
IG7500

Administration Manual



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Environment

The equipment you have purchased must not be disposed of with household waste. You should return these to your distributor if they are to replace or dispose of them in an approved recycling centre.

FCC Statement

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause interference to radio communications. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of FCC rules, which are designed to provide reasonable protection against radio interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN55022 class B for ITE and EN 50082-1. This meets the essential protection requirements of the European Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

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WARNING! 

1. Read these installation instructions carefully before connecting the equipment to its power adapter.
2. To reduce the risk of electric shock, do not remove the cover from the equipment or attempt to dismantle it. Opening or removing covers may expose you to dangerous voltage levels. Equally, incorrect reassembly could cause electric shock on re-use of the appliance.
3. Do not expose the equipment to fire, direct sunlight or excessive heat.
4. Do not expose the equipment to rain or moisture and do not allow it to come into contact with water.
5. Do not install the equipment in an environment likely to present a Threat of Impact.
6. You may clean the equipment using a fine damp cloth. Never use solvents (such as trichloroethylene or acetone), which may damage the equipment's plastic surface. Never spray the equipment with any cleaning product whatsoever.
7. The equipment is designed to work in temperatures from 0°C to 45°C (32°F to 104°F).
8. The equipment must be installed at least 1 meter from radio frequency equipment, such as TVs, radios, hi-fi or video equipments (which radiate electromagnetic fields).
9. Do not connect the LAN/WAN port to any network other than an Ethernet network.
10. Do not attempt to upgrade your equipment in an unstable power environment. This could cause unexpected damages.
11. Do not work on the system during lightning storms. Please disconnect all cables.
12. Children don't recognize the risks of electrical appliances. Therefore use or keep the equipment only under supervision of adults or out of the reach from children.
13. No repair can be performed by the end user, if you experience trouble with this equipment, for repair or warranty information, please contact your supplier.

Electrical Powering:

The IG7500 can be powered with correct power adaptor, the power adaptor must be 12V/1.5A. Any damage caused to the IG7500 as a result of using unsupported power adaptors will not be covered by the manufacturer's warranty.

Product Disposal Warning:

Ultimate disposal of this product, accessories, packing, especially the batteries should be handled carefully for recycle and nature protection in accordance with national laws and regulations.

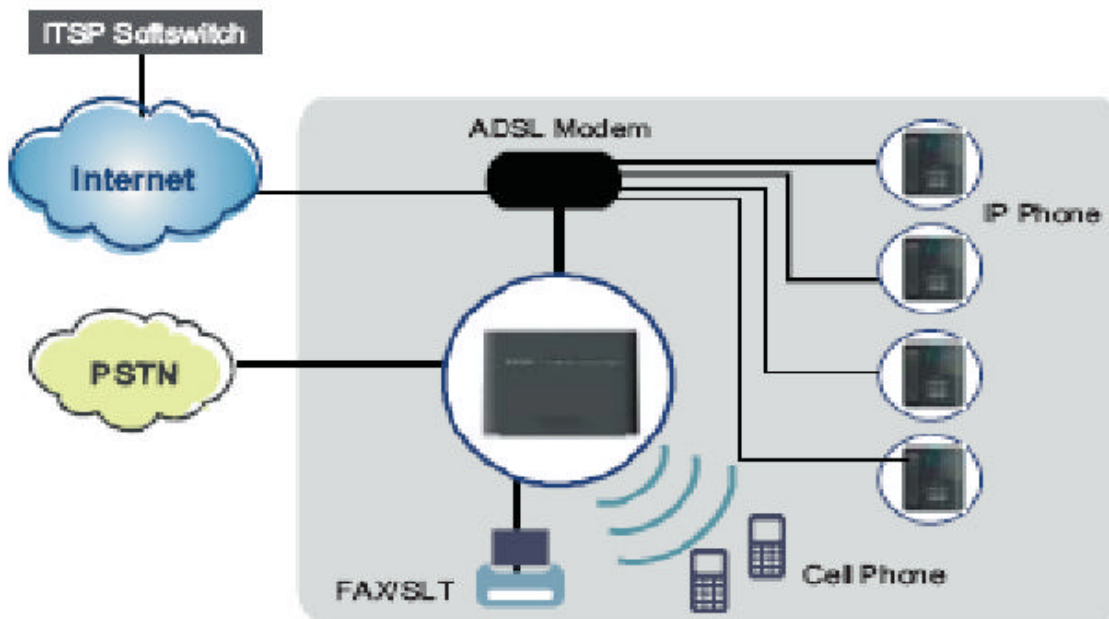
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1. Introduction

The IG7500 Gateway supports a FXS port and a FXO port, both have a separate SIP account assigned to register to remote SIP Server. The IG7500 also support IP networking systems. The IG7500 design is designed for hosted IP providers that want to provide fax services, support PSTN failover, and managed WLAN for the customers.



Interfaces

- ◆ 1 FXO port (Loop Start, for PSTN)
- ◆ 1 FXS port (for Analog Telephone or FAX)
- ◆ 1 WAN port: 10BASE-T/100BASE-TX/1000BASE-T Gigabit Ethernet port
- ◆ 4 LAN ports: 10BASE-T/100BASE-TX
- ◆ 802.11b/g/n WiFi access point
- ◆ 3 USB 2.0 host ports: Connects to your USB storage devices, USB printer or 3G dongle.

Basically, the Maul is required to do the following things:

- (1) To understand the architecture, resources, and devices of whole environment which will be involved with the VoIP communications.
- (2) To build a common setting file.
- (3) To configure each interfaces and install them.
- (4) And to solve the problems that users encounter during operation.

2. Getting to Know the IG7500

2.1 Front Panel

The front panel contains several LEDs that indicate the status of the IG7500.

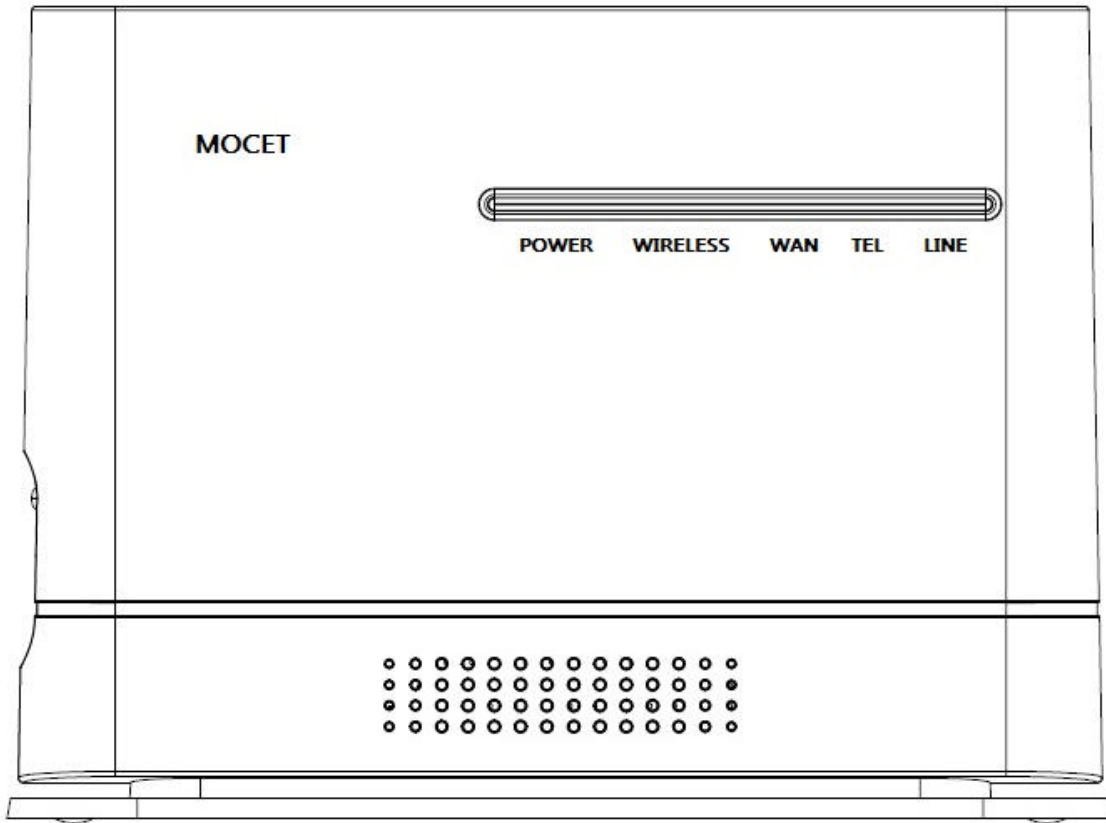


Figure 2-1. Front Panel of IG7500

LED Name	Color	Status	Description
POWER	Blue	On	Power On
		Off	Power off
WIRELESS	Blue	On	Wireless LAN is active
		Off	Wireless LAN is idle
WAN	Blue	On	Wireless LAN is active
		Off	Wireless LAN is idle
TEL	Blue	Off	Phone is idle
		On	Phone is active
LINE	Blue	Off	PSTN Line is idle
		On	PSTN Line is active

2.2 Rear Panel

The rear panel contains the ports for the IG7500's data and power connections.

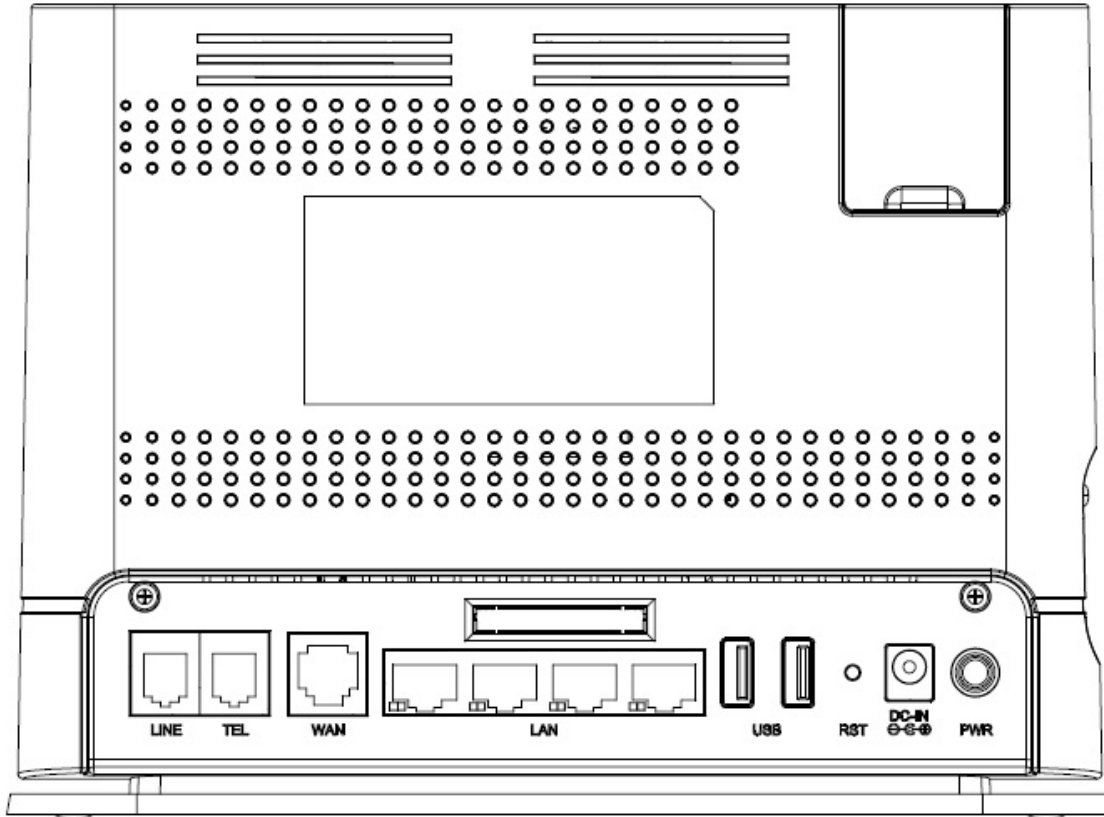


Figure 2-2. Rear Panel of IG7500

Label	Function
Line	RJ-11 connector: Connects the device to your PSTN lines.
TEL	RJ-11 connector: Connects the device to your analog phone.
WAN	RJ-45 connector: Connects the device to your cable modem, or to your ADSL Modem. It's to connect to the remote network.
LAN	4 RJ-45 connector: Connects the device to your PC's Ethernet port, or to the uplink port on your LAN's hub.
USB	2 USB ports Connects to your USB storage devices, USB printer or 3G dongle
RST	Reset button.
DC-IN	Connects to the supplied power converter cable.
USB	Connects to your USB storage devices, USB printer or 3G dongle
Power	Power On/Off button

3. General Features

(Some **enhanced features** as described will be added soon.)

3.1. FXS Application

It needs to program the FXS IP account in Web (Voice – Extension), and get the registration well first.

3.1.1 Make an outbound call

Dial a phone number. When dialing the pound (“#”) key or waiting Interdigit Timeout (programmed in “Web – Voice – Transmission; Default: 5 seconds), the FXS IP call is formed.

If the FXS IP line fails to register the SIP server:

- If no PSTN line is connected to FXO port, it provides Congestion Tone to FXS when the FXS goes off-hook.
- If the PSTN line is in use, it provides Congestion Tone to FXS when the FXS goes off-hook.
- If the PSTN line is idle, the call will be made through the PSTN line..

3.1.2 Receive an inbound call

When getting the inbound call from the FXS IP line, it rings the FXS phone immediately. The call is formed when the FXS phone answers the call.

3.1.3 Fax/Modem

IG7500 supports FAX/modem tone detection and auto-fallback to G.711. IG7500 also support to use T.38.

3.1.4 Flash – Analog Port (SLT) Flash Recognition

Flash is the momentary operation of the hook-switch at the analog device, which can be deciphered in such a way that the previous call in progress is held, or placed in a status of transfer awaiting further instructions from the user.

3.2. FXO Application

It needs to program the FXO IP account in Web (Voice – Extension), and get the registration well first.

3.2.1 Receive a call from FXO IP line

If the PSTN line doesn't exist, the call will be rejected immediately.

If the PSTN line exists, the call between PSTN line and IP line is formed immediately. When the caller on the IP line hears the PSTN dial tone, dials a phone number to form the PSTN call.

3.2.2 Receive a call from PSTN line

If the FXO IP account registers well, IG7500 makes the IP call to the specified phone

number (programmed in “Web – Voice – Extension → FXO) through the IP line immediately.

If the FXO IP account is at Fail state, and the FXS is at idle state, the PSTN line will ring the FXS phone.

3.2.3 Call Abandon

For PSTN call, IG7500 provides the facility to monitor the call status. If the remote party hangs up, the ongoing call will be terminated.

The PSTN line monitor is accomplished through monitoring the loop-break signal, polarity reversal or busy tone. The value range of loop-break signal is:

“Disable”/100/200/.../1000 ms.

3.3. System Management

3.3.1 Access Control for Web Page

IG7500 provides two Access modes for Web Page

- Administrator mode: unrestricted access and program. The mode can be used from LAN and WAN.
(Default: admin1234/123456)
- Support Mode: allow an ISP technician to maintain and run diagnostics. It can be used from WAN only.
(Default: support/support)

3.3.2 Default Set

Clear all settings and return the IG7500 set to the factory condition.

3.3.3 System Time & Date

The IG7500 system provides a built-in time clock to track System Time. This clock has the ability to automatically adjust with network NTP server through internet.

3.3.4 Auto Provisioning

WAN Management Protocol (TR-069) allows an Auto-Configuration Server (ACS) to perform auto-configuration, provision, collection, and diagnostics to this device. Firmware upgrade or vendor configuration file backup can be done remotely on ACS server. Select the desired values and click "Save Settings" to configure the TR-069 client options.

IG7500 also provides an Auto Provision Server (APS) to update IG7500 FW and Update / Retrieve IG7500 Configuration.

3.4. Voice Features

3.4.1 Caller ID Detection/Generation

IG7500 provides the ability to detect the calling party identification provided by CO via PSTN lines or by Uplink Server via IP lines.

IG7500 also provide Caller ID Generation to the Caller ID equipped Single Line Telephone.

3.4.2 PSTN Backup

In case of power failure, IG7500 automatically switches the first PSTN line to the Single-line analog phone.

4. Configuration

(Some [enhanced configuration items](#) as described will be added soon.)

4.1 Setup

- Connect the IG7500 to PC.
- The default LAN IP of the IG7500 is 192.168.1.1.
- The default WAN IP of the IG7500 depends on upper router's DHCP server.
- For web login, the default user name is "admin1234", the default password is "123456".
- For telnet login, the name/password is the same as web login.

4.2 Establish the Connection

Enter the IP address of IG7500 from the Web Browser.

A Dialogue Box will pop up to request the user to enter username and password. (Figure 4-1)



Figure 4-1. Authentication

Please enter the management username/password into the fields then click the OK button (default username/password is admin1234/123456).

When the authentication is OK, the home page "Device Info – Summary" will be displayed. In the Web Configuration, it is divided into eight categories (Figure 4-2):

- Device Info
- Advanced Setup

- Wireless
- **Mobile Network**
- Voice
- Management
- Diagnostics
- Logout

- [Device Info](#)
- [Advanced Setup](#)
- [Wireless](#)
- [Voice](#)
- [Management](#)
- [Diagnostics](#)
- [Logout](#)

Device Info

Software Version:	V0.1
MAC Address:	00:19:15:5D:3E:78
System Up Time:	0 days, 0 hours, 2 minutes

LAN Info

LAN IP Address:	192.168.1.1
Subnet mask:	255.255.255.0

WAN Info

WAN IP Address:	172.17.215.72
Subnet mask:	255.255.255.0
Default Gateway:	172.17.215.254
Primary DNS Server:	172.24.1.2
Secondary DNS Server:	192.168.2.7
Connection Type:	DHCP
Firewall Status:	Disabled
Connection Status:	Connected

Date / Time

Tuesday, 27 December 2011, 11:50:51

Figure 4-2. Device Info - Summary

4.3 Device Info

This information reflects the current Status of IG7500 connection. It includes the following topics:

- Summary
- Statistics
- Route
- ARP
- DHCP

4.3.1 Summary

In the page (Figure 4-2) you can get the information reflects the current software version and connection status. It includes Device Info, Network Info and Date/Time.

For Network Info, it includes the three parts:

- LAN Info: Ethernet LAN status
- WAN Info: Ethernet WAN status
- [Secondary WAN Info: Mobile Network status; shown when it exists.](#)

4.3.2 Statistics

It' s separated into two parts: LAN and WAN.

4.3.2.1 LAN

In this page (Figure 4-3) you can get the network statistics of the LAN and Wireless LAN interface. Click “Reset Statistics” to clean up all network statistics.

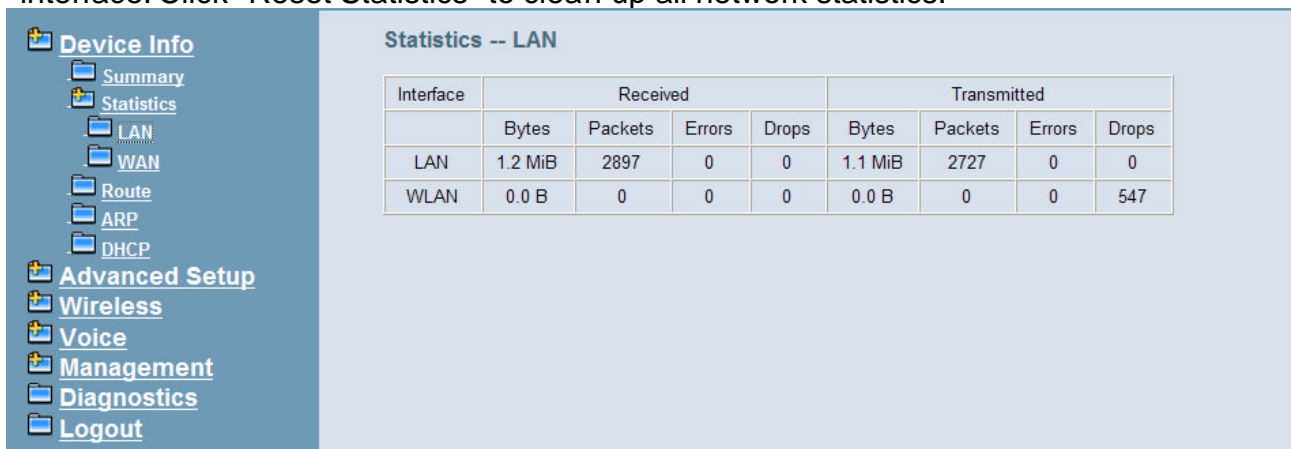


Figure 4-3. Device Info – Statistics – LAN

4.3.2.2 WAN

In this page (Figure 4-4) you can get the network statistics of the WAN interface. Click “Reset Statistics” to clean up all network statistics.

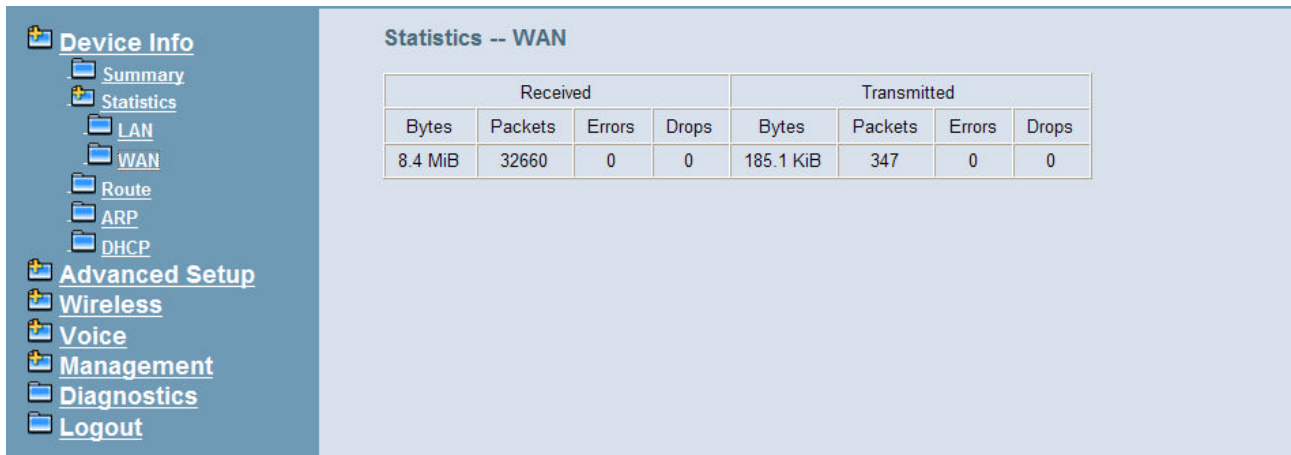


Figure 4-4. Device Info – Statistics – WAN

4.3.3 Route

In this page you can get the IP route information of the device. (Figure 4-5)

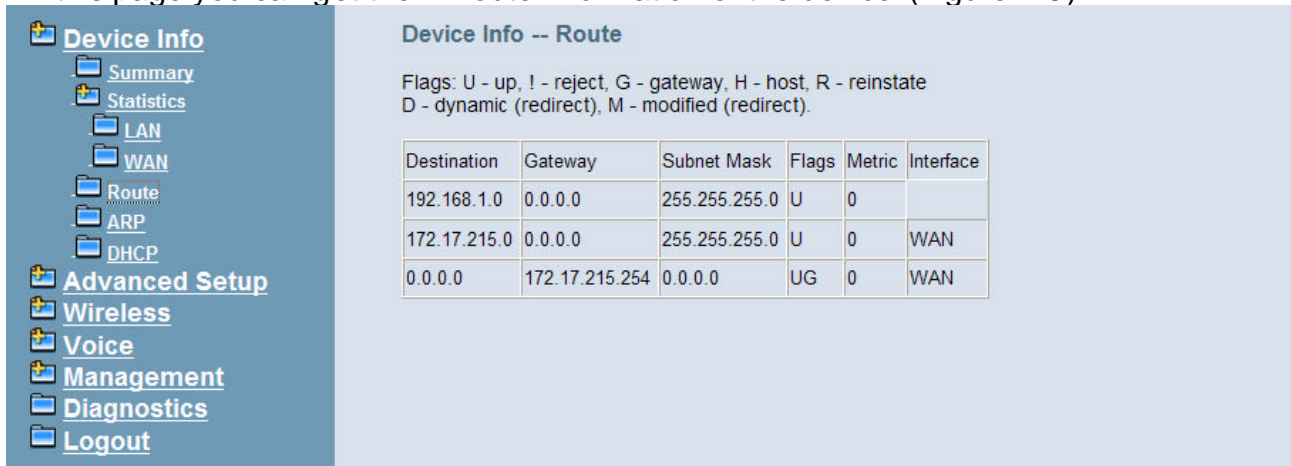


Figure 4-5. Device Info – Route

4.3.4 ARP

This page shows an ARP table which maps IP network addresses to hardware addresses used by data link level protocol. (Figure 4-6)

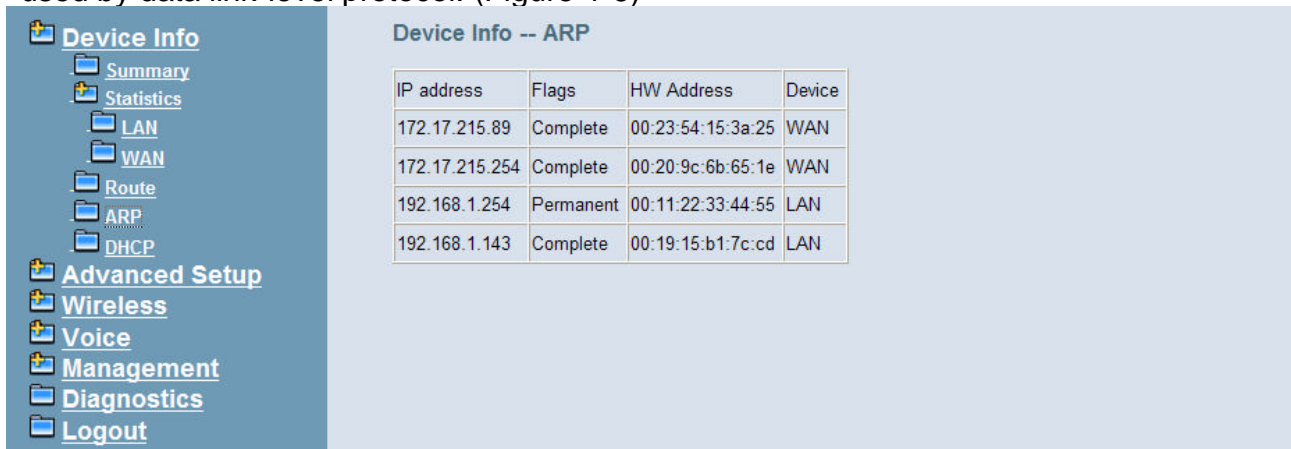


Figure 4-6. Device Info – ARP

4.3.5 DHCP

This page shows a DHCP Leases table which shows the all used IP addresses under IG7500' s DHCP Server. (Figure 4-7)

The screenshot displays the 'Device Info -- DHCP Leases' page. On the left is a navigation menu with the following items: Device Info (expanded), Summary, Statistics, Route, ARP, DHCP, Advanced Setup, Wireless, Voice, Management, Diagnostics, and Logout. The main content area shows a table with the following data:

Hostname	MAC Address	IP Address	Expires In
	00:23:54:15:3a:25	192.168.1.178	11 hours, 59 minutes, 44 seconds
	00:1f:3c:77:da:c8	192.168.1.235	11 hours, 56 minutes, 20 seconds
	00:19:15:b1:7c:cd	192.168.1.143	11 hours, 55 minutes, 28 seconds

Figure 4-7. Device Info – DHCP

4.4 Advanced Setup

Advanced Setup allows system administrator to configure the following topics:

- WAN
- LAN
- NAT
 - Virtual Servers
 - DMZ Host
- Quality of Service
 - DSCP Marking
 - Bandwidth Control
- Dynamic DNS
- [File Server](#)
- [Print Server](#)

4.4.1 LAN

It allows you to set LAN IP and Subnet Mask for LAN interface. A DSP IP address can be configured for FXO/FXS application. You can also enable or disable DHCP Server and configure related settings. The “Static IP Lease List” allows to program 32 entries to have the fixed IP address for the specified devices. If needed, it can also configure the second IP address and Subnet Mask for the LAN interface (Figure 4-8).

The screenshot displays the LAN Settings configuration page. On the left is a navigation tree with categories like Device Info, Advanced Setup, Wireless, Voice, Management, Diagnostics, and Logout. The main content area is titled 'LAN Settings' and contains the following elements:

- A warning message: "The device cannot add the new static IP lease since either the Mac address or the IP address conflict with previous rules"
- Input fields for:
 - IP Address: 192.168.1.1
 - Subnet mask: 255.255.255.0
 - DSP IP Address: 192.168.1.254
- Radio buttons for:
 - Disable DHCP Server
 - Enable DHCP Server
- Fields for DHCP configuration:
 - DHCP Start: 192.168.1.119
 - DHCP Num: 150
 - DHCP Lease Minutes: 720
- Static IP Lease List section:
 - Text: "Static IP Lease List: (A maximum 32 entries can be configured)"
 - Table with columns: MAC Address, IP Address, Remove
 - Buttons: Add Entries, Remove Entries
- Bottom right button: Save and Reboot

Figure 4-8. Advanced – LAN

4.4.2 WAN

There are two modes that you can give WAN IP address to IG7500: Static IP mode and DHCP mode. You can also enable or disable Firewall.

Network Address Translation (NAT) allows you to share one public WAN IP address for multiple computers on your LAN side. In IG7500, NAT is default enabled and is not shown on the page to prevent it from being disabled.

This page shows the setting of WAN interface which is Static IP mode (Figure 4-9).

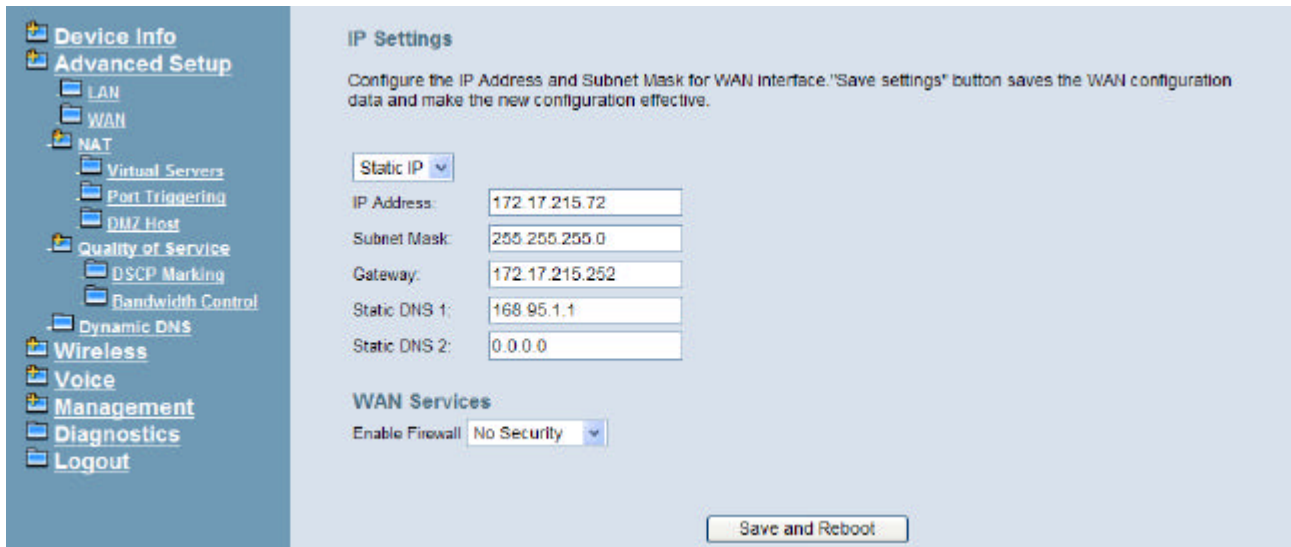


Figure 4-9. Advanced – WAN (Static IP Mode)

The Dynamic Host Configuration Protocol (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP. DHCP can be used to automatically assign IP addresses, to deliver TCP/IP stack configuration parameters such as the subnet mask and default router, and to provide other configuration information.

This page shows the setting of WAN interface which is DHCP mode (Figure 4-10).

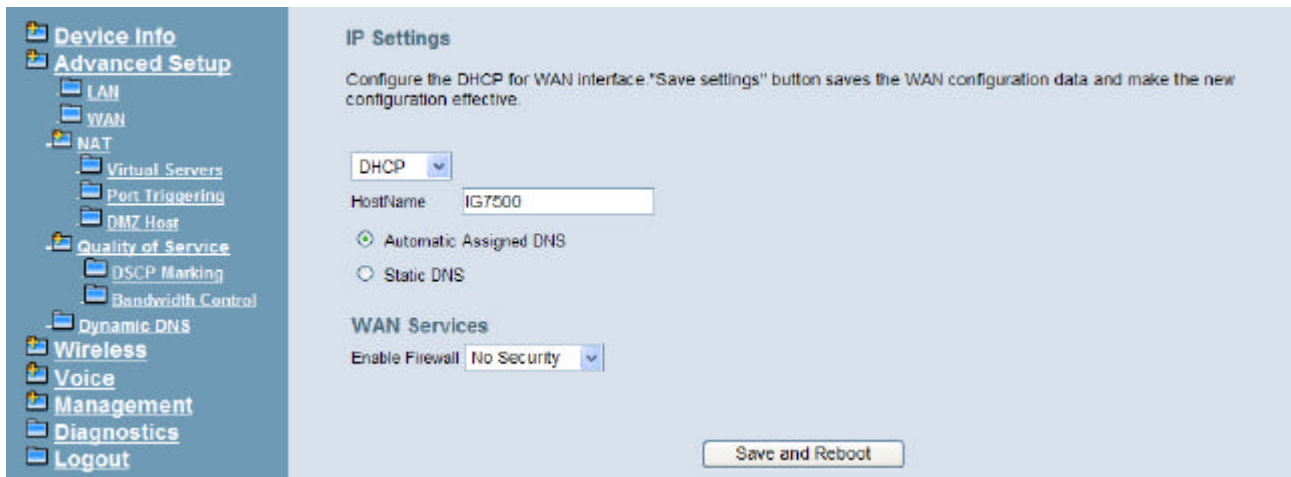


Figure 4-10. Advanced – WAN (DHCP Mode)

4.4.3 NAT

It's separated into two parts: Virtual Servers, and DMZ Host.

4.4.3.1 Virtual Servers

Virtual Server allows you to direct incoming traffic from WAN side identified by Protocol and External port to the internal server with private IP address on the LAN side. The "Internal Port" can be modified if the "External Port" needs to be converted to a different port number used by the server on the LAN side. The remote IP should be specified in the table to allow the access. A maximum 50 entries can be configured. (Figure 4-11)

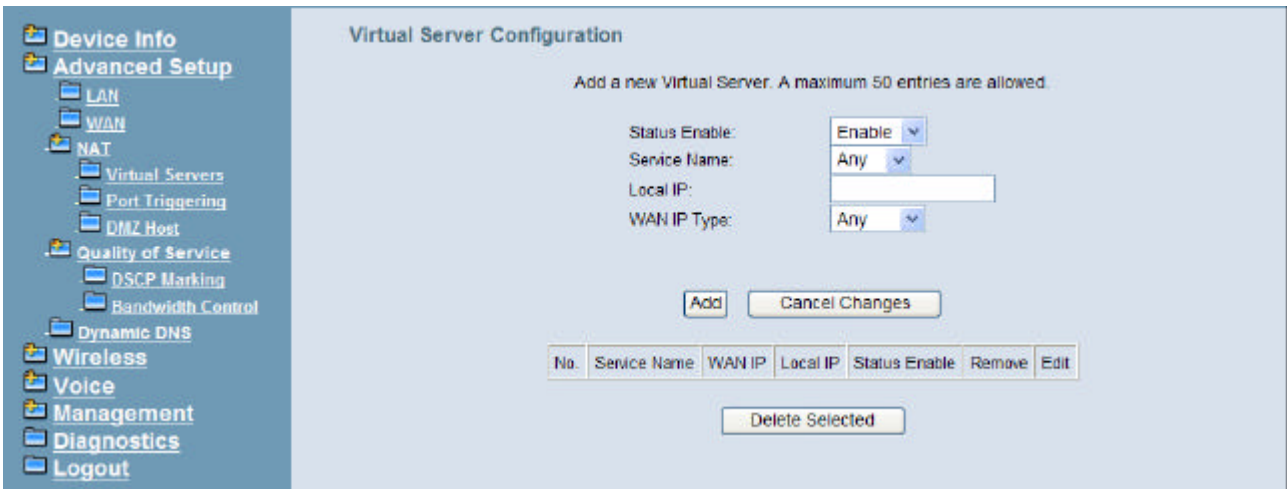


Figure 4-11. Advanced – NAT – Virtual Servers

4.4.3.2 DMZ Host

IG7500 will forward IP packets that do not belong to any of the applications configured in the Virtual Servers table to the DMZ host computer. Enter the computer's IP address and click "Save Settings" to activate the DMZ host. Clear the IP address field and click "Save Settings" to deactivate the DMZ host. (Figure 4-12)

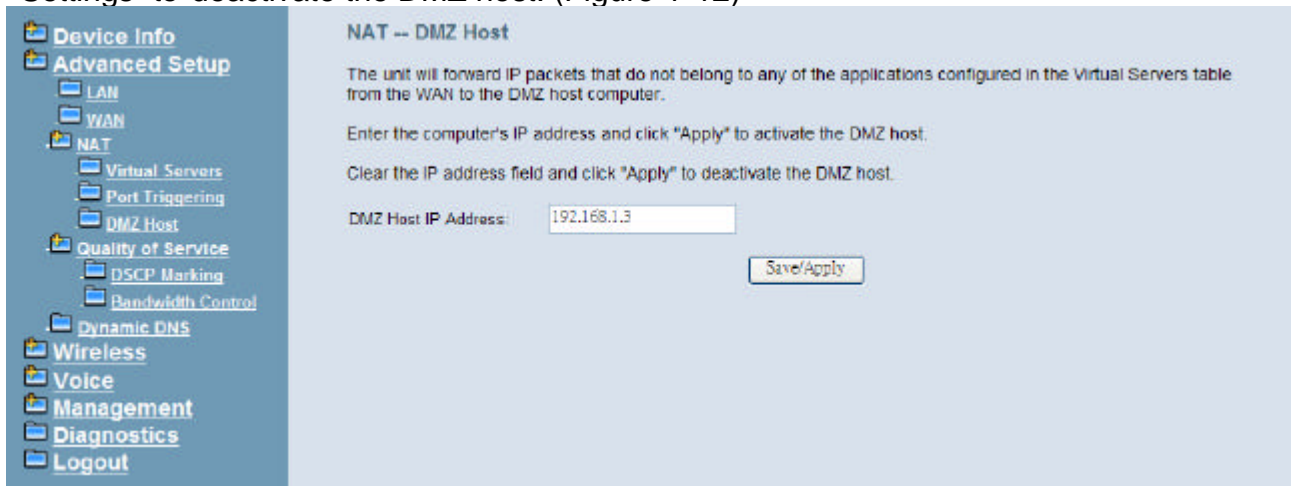


Figure 4-12. Advanced – NAT – DMZ

4.4.4 Quality of Service

It's separated into two parts: DSCP Marking, and Bandwidth Control

4.4.4.1 DSCP Marking

IP QoS is applied to the traffic from LAN to WAN; the traffic from WAN to LAN will not be applied.(Figure 4-13)

If "Enable DSCP Mark" checkbox is selected, choose a default DSCP mark to automatically mark incoming traffic without reference to a particular classifier. Click "Save Settings" button to save it. Note: If "Enable DSCP Mark" checkbox is not selected, all QoS will be disabled for all interfaces. The default DSCP mark is used to mark all egress packets.

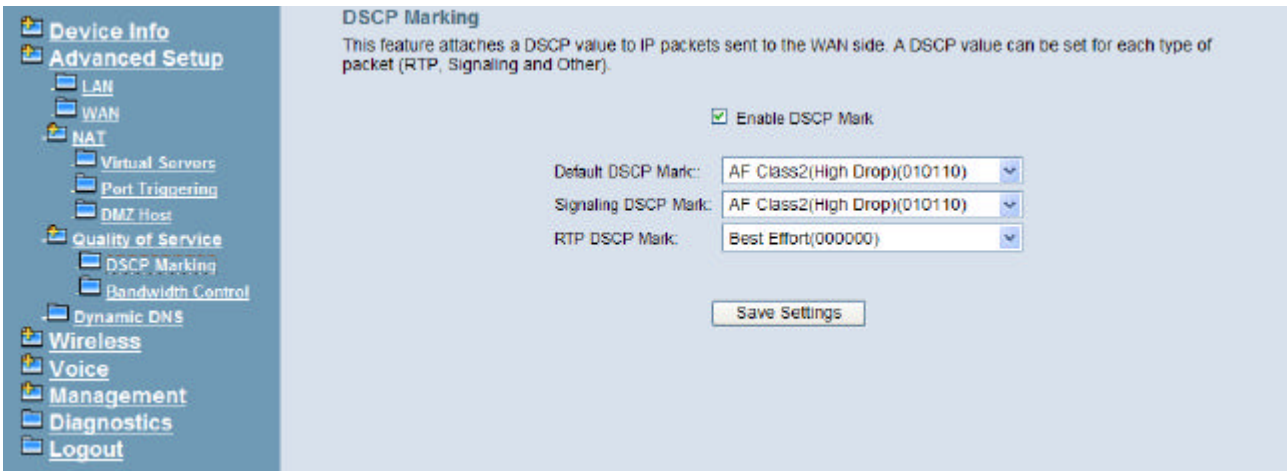


Figure 4-13. Advanced – Quality of Service – DSCP Marking

4.4.4.2 Bandwidth Control

Bandwidth Control allows you to control WAN port's upstream bandwidth according to your settings, and it can ensure the highest priority IP packet traffic throughput. By default, all voice packets have been queued in the highest IP packets, and the others have been queued in the normal IP packets if they have not been set in the traffic class rule.



Figure 4-14. Advanced – Quality of Service – Bandwidth Control

4.4.5 Dynamic DNS

The Dynamic DNS service allows you to alias a register domain name to a dynamic IP address. It allows IG7500 to be more easily accessed from various locations on the Internet. Click “Add” or “Remove” to configure Dynamic DNS. (Figure 4-15)

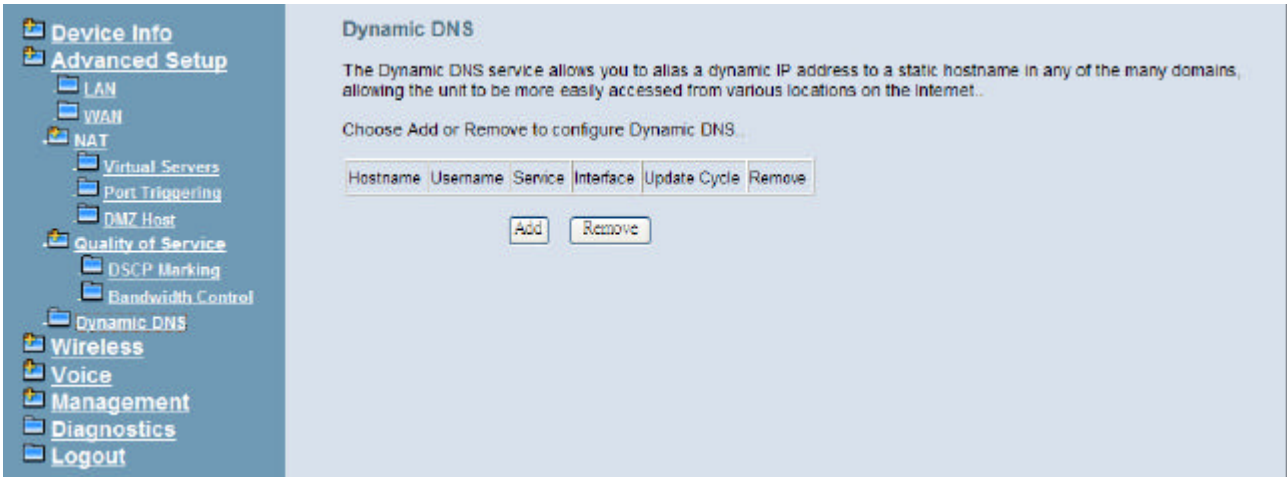


Figure 4-15. Advanced – Dynamic DNS

Now IG7500 support for two DDNS provider, DynDNS.org and TZO. Specify the register hostname and choose the related interface. Fill in the username/password or email/key and click “Apply/Save”. IG7500 will update the current IP with DDNS provider when click “Apply/Save” or system reboot successfully. IG7500 will also update the current IP automatically with DDNS provider in the programmed Update Cycle. (Figure 4-16, Figure 4-17)

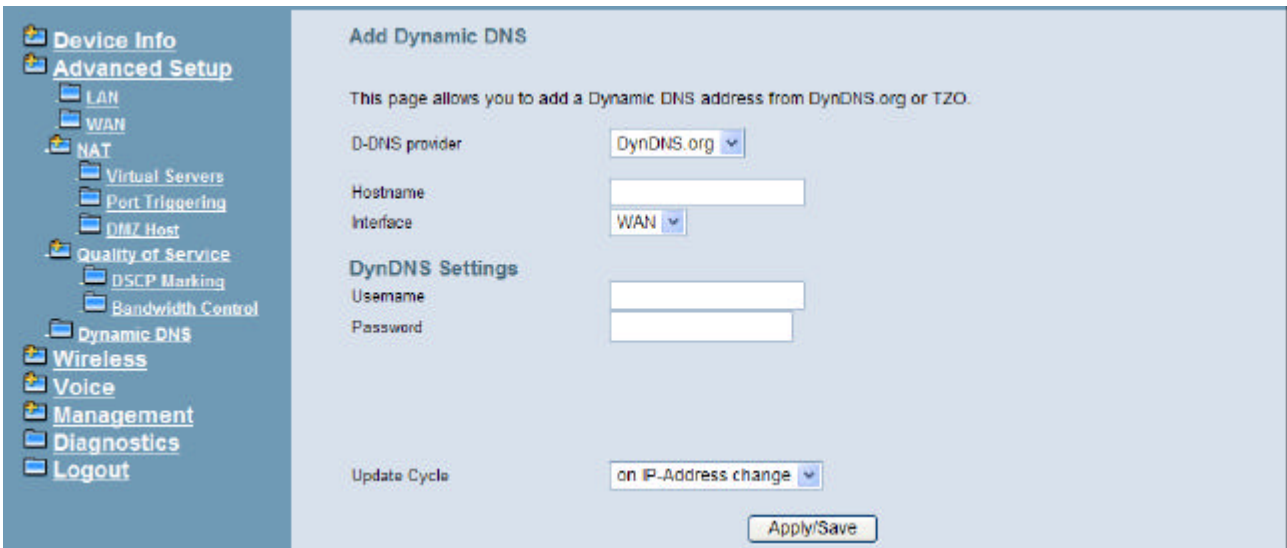


Figure 4-16. Advanced – Dynamic DNS – DynDNS.org

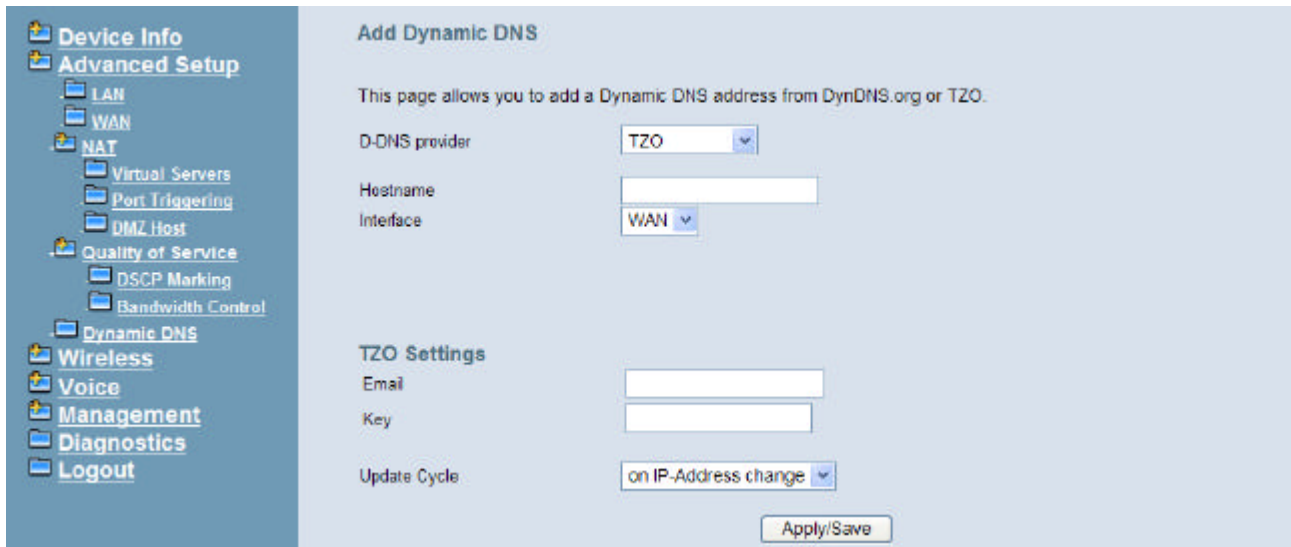


Figure 4-17. Advanced – Dynamic DNS – TZO

4.5 Wireless

Use the Wireless screen to configure the IG7500 for wireless access. It is separated into 7 parts:

- Basic
 - Primary
- Security
- Advanced
- [Station Info](#)
- [Power Saving](#)

The configurable items for each part would be described in the following.

4.5.1 Basic

4.5.1.1 Primary

This page allows you to configure the basic features of the wireless LAN interface. You can enable or disable the wireless LAN interface, and hide the network from active scans. (Figure 4-18)

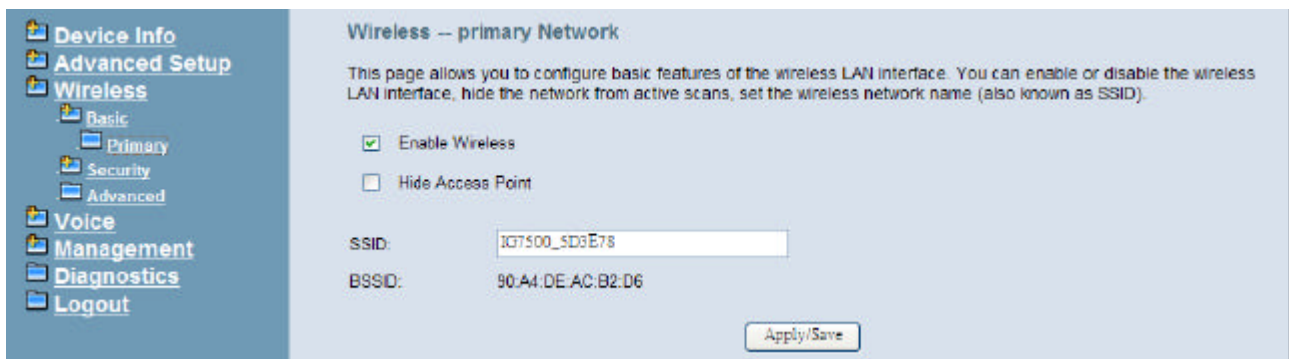


Figure 4-18. Wireless – Basic – Primary

4.5.2 Security

This page allows you to configure security features of the wireless LAN interface. You can set the network authentication method, selecting data encryption, specify whether a network key is required to authenticate to this wireless network and specify the encryption strength. Click "Apply/Save" to configure the wireless security options. (Figure 4-19)

The following items will be configured in the page:

Network Authentication: Set the network Authentication method. Open and Shared can use the WEP Encryption. WPA-PSK requires a valid WPA Pre-Shared Key to be set.

WPA/WPA2 Pre-Shared Key: Set the WPA/WPA2 Pre-Shared Key (PSK).

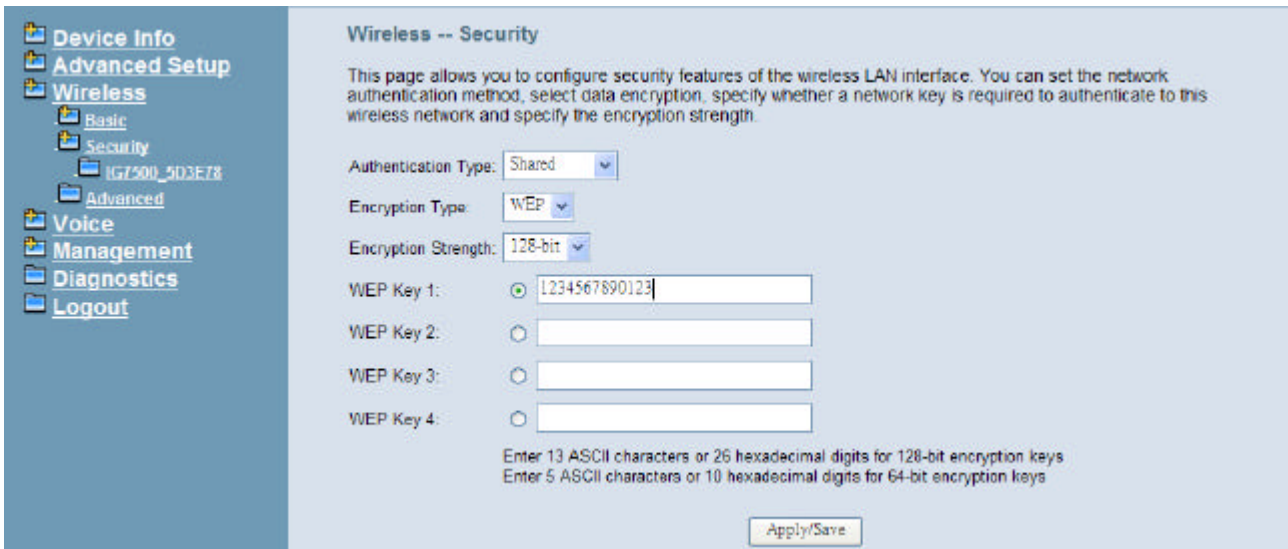


Figure 4-19. Wireless – Security

4.5.3 Advanced

It allows you to configure advanced features of the wireless LAN interface. You can select a particular channel on which to operate, force the transmission rate to a particular speed, set the fragmentation threshold, set the RTS threshold, set the wakeup interval for clients in power-save mode, set the beacon interval for the access point, set XPress mode and set whether short or long preambles are used. Click "Save Settings" to configure the advanced wireless options. (Figure 4-20)

Protocol:

Channel: Select the appropriate channel from the list provided to correspond with your network settings. All devices in your wireless network must use the same channel in order to function correctly.

Channel Width: User can choose 20MHz or 40MHz

Channel Extension: Specify if the extension channel should be in the “below” or “above” sideband.

Rate: Select the basic rate that wireless clients must support.

WMM (Wi-Fi Multimedia): Feature that improves the experience for audio, video and voice applications over a Wi-Fi network.

Fragmentation Threshold: This value should remain at its default setting of 2346. The range is 256~2346 bytes. It specifies the maximum size for a packet before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly increase the Fragmentation Threshold. Setting this value too low may result in poor network performance. Only minor modifications of this value are recommended.

RTS Threshold: This value should remain at its default setting of 2347. The range is 0~2347 bytes. Should you encounter inconsistent data flow, only minor modifications are recommended. If a network packet is smaller than the packet RTS threshold size, the RTS/CTS mechanism will not be enabled. The IAD sends Request of Send (RTS) frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission.

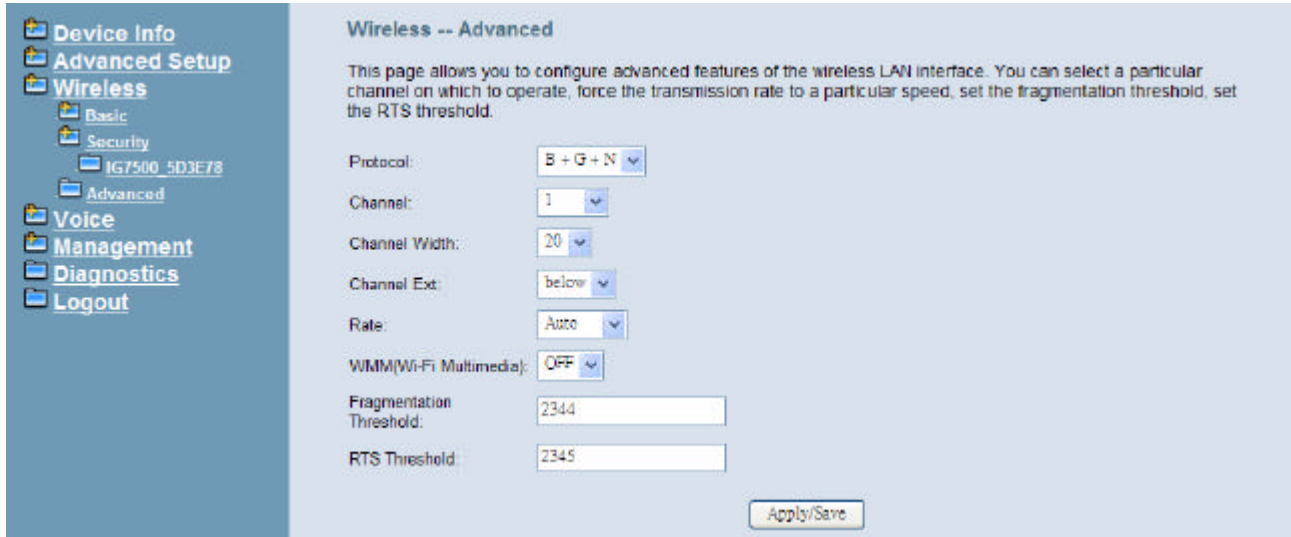


Figure 4-20. Wireless – Advanced

4.6 Voice

Use the Voice screen to configure the IG7500's voice related parameters. It allows system administrator to configure the following topics:

- Extension
- Transmission

The configurable items for each part would be described in the following.

4.6.1 Extension

Use the Extension screen to configure IG7500' s FXS/FXO SIP registration account to remote Server. (Figure 4-21)

Figure 4-21. Voice –Extension -1

Figure 4-22. Voice – Extension -2

FXO/FXS Settings:

Phone Number: It's the assigned phone number from uplink server.

Auth ID: The Account ID of registration to uplink server. It's used for Digest Authentication.

Auth Password: The Password of registration to uplink server. It's used for Digest Authentication.

SIP Proxy: The position of uplink SIP proxy server. IP address and domain name are all supported.

SIP Proxy Port: The SIP signal port of uplink registrar server.

Outbound Proxy: The address of uplink outbound proxy server. All sip request packet will be sent to this server that will determine their next hops.

Outbound Proxy Port: The SIP signal port of uplink outbound proxy server.

Register Proxy: The position of uplink register server. IP address and domain name are all supported.

Register Proxy Port: The SIP signal port of uplink registrar server.

Outbound Registrar: The address of uplink outbound Registrar server. All REGISTER packets will be sent to this server that will determine their next hops.

Outbound Registrar Port: The SIP signal port of uplink outbound registrar server.

Register Expires: It's the time for IG7500 sends REGISTER to uplink register server. It counts based on second.

RPort:

When client is behind a NAT, the rport and received filed can allow SIP proxy to append the public IP address and port of NAT and transfer SIP message correctly. Choose "Enable" to use this function.

Server Type:

4.6.2 Transmission

This page allows you to configure the Audio, FXS, and FXO settings. Click "Save Settings" button to save the new configuration. (Figure 4-23)

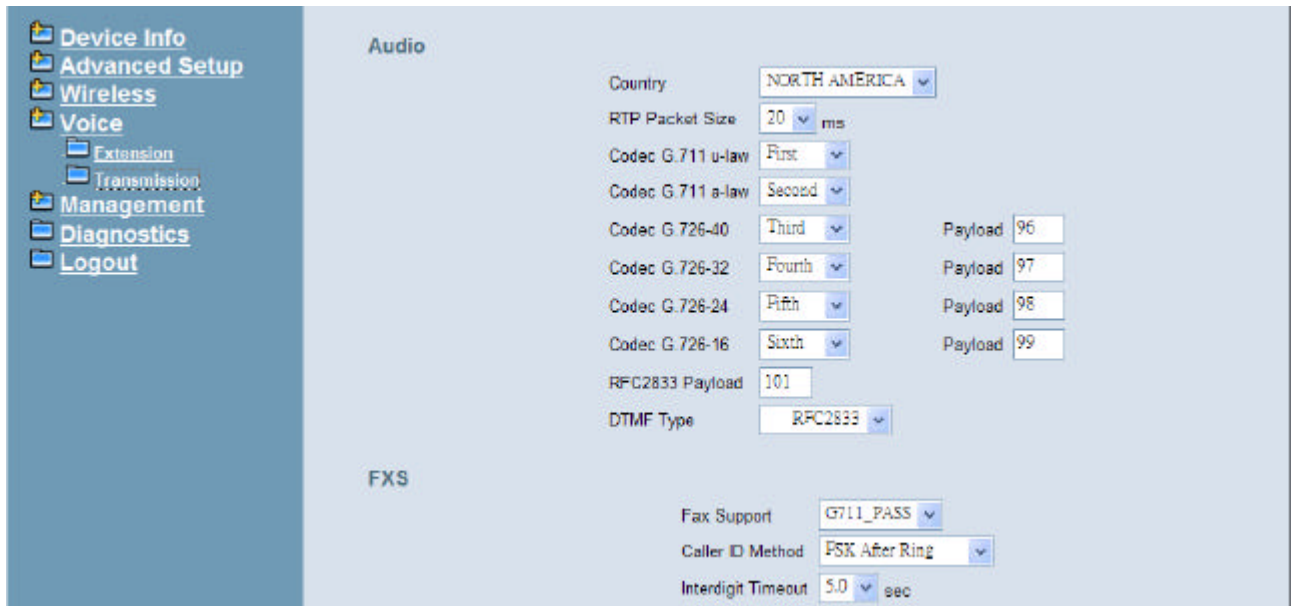


Figure 4-23. Voice – System – Transmission – 1

Audio: It is used to set many Audio-related options. It will be applied to the all FXS and PSTN lines.

Country: It may be used to determine not only the Caller ID detection/transmission method but also ring/tone cadence/frequency.

RTP Packet Size: 10/20/30/40/50/60 ms.

Codec G.711 u-law, G.711 a-law, G.726-16, G.726-24, G.726-32, G.726-40: IG7500 supports different audio priority. You can choose “None”, “First”, “Second”, “Third”, “Fourth”, “Fifth” and “Sixth”.

RFC2833 Payload: It’s used as the default RFC2833 payload type when making the outbound calls.

DTMF Type: In IG7500, there are two methods for transmitting DTMF tone. Select RFC2833 Method, the DTMF tone will be transmitted by event packet. Select SIP-INFO Method, the DTMF tone will be represent in SIP INFO Message.

FXS: It is used to set many FXS-related options.

Fax Support: The system supports FAX/modem tone detection with G.711 and T38 mode.

Call ID Method: The system provides the ability to detect the calling party identification provided by PSTN lines. It also transmits the calling party identification to POTS ports. There are four choices: NONE, DTMF Before Ring, DTMF After Ring, FSK Before Ring, FSK After Ring.

Inter-digit Timeout: Its range is from 2 to 9 seconds.

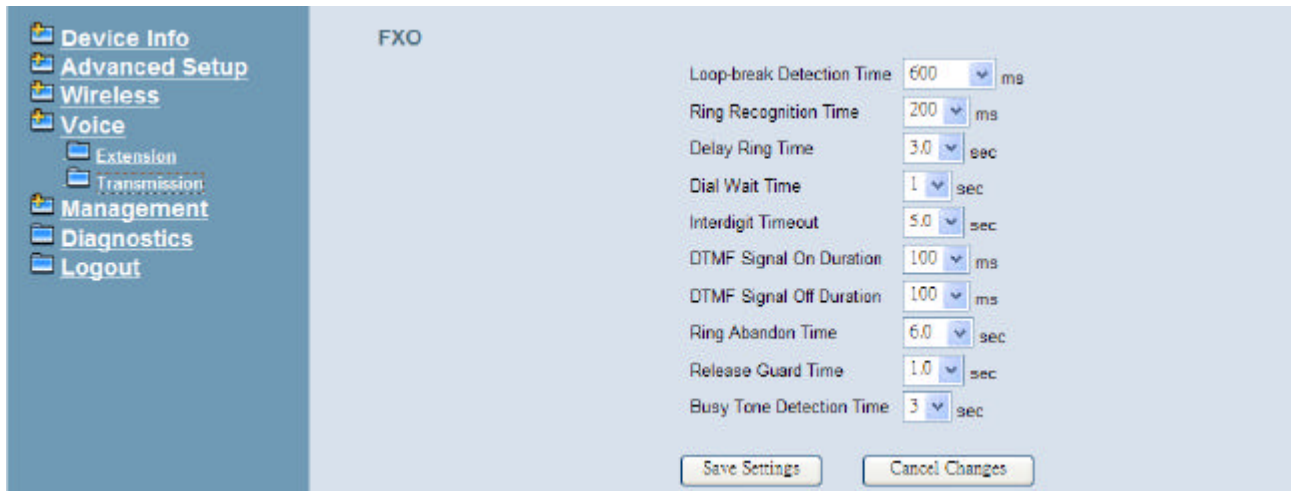


Figure 4-24. Voice – System – Transmission – 2

FXO: It is used to set many central office line options.

Loop Break Detection Time: For every PSTN/FXO call, system provides the facility to monitor the call status. If the remote party hangs up, the ongoing call must be terminated. The PSTN line monitor is done by the loop-break signal or busy tone. The value range is: Disable/100/200/.../1000 ms.

Ring Recognition Time: The timer determines the minimum ring duration recognized as a valid incoming ring on a FXO port. Shorter ring signals are ignored. The timer range is 200ms to 600ms in 40ms increments.

Delay Ring Time: The timer is to allow the Central Office to send ICLID before the call is answered. Once the timer expires, the programmed extensions will ring and the ICLID number will be sent to the ringing extensions. The timer range is 3 to 6 seconds on 0.5 second increments.

Dial Wait Time: When the user seizes a PSTN/FXO line, the Stable Time delay is needed to wait the dial tone from Central Office. The timer range is 0 to 8 seconds on 1 second increments.

Inter-digit Timeout: Its range is from 2 to 9 seconds.

DTMF Signal On/Off Duration: The on/off time duration of DTMF signal. Their ranges are from 50 to 200 ms.

Ring Abandon Time: It specifies the maximum time between valid ring signals from the CO/PBX. If the duration between rings exceed the Ring Abandon time, IG7500 stops ringing the destination(s) and the port returns to idle. The timer range is 1 to 10 seconds on 1 second increments.

Release Guard Time: The guard time to ignore the noise signal when releasing the call. The timer range is 1.0 to 3.0 seconds on 0.5 second increments.

Busy Tone Detection Time: System detects the busy tone to monitor the call status. When it reaches the detection time, system assumes the remote party hangs up. The ongoing call will be terminated. When setting the time to "0", the Busy Tone detection will be disabled.

4.7 Management

The system administrator can do the following functions to manage the configurations, events, and software update of the IG7500.

- Settings
 - Backup
 - Update
 - Restore Default
- Access Control
 - Services
 - Password
- System Log
- Time Settings
- Update Software
- Reboot

4.7.1 Settings

The settings area allows the administrator to create a backup, update the system, and restore the system to factory default.

4.7.1.1 Backup

Click “Backup Settings”, you may save your IG7500’s configurations to a file on your PC. The backup file is a compress file (.tar). It includes the internal System Configuration file, (Figure 4-25)

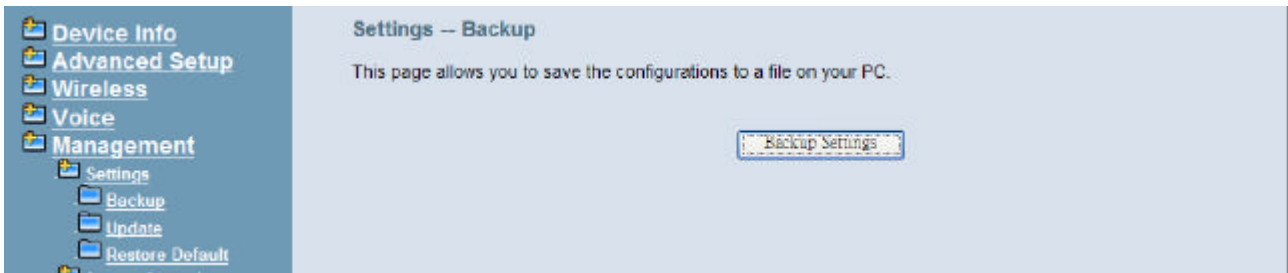


Figure 4-25. Management – Settings – Backup

4.7.1.2 Update

Click “Browse” to locate the setting file saved on the Local PC. The file must be a compress file (.tar). Then, click “Update Settings” would apply the settings to the IG7500 according to the configuration file. (Figure 4-26)

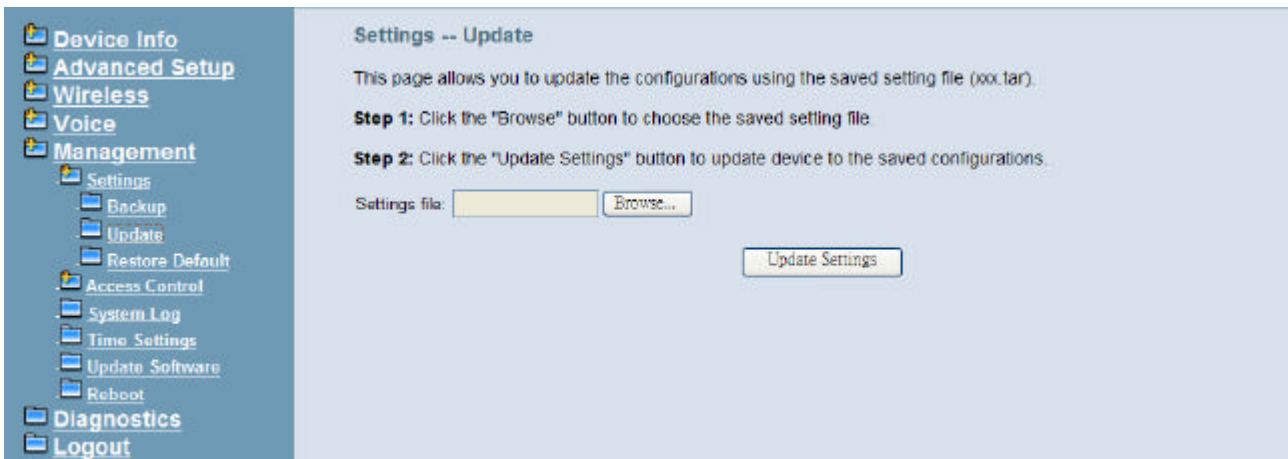


Figure 4-26. Management – Settings – Update

4.7.1.3 Restore Default

Click “Restore Default Settings” to restore the factory default settings. This would be helpful when the settings mass up. After IG7500 returns to factory default settings, the wizard setup is invoked automatically when the administrator accesses to IG7500’s web server. (Figure 4-27)

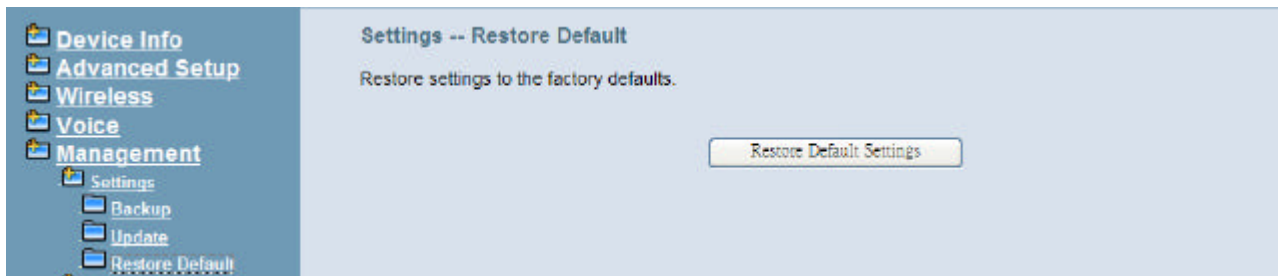


Figure 4-27. Management – Settings – Restore Default

4.7.2 Access Control

This item allows you to configure some service Ports, enable/disable some services, IP Address access control, and password for user, support, and administrator.

4.7.2.1 Service

This page allows you to enable the services from being used when “Firewall” (“Advanced Setup” – WAN” page) is enabled. (Figure 4-28)

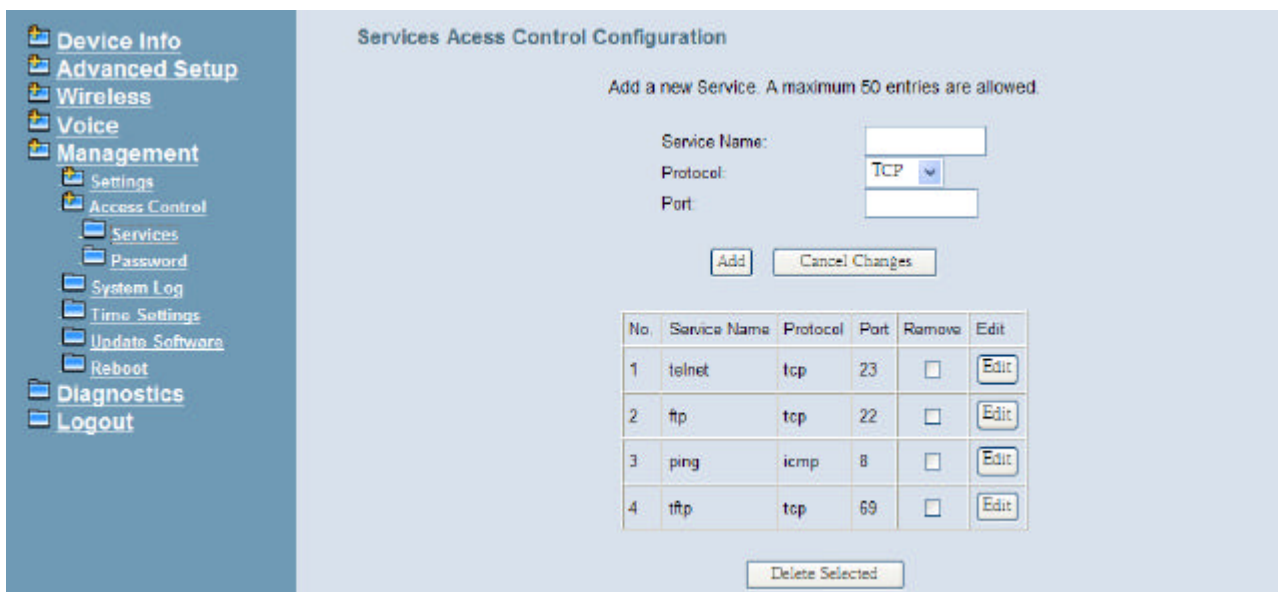


Figure 4-28. Management – Access Control –Service Port

4.7.2.2 Password

In this page you can define the passwords for administrator, support, and user. The Administrator has unrestricted access to change and view configuration of your IG7500. The Support is used to allow an ISP technician to access your IG7500 for maintenance and to run diagnostics. The User can access the IG7500, view configuration settings and statistics, as well as, update the router’s software.

Use the password field to enter up to 16 characters. Note: Password cannot contain a space. (Figure 4-29)

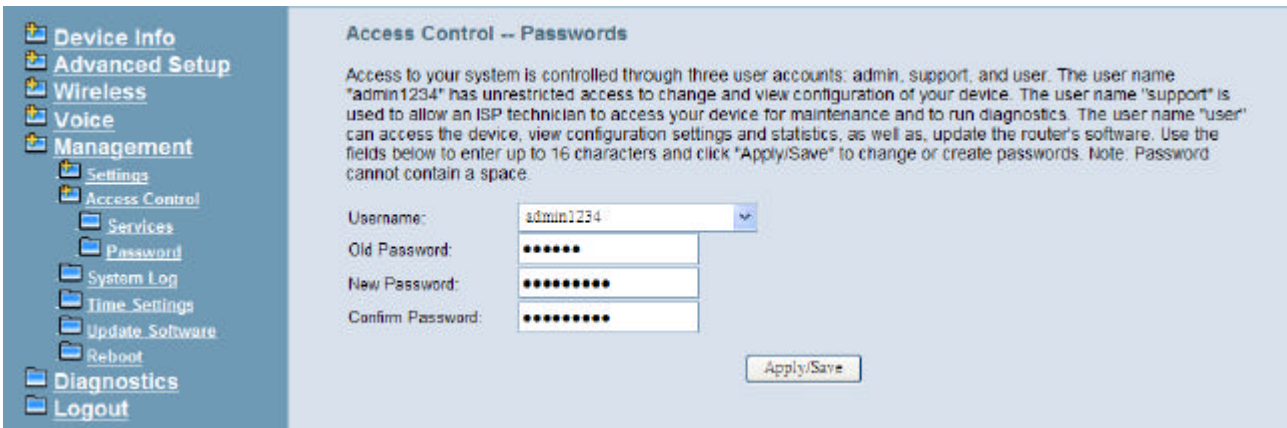


Figure 4-29. Management – Access Control – Password

4.7.3 System Log

This allows system administrator to view the system log. (Figure 4-30) When you configure the system log options, The log messages can be saved in the internal memory filesystem. The log messages can sent to the specified UDP port of the specified log server also. Click “Apply/Save” button that you can save the new configuration.

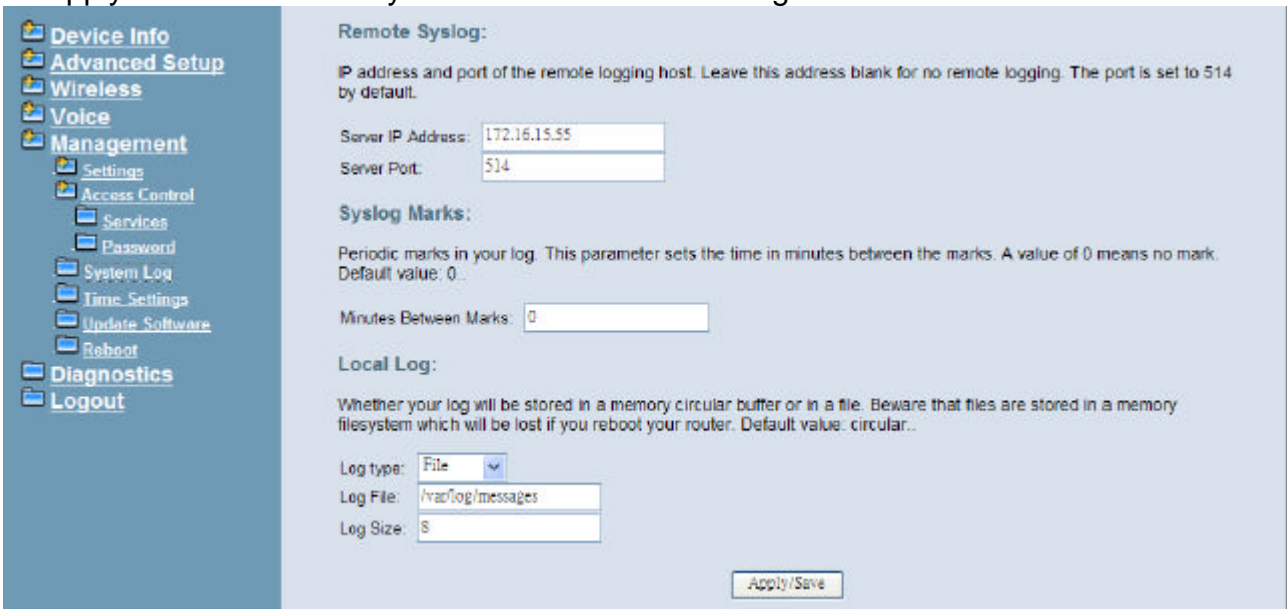


Figure 4-30. Management – System Log

4.7.4 Time Setting

This item allows you to configure system’s time and the Daylight Saving Time.

4.7.4.1 Internet Time

This page allows you to configure the Internet time setting. IG7500 synchronize its system time with NTP time server automatically (Figure 4-31).

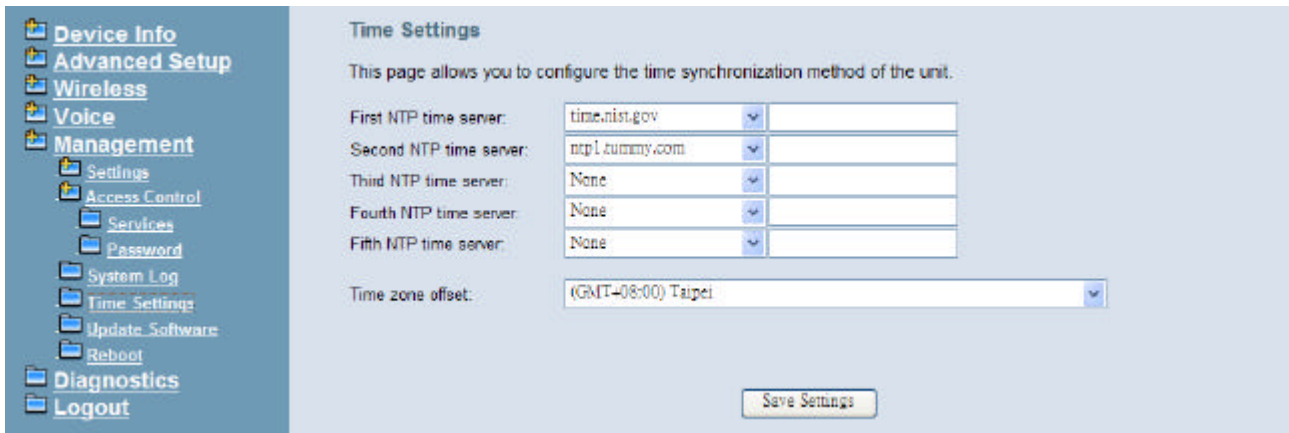


Figure 4-31. Management – Time Setting – Internet Time – Automatically

4.7.5 Update Software

The new released software could be upgraded from the Local PC side or remotely. Click the “Browse” to locate the new software image file in the PC. Then, click “Update Software” to process the software update. NOTE: The upgrade process takes about 5 minutes to complete, and your IG7500 will reboot. (Figure 4-32)

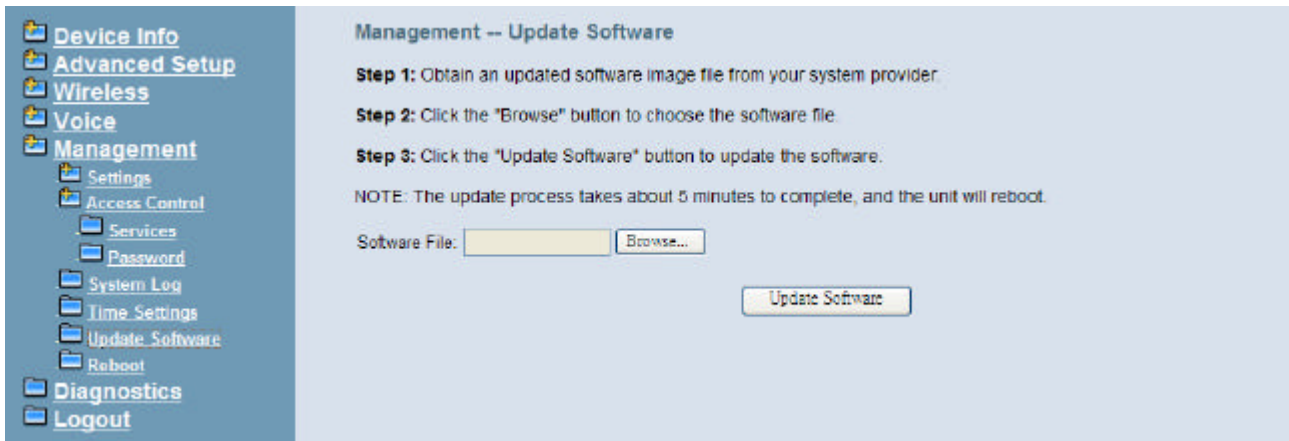


Figure 4-32. Management – Update Software

4.7.6 Reboot



Figure 4-33. Management – Save/Reboot

Click “Reboot” to reboot the IG7500. The IG7500 would automatically save the configuration before reboot, so that modified settings would take effect after reboot. (Figure 4-33)

4.8 Diagnostics

This page provides the following information to users: (錯誤! 找不到參照來源。)

- The network connection information on the net.
- The status of IG7500's PSTN Line.
- The status of IG7500's FXS.

1) Network Connection

PASS: Normally connected

FAIL: Connecting fail

DOWN: No connection

2) PSTN Line / FXS

FAILED: Connecting fail or registering failure

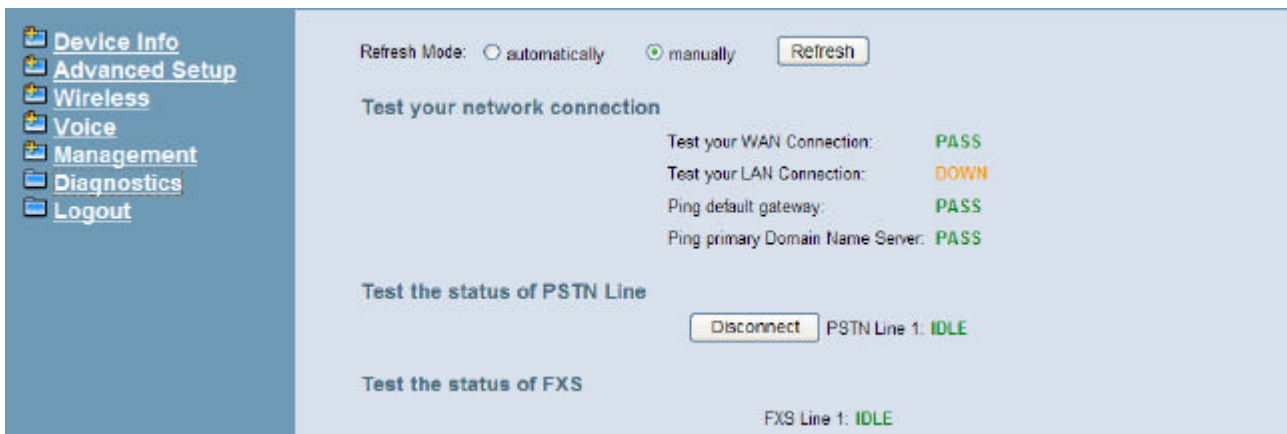
IDLE: The line is idle

N/A: The line is not available

Busy: The line is in use

For Refresh Mode, if user select automatically refresh, the web page will automatically refresh for every 20 seconds.

Click "Disconnect" button will allow you release the selected trunk line or rescue the blocked one.



4.9 Logout

Press "Logout", you can logout the IG7500 web configuration page.

Appendix 1: Product Summary

Hardware

- 1 FXO port (PSTN)
- 1 FXS Port (fax)
- 1 10/100/1000 Ethernet WAN port
- 4 10/100 Ethernet LAN ports
- 802.11n access point
- 3 USB 2.0 host ports
- WPS button
- Power plug
- Reset button

Voice Features

- SIP : Compliant with IETF RFC3261 standards
- SDP : Compliant with IETF RFC2327 standards
- Codec : G.711u, G.711a, G726-16, G726-24, G726-32 and G.726-40 (G.729a optional)
- T.168 echo cancellation, adaptive jitter buffer & T.38 fax support

TCP/IP Protocols

- IP Protocol (791)
- ARP (RFC 826) / RARP (RFC 903)
- ICMP (RFC792)
- TCP (RFC 793)
- UDP (RFC 768)
- SNTP
- DNS
- HTTP
- Telnet
- TFTP
- RTP
- Static Routing
- NAT with ALGs

IP Address Assignment

- Static
- Dynamic
- Subnet Mask
- Primary and Secondary DNS
- DHCP Server (RFC 2131-2132)
- DHCP Client (RFC 2132)

Virtual Server

- Virtual Server
- DMZ

QoS

- IP ToS function (RFC 1349)

- Priority queues for upstream traffic based on ToS field.
- Bandwidth Control

3G

- 3G HSDPA dongles for WAN backup and 3G interface
- Bandrich, Huawei, ZTE and D-Link dongles will be supported by default, other dongles will be supported upon request

VoIP Protocols

- SIP (RFC 3261)
- SDP(RFC2327, RFC3264)
- Real Time Protocol (RTP ; RFC 1889)
- MD5 (RFC3261 HTTP) digest authentication
- G.168 Echo Cancellation
- Voice Codec: G.711u, G.711a, G726-16, G726-24, G726-32 and G.726-40 (G.729a optional)
- Support FAX/modem tone detection and auto-fallback to G.711
- T.38

FXO/FXS SIP Account

- SIP message, including INVITE, re-INVITE, ACK, CANCEL, OPTIONS, BYE, REGISTER, INFO, REFER, SUSCRIBE/NOTIFY and REPLACE messages.
- SIP Outbound Proxy, SIP Proxy and Registrar
- Auto-Registration when power-on or period
- Session Timer support
- Support IP address, domain name, user name, display name for SIP URL

Digital Audio

- Codec: G.711 a-law/ μ -law 64Kbps, G.726-16/24/32/40, G.729
- SIP Call Offer /Answer: Codec auto capacity exchange
- Echo Cancellation: G.168 for each voice line
- Silence Detection/Suppression
- Comfort Noise Generation
- Adaptive jitter buffer
- Different frame size support (10,20,30,40, 50, and 60ms)
- Packet loss concealment
- Out-band (RFC2833) and In-band DTMF

Configuration Management

- LAN/WAN management via Telnet interface or Web-based browser interface
- Firmware upgrade available by TFTP/ HTTP
- Status display and event report from Web-based management
- Configuration Save and Restore
- Reset to factory default

Radio - WLAN

- Standard : IEEE 802.11b/g/n
- 4 SSID with WEP, WPA and WPA2 personal
- Frequency Range (Range depends on different country)

Remote Diagnostic

- Syslog
- Device Diagnostic, Enable remote test following:
 - Test the connection to your local network,
 - The connection to your Internet service provider,
 - The status of PSTN Line,
 - The status of FXS

Power Requirement

- Input : Voltage Range 90~264 VAC
- Output : 12VDC / 1.5A

Operating Environment

- Temperature : 0~40
- Humidity : 10 to 90%, non-condensing

Physical Specification

- Dimension : 160(W) x 220(L) x 82(D) (mm)

Notice : The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

IMPORTANT NOTE:

To comply with the FCC RF exposure compliance requirements, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. No change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

FCC INFORMATION

The Federal Communication Commission Radio Frequency Interference Statement includes the following paragraph:

The 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 instruction, may cause harmful interference to radio communication. However, there is no grantee 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 or more 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.