is a technology used to extend wireless coverage.
	Default : Disable
SSID of Extended Interface	Click on "Enable Universal Repeater Mode"; In the "SSID of Extended Interface", enter the SSID of the wireless router that you want to extend.
	Default : Null

Advanced Settings

These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your Access Point.



Fragment Threshold	"Fragment Threshold" specifies the maximum size of packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance.
	Default : 2346
RTS Threshold	When the packet size is smaller the RTS threshold, the access point will not use the RTS/CTS mechanism to send this packet.
	Default : 2347
Beacon Interval	The interval of time that this access point broadcast a beacon. Beacon is used to synchronize the wireless network.
	Default : 100
Preamble Type	Preamble type defines the length of CRC block in the frames during the wireless communication. "**Short Preamble**" is suitable for high traffic wireless network. "**Long Preamble**" can provide more reliable communication.
	Default : Long Preamble

IAPP	Inter-Access Point Protocol is a recommendation that describes an optional extension to IEEE 802.11 that provides wireless access-point communications among multivendor systems.
	Default : Enable
Protection	It is recommended to enable the protection mechanism. This mechanism can decrease the rate of data collision between 802.11b and 802.11g wireless stations. When the protection mode is enabled, the throughput of the AP will be a little lower due to many of frame traffic should be transmitted.
	Default : Enable
Aggregation	It is a function where the values of multiple rows are grouped together.
	Default : Enable
Short GI	It is used to set the time that the receiver waits for RF reflections to settle out before sampling data.
	Default : Enable
WLAN Partition	This feature also called WLAN isolation or Block Relay. If this feature is disabled, then there is no barrier between communications among wireless stations connecting to the Access Point, i.e the Router. If this is enabled, wireless stations of the selected band are not allowed to exchange data through the Access Point. The default value is set to 'Disabled'.
	Default : Disable
RF Output Power	Users can adjust the output power to 100%, 75% 50% 35% and 15%.
	Default : 100%

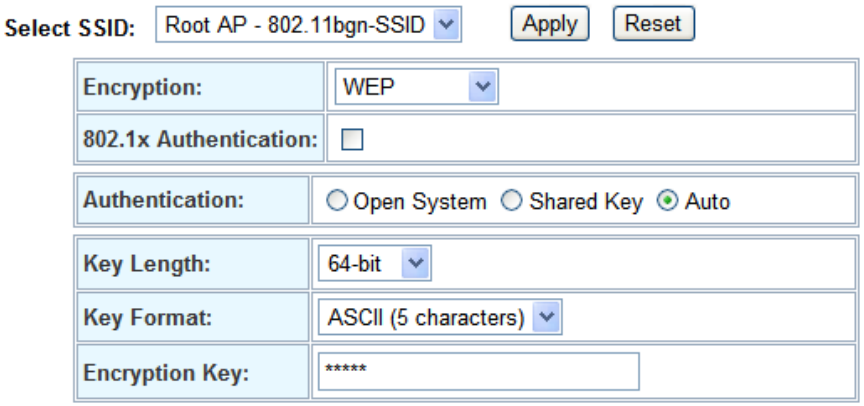
Security Setup

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Select SSID	If assigned multiple AP feature, you could choose the SSID that want to setup encryption function.
Encryption	Select the data privacy algorithm you want. Enabling the security can protect your data while it is transferred from one station to another.
	Default : Disable
802.1x Authentication	Check Box was used to switch the function of the 802.1X. When the 802.1X function is enabled, the Wireless user must **authenticate** to this router first to use the Network service.
	Default : Uncheck

- WEP

When you select the 128 or 64 bit WEP key security, please select one WEP key to be used and input 26 or 10 hexadecimal (0, 1, 2…8, 9, A, B…F) digits.



- WPA

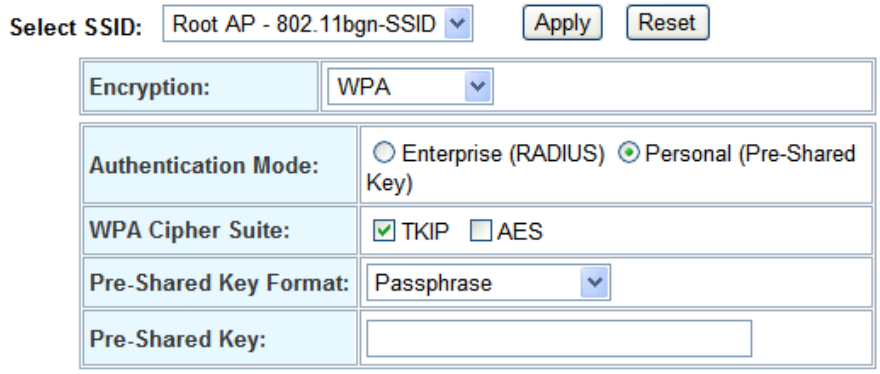
When select the WPA function, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name.

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII, the length of pre-share key is from 8 to 63.

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the

RADIUS server.



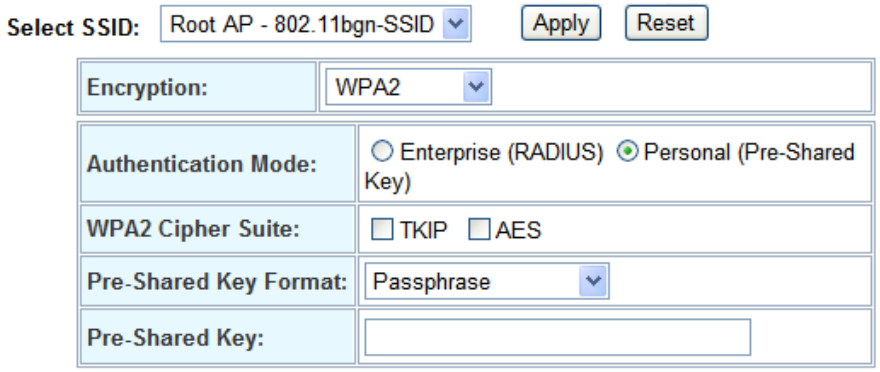
- WPA2

When select the WPA function, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name.

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

If ASCII, the length of Pre-share key is from 8 to 63.

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.



- WPA-Mixed

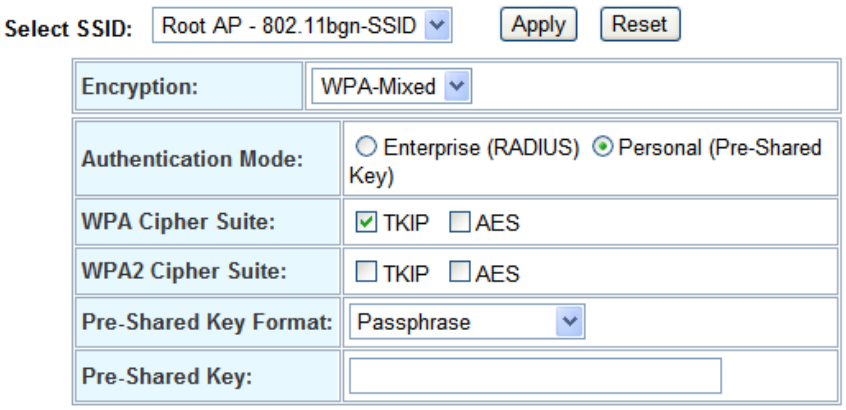
When select the WPA-Mixed function, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server

The router will detect automatically which Security type (WPA-PSK version 1 or 2) the client uses to encrypt. IP address or the 802.1X server's domain-name.

If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2…8, 9, A, B…F) digits

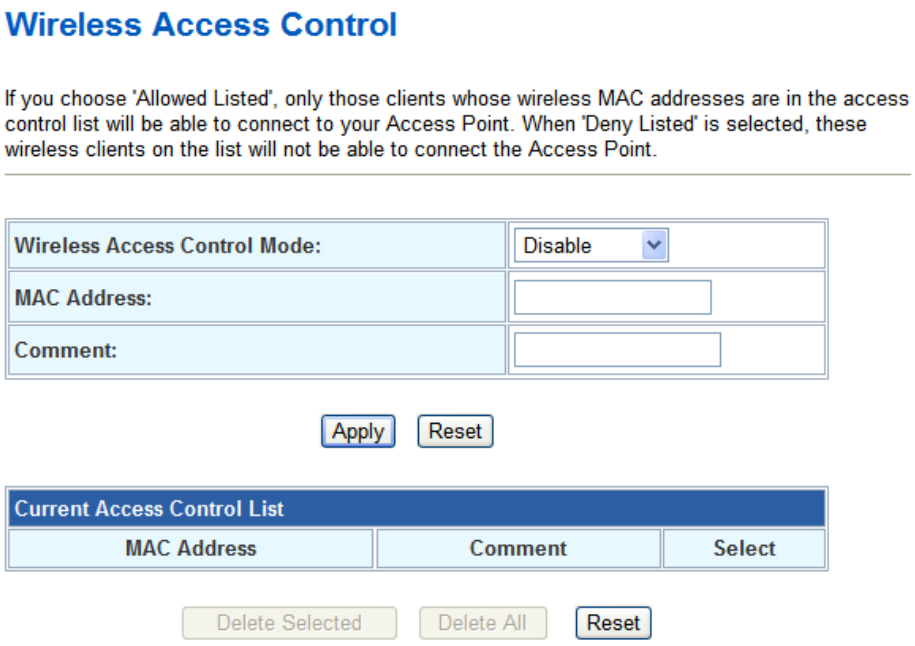
If ASCII, the length of Pre-share key is from 8 to 63.

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.



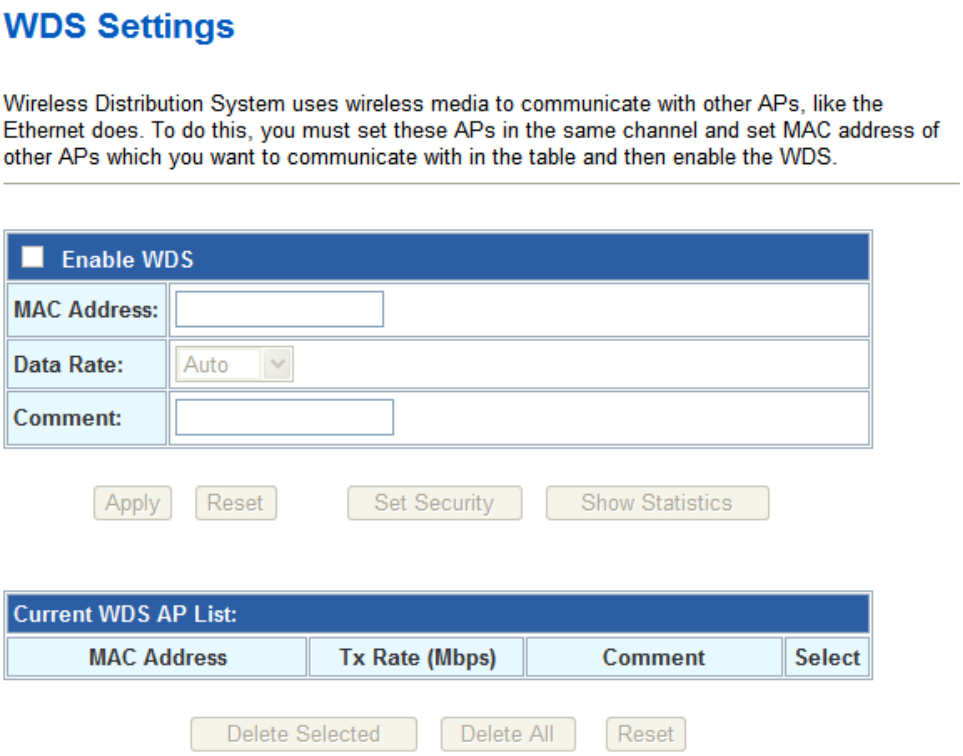
Access Control

If you choose 'Allowed Listed', only those clients whose wireless MAC addresses are in the access control list will be able to connect to your Access Point. When 'Deny Listed' is selected, these wireless clients on the list will not be able to connect the Access Point.



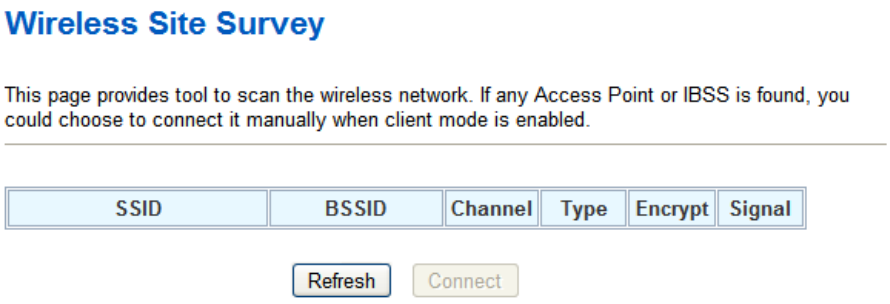
WDS Settings

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.



Site Survey

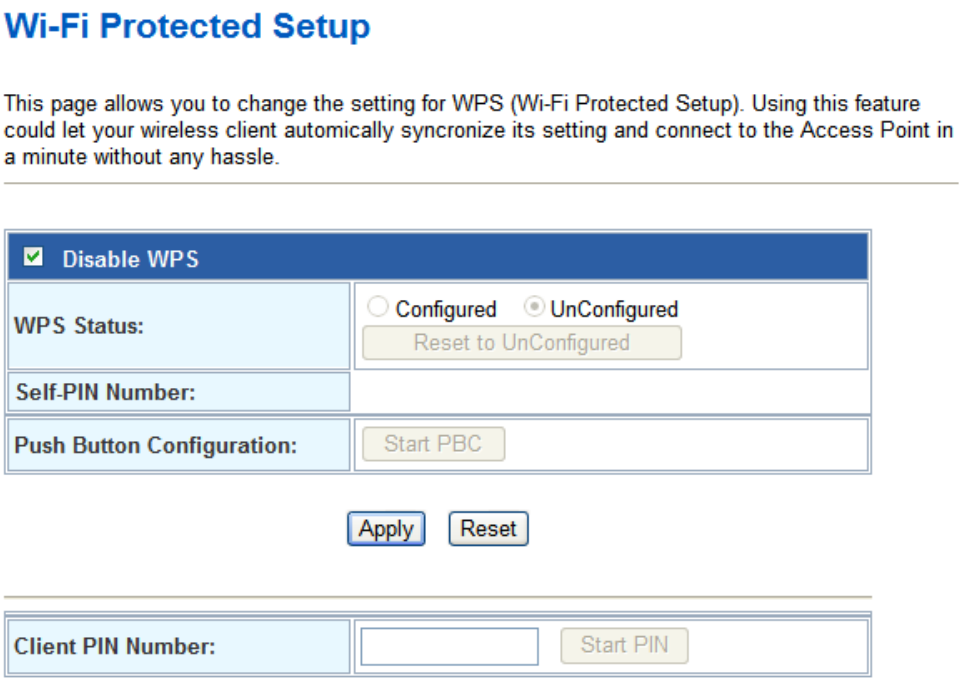
This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.



WPS Settings

Wi-Fi Protected Setup (WPS) is the simplest way to build connection between wireless network clients and this wireless router. You don't have to select encryption mode and input a long encryption pass phrase every time when you need to setup a wireless client, you only have to press a button on wireless client and router, and the WPS will do the rest for you.

This wireless router supports two types of WPS: Push-Button Configuration (PBC), and PIN code. If you want to use PBC, you have to push a specific button on the wireless client to start WPS mode, and switch this wireless router to WPS mode too. You can push RET/WPS button of this wireless router, or click 'Start PBC' button in the web configuration interface to do this. If you want to use PIN code, you can see the setup as below.

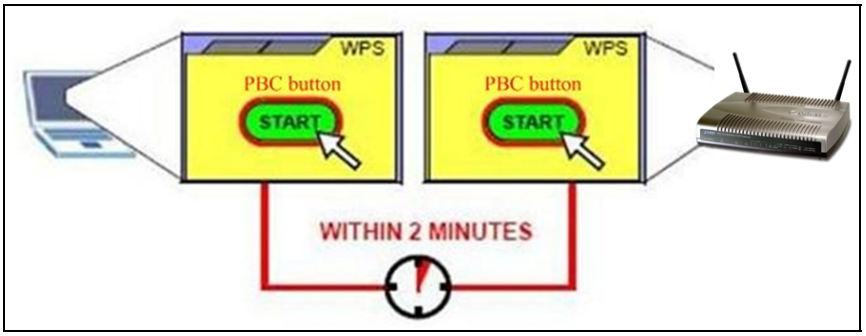


Disable WPS	Check this box to disable WPS function, uncheck it to enable WPS.
WPS Status	If the wireless security (encryption) function of this wireless router is properly set, you'll see 'Configured' message here. If wireless security function has not been set, you'll see 'unConfigured'.
Self-PIN Number	This is the WPS PIN code of this wireless router. This code is useful when router sets as Enrollee, you need to fill this number into the web page of the other device.
Push Button Configuration	Click 'Start PBC' to start Push-Button style WPS setup procedure. This wireless router will wait for WPS requests from wireless clients for 2 minutes. The 'WLAN' LED on the wireless router will be steady on when this wireless router is waiting for incoming WPS request.
Client PIN Number	Please input the PIN code of the other device you wish to connect, and click 'Start PIN' button. The 'WLAN' led on the wireless router will be steady on when this wireless router is waiting for incoming WPS request. (Please see the detail as below.)

- PBC setup step:

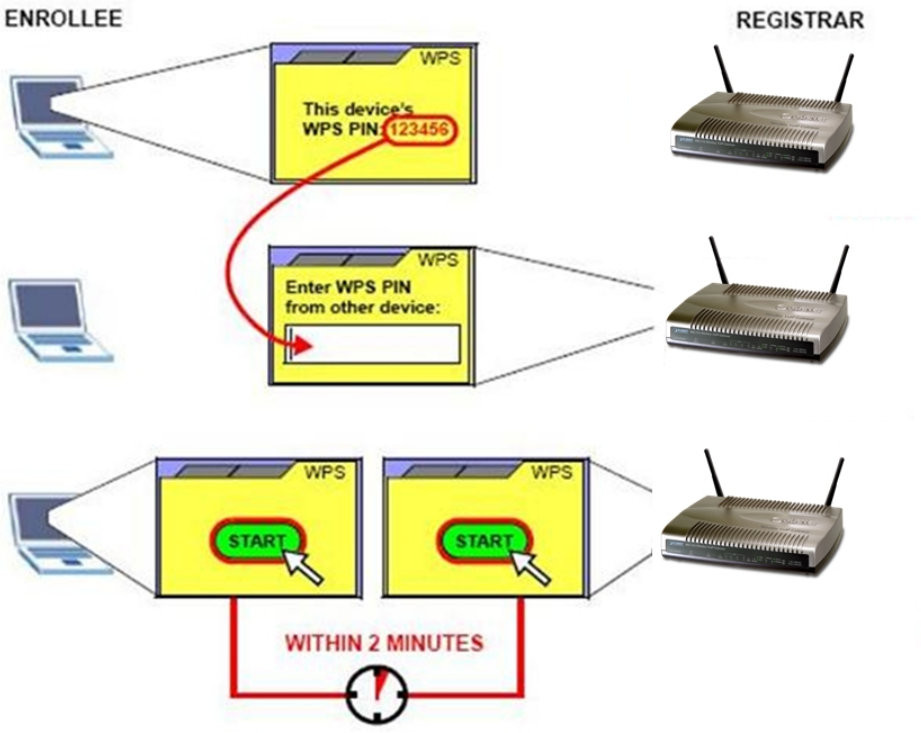
1. Ensure you have set the security setting on Router (as Registrar).
2. Click the WPS button on Router (or the "Start PBC" button on the web interface of Router) and the other device (supports PBC function) in 2 minutes.
3. Router (Registrar) would send SSID and security key to the other device (Enrollee) through tunnel to connect.

4. If you see the wireless client in the list, WPS-PBC setting is successful.



- PIN (as register) setup step:

1. Select Config Mode: “Registrar” on Router.
2. Fill the PIN code of the other device (as Enrollee that support WPS-PIN setting) into the “configure via Client Pincode” of Router.
3. Click the PIN buttons on Router and the other device in 2 minutes.
4. If you see the wireless client in the list, WPS-PIN setting is successful.



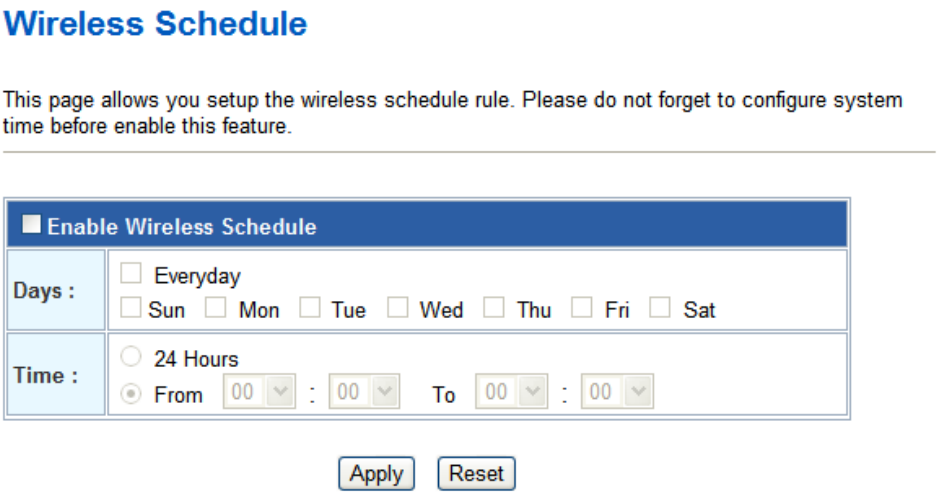
- PIN (as Enrollee) setup step:

1. Select Config Mode: “Enrollee” on Router.
2. Fill the PIN code of Router into the other device (as Registrar).
3. Click the PIN buttons on Router and the other device in 2 minutes.
4. If you see the wireless client in the list, WPS-PIN setting is successful.

**** As the figure as above, just change two roles.**

Wireless Schedule

This page allows you setup the wireless schedule rule. Please do not forget to configure system time before enable this feature.

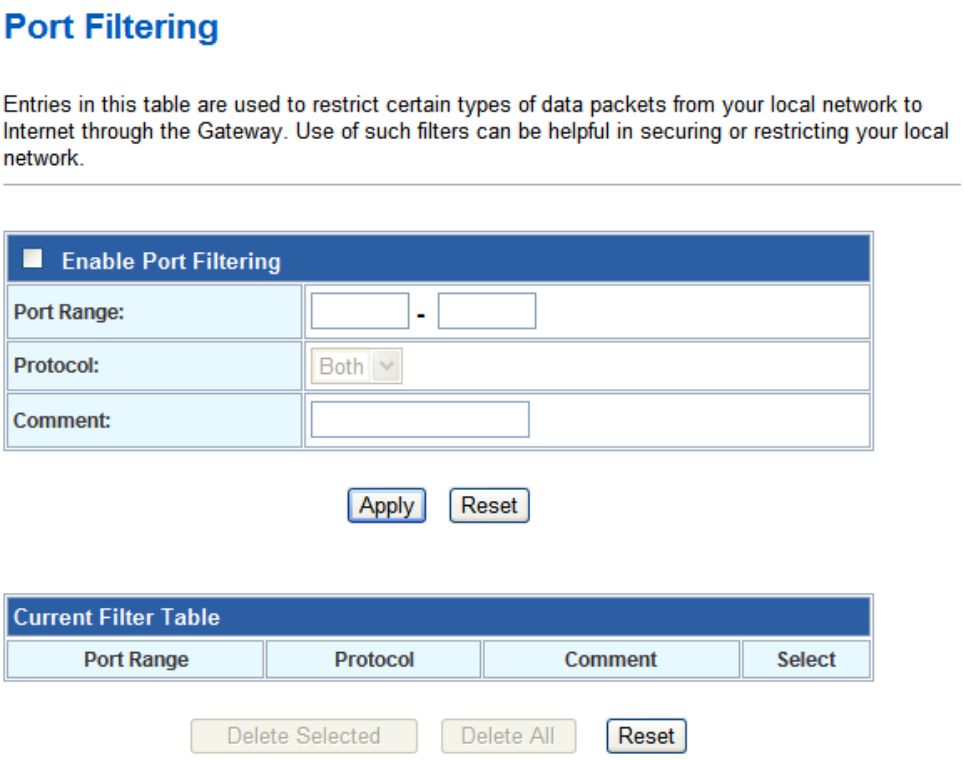


Chapter 5

Firewall Settings

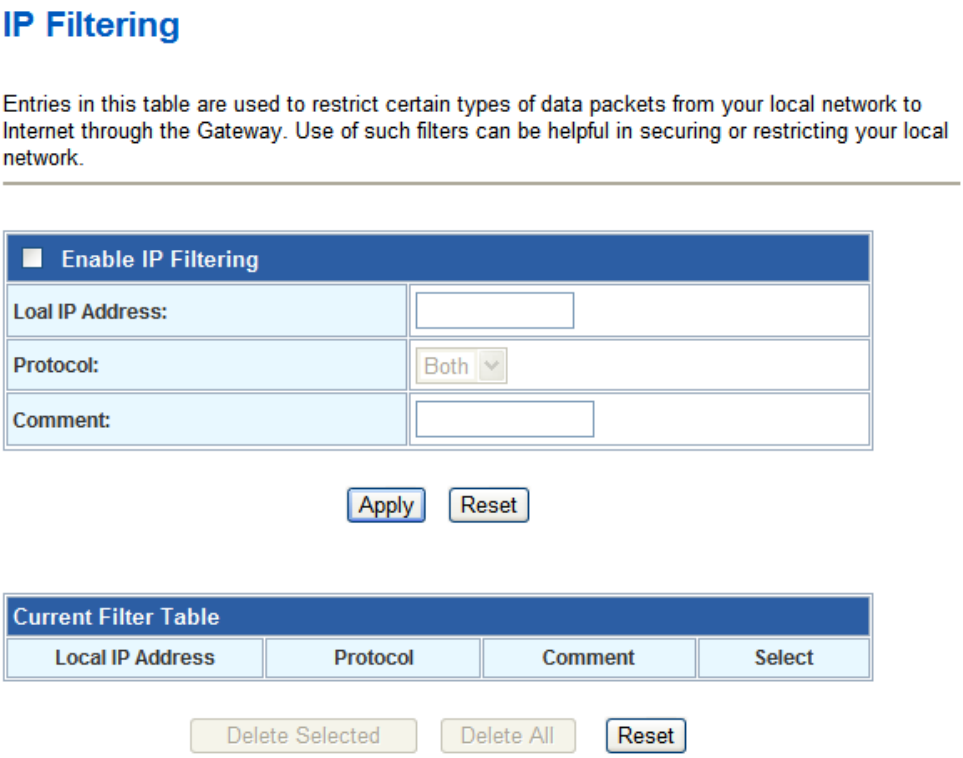
Port Filtering

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.



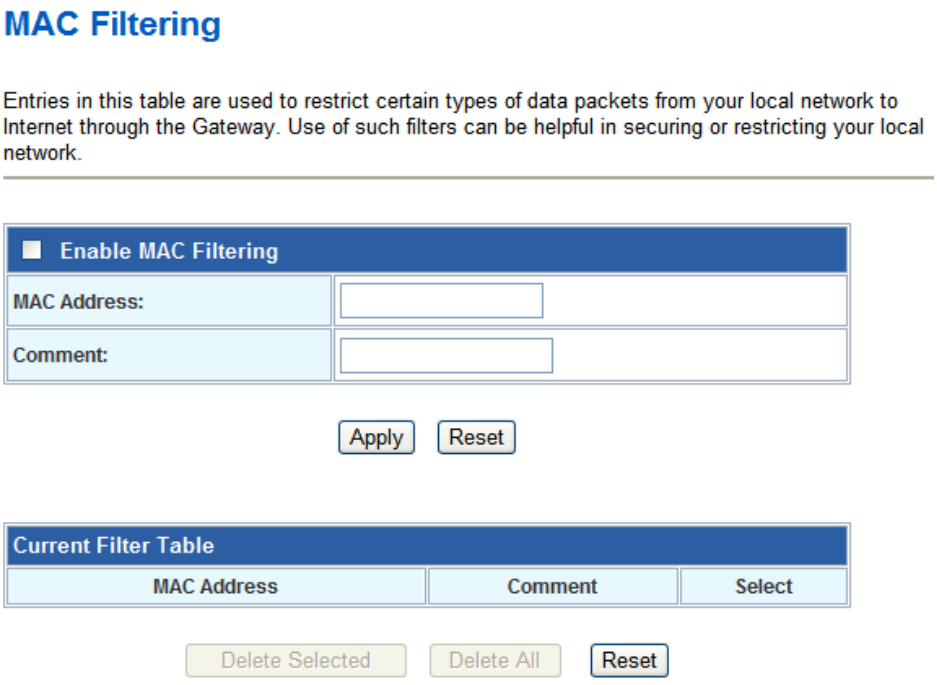
IP Filtering

Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.



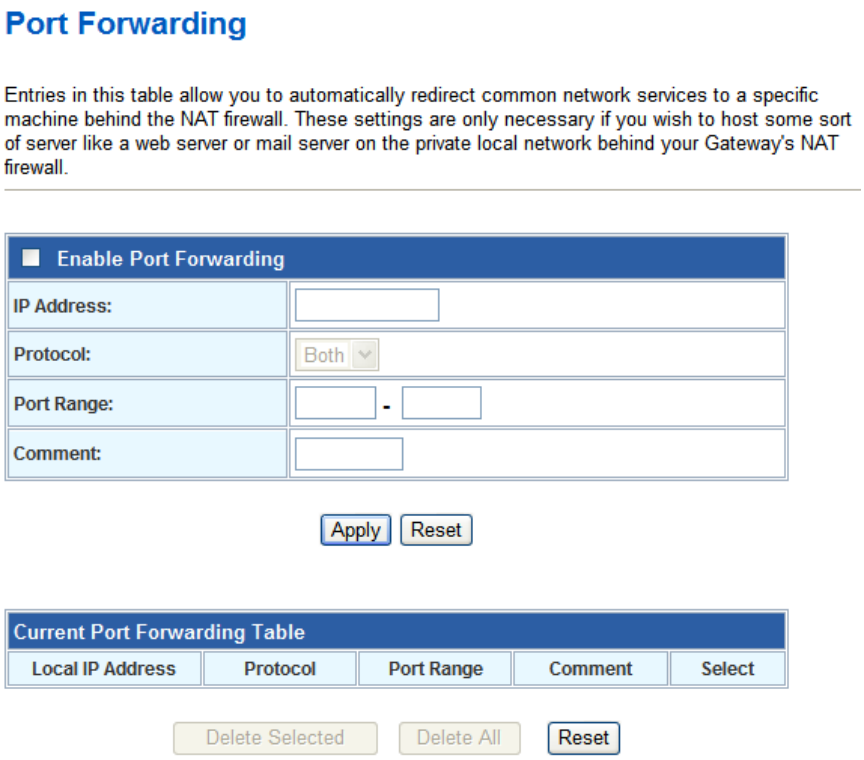
MAC Filtering

You can filter Internet access for local clients based on MAC Address. The MAC address filter enables you to allow or restrict specified nodes from communicating with other nodes.



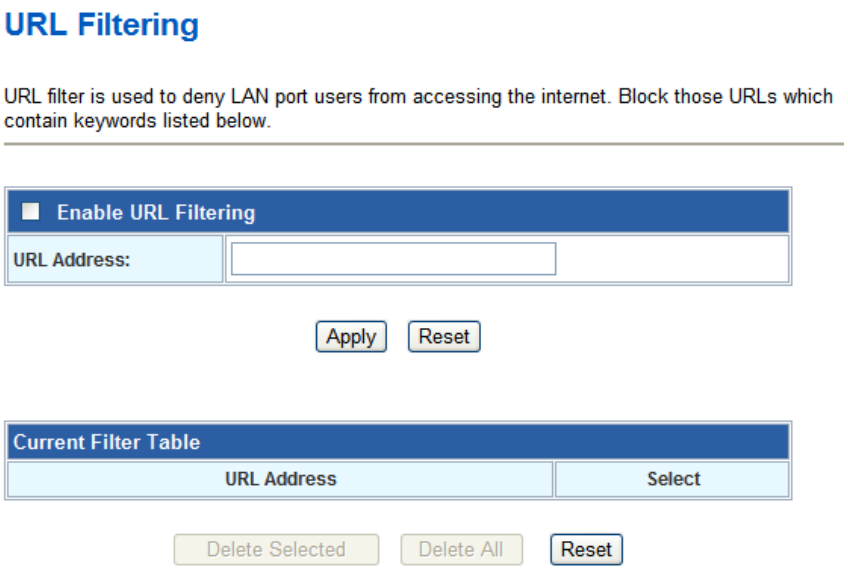
Port Forwarding

The Port Forwarding allows you to re-direct a particular range of service port numbers (from the Internet/WAN Ports) to a particular LAN IP address. It helps you to host some servers behind the firewall.



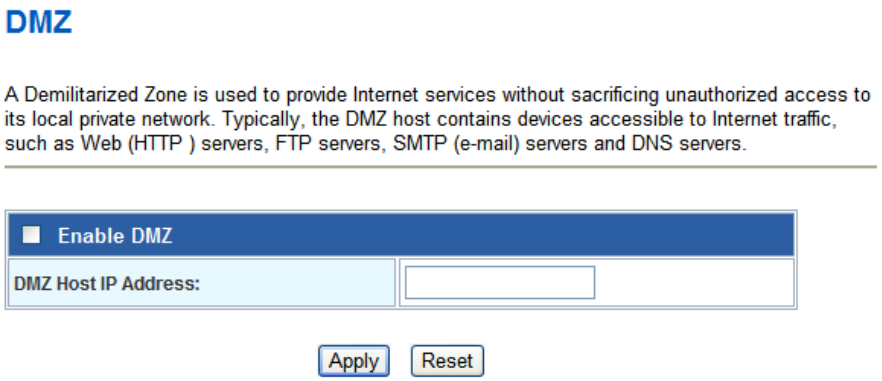
URL Filtering

URL filter is used to deny LAN port users from accessing the internet. Block those URLs which contain keywords listed below.



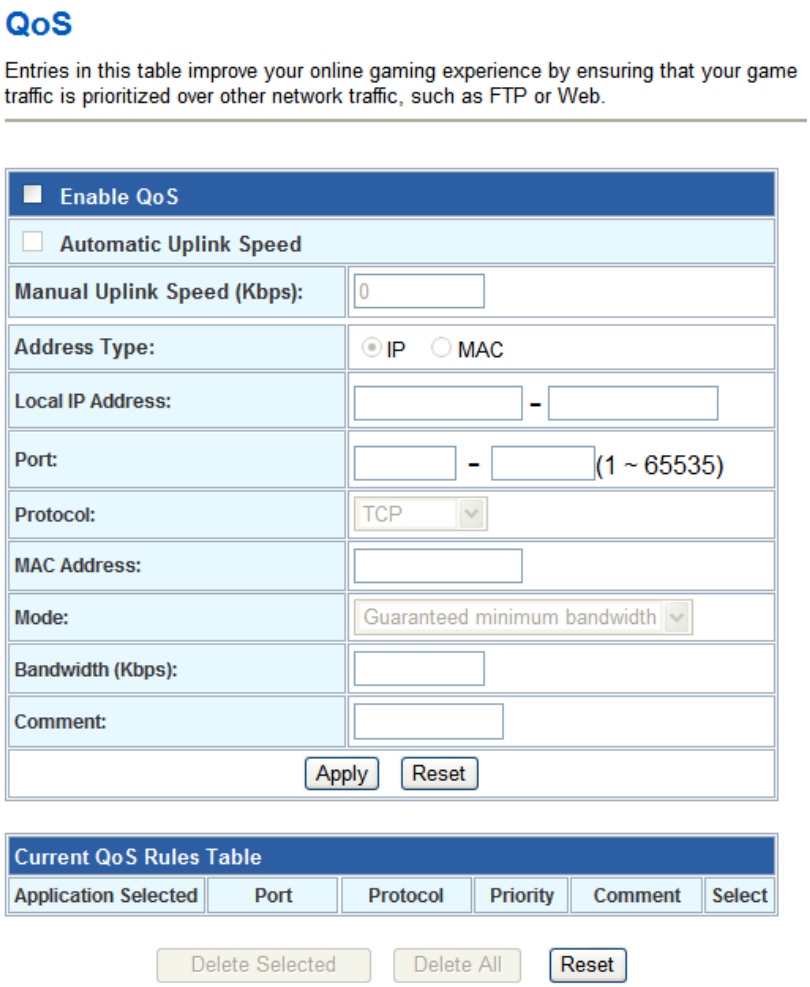
DMZ

A Demilitarized Zone is used to provide Internet services without sacrificing unauthorized access to its local private network. Typically, the DMZ host contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.



QoS

Entries in this table improve your online gaming experience by ensuring that your game traffic is prioritized over other network traffic, such as FTP or Web.



Chapter 6

SIP Settings

Phone 1 / Phone 2

This page is used to configure the parameters for SIP registration information. Here you also could setup the other functions like Call Forward, Voice Codec, Speed Dial and others.

After finish all the settings, press the Apply button to activate the new settings, or press the Reset button to cancel the changes.

- Default Proxy

Default Proxy	
Select Default Proxy	Realm 1

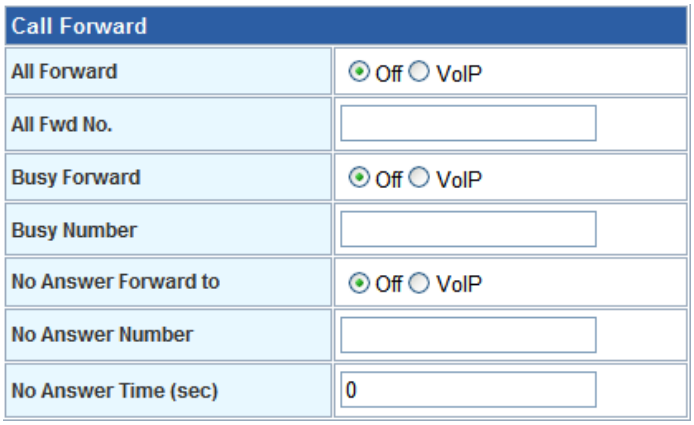
Select Default Proxy	Each Phone port has support register two different Proxy Servers. When select one of Proxy as default, Router will use this account for making outgoing call. And Router could receive incoming calls through both Proxys.
	Default : Realm1

- Realm 1 / Realm 2

Realm 1	
Display Name	
Line Number	
Register Name	
Register Password	
Proxy	Enable
Proxy Server	
Proxy Port	5060
Domain Server	
SIP Expire Time	60
Outbound Proxy	Enable
Outbound Proxy Server	
Outbound Proxy Port	5060
Nortel SoftSwitch	Enable
Register Status	Not Registered

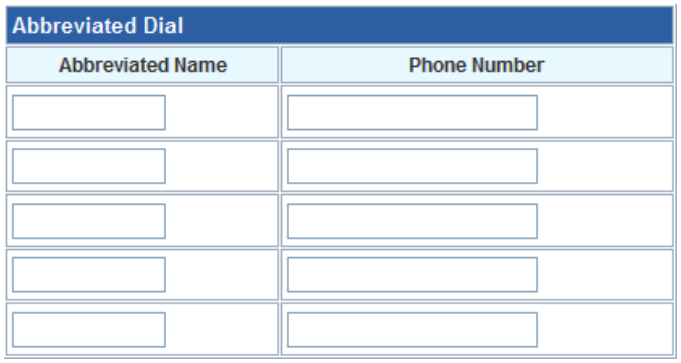
Display Name	Set Router Phone display name for caller ID information.
	Default : Null
Line Number	Set registering Phone number.
	Default : Null
Register Name	If Proxy server needs registration authentication please input Login ID here.
	Default : Null
Register Password	If Proxy server needs registration authentication please input password here.
	Default : Null
Proxy	Check to enable Proxy mode.
	Default : Disable
Proxy Server	If user enable Proxy mode, please input Proxy address.
	Default : Null
Proxy Port	If user enable Proxy mode, please input Proxy port.
	Default : 5060
Domain Server	Set SIP domain name for SIP signaling.
	Default : Null
SIP Expire Time	Set expire time of registration. Router will keep re-registering to proxy server before expire timed out.
	Default : 60 (sec)
Outbound Proxy	Check to enable Outbound Proxy mode.
	Default : Disable
Outbound Proxy Server	If user enables Outbound Proxy, please input Outbound Proxy address.
	Default : Null
Outbound Proxy Port	If user enables Outbound Proxy, please input Outbound Proxy port.
	Default : 5060
Nortel SoftSwitch	Enable this option for better compatibility capability with the Nortel softswitch.
	Default : Disable
Register Status	Here will display SIP account register status.

- Call Forward



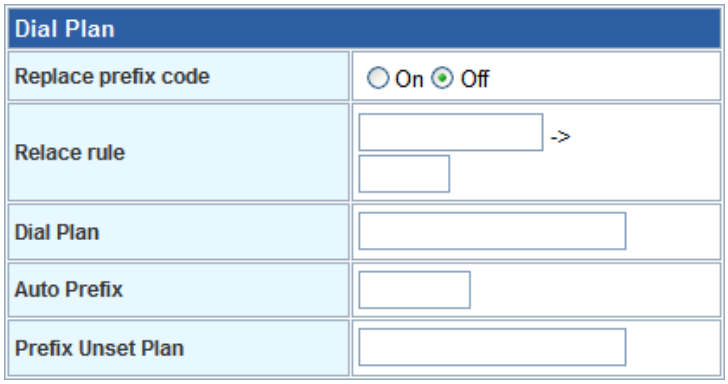
All Forward	This is unconditional forward setting. All incoming call will be forwarded to specified number. Check to enable immediate forward function.
	Default : Off
All Fwd No.	Enter the assigned number for Immediate forward.
	Default : Null
Busy Forward	Check to enable Busy Forward function. When phone is busy, incoming call will be forwarded to assigned number.
	Default : Off
Busy Number	Enter the assigned number for busy forward.
	Default : Null
No Answer Forward to	Check to enable no answer forward function. When phone is not answered for a period of time, incoming call will be forwarded to assigned number.
	Default : Off
No Answer Number	Enter assigned number for no answer forward.
	Default : Null
No Answer Time (sec)	Set no answer time. Once phone is not picked up after this time, incoming call be will forwarded to assigned number.
	Default : 0

- Abbreviated Dial (Phonebook)



Abbreviated Name	Abbreviated Dial (Phonebook) access code. Input this number and followed by # can dial out assigned phone number.
Phone Number	Set phone number for Router to make speed dial.

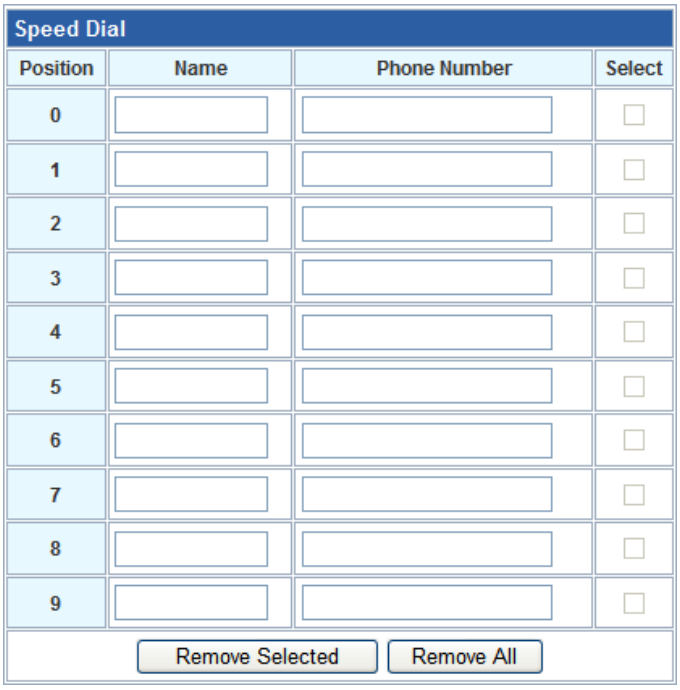
- Dial Plan



Replace prefix code	Select to enable (On) or disable (Off) prefix replace function. **Default :** Off
Relace rule	Set prefix replace rule. Once user dial number matched prefix, Router will replace the number with assigned number. Available parameters are "**0~9**", "**#**", "*****", "**+**", "**x**". Symbol "**+**" means "**or**" , "**x**" could be numbers **0~9**. For example, if user set Replace rule as **002+009->005**, which means if user dial 002 87654321 or 009 87654321, these number will be dial out as 005 87654321. **Default :** Null
Dial Plan	User can set how many digits or which number for Router to dial out immediately. Available parameters are "**0~9**", "**#**", "*****", "**+**", "**x**". Symbol "**+**" means "**or**" , "**x**" could be numbers "**0~9**". For example, user can set Dial Plan as "**911+xxxxxxxx+*xx**, which means if user dial **911**, **87654321**, or ***11**, these number will be dial out immediately without waiting for dial time or pressing # sign. **Default :** Null

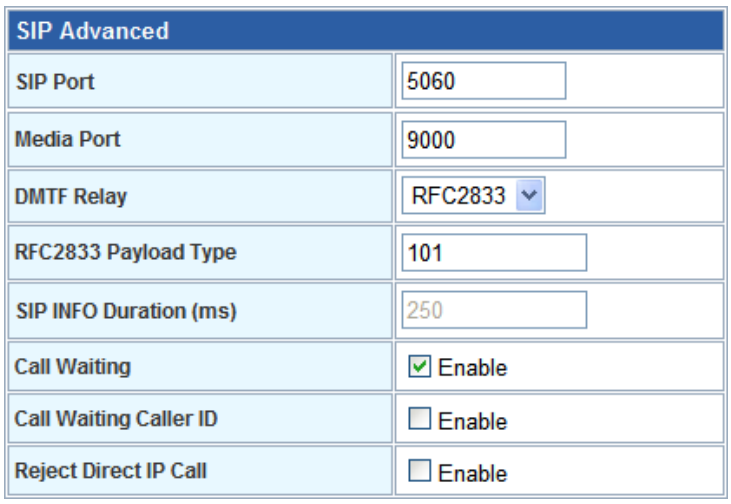
Auto Prefix	If user set Auto Prefix number, all number dialed out will be added with this prefix number. Available parameters are "**0~9**", "**#**", "*****".For example, user set Auto Prefix as 02, number 87654321 will be dial out as 02 87654321.
	Default : Null
Prefix Unset Plan	User can set special access code to disable Auto Prefix function in single call. Available parameters are "**0~9**", "**#**", "*****", "**+**", "**x**". Symbol "**+**" means "**or**" , "**x**" could be numbers "**0~9**". For example, if user set Prefix Unset Plan as ***1+xxxxxxxxxx**. When dialed number as *1 87654321 or 10 digits of number, for this call will not be added with Auto Prefix number.
	Default : Null

- Speed Dial



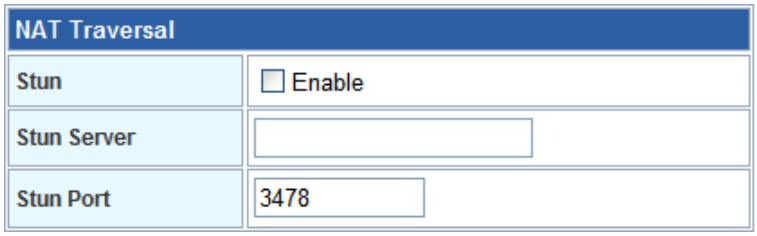
Position	Speed Dial access code. Press this speed dial number and followed by # can dial out assigned phone number.
Name	Name of this speed dial.
Phone Number	Set phone number for Router to make speed dial.
Select	User can delete selected speed dial data.

- SIP Advanced



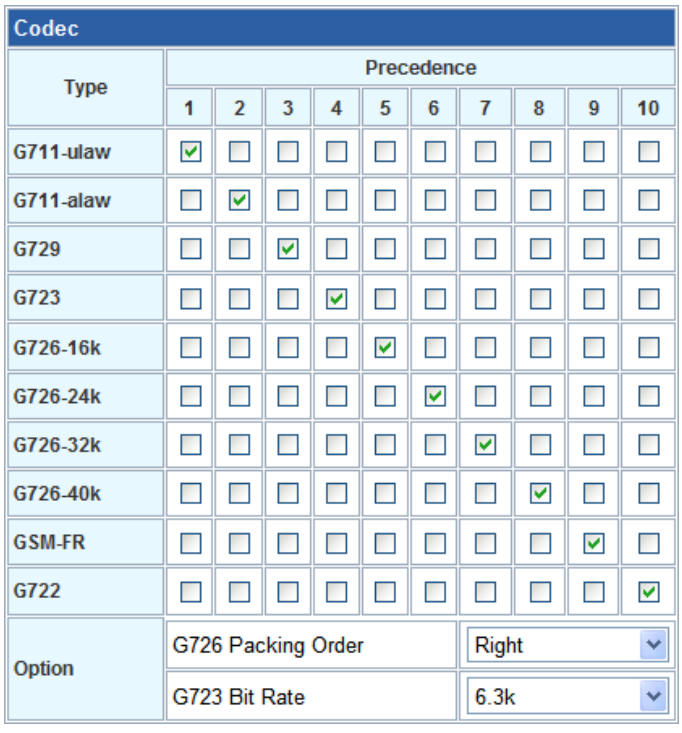
SIP Port	Set local SIP listening port.
	Default : 5060
Media Port	Set RTP port for sending voice data.
	Default : 9000
DMTF Relay	Select DTMF Relay to be In band, RFC 2833, or SIP INFO.
	Default : Inband
RFC2833 Payload Type	If user select DTMF as RFC 2833 type, here can modify RFC 2833 payload type.
	Default : 96
SIP INFO Duration (ms)	If user select DTMF as SIP INFO type, here can modify SIP INFO duration. Router will send out DTMF as this duration.
	Default : 250
Call Waiting	Check to enable Call Waiting function.
	Default : Enable
Call Waiting Caller ID	Check to enable call waiting caller ID function. If this function is enabled, caller ID will display when having waiting call. Please note that your phone set should also support such function.
	Default : Disable
Reject Direct IP Call	Check to enable Reject Direct IP Call. If this function is enabled, Router will to reject the incoming peer to peer call.
	Default : Disable

- NAT Traversal



Stun	Check to enable STUN function.
	Default : Disable
Stun Server Addr	If user enables STUN function, please input STUN Server address.
	Default : Null
Stun Server Port	If user enables STUN function, please input STUN Server port.
	Default : 3478

- Codec



Precedence	Set codec priority sequence.
Rate	Set G.723.1 codec with 5.3 or 6.3k mode.

- T.38 (FAX)

T.38(FAX)	
T.38	☐ Enable
T.38 Port	9008
Fax Modem Detection Mode	AUTO

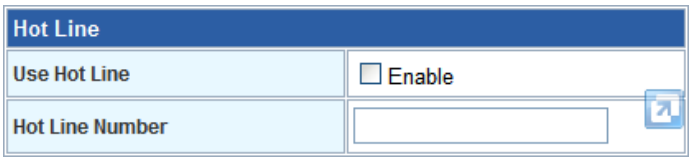
T.38	Check to enable T.38 function.
	Default : Disable
T.38 Port	Set T.38 port for FAX.
	Default : 9008

- DSP – Digital Singnal Process Options

DSP		
Jitter Buffer Control	Min delay (ms):	40
	Max delay (ms):	130
	Optimization factor:	7
Vad	☐ Enable	
Speaker AGC	☐ Enable	
	require level:	1
	Max gain up: dB	6
	Max gain down: dB	-6
MIC AGC	☐ Enable	
	require level:	1
	Max gain up: dB	6
	Max gain down: dB	-6
Caller ID Mode	DTMF	
FSK Date & Time Sync	☐ Enable	
Reverse Polarity before Caller ID	☐ Enable	
Short Ring before Caller ID	☐ Enable	
Dual Tone before Caller ID	☐ Enable	
Caller ID Prior First Ring	☑ Enable	
Caller ID DTMF Start Digit	DTMF_A	
Caller ID DTMF End Digit	DTMF_C	
Caller ID Soft FSK Gen	☑ Enable	Hardware caller id only support si3215/3210 slic
Flash Time Setting (ms) [Space:10, Min:30, Max:2000]	100 < Flash Time < 300	
Speaker Voice Gain (dB) [-32~31],Mute:-32	0	
Mic Voice Gain (dB) [-32~31],Mute:-32	0	

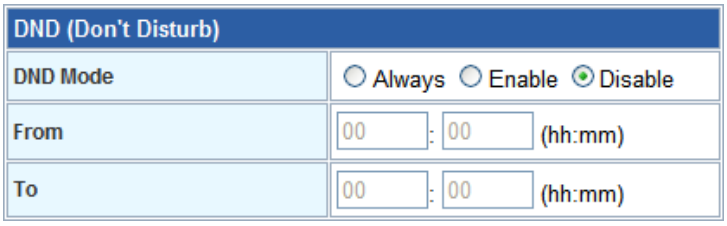
Vad	Check to enable VAD (Voice Activity Detection) function.
	Default : Disable
Caller ID Mode	Select caller ID mode as FSK (Bellcore), FSK (ETSI), FSK (BT), FSK (NTT), or DTMF from Phone to send out.
	Default : DTMF
FSK Date & Time Sync	Check to send FSK Date and Time to caller ID display device.
	Default : Disable
Reverse Polarity before Caller ID	Check to send reverse polarity before caller ID.
	Default : Disable
Short Ring before Caller ID	Check to send short ring before caller ID.
	Default : Disable
Dual Tone before Caller ID	Check to send dual tone before caller ID.
	Default : Disable
Caller ID Prior First Ring	Check to send caller ID before first ring.
	Default : Enable
Caller ID DTMF Start Digit	Set caller ID DTMF start digit.
	Default : DTMF_A
Caller ID DTMF End Digit	Set caller ID DTMF end digit.
	Default : DTMF_C
Flash Time Setting (ms) [Space:10, Min:30, Max:2000]	Set Minimum and Maximum Flash time.
	Default : 200 ~ 500
Speaker Voice Gain (dB) [-32~31], Mute:-32	Set Speaker voice volume.
	Default : 0
Mic Voice Gain (dB) [-32~31], Mute:-32	Set microphone voice gain volume.
	Default : 0

- Hot Line



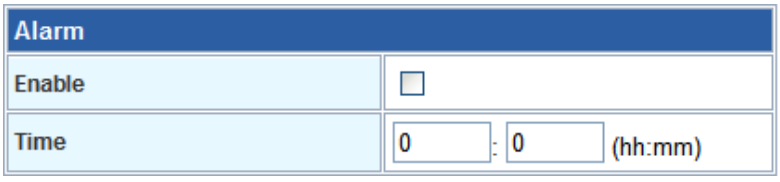
Use Hot Line	Hot Line Number
	Default : Disable
Hot Line Number	Set the destination number for Hot Line function.
	Default : Null

- DND (Don't Disturb)



DND Mode	You can select 3 mode of DND. The call will be always rejected if Always is selected. The call will be rejected by below Time setting (From and To) if Enable is selected. The call will be accepted if Disable is selected.
	Default : Disable
From	Set the start time for DND with Enable mode.
	Default : 00:00
To	Set the end time for DND with Enable mode.
	Default : 00:00

- Alarm

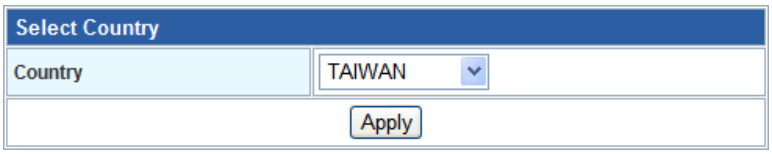


Enable	If set up as Enable, the telephone will ringed up at the specific time.
	Default : Disable
Time	It can set up the system prompt time with 24 hours.
	Default : 0:0

Tone

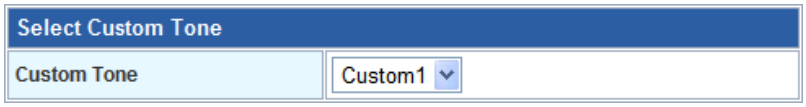
This page is used to configure the Tone Parameters country, or setup the custom tone parameters.

- Select Country



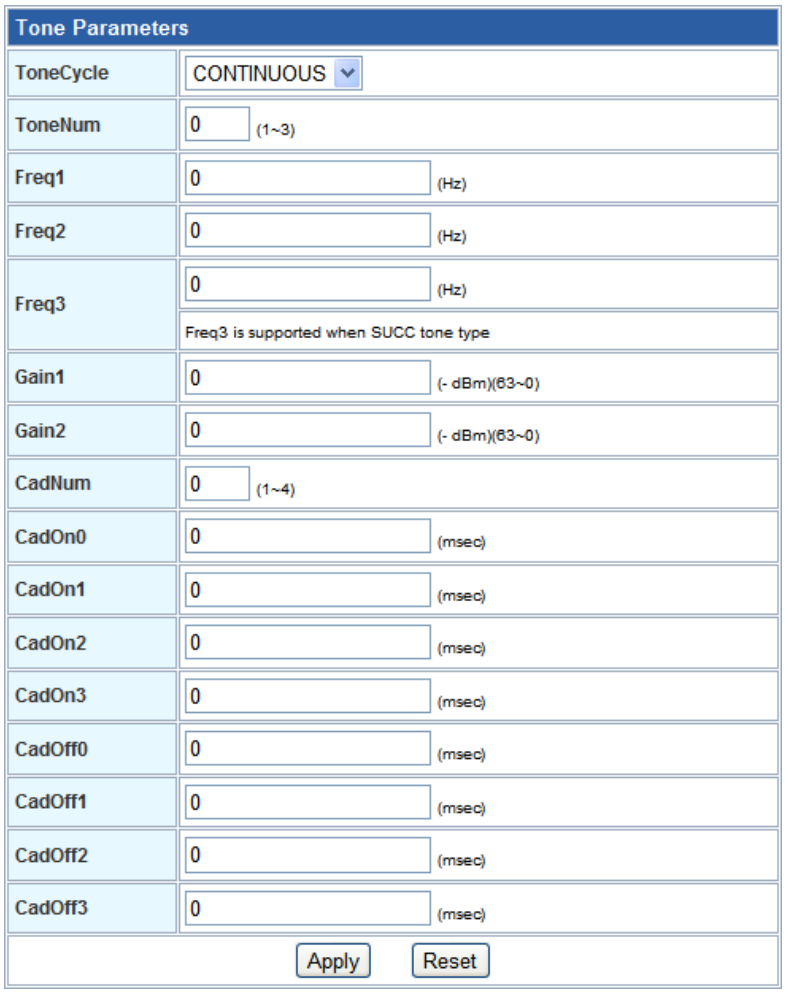
Country	User can select country to specify tone parameters (Dial Tone, Ring Tone, Busy Tone, and Waiting Tone). If user wants to set tone manually, please select CUSTOMER. After selecting CUSTOMER, user can assign Custom 1 to 8 for each tone.
	Default : TAIWAN

- Select Country



Custom Tone	Select Custom tone number to set Tone Parameters.
	Default : Custom1

- Tone Parameters



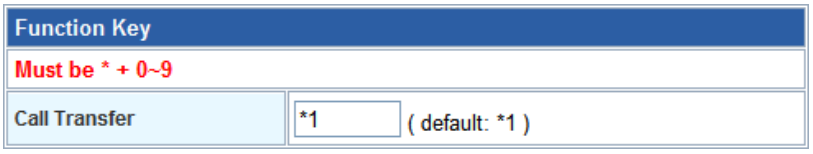
Freq1	Set first set of tone frequency in Hz.
	Default : 0
Freq2	Set second set of tone frequency in Hz. This frequency is optional.
	Default : 0
Gain1	Set volume level of Freq1 in dB (-7~-10). Please set this parameter under zero and suggested to set between –7 to –10.
	Default : 0
Gain2	Set volume level of Freq2 in dB (-7~-10). Please set this parameter under zero and suggested to set between –7 to –10.
	Default : 0
CanOn	Set cadence time for tone to play in ms. For example, if set CanOn as 100, the tone will be played for 100ms.
	Default : 0

CanOff	Set cadence time for tone not to play in ms. For example, if set CanOff as 100, the tone will stop playing for 100ms.
	Default : 0

Other

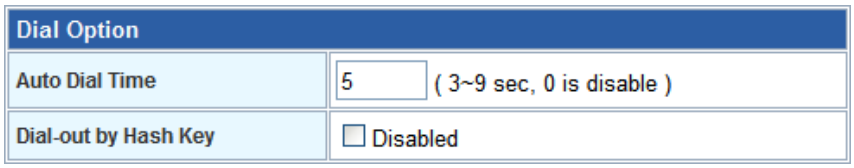
This page is used to configure the function key and other parameters.

- Function Key



Call Transfer	Set call transfer function key.
	Default : *1

- Dial Option



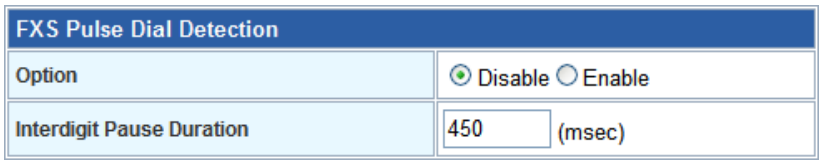
Auto Dial Time	Set Auto dial time. When user finish input number after this time, Router will dial out immediately. If the call is ended by "#", the call will be send immediately and you do not need to wait for the Auto Dial time.
	Default : 5
Dial-out by Hash Key	If the "#" symbol is used for other service purpose, it could disable this option. So that the dialing number could include the "#" symbol and send to destination side.
	Default : Enable

- Off-Hook Alarm

Off-Hook Alarm Time	Set off-hook alarm time. If phone set has been off-hook, after this time, from phone sett will hear alarm.
	Default : 30

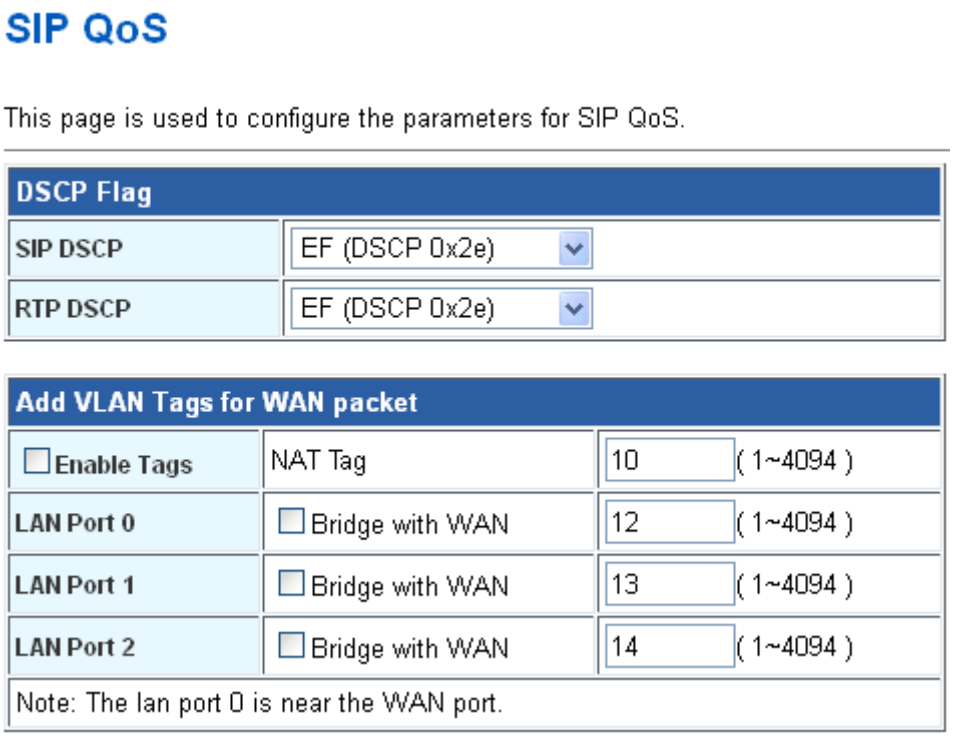
- FXS Pulse Dial Detection

If your telephone set is pulse type, you can enable this option and define the interdigit pause duration parameters for operation priority.



SIP QoS

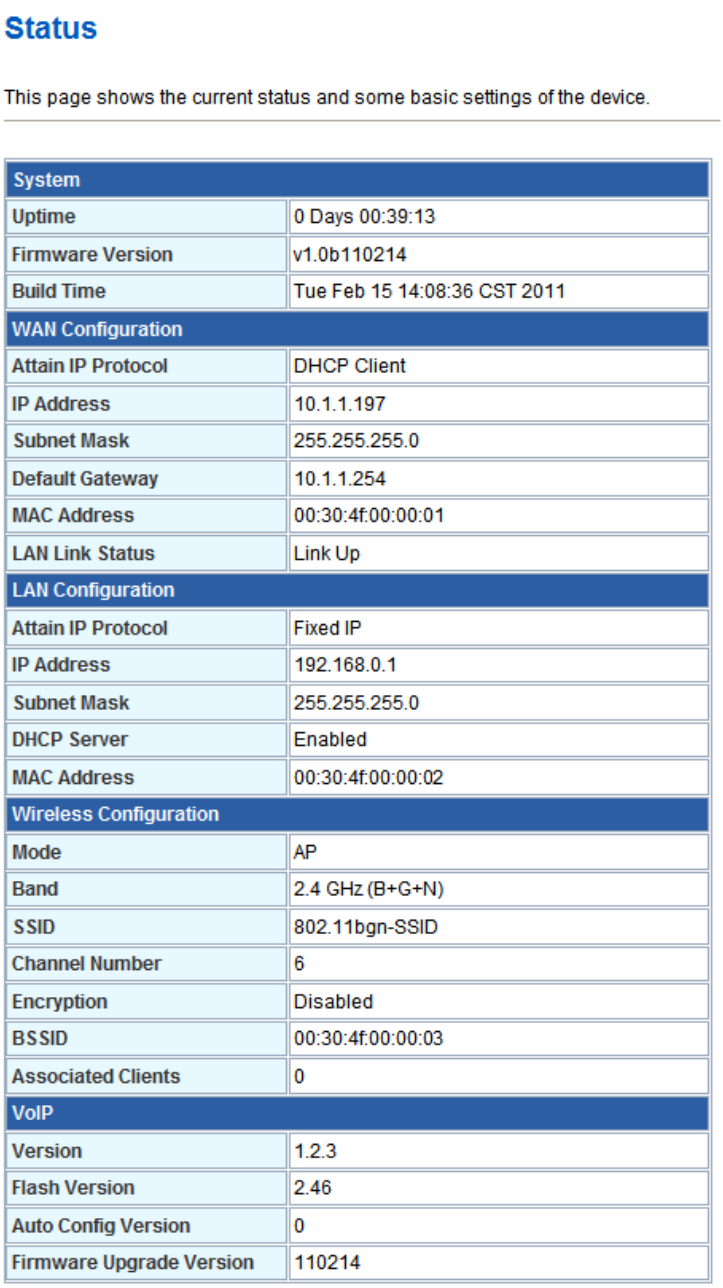
This page is used to configure the parameters for SIP QoS. You can define the DSCP code here for SIP and RTP. Higher DSCP, higher priority. When DSCP is defined, a DSCP will be added in SIP and RTP packets, and the priority of voice should be higher than data.



Chapter 7 Management

Status

In this page can show the current status and some basic settings of the Router.



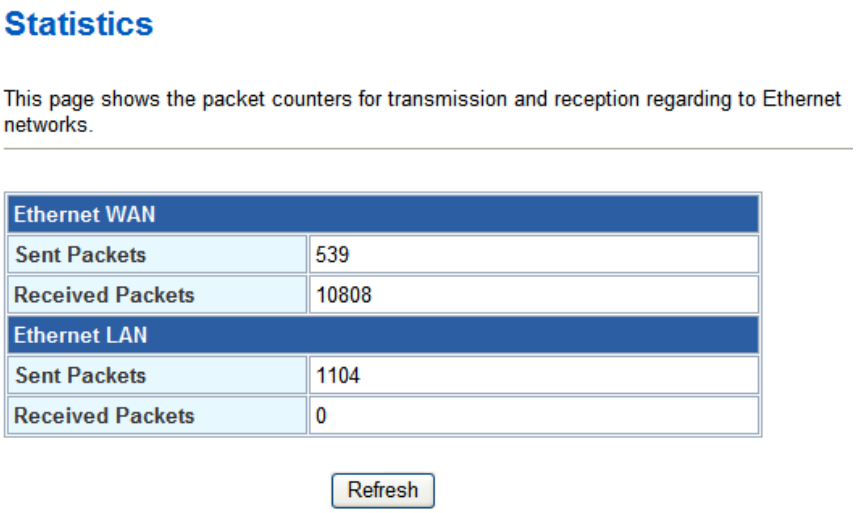
Status

This page shows the current status and some basic settings of the device.

System	
Uptime	0 Days 00:39:13
Firmware Version	v1.0b110214
Build Time	Tue Feb 15 14:08:36 CST 2011
WAN Configuration	
Attain IP Protocol	DHCP Client
IP Address	10.1.1.197
Subnet Mask	255.255.255.0
Default Gateway	10.1.1.254
MAC Address	00:30:4f:00:00:01
LAN Link Status	Link Up
LAN Configuration	
Attain IP Protocol	Fixed IP
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled
MAC Address	00:30:4f:00:00:02
Wireless Configuration	
Mode	AP
Band	2.4 GHz (B+G+N)
SSID	802.11bgn-SSID
Channel Number	6
Encryption	Disabled
BSSID	00:30:4f:00:00:03
Associated Clients	0
VoIP	
Version	1.2.3
Flash Version	2.46
Auto Config Version	0
Firmware Upgrade Version	110214

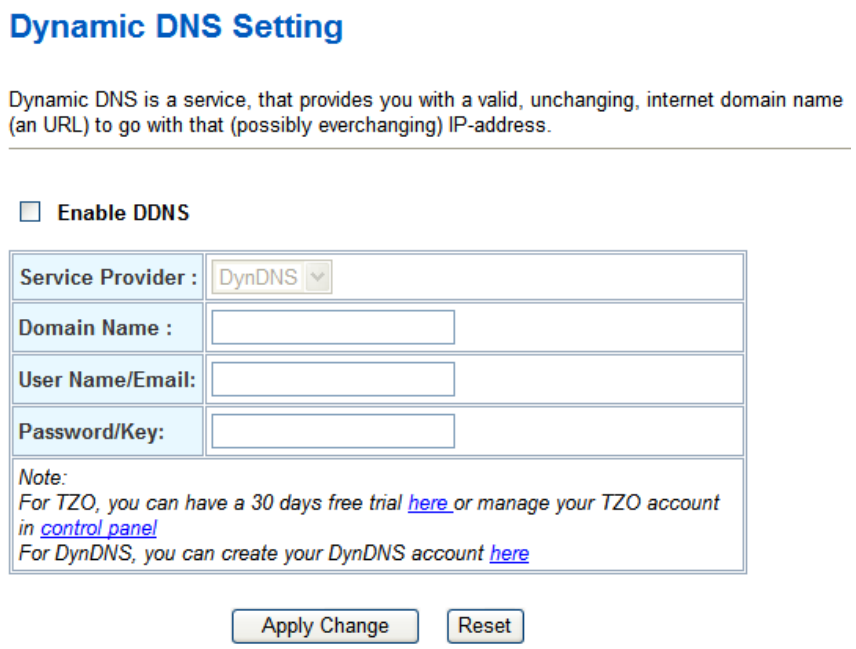
Statistics

This page shows the packet counters for transmission and reception regarding to Ethernet networks.



DDNS

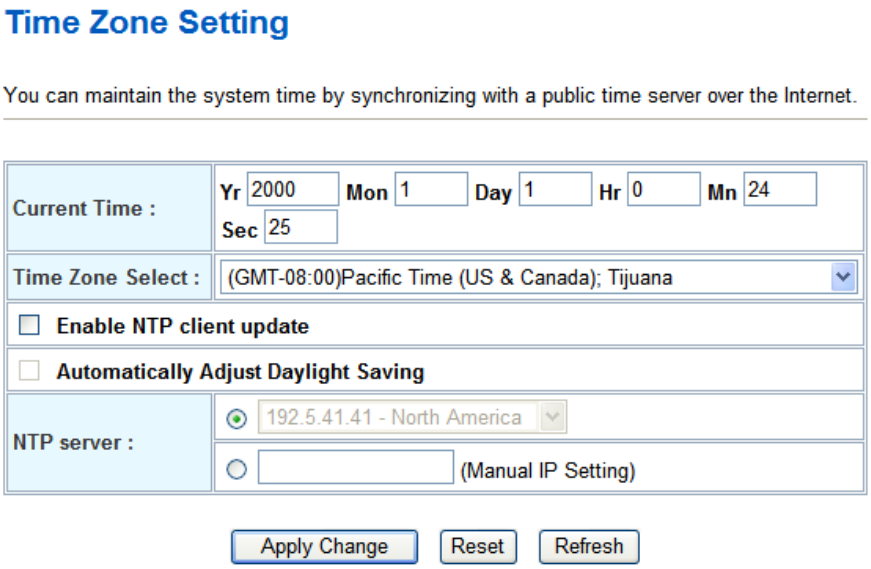
Dynamic DNS is a service, which provides you with a valid, unchanging, internet domain name (an URL) to go with that (possibly ever-changing) IP-address. Before setting this page, you should click below link to DynDNS or TZO to apply an account for DDNS.



Enable DDNS	Check to enable DDNS function. User may register to DDNS server for DDNS function.
Service Provider	Select which server provider to implement DDNS function. For now we provide two servers: DynDNS and TZO.
Domain Name	Input the applied domain name for Router.
User Name/Email	Input user name for DDNS server login.
Password/Key	Input password for DDNS server login.

Time Zone Setting

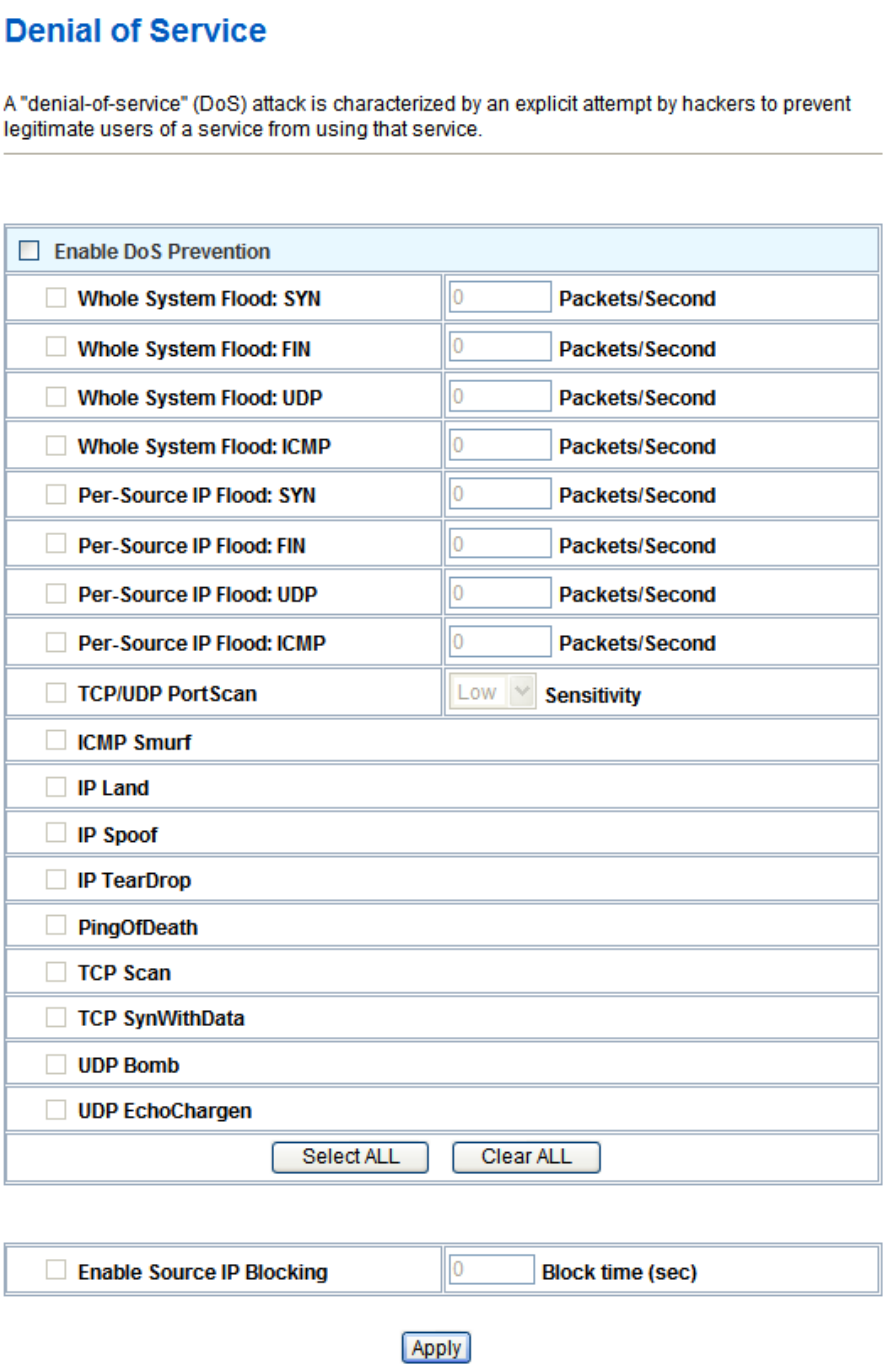
You can maintain the system time by synchronizing with a public time server over the Internet.



Current Time	Input current time manually.
Time Zone Select	Select local time zone according to location.
Enable NTP client update	Check to enable NTP update. Once this function is enabled, Router will automatically update current time from NTP server.
NTP server	User may select prefer NTP sever or input address of NTP server manually.

Denial-of-Service

A "denial-of-service" (DoS) attack is characterized by an explicit attempt by hackers to prevent legitimate users of a service from using that service.



Enable DoS Prevention	Check to enable DoS function.
User may set other related configurations about DoS below.	

SNMP Management

This page is used to configure the parameters for SNMP. SNMP is a widely used protocol for monitoring the health and welfare of network equipment (eg. routers), computer equipment and even devices like UPSs.

SNMP Management

This page is used to configure the parameters for SNMP. SNMP is a widely used protocol for monitoring the health and welfare of network equipment (eg. routers), computer equipment and even devices like UPSs.

SNMP Setup	
SNMP Agent	Disable
SNMP Read Community	public
SNMP Write Community	private
System Option	
System Name	VIP-281SW
System Location	PLANET
Contact	support_voip@planet.com.tw
Description	VIP-281SW
SNMP Trap Receiver Configuration	
SNMP Trap	Disable
SNMP Trap Destination	192.168.0.99

Apply

Log

This page can be used to set remote log server and show the system log.

System Log

This page can be used to set remote log server and show the system log.

Enable Log		
system all	wireless	DoS
Enable Remote Log	Log Server IP Address:	

Apply

Refresh Clear

Enable Log	Check to enable log function.
System all/Dos	Select which log you want to check. Related information will be shown at below.

Upgrade Firmware

This page allows you upgrade the Router firmware to new version. Please note, do not power off the device during the upload because it may crash the system.

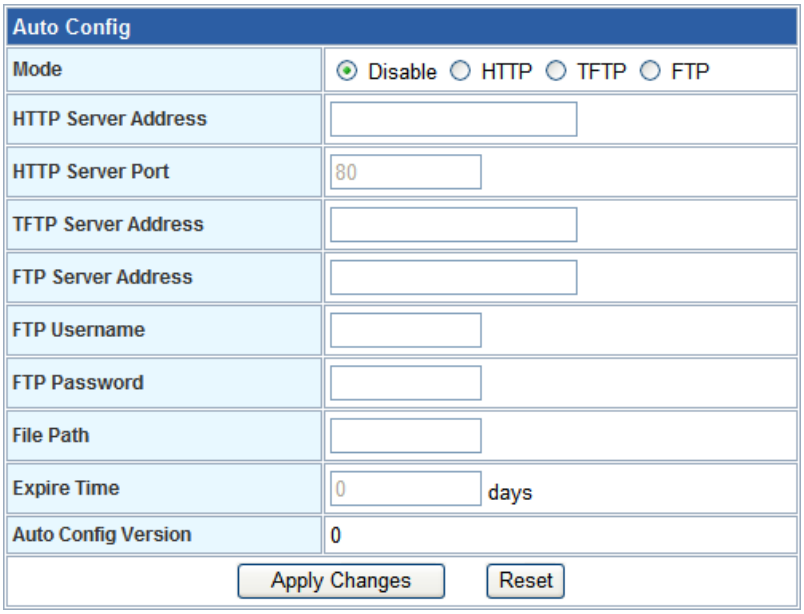
Select File	Browse and select file you want to upgrade and press Upload to perform upgrade. **Please wait till on screen shows related information after upgrade finished.**

Auto Config

This page is used to configure Auto Config and Auto Update.

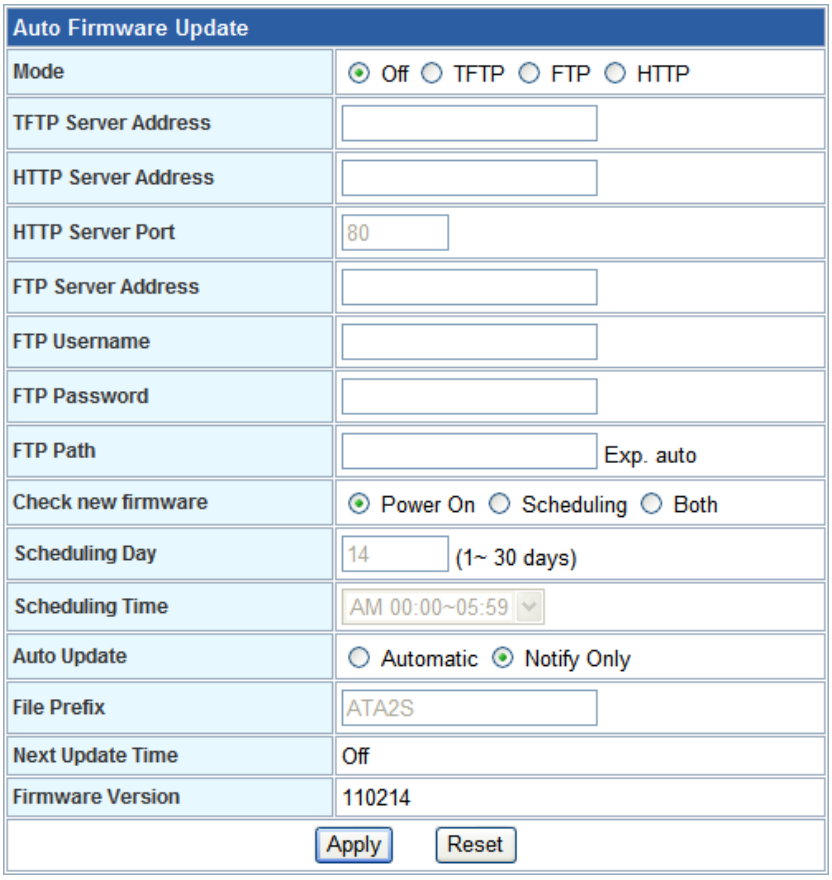
- Auto Config

Router supports HTTP, TFTP and FTP auto configuration function in total.



- Auto Firmware Update

The Router can update new firmware file automatically by the Auto Firmware Update function.

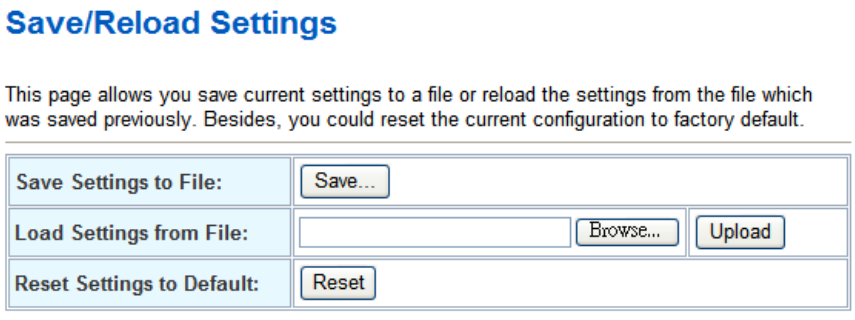


Mode	There are TFTP / FTP and HTTP three ways to provide the auto upgrade function.
TFTP Server Address	Input the TFTP Server address, and it could input the IP or Domain Name form.
HTTP Server Address	Input the HTTP Server address, and it could input the IP or Domain Name form.
HTTP File Path	Set up the file path.
FTP Server Address	Input the FTP Server address, and it could input the IP or Domain Name form.
FTP Username	The login username.
FTP Password	The login password
FTP Path	Set up the file path.

Check new firmware	The Router will according to the below ways to check the new firmware. **- Power On**: The machine will check the new firmware when power on and following the scheduling date and time. **- Scheduling**: The machine will follow the scheduling date and time to check the new firmware.
Scheduling Day	The Router will check the new firmware every the interval time. The range is 1~30 days.
Scheduling Time	The Router will check the new firmware between the time range by random.
Automatic Update	There are Notify only and Automatic ways to update. **- Notify only**: If there are new firmware, the Router will send the “Be Be Be” sounds when pick up the handset to prompt there are new firmware. **- Automatic**: The Router will carry firmware update out automatically.
File Prefix	It will check the information of model name.
Next update time	It will show the next check date and time.
Firmware Version	The current firmware version, the Router is use this value to decide if there is newer firmware version fo upgrading.

Save / Reload Settings

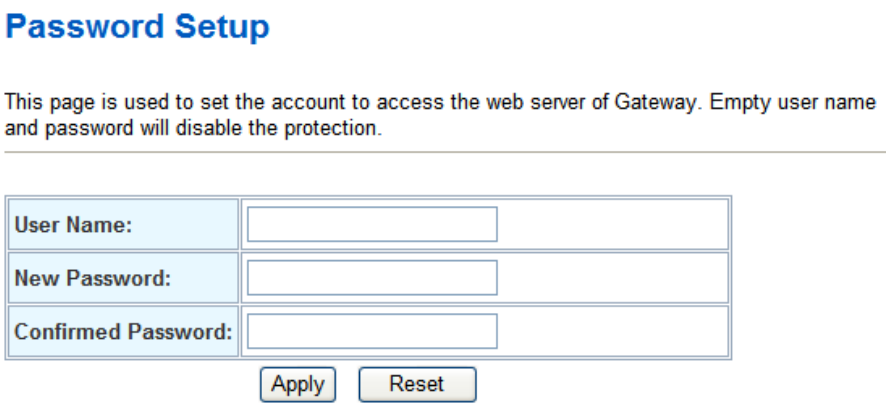
This page allows you save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.



Save Settings to File	Save current settings to a file.
Load Settings from File	Browse a file and upload to reload settings.
Reset Settings to Default	Press **Reset** will clean all current configurations and return to default values.

Password Setup

This page is used to set the account to access the web server of Router. Empty user name and password will disable the protection.

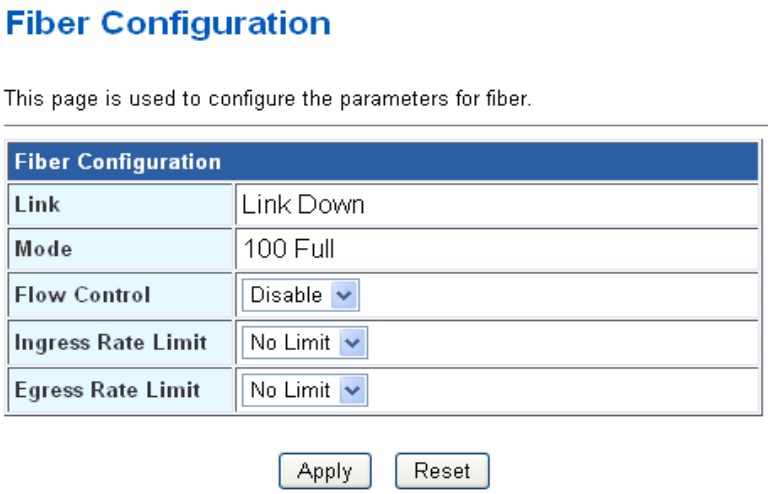


User Name	Enter user name.
New Password	Input password for this user.
Confirmed Password	Confirm password again.

Chapter 8 Fiber Setting

Fiber Setting

This function allows displaying the Fiber port's status, Mode, Flow Control and Rate limit. The Link Status in the screen displays the current connection speed and duplex mode.



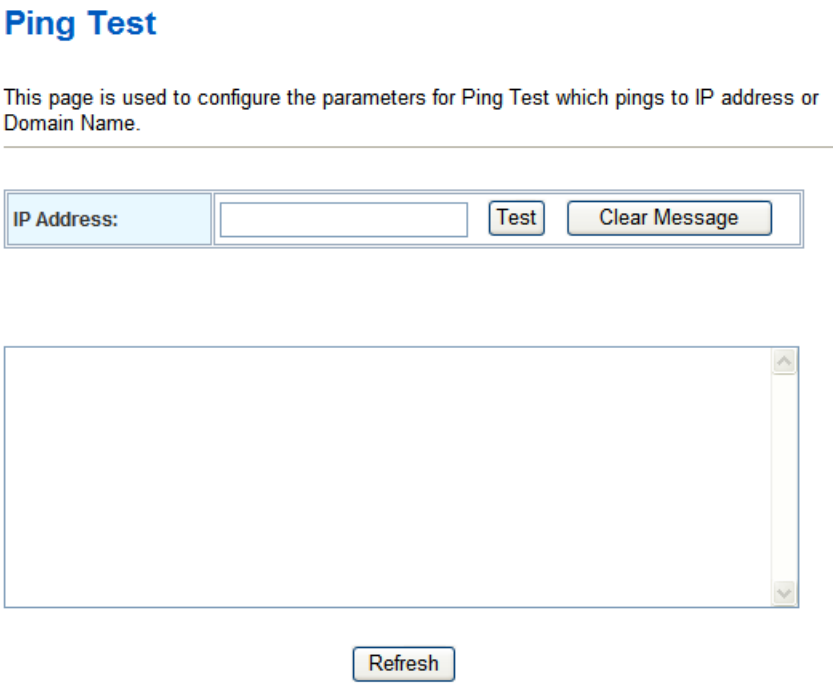
• **Flow Control**	Allow Enable or Disable flow control for selected port. • Enable – 802.3x flow control is enabled on Full-Duplex mode or Backpressure is enabled on Half-Duplex mode • Disable – No flow control or backpressure function on no matter Full-Duplex or Half-Duplex mode Default value: Disable
• **Ingress Rate Limit**	The value of inbound traffic limitation in kilobit-per-second (kbps). The possible values are : • No Limit • 512K • 1M • 2M • 4M • 8M • 10M • 50M Default value: No Limit
• **Egress Shaping**	The value of outbound traffic limitation in kilobit-per-second (kbps). The possible values are : • No Limit • 512K • 1M • 2M • 4M • 8M • 10M • 50M Default value : No Limit

Ping Watchdog Setup

This page is used to configure the parameters for Ping Watchdog which pings to IP address every time interval. System will reboot when failing to ping the IP address 3 times.

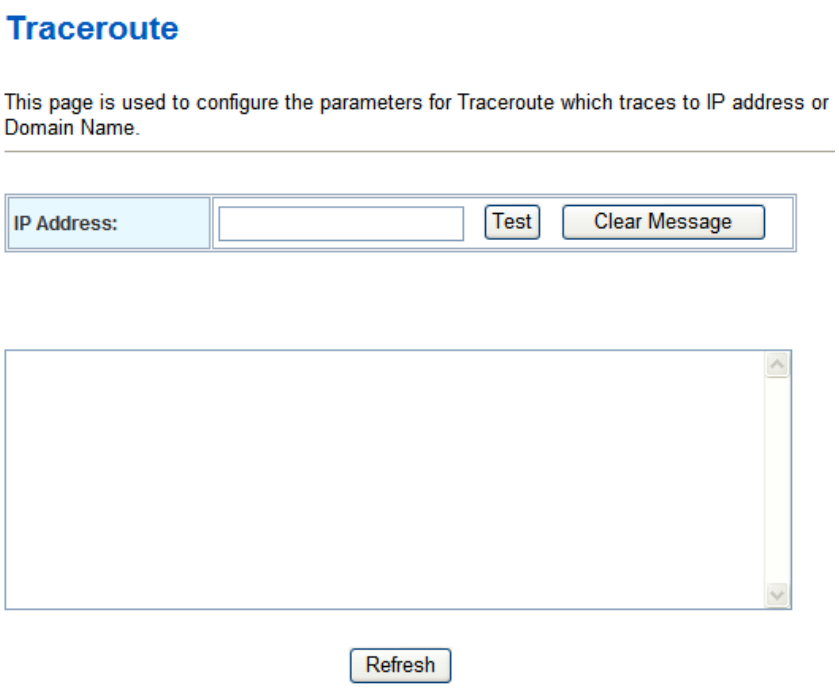
Ping Test

This page is used to configure the parameters for Ping Test which pings to IP address or Domain Name.



Traceroute

This page is used to configure the parameters for Traceroute which traces to IP address or Domain Name.

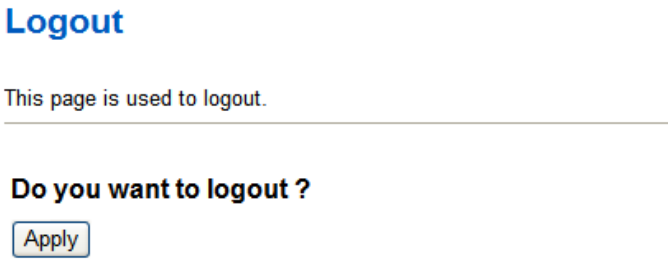


Reboot

Press Reboot to reboot system. Please wait for a few minutes and reload web page again.

Logout

This page is used to logout.

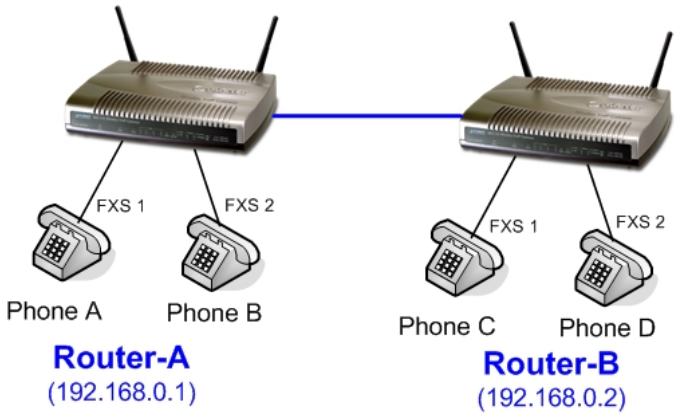


Appendix A Voice communication samples

There are several ways to make calls to desired destination in Router. In this section, we'll lead you step by step to establish your first voice communication via keypad and web browsers operations.

Peer to peer (P2P) mode

Assuming there are two routers in the network, the WAN port IP address are 192.168.0.1 and 192.168.0.2



Test the scenario:

1. To Phone A: Other Phone dials "**192*168*0*1#**".
2. To Phone B: Other Phone dials "**192*168*0*1**5062#**".
3. To Phone C: Other Phone dials "**192*168*0*2#**".
4. To Phone D: Other Phone dials "**192*168*0*2**5062#**".

Hint

- If the IP address of the remote calling party is known, you may directly make calls by preset number via its IP address and end with "**#**".
- If the VoIP Router is installed behind a NAT/firewall/ IP sharing device, please make sure the NAT device support SIP applications before making calls.
- The voice communication need to go through via WAN port of router, so it needs to make sure the WAN port connector is properly for communication.

Case 2: (Peer-to-Peer mode) FRT-420SN Port 1 to Port 2 communications

Supposing one FRT-420SN connects to two telephones, just pick up phone 1 and dial '**192*168*0*1**5062**', phone 2 will ring.

Analog telephone sets are connected to the phone (RJ-11) ports of FRT-420SN respectively

Test the scenario:

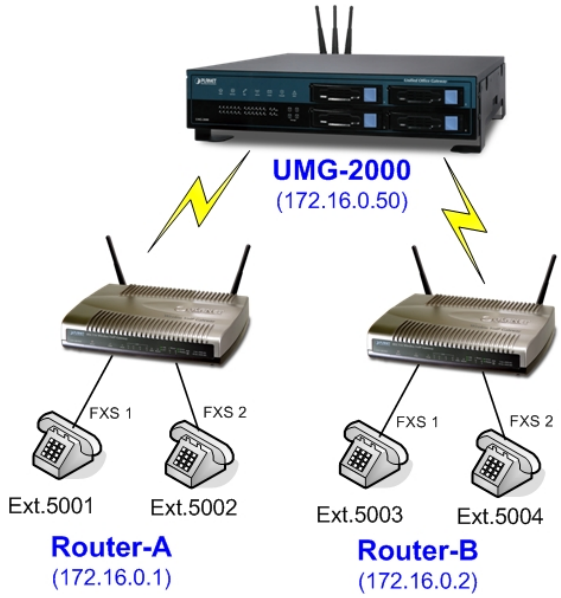
1. Pick up the telephone set on Phone 1, and you should be able to hear the dial-tone
2. Press the keypad: **192*168*0*1**5062#** shall be able to connect to the Phone 2
3. Then the telephone set in Phone 2 should ring.
4. The Phone 2 also could dial "**192*168*0*1#**" (without ***5062**) to Phone 1 to establish the voice communication.

ⓘ Hint

- If the IP address of the remote calling party is known, you may directly make calls via its IP address and end with"**#**".
- If the router are installed behind a NAT/firewall/IP sharing device for Peer-to-Peer VoIP application, please make sure the NAT device support SIP applications, and suitable settings should be applied to the NAT device to enable the SIP communications before making calls
- [**FRT-420SN**] in PLANET Router series products, to connect to remote Router, press the keypad in the following sequence to connect to the remote FRT-420SN port 2:
  [Remote Router IP address]5062**, for example:
  192*168*0*25062**

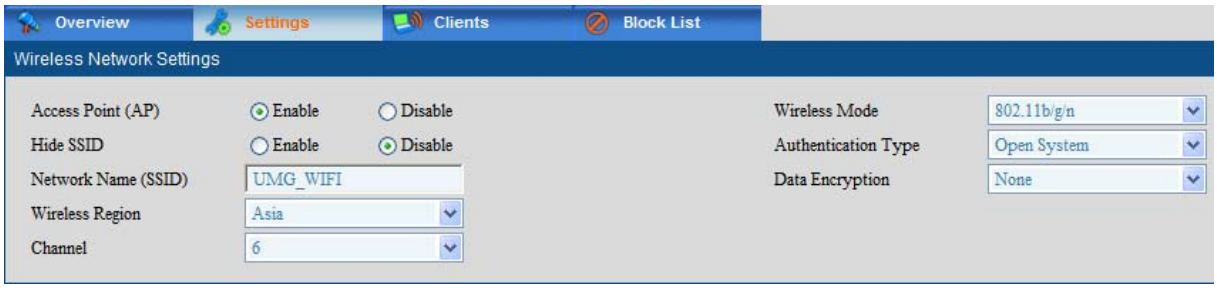
Case 3: SIP Proxy mode

In this example, there are two Routers register to UMG-2000 via wireless connection. The telephone set could dial the extension number to each other.



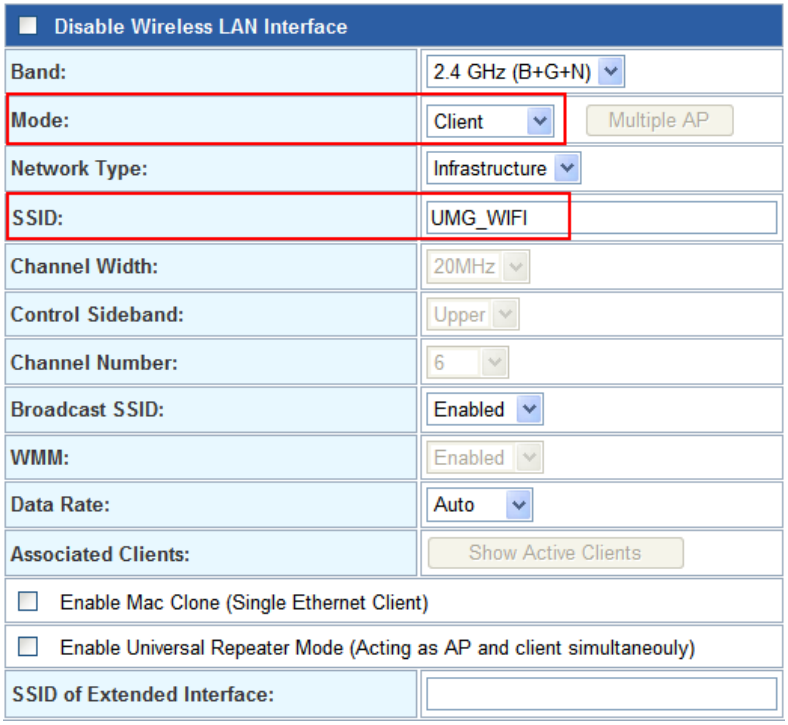
STEP 1:

Log in UMG-2000 and create four testing accounts: **5001 ~ 5004** (password same as number) for Router-A and Router-B. To enable the Wireless AP Service on UMG-2000 for wireless connection between Router-A and Router-B.

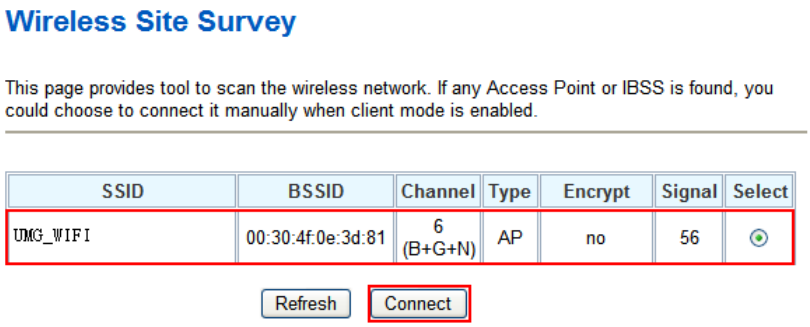


STEP 2:

Please log in Router-A via web browser, access to “Wireless Basic Settings” page to switch to **Client** mode, and fill in the SSID of UMG-2000 (UMG_WIFI). In the setting page, please insert the account/password information obtained from your service provider (in this sample, we’re using PLANET UMG-2000 as the IP PBX server for SIP account, call authentications), and then the sample configuration screen is shown below:

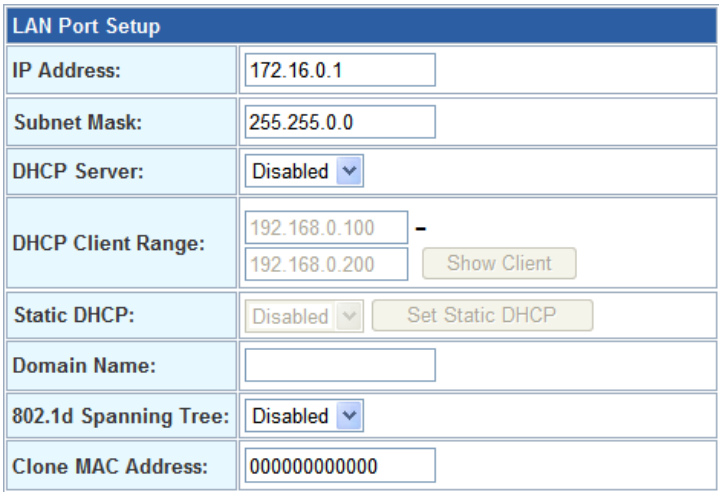


It also could access to “Wireless Site Survey” menu to survey the wireless access connection and connect to UMG-2000.



STEP 3:

To assign the LAN port network parameters as 172.16.0.1 (IP Address) / 255.255.0.0 (Subnet Mask).



STEP 4:

Please log in Router-A via web browser, find to the **SIP** item. In the setting page, please insert the account/password information obtained from your service provider (in this sample, we're using PLANET UMG-2000 as the IP PBX server for SIP account, call authentications), and then the sample configuration screen is shown below:

Realm 1	
Display Name	5001
Line Number	5001
Register Name	5001
Register Password	••••
Proxy	☑ Enable
Proxy Server	172.16.0.50
Proxy Port	5060
Domain Server	
SIP Expire Time	60
Outbound Proxy	☐ Enable
Outbound Proxy Server	
Outbound Proxy Port	5060
Nortel SoftSwitch	☐ Enable
Register Status	Registered

STEP 5:

Repeat the same configuration steps on Router-B, and check the machine registration status, make sure the registrations are completed.

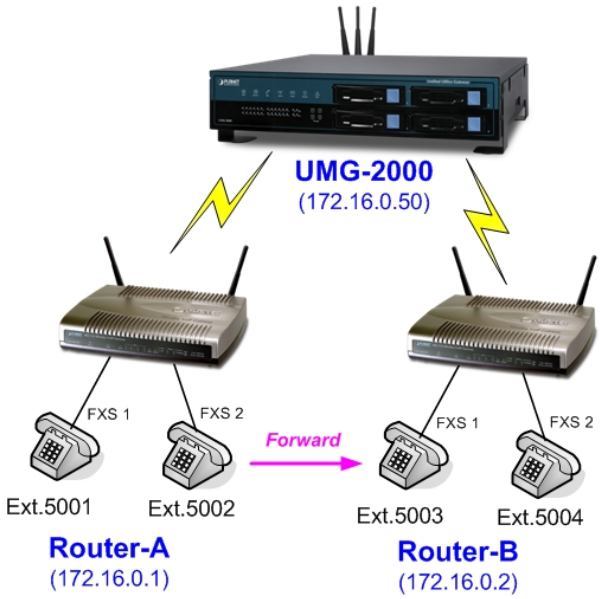
STEP 6:

To verify the VoIP communication, please pick up the telephone. Dial the destination number to make call between SIP clients. For example, FXS 1 of Router-A (with number 5001) with keypad number **5003** to the FXS 1 of Router-B, or reversely makes calls from SIP client (Router-B) to the number **5001** (FXS 1 of Router-A).

Case 4: Call Forward Feature

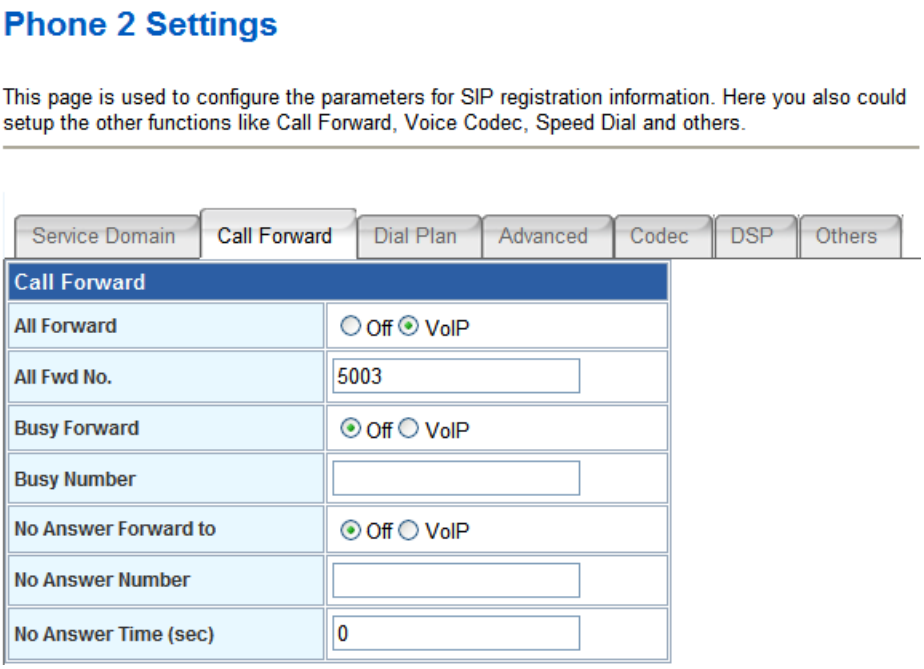
In the following samples, we'll introduce the Call Forward Feature applications.

In this example, both Routers register to UMG-2000 and FXS 2 of Router_A had set Call Forward function to FXS1 of Router_B.



Machine configuration on the Router:

Please log in Router_A via web browser, browse to the **Phone 2** menu and select the **Call Forward** config menu. In the setting page, please enable the **All Forward** function and fill in the number of FXS 1 of Router_B (5003) in **All Fwd No.** field, then the sample configuration screen is shown below:



Test the scenario:

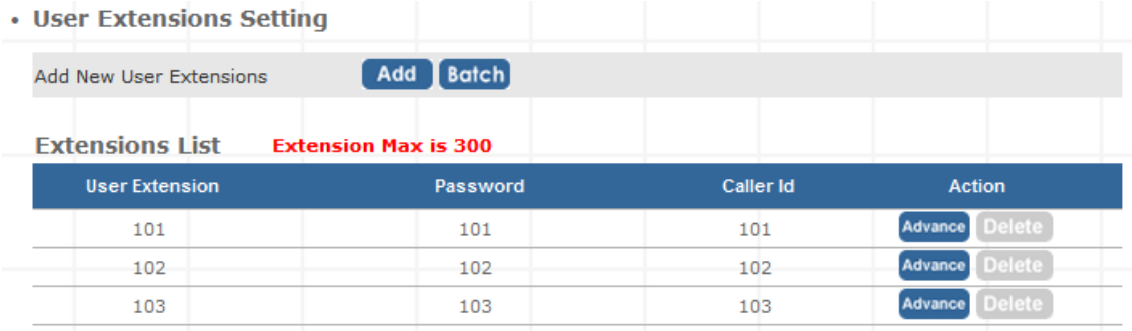
1. FXS 1 of Router_A (ext.5001) pick up the telephone
2. Dial the number **5002** (FXS 2 of Router _A),
3. Because FXS 2 of Router _A had set up **All Forward** function to the number **5003**(FXS 1 of Router _B)
4. The number **5003** (FXS 1 of Router_B) will ring up then it pick up the telephone and communication with the number 5001

Case 5: FRT-420SN register with IPX-1900 via WAN port

In this example, the FRT-420SN registered with IPX-1900 via WAN port, and has VoIP communications with VIP-360PT.

STEP 1:

Log in IPX-1900 and create three testing accounts: **101 ~ 103** (password same as number) for FRT-420SN and VIP-360PT.



STEP 2:

Please log in FRT-420SN via web browser, access to “WAN Interface Setup” page to setup the WAN port network parameters for connect with IPX-1900.

WAN Interface Setup

This page is used to configure the parameters for Internet network which connects to the WAN port of your Gateway. Here you may change the access method to static IP, DHCP, PPPoE, PPTP or L2TP by click the item value of WAN Access type.

WAN Access Type:	Static IP
IP Address:	172.16.0.10
Subnet Mask:	255.255.0.0
Default Gateway:	172.16.0.1
MTU Size:	1412 (1400-1500 bytes)
DNS 1:	168.95.192.1
DNS 2:	168.95.1.1
DNS 3:	

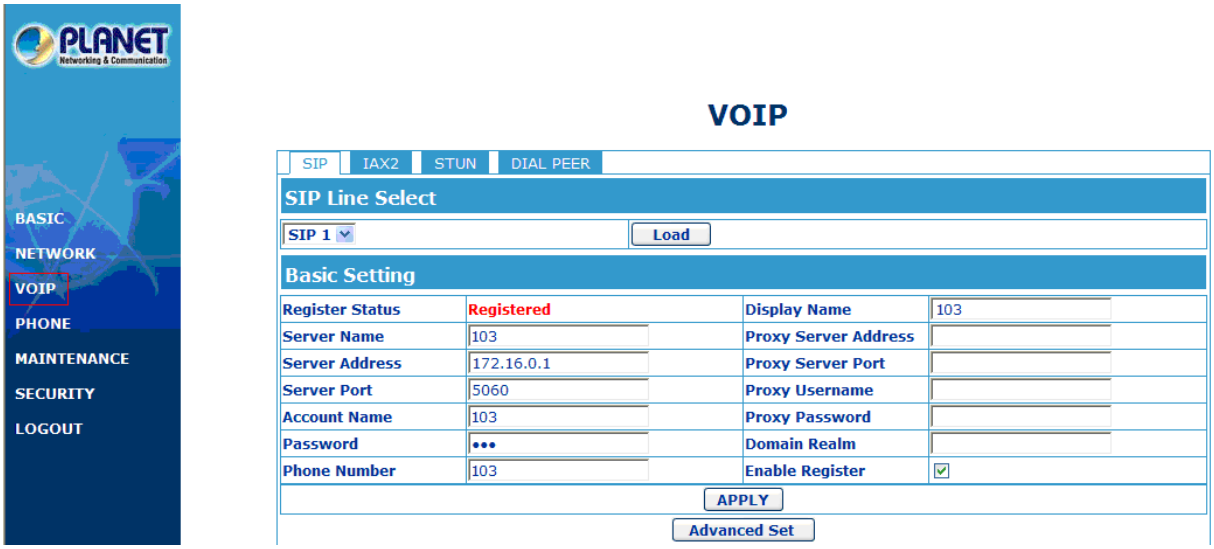
STEP 3:

Please access to the **SIP** item. In the setting page, please insert the account/password information obtained from your service provider (in this sample, we're using PLANET IPX-1900 as the IP PBX server for SIP account, call authentications), and then the sample configuration screen is shown below:

Realm 1	
Display Name	101
Line Number	101
Register Name	101
Register Password	•••
Proxy	☑ Enable
Proxy Server	172.16.0.1
Proxy Port	5060
Domain Server	
SIP Expire Time	60
Outbound Proxy	☐ Enable
Outbound Proxy Server	
Outbound Proxy Port	5060
Nortel SoftSwitch	☐ Enable
Register Status	Registered

STEP 5:

Please log in VIP-360PT and access to "VOIP" page. According to the SIP account information to fill in the correspondence fields for registering with IPX-1900.

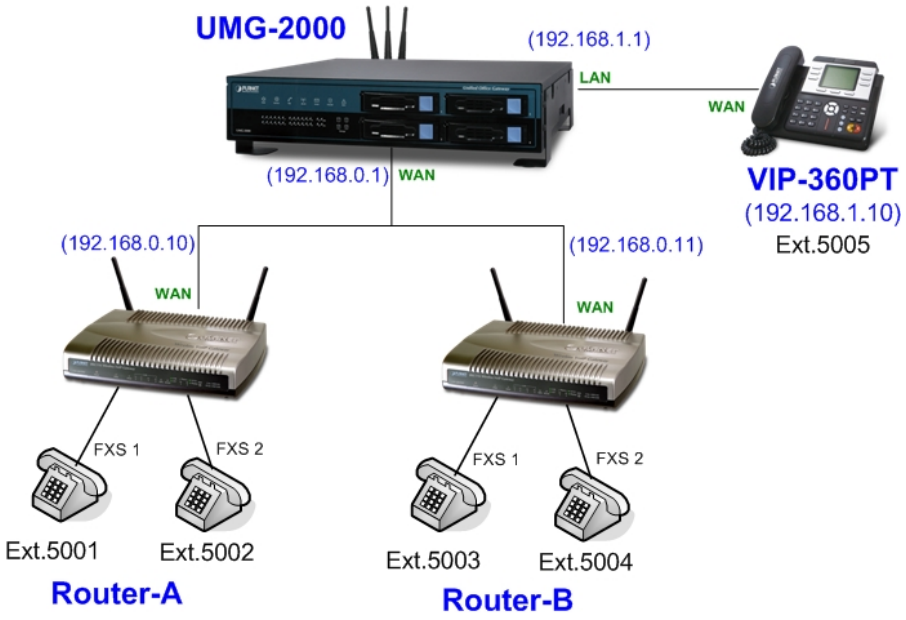


STEP 6:

To verify the VoIP communication, please pick up the telephone. Dial the destination number to make call between SIP clients. For example, FXS 1 of FRT-420SN with keypad number **103** to the VIP-360PT. Or reversely makes calls from VIP-360PT SIP client to the number **101** (FXS 1 of FRT-420SN).

Case 6: FRT-420SN register with UMG-2000 via WAN port

In this example, the Router-A and Router-B (FRT-420SN) registered with UMG-2000 via WAN port, and has VoIP communications with VIP-360PT that registered with LAN port of UMG-2000.



STEP 1:

Log in UMG-2000 and create three testing accounts: **5001 ~ 5005** (password same as number) for Router-A, Router-B and VIP-360PT.

STEP 2:

Please log in FRT-420SN via web browser, access to “WAN Interface Setup” page to setup the WAN port network parameters for connect with UMG-2000.

WAN Access Type:	Static IP
IP Address:	192.168.0.10
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.0.254
MTU Size:	1412 (1400-1500 bytes)
DNS 1:	168.95.192.1
DNS 2:	168.95.1.1
DNS 3:	

STEP 3:

Please access to the **SIP** item. In the setting page, please insert the account/password information

obtained from your service provider (in this sample, we're using PLANET UMG-2000 as the IP PBX server for SIP account, call authentications), and then the sample configuration screen is shown below:

Realm 1	
Display Name	5001
Line Number	5001
Register Name	5001
Register Password	••••
Proxy	☑ Enable
Proxy Server	192.168.0.1
Proxy Port	5060
Domain Server	
SIP Expire Time	60
Outbound Proxy	☐ Enable
Outbound Proxy Server	
Outbound Proxy Port	5060
Nortel SoftSwitch	☐ Enable
Register Status	Registered

STEP 5:

Please log in VIP-360PT and access to "VOIP" page. According to the SIP account information to fill in the correspondence fields for registering with UMG-2000.

SIP | IAX2 | STUN | DIAL PEER

SIP Line Select

SIP 1 | Load

Basic Setting

Register Status	Registered	Display Name	5005
Server Name	5005	Proxy Server Address	
Server Address	192.168.1.1	Proxy Server Port	
Server Port	5060	Proxy Username	
Account Name	5005	Proxy Password	
Password	••••	Domain Realm	
Phone Number	5005	Enable Register	☑

APPLY

STEP 6:

To verify the VoIP communication, please pick up the telephone. Dial the destination number to make call between SIP clients. For example, FXS 1 of Router-A with keypad number **5005** to the VIP-360PT. Or reversely makes calls from VIP-360PT SIP client to the number **5001** (FXS 1 of Router-A).

Appendix B The method of featured voice operation guide

In this section, we'll introduce the features method of operation, and lead you step by step to establish these features.

Call Transfer

A. Blind Transfer

1. B call to A and they are in the process of conversation.
2. A carry the transfer function out (Press ***1** button) to hold the conversation with B.
3. A will hear the dial tone then input the number of C (Follow by the "#" key).
4. C will ring up then A hang up the handset.
5. C picks up the handset and conversation with B.

B. Attendant Transfer

1. B call to A and they are in the process of conversation.
2. A carry the transfer function out (Press ***1** button) to hold the conversation with B.
3. A will hear the dial tone then input the number of C (Follow by the "#" key).
4. C will ring up.
5. C picks up the handset and conversation with A.
6. A hang up and C conversation with B.

3-Way Conference

1. A and B are in the process of conversation.
2. A want to invite C to join their conversation.
3. A press "**Flash**" button on telephone to hold the conversation with B at first and hear the dial tone, then input the number of C (Follow by the "#" key).
4. C will ring up and pick up the handset to conversation with A.
5. A press "**Flash**" button again, and they will entry the 3-Way conference mode.

Call Waiting

1. A and B are in the process of conversation.
2. C call to A and A will hear the prompt sounds.
3. A press "**Flash**" button to hold the conversation with B, and switch to conversation with C.

Switch the Default Proxy

Router can register to two different SIP Proxies at the same time. It can receive any one of different SIP accounts incoming call, and it can switch to any one SIP accounts for making calls through

input the switch code.

Realm switch code:

#1500#: Realm 1

#1501#: Realm 2

For example: The default is Realm 1, input the **#1501#** from keypad and hang up the telephone set. It will switch to Realm 2 can make the SIP calls via Realm 2.

Auto Update firmware by manual (Keypad)

If pick up the handset of Router, it will hear the “DoDoDo” prompt. If want to carry out the upgrade action, please input”**#190#**” to unlock the device at first. Then input”**#160#**” to upgrade the new firmware.

Appendix C Frequently Asked Questions List

If your SIP Router is not functioning properly, you can refer to this chapter first for sample troubleshooting before contacting your dealer. This can save your time and effort but if the symptoms persist, please consult your dealer.

Q1: I forget my Router login username and / or password

A1:

1.) Restore Router to its factory default settings by pressing the “Reset” button which is at the side panel of the device for 5 seconds or more.

Q2: Non of the LEDs are on when I turn on the SIP Router

A2:

1.) Check if power cord is connected properly.

2.) Check if there is proper AC power coming from the power outlet.

Q3: Why can’t I dial my friend’s SIP number?

A3:

1.) Check SIP Server Domain Name/IP address. Make sure you have the right Name or IP address.

2.) Check the web browser and access the configuration menu. Make sure that the SIP Server Domain Name/IP Address is correct.

3.) Check the register status under SIP Account Settings in the configuration menu (from web browser). If your status is “Not Registered, it means you do not have a SIP account. Contact your SIP service provider to get an account.

Q4: How to know the machine IP address?

A4:

1.) To pick up the telephone set, and key in #120#.

2.) Machine will prompt the current LAN port IP address.

Appendix D Router Specifications

Product	802.11n Wireless VoIP Fiber Router
Model	FRT-420SN
Hardware	
WLAN Standards	IEEE 802.11 b/g/n
Wireless Frequency Range	2.4GHz ~ 2.4835 GHz
Wireless Mode	AP, Client, WDS and AP+WDS mode
Security	64/128 bit WEP data encryption, WPA, WPA-PSK, WPA2, WPA2-PSK, WPA/WPA2 mix mode, 802.1x encryption and WPS PBC
Operating Frequencies / Channel	USA/Canada: 2.412 GHz – 2.426 GHz (11 channels) Europe: 2.412 GHz – 2.472 GHz (13 channels) Japan: 2.412 GHz – 2.477 GHz (14 channels)
Wireless Data Rate	IEEE 802.11b: CCK (11Mbps,5.5Mbps), DQPSK (2Mbps), DBPSK (1Mbps) IEEE 802.11g: OFDM (54Mbps, 48Mbps, 36Mbps, 24Mbps, 18Mbps, 12Mbps, 9Mbps, 6Mbps) IEEE 802.11n: 14/29/43/58/87/116/130/144Mps in 20MHz, 30/60/90/120/180/240/270/300Mbps in 40MHz
Transmit Power	802.11b: 17dBm, 802.11g: 15dBm, 802.11n: 13dBm
Receiver Sensitivity	802.11b: -86dBm @11M, 802.11g: -72dBm @54M 802.11n (20MHz): -68dBm, 802.11n (40MHz): -66dBm
Antenna	2 x 5dBi Detachable Antenna
WDS	WDS repeater support
WAN	1 x 100Base-FX port
LAN	4 x 10/100 Base-TX RJ-45 port
FXS (for telephone set connection)	2 x RJ-11 connection
Protocols and Standard	
Standard	SIP 2.0 (RFC3261), SDP (RFC 2327), Symmetric RTP, STUN (RFC 3489), , ENUM (RFC 2916), RTP Payload for DTMF Digits (RFC2833), Outbound Proxy Support, UPnP (UPnPTM)
Voice codec	G.711(A-law /μ-law), G.729 AB, G.723 (6.3 Kbps / 5.3Kbps), G.276 (16,24,32,40 Kbps), GSM and G.722
Fax support*	T.38 (G.711 Fax pass-through)
Voice Standard	VAD (Voice Activity Detection) CNG (Comfort Noise Generation) G.168: LEC (Line Echo Canceller) Dynamic Jitter Buffer In-band and out-of-band DTMF Relay (RFC 2833) Caller ID Detection/Generation: DTMF, BELLCORE, ETSI, BT, NTT
Protocols	SIP 2.0 (RFC-3261), TCP/IP, UDP/RTP/RTCP, HTTP, ICMP, ARP, DNS, DHCP, NTP/SNTP, PPP, PPPoE
Internet features	NAT router, DHCP server, Static routing, Virtual server, Virtual DMZ, Smart QoS, IP ToS (IP Precedance) / DiffServ
Security	Built-in NAT Firewall MAC / IP / Port Filtering URL Filtering Port Forwarding, DMZ Password protection for system management
Network and Configuration	
Access Mode	Static IP, PPPoE, DHCP
Configuration & Management	Web-Based Graphical User Interface Remote management over the IP Network Web-Based firmware upgrade Backup and Restore Configuration file

	SNMP v1/v2, Auto-Provision, Keypad on telephone set
Dimension (W x D x H)	186 x 143 x 35 mm
Operating Environment	0~50 Degree C, 5~90% humidity
Power Requirement	12V DC
EMC/EMI	CE, FCC Part 15 Class B

FIBER SPECIFICATIONS

Product		**Internet Fiber Router**
Ports	**WAN**	1 x 100Base-FX port
	LAN	4 x 10/100Base-TX port
Optic Interface	**Connector**	SFP
	Mode	Vary on module
	Distance	Vary on module
Fiber-optic cable		9/125μm single-mode cable, provide long distance for 15/20/35/50km or longer (very on SFP module)