Telpo TP-8/16/24/32/64S Voice Gateway User Manual

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Welcome to Use

Introduction

Thanks for purchasing our integrated access device (Voice gateway). Make sure you have read this manual before use.

Applicable device's model:

TP-8/16/24/32/64S

Matters related to readers

This manual is suitable for

- Project planner
- Equipment opener
- Equipment maintenance personnel

Before consulting the manual, readers need to well know

- NGN/IMS technology
- TCP/IP Agreement
- Ethernet Technology

Form 1 Prompts

Icon	Reminding Type	Reminders
	Reminding	It means the important traits or operation guidance
	Attention	It means it may do harm to people, or cause damage to the system, or the business data to be disconnected or lost.
	Warning	It means it can lead people to be injured seriously.

Operation Safety Rules

- It is necessary to inspect the related power cables on a regular basis because overloaded power sockets or broken lines and connectors all are likely to trigger electric shock or fire. Please replace it immediately if there is any damage on surface.
- Make sure to use the power adapter equipped with the device. Otherwise, it will damage the device or make it operate abnormally.
- Install the product in the place where is well-ventilated, and has no high temperature and sunlight, to prevent it and other relevant components from being broken down due to overheat.
- Make communication devices avoid moisture and water. Or else, the device will operate abnormally, or even provoke other dangers for short current.
- Do not put the device on an unstable upholder.

Declaration

Thanks for purchasing our product! Please feel free to give us any criticism and suggestion, we will deem them as the best encouragement and support for our work.

Contents

Chapter I Product Introduction

The chapter focuses on introducing the networking modes and technical specifications of Voice gateway.

Following are the main contents:

- Product overview
- Product features
- Networking modes
- Technical specifications
- Exterior view

1.1 Product Overview

TP-64S product is a small-sized integrated access device which is researched and developed by our company independently based on the next generation network (NGN). it belongs to the terminal device of NGN access layer. Voice gateway provides the traditional voice businesses and has the functions of data and voice processing. Namely, data packet transfer, simulate voice processing and media stream transporting, as well as support on existing and future new businesses of softswitch network. This series of products are equipped with FXS (telephone interface), FXO (simulate relay interface) and Ethernet interface. Based on the international standard protocol, we supply multiple business accesses to consumers, and can satisfy users for the demands of voice, fax, data and other comprehensive business accesses.

TP-64S product is used widely. It can be installed in many places, such as corridor, house, phone bar and so forth. And it is helpful for a family, phone bar or small-sized company in network, telephone and fax, etc.

1.2 Product Features

1.2.1 Function characteristics

- ☐Multiple communication protocols: it supports session initiation protocol (SIP), has advantages of strong expansibility, good compatibility and the like, and is capable of interacting with all sorts of IMS platforms.
- ☐Perfect business supply ability: It supports distributed networking application, cooperates with IMS platform to build IP voice access network, and supports IMS value-added business, and inherits PSTN traditional business.
- ☐Reliable security: It supports to encrypt signaling and media stream respectively and supports MD5 encryption technology. Meanwhile, it refuses illegal access and business interference.
- ☐Firewall/NAT penetration: It adopts port mapping or special agent technology. Penetrating firewall/NAT device can be disposed in the inside of local area network.
- ☐Flexible IP address configuration: It includes static configuration, DHCP dynamic obtainment and PPPoE number dialing obtainment.
- ☐Simple management maintenance: It is based on WEB network management, and also supports many configuration modes of CLI, TELNET and OMC (SNMP).
- ☐Telecommunication-level reliability: It can inspect failures and perform network management alarm; and supports network re-connection after outage and SBC dual homing. It is possible to register on the two SBCs of IMS and supports active standby switch. Power source and interface are in possession of functions of over-current protection and over-voltage protection.

1.2.2 Voice characteristics

- ☐Communication protocol: SIP (RFC3261, 3GPP)
- ☐Authentication ways: It supports authentication ways of SIP Digest, HTTP Digest and IMSAKA.
- ☐Voice coding: G.711a/u, G.723.1 (5.3kbps/6.3kbps), G.729
- ☐Voice quality: voice activity detection (VAD), comfort noise generation (CNG), Jitter Buffer dynamic adjustment, echo cancellation (complying with ITU-T G.165/G.168), package loss compensation technology, DTMF detection/generation, output/input gain control
- Dialing rules: It supports E.164 coding rule, custom dialing rule and automatic search agent server.
- DTMF standard: Inband audio, outband over RTP (RFC2833/SIP INFO)

- Voice business: It supports hotline telephone, call transfer (forward transfer, backward transfer) and call waiting.
- Three-party services
- Safe communication: It supports signal encryption and media encryption.
- Billing function: It supports internet access private billing and POTS-standard reversed polarity signal billing.
- QOS support: It supports port priority control, IP TOS and 802.1p/q VLAN
- Fax function: It supports T.30 fax, VBD passthrough fax and T.38 fax.
- Modem support: It supports Modem business

1.2.3 Network characteristics

- Network access: multiple network access modes (static IP, DHCP, PPPoE)
- Network protocols: TCP/IP, UDP/IP, ARP/RARP, ICMP, IGMP, Telnet, HTTP, DNS, DHCP, SNTP, FTP/TFTP and SNMP
- Supporting network tools: Ping, Trace Route and Telnet Client

1.2.4 Protocol standards

- IEEE 802.3 /802.3u 10 Base T/100Base TX
- Main G.711A/U, G.723-r63, G.729 voice codec, SIP RFC3261IAX2 (Inter-Asterisk-eXchange V2)
- TCP/IP: transmission control protocol/internet protocol.
- RTP: real-time transmission protocol
- RTCP: real-time transmission control protocol
- VAD/CNG: voice activity detection/comfort noise generation
- DHCP: dynamic host configuration protocol
- PPPoE: Point-to-point protocol over Ethernet
- DNS: domain name service
- HTTP: Hyper text transfer protocol
- FTP/TFTP: File transfer protocol/Trivial file transfer protocol
- UDP: User data protocol

1.2.5 Management maintenance

- □Telephone configuration: It supports to inquire and set the relevant configuration information by a simulate telephone.
- □Network configuration: It supports to upgrade the configuration by ways of HTTP, TELNET and CLI
- □User right: It supports to carry out level-to-level administration for users and administrators.

- Network management: It supports OMC (SNMP) network management.
- Backup restoration: It supports to export and import the configured files.
- Expansion function: Plate loading, device-level stack function

1.2.6 Working environment

- Power input: 150～310V AC 47/63Hz
- Environment temperature: -40～70℃
- Relative humidity: 5～90% RH

1.3 Networking Mode

The next generation network (NGN) is developing and perfecting based on the soft switch. TP-64S in the access layer is used in extensive fields, including network access, telephone, fax and other demands of families, phone bars or small-sized companies.

1、Connected in the local area network with dynamic mode or static IP mode.

1）It is applicable to the companies or users built interior local area network;

2）TP-8/16/24/32/64S's WAN port is connected with the hub or switch;

3）WAN port adopts dynamic IP (DHCP) mode or static IP mode according to environment of local area network.

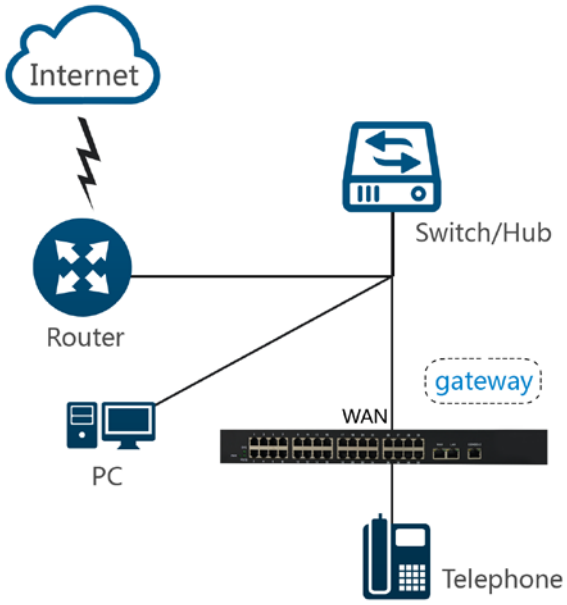


Figure 1-1 Connected in the Local Area Network with Dynamic Mode or Static IP Mode

2、As a proxy server, it is responsible for dial-up access.

1）TP-8/16/24/32/64S's WAN port is directly connected with xDSL(Cable) Modem.

2）As a proxy server, TP-8/16/24/32/64S is responsible for proxy access.

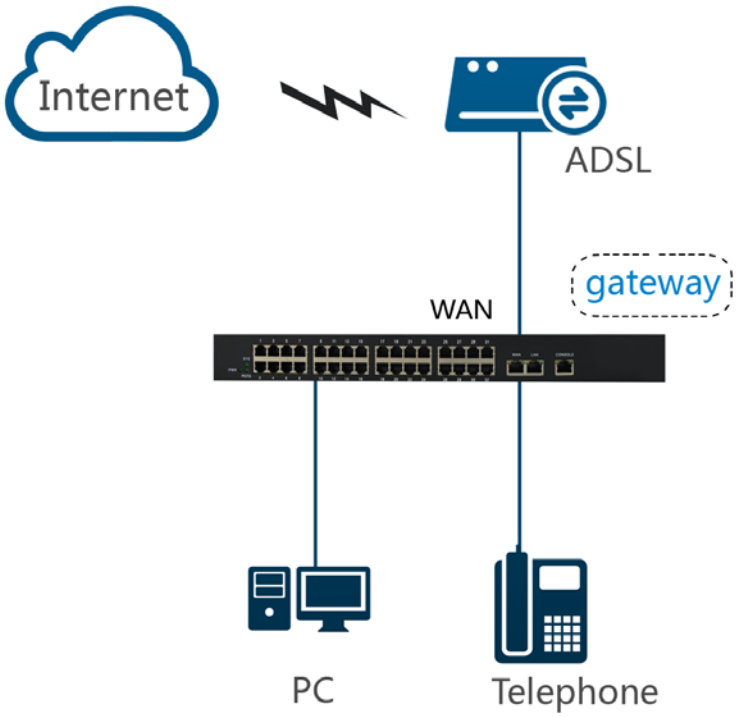


Figure 1-2 Responsible for Dial-up Access as A Proxy Server

1.4 Technical Specifications

Item		8FXS	16FXS	24FXS	32FXS	64FXS
Size (mm) W×H×D		350×290×44 mm	441×290×44 mm	441×290×44 mm	441×290×44 mm	442×280×43.6mm
Weight		3.0kg	3.1kg	3.2kg	3.3kg	3.5kg
Max Power Consumption		17W	20W	25W	35W	35W
Power Source		DC12V.External adaptor	AC 85v～265V 47/63Hz	AC 85v～265V 47/63Hz	AC 85v～265V 47/63Hz	AC 85v～265V 47/63Hz
Device Interface	Upward interface	One 10/100 Base-T	One 10/100 Base-T	One 10/100 Base-T	One 10/100 Base-T	One 10/100 Base-T
	Downward interface	One 10/100 Base-T	One 10/100 Base-T	One 10/100 Base-T	One 10/100 Base-T	Two 10/100 Base-T

	Network management interface	One RS232（RJ45）				
Voice Port		8	16	24	32	64
The registered quantity of sip extension agent		8	8	8	8	16
Interface Type		8FXS	16FXS	24FXS	32FXS	64FXS
Work Temperature		-10℃~55℃				
Storage Temperature		-10℃~55℃				
Humidity (Non-condensed)		0～95%				

1.5 Device View

Figure 1-3 8FXS（Plastic shell）

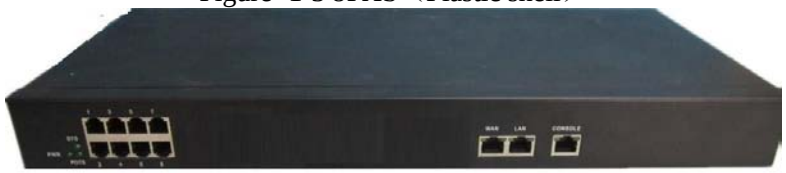


Figure 1-4 8FXS（Iron shell）

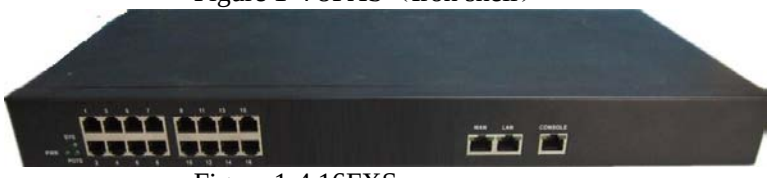


Figure 1-4 16FXS

Figure 1-5 24FXS

Figure 1-5 32FXS

Figure 1-6 64FXS

1.6 Panel Diagram

Here we take 32FXS for example to introduce the panel part of the product. The panel diagram of 32FXS is shown as follows.

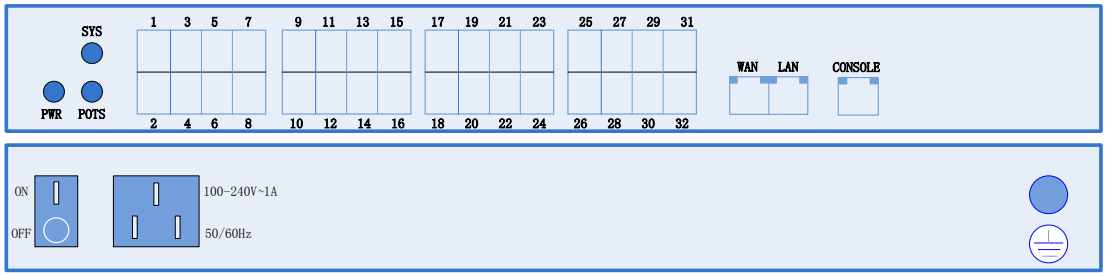


Figure 1-7 The Front Panel Diagram of 32FXS

The meaning of each kind of state of indicator light on the front panel of 32FXS is shown as follows:

Sheet 0-1 Explanation for Panel indicator light and serial configuration port of TP-8/16/24/32/64S.

Explanation on indicator light as follows. Indicator lights of FE port and CONSOLE interface are on RJ45 of the port.

LED	Color	Status	Explanation
PWR	Green	Often lighted	The device has been charged
		Non-lighted	The device runs out of power
SYS	Green Green	Flashed	The device is in service
		Non-lighted	The device runs out of power or operates abnormally
POTS	Green Green	Lighted	Any POTS port has off-hook
		Non-lighted	POTS port has no off-hook
LINK	Green Green	Lighted	FE port is in LINK status
		Non-lighted	FE port is not in LINK status
ACT	Green	Flashed	FE port has data receiving and sending
		Non-light	FE port has no data receiving and sending
TXD	Green	Flashed	CONSOLE interface sends data
		Non-light	There has no data sending
RXD	Green	Flashed	CONSOLE interface receives data
		Non-lighted	There has no data receiving

Chapter II Product Installation

This chapter focuses on deliberately explaining the matters with respect to installation preparation, fixing and cable connection of Voice gateway. It mainly includes:

- Installation preparation
- Device fixing
- Cable connection
- Configuration environment establishment

2.1 Installation Preparation

Before IAD installation, make sure all components and conditions are complete.

2.1.1 Open-box Inspection

Open the box and inspect whether stuffs in the box are consistent with the list. If not, please directly contact us.

2.1.2 Installation Precautions

Voice gateway can be installed on the desk or wall. Before installation, you are required to pay attention to:

- The place where IAD will be installed should meet the conditions to connect the device with the external sites (such as: power line, network line, PC machine, etc.). AC power socket should be single-phase three-core power socket, and ensure the earth line is reliably grounded.
- Where installation is executed should be well-ventilated, to help the device to dissipate heat (the suitable environment is -10℃～55℃).
- Installation place should be free from water, moisture and thunder, etc. (the suitable humidity is 10%～95%).

2.2 Device Fixing

This section introduces various installation modes of Voice gateway to help users choose what they need in accordance with their demands.

2.2.1 Cabinet-type Fixing

Users are able to install the Voice gateway with big port in the standard cabinet based on needs. If on-site installation is necessary, users are required to comply with:

1. First, clean up where the subframe will be put in the cabinet, tidy the former cables and place them in the cable area at two sides of rack, adjust the supporting plates of right and left subframes to be in place, and insert the combined nuts in the attachment into square holes at front two sides of the cabinet (4 for each side);

2. Operated by two persons, slightly put the subframe on the supporting plate of the cabinet , and push it in place slowly;

3. After positioning, use the combined screws (M6×16) with packing ring from the accessories to tightly fix subframe and cabinet together.

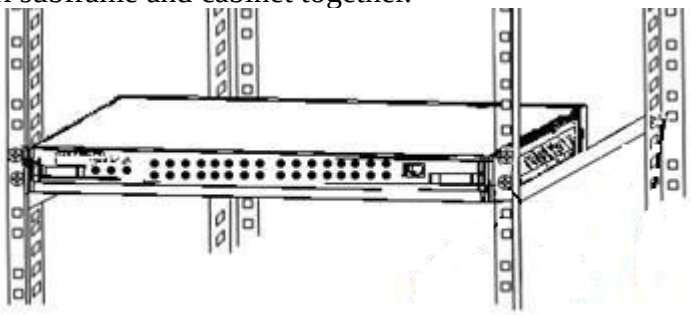


Figure 2-1 Installation Completion Diagram

2.2.2 Plan Fixing

Take out four rubber mats equipped with Voice gateway and clip them into four small holes on the device's base plate, and then put the device on a stable and flat desk, and make sure right and left sides have a good ventilation.

> ✍ **Reminding: Ensure Voice gateway to ventilate well at two sides; and prohibit to place any object on it.**

2.3 Cable Connection

1. General connection

By cable, voice gateway's LAN port is connected with user's computer, switch or hub, and the WAN port is connected with Ethernet (for instance, ONU) or ADSL modem. FXS port is connected with 32 pair of single-core copper connector. AC power port is connected with AC power .

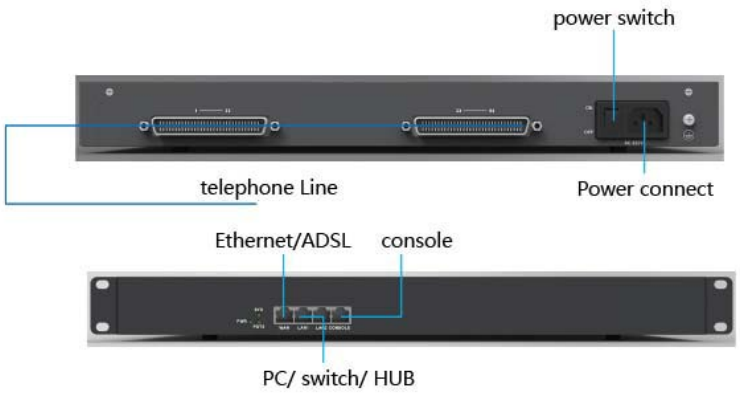


Figure 2-2 TP-64S Cable Connection Diagram

Warning: for operating safely, do not energize the device until all cables of it are connected and installation inspection is finished.

Reminding: It is suggested to utilize single-phase three cord power socket of neutral connector or multi-function microcomputer power socket. The socket should be reliably grounded. Do not use power extension cords.

2. Cascade connection

Reminding:

- **In cascade connection, need to differentiate between primary device and slave device**
- **Turn on the Cascade Mode in primary device Web GUI**
- **To keep the slave device software version is same with primary device software version. Turn on the function to receive the primary device testing packet in WAN port, and DO NOT turn on the LAN port cascading mode in slave device. Then connect slave device with primary device.**

Warning:

Do not turn on LAN cascade in slave device.

After turn on the cascade mode in primary device, do not connect the LAN port of primary device with local area network.

Take TP-64S cascading mode for example.
TP-64S primary voice gateway WAN port connects with upward ethernet network (like

ONU)/ASDL modem by cable.
TP-64S primary voice gateway LAN port connects with slave voice gateway WAN port by cable.
And so on, it can cascade three device including primary and slave devices

FXS ports(1-192 telephone ports) connect with user telephones by 6*32 pair single-core copper connectors.

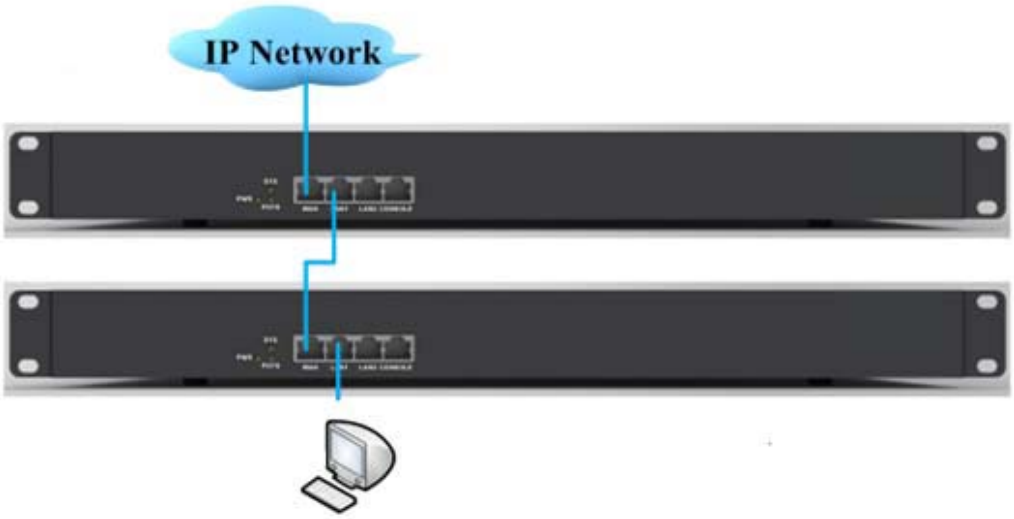


Figure 2-3 Two TP-64S devices connecting by cascade mode

Chapter III Rapid Configuration

This chapter mainly introduces how to simply configure SIP business function for Voice gateway by WEB website, and also simply introduces Voice gateway's other two login methods, Telnet and Console. The aim is to let customers rapidly configure Voice gateway in special circumstances. Main contents include:

- Cable connecting, PC address modification
- Network access settings
- Rapid configuration

Voice gateway offers users an imaging and simple-operation WEB conversation interface, so users are able to configure all functions of voice gateway just on the common web browser without installing a special software, which is helpful for consumers to lessen business opening cycle, quickly position failure and shorten failure restoration time, so as to satisfy users and save operation and maintenance cost.

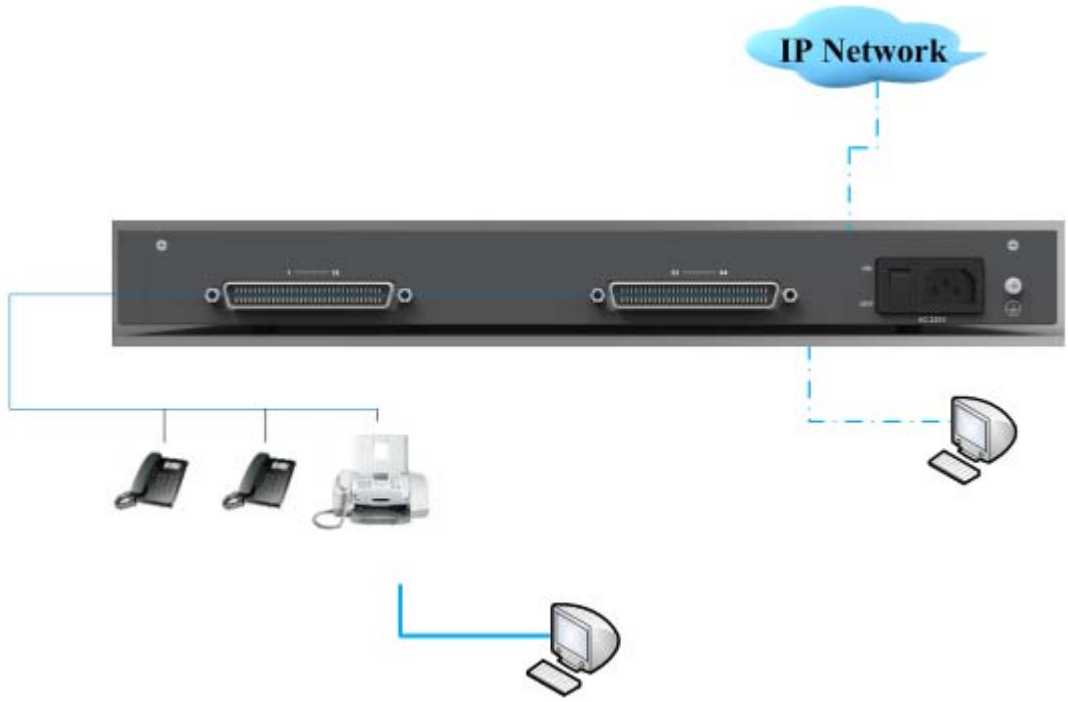
3.1 Preparation before Configuration

Before configuring Voice gateway, you are required to first confirm:
1. Network access method:
2. Voice gateway's WAN port supports PPPoE dialing, dynamic IP address and static IP address.
3. SIP server address, port, account and password.

For example: Voice gateway data configuration information (enter the italic information pursuant to the practical requirements).

Voice gateway gateway IP: *192.169.0.1* //static IP address/
Voice gateway subnet mask: *255.255.255.0*
Routing gateway address: *192.168.0.1*
SIP server address: *192.168.0.10*
SIP server port: *5060*
SIP account: *6400~6407*
SIP account password: *123456*

3.2 Cable Connecting

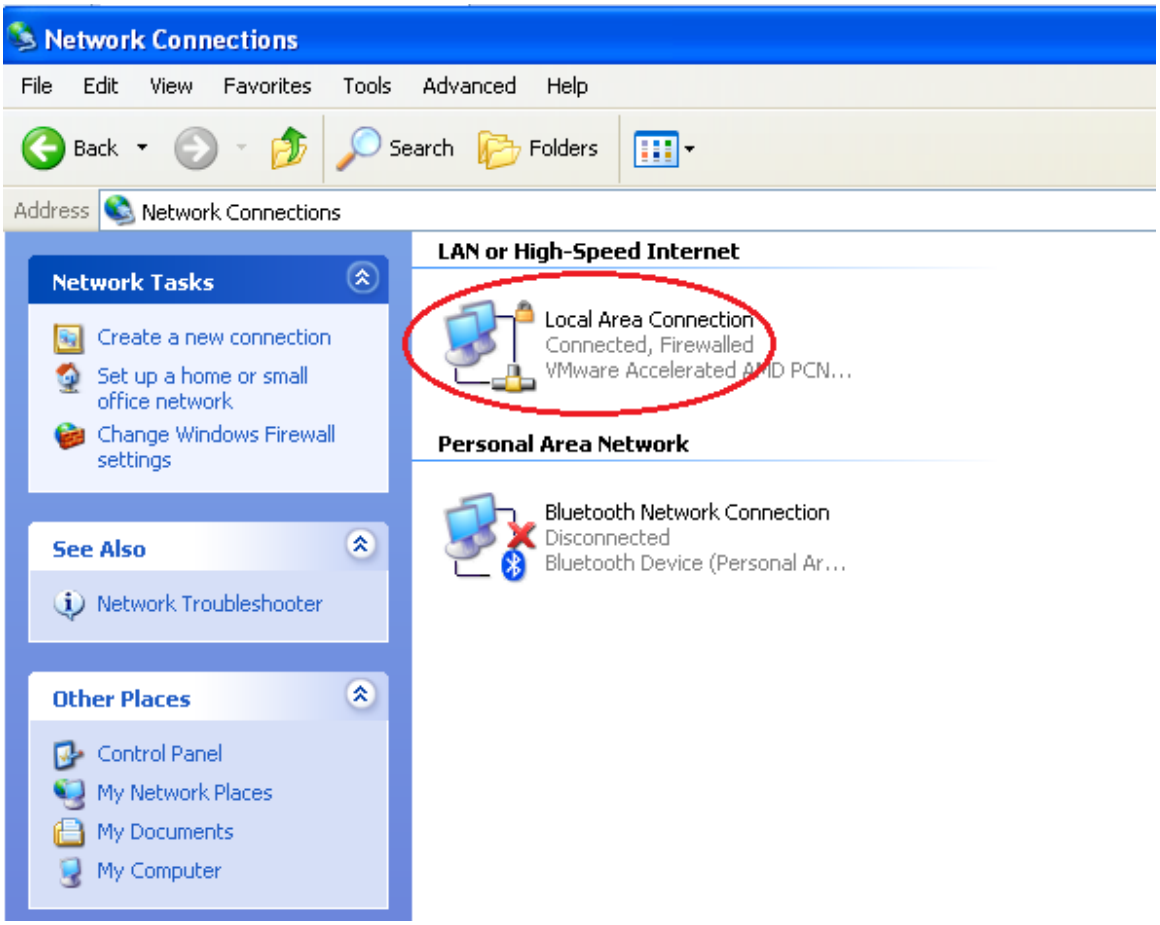


1.Connect the device power cord;
2.Link the upward network cable with Voice gateway's WAN port;
3.Connect Voice gateway's LAN port with PC, which is used to carry out management;

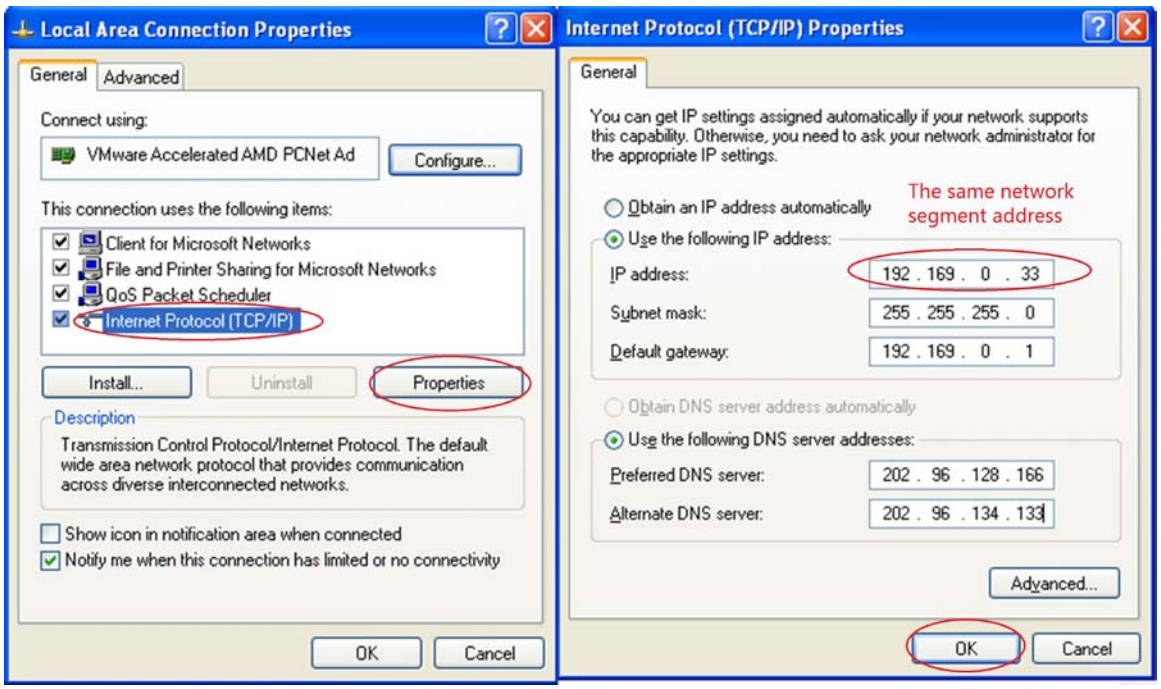
4.Connect route 32 RJ-11 business port with user's telephone.

3.3 PC's IP Address Modification

Connect computer with Voice gateway's LAN port, and set its IP address as 192.169.0.2~192.169.0.254, subnet mask as 255.255.255.0, and gateway as 192.169.0.1. It is fine not to fill in DNS or keep the initial value.

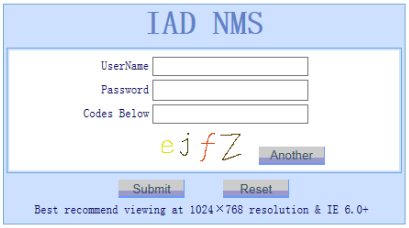


1. Open network connection, right click "local connection", click property;
2. Open local connection property, choose "Internet protocol (TCP/IP)", click property (R);
3. Choose the option of "Use of the following IP address", modify PC's IP address according to the practical needs.



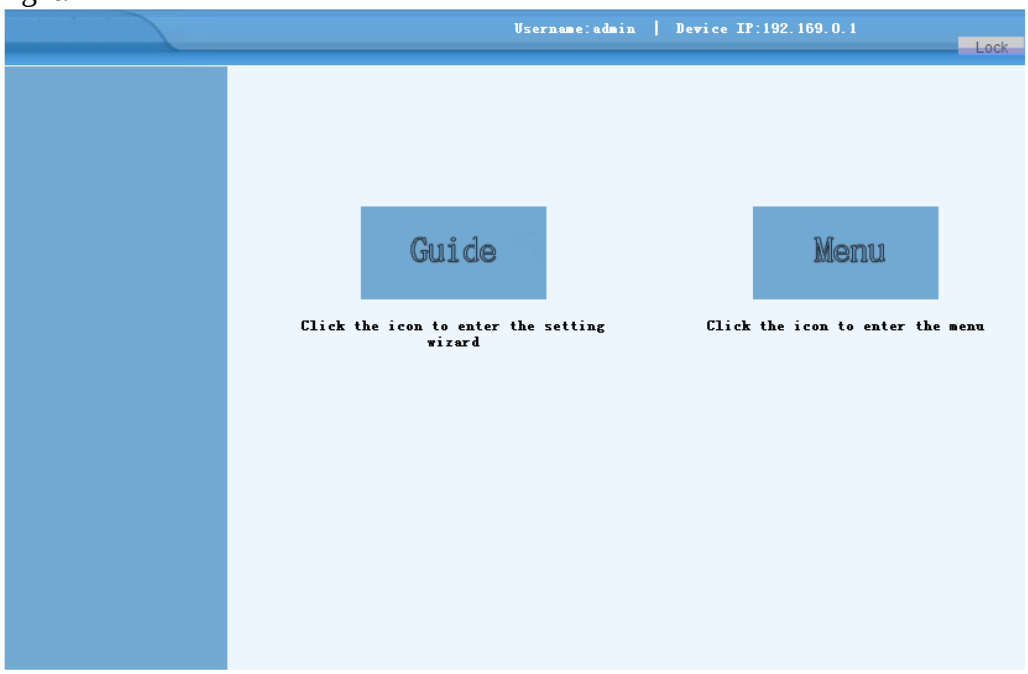
3.4 Voice gateway Gateway Login

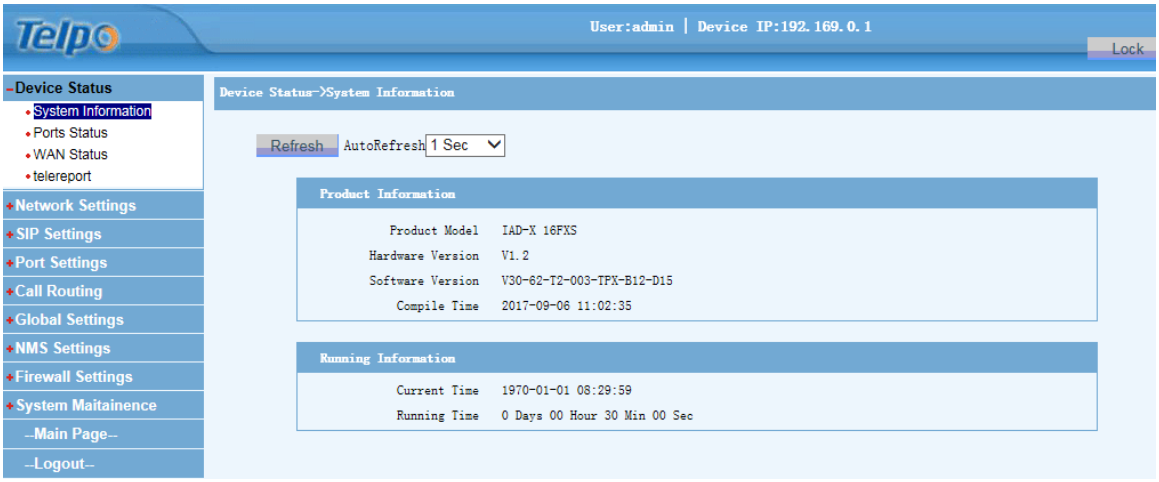
Open IE browser and input LAN port's default IP address (IP 192.169.0.1 or 192.169.0.235) in address column.



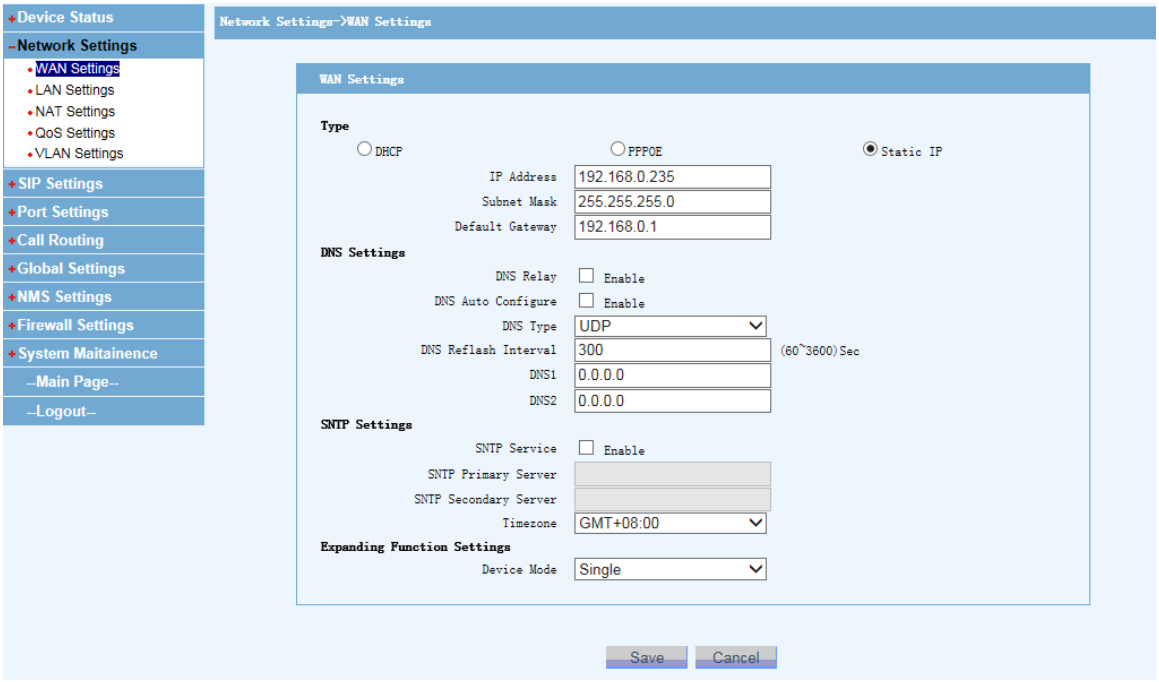
Enter username as admin and password as psw.iad (note the capital and small letters), then import security code. It will immediately skip to gateway main interface once input

right.


Username:admin | Device IP:192.169.0.1
Lock
Guide
Menu
Click the icon to enter the setting wizard
Click the icon to enter the menu


User:admin | Device IP:192.169.0.1
Lock
Device Status
System Information
Ports Status
WAN Status
telereport
Network Settings
SIP Settings
Port Settings
Call Routing
Global Settings
NMS Settings
Firewall Settings
System Maitainence
--Main Page--
--Logout--
Device Status->System Information
Refresh
AutoRefresh 1 Sec
Product Information
Product Model IAD-X 16FXS
Hardware Version V1.2
Software Version V30-62-T2-003-TPX-B12-D15
Compile Time 2017-09-06 11:02:35
Running Information
Current Time 1970-01-01 08:29:59
Running Time 0 Days 00 Hour 30 Min 00 Sec

3.5 Voice gateway Network Settings

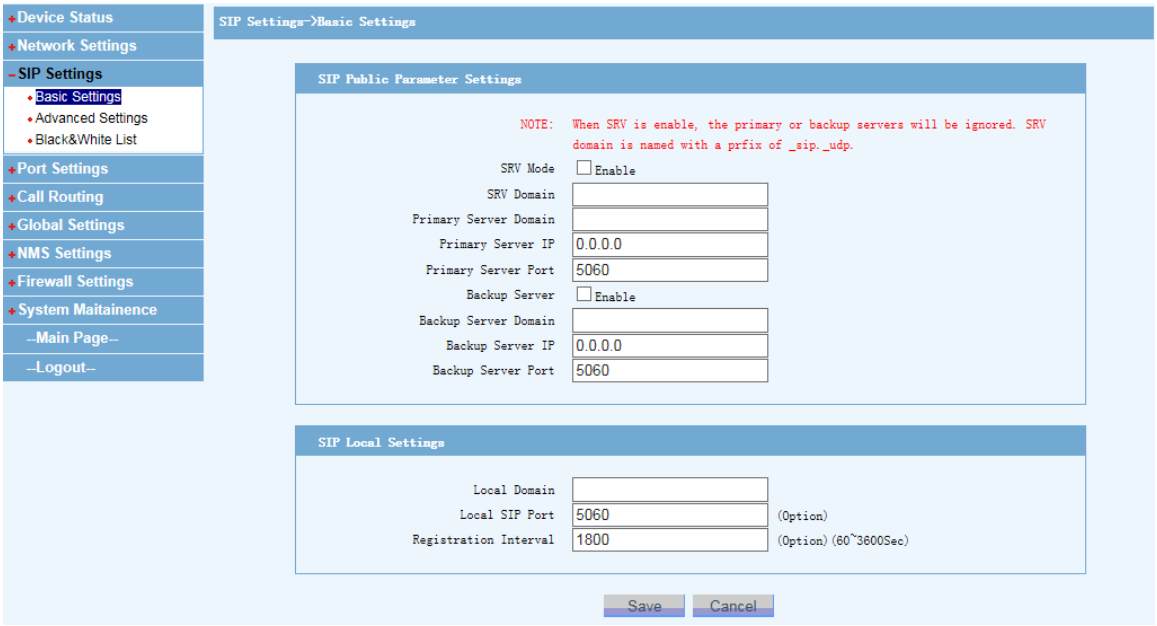


Choose “Network Settings → WAN Setting” and choose “Static IP”, fill in the relevant parameters such as gateway IP address, subnet mask, exit gateway, and then click to save.

Explanations:

- Choosing “DHCP” needs there is a DHCP server in the network;
- Choosing “PPPoE” needs to fill in the username and password that broadband supplier provide.
- If choosing “Static IP”, please fill in gateway IP address, subnet mask, breakout gateway, DNS address, SNTP address.

3.6 SIP Server Parameters Setting

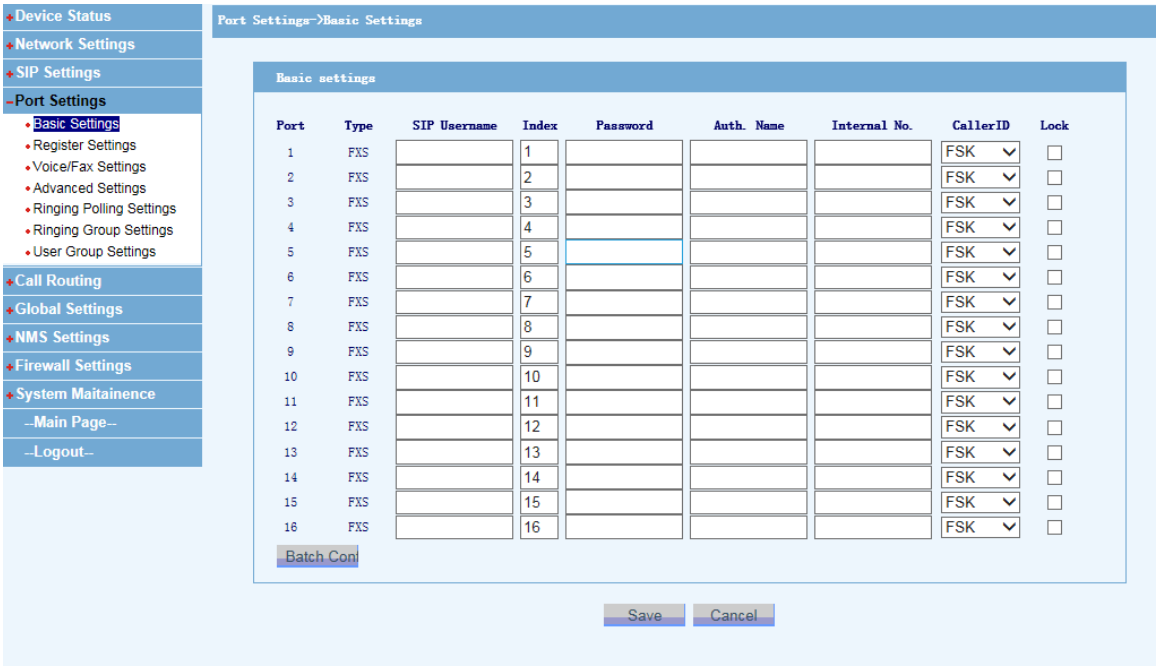


Click “SIP Settings → Basic settings” that is in the left column, complete the main server’s information and port in the basic settings, complete the local domain name in the local SIP parameter settings, and then click to save.

Explanations: SIP parameters are conditional upon the soft switch. SIP’s default port is 5060, and local domain name is SIP domain name or server IP.

3.7 SIP Account and Password Setting

SIP Voice gateway is registered based on the port. Every port needs setting account and security password.

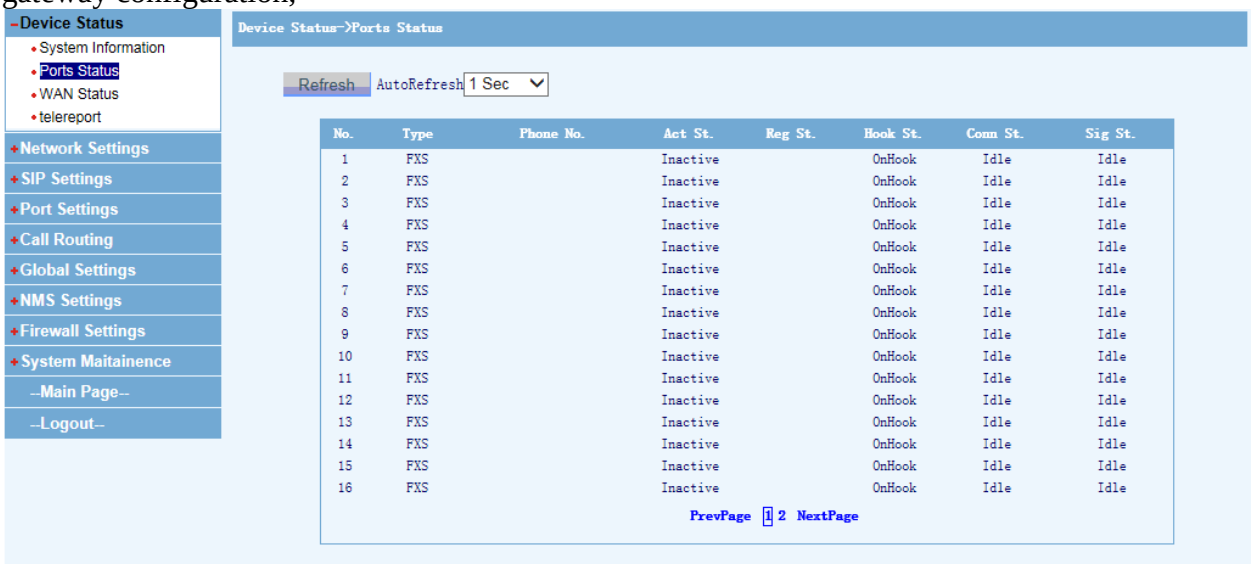


Click "Port settings → Basic settings" that is in the left column, complete username, password and identified name in the basic settings, and than click to save.

Explanations: SIP parameters are conditional upon the soft switch. Usually, username is the identified name.

3.8 Ports Status

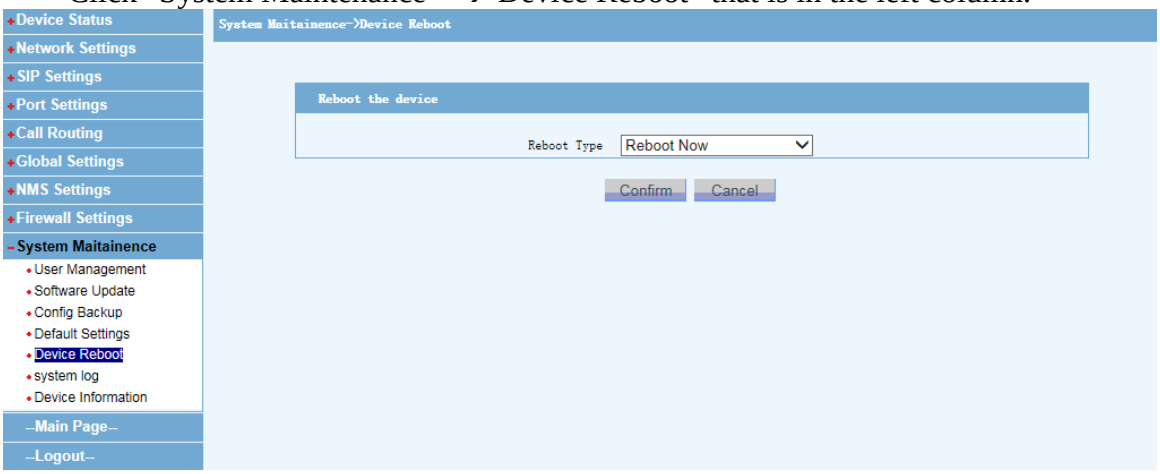
Your can check corresponding port's registration status after finishing the Voice gateway configuration,



Note: If one port shows “unregistered”, please check settings of corresponding port’s parameters, and consult SIP soft switch platform.

3.9 Device Reboot

Click “System Maintenance → Device Reboot” that is in the left column.



After Voice gateway restart, use IE browser to log in Voice gateway once more via LAN IP, check Voice gateway status, and confirm the operating WAN port information in the status inquiry and confirm registration status in the user port status.

3.10 Telnet Login

Through Telnet to log Voice gateway gateway in the configuration interface. (after the device is energized, LAN port’s default IP is 192.169.0.1 and subnet mask is 255.255.255.0). Carry out inband management to the device via command line configuration.

Voice gateway gateway can Telnet to the configuration interface by LAN port and WAN port Telnet. But WAN port’s IP address perhaps is dynamically acquired via DHCP and PPPoE. So it may not be convenient for TELNET to visit. Therefore, it is suggested that users go to the configuration interface from LAN port TELNET. Entering TELNET needs to:

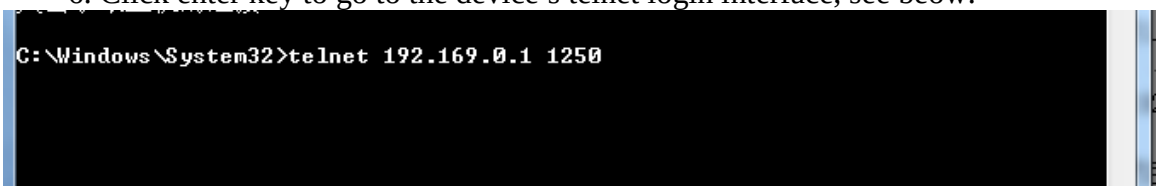
1. Find a crossover cable or through line;
2. Use a cable to link PC machine’s network card and LAN port together. If LAN port’s LINK light flashes, it means PC machine has been connected with the Device;
3. Modify/add IP address of PC machine’s network card to be 192.169.0.x (X is an integer more than 2 and less than 254), and mask to be 255.255.255.0;
4. Open a command window on PC machine, and then

[Click WINDOWS’s <start> menu —>click <operation> to open the operation window, then enter cmd or command in <opening> drop-down box, finally, click to

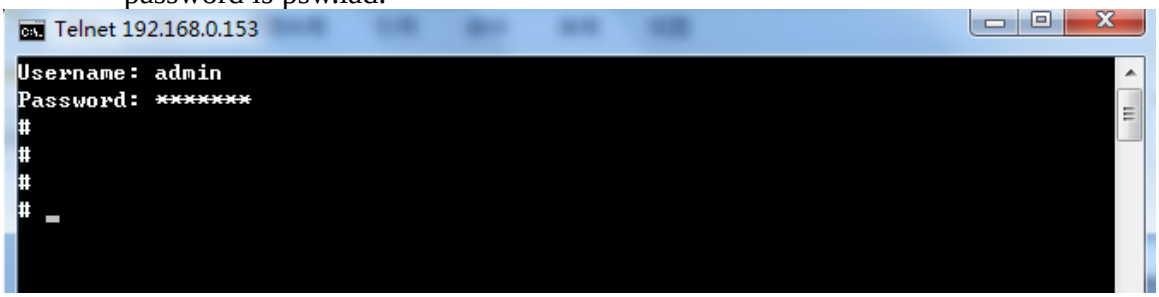
determine.]

5. Execute the following command in command line's window, refer to telnet 192.169.0.1 1250 in the following image:

6. Click enter key to go to the device's telnet login interface, see beow:



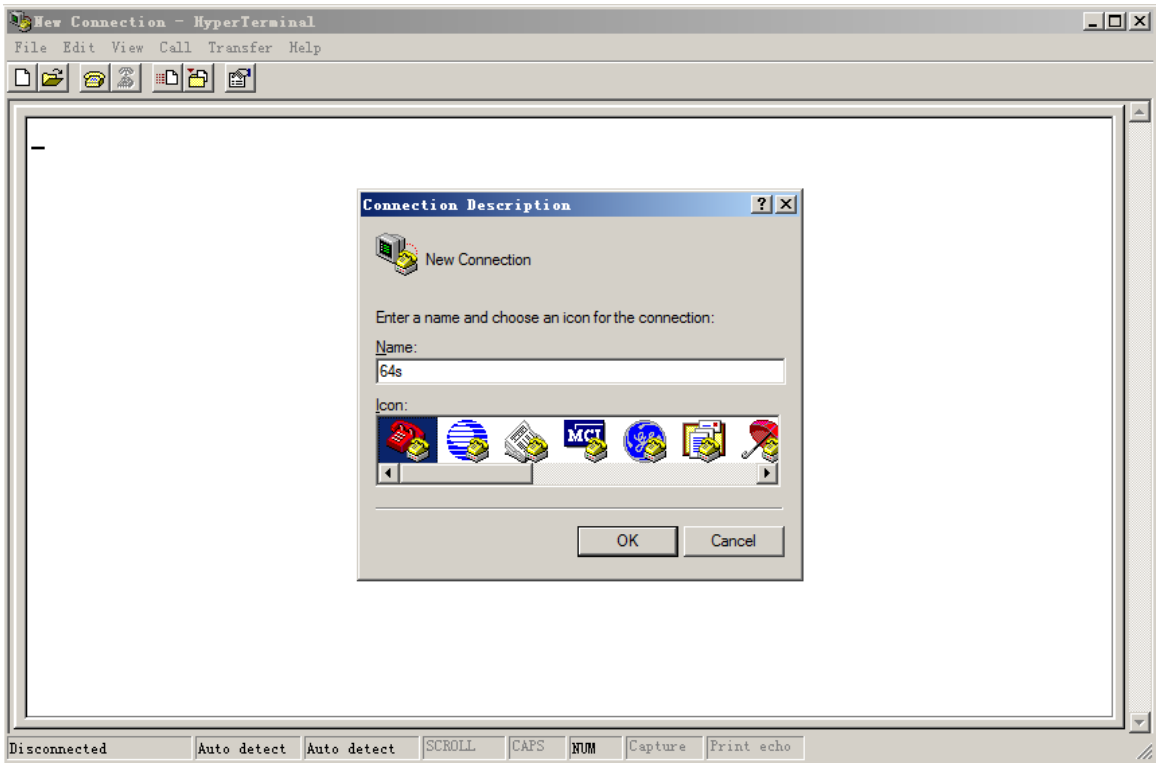
7. Input correct username and password, the default username is admin, and default password is psw.iad.



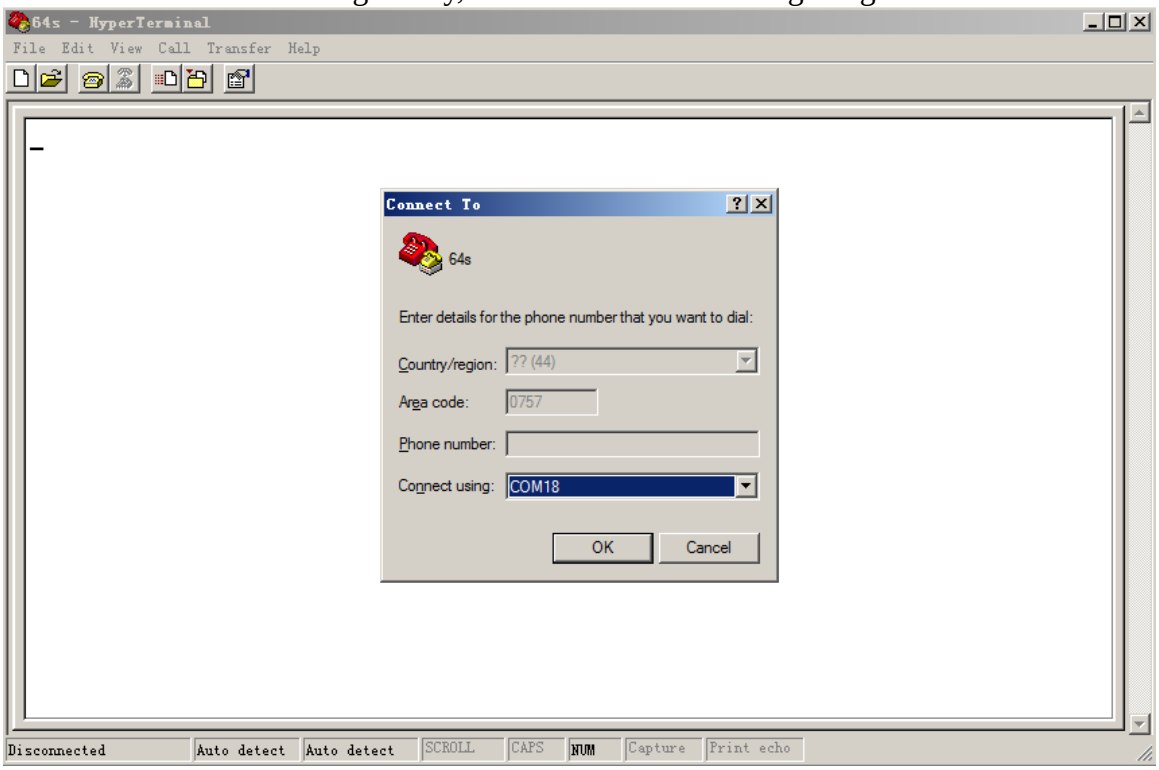
3.11 HyperTerminal Login

Voice gateway can configure the device by CONSOLE port. Connect one end of serial port line to Voice gateway's CONSOLE control port, and another end to any serial port of the computer. Then follow the sequences of start menu—>procedures—>appendix—>communication—>Hyperterminal to start up Hyperterminal. If no any Hyperterminal is installed, please install it from control panel. For specific matters, please refer to Windows.

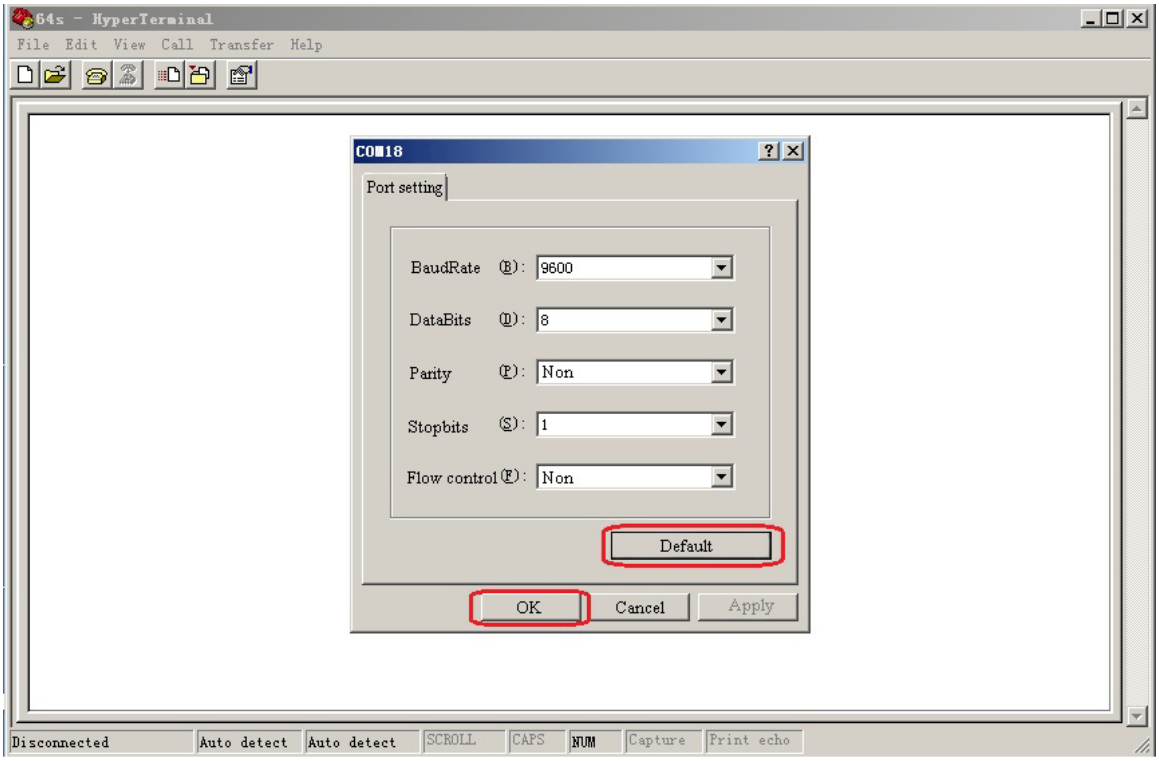
1. After the Hyperterminal is turned on, a "link description" will appear, requiring to enter a name and choose icon for this link, shown as follows.



2. Import a link name, button enter key or use mouse to click “OK” to go to the next. Then, a “connection to” dialog box will appear. In “use at the time of connection” drop-down menu, make sure the chosen port must be consistent with serial port of PC machine linked with Voice gateway, as shown in the following image.



3. Press enter key or click “OK” button to go to the next, and then set the port property.

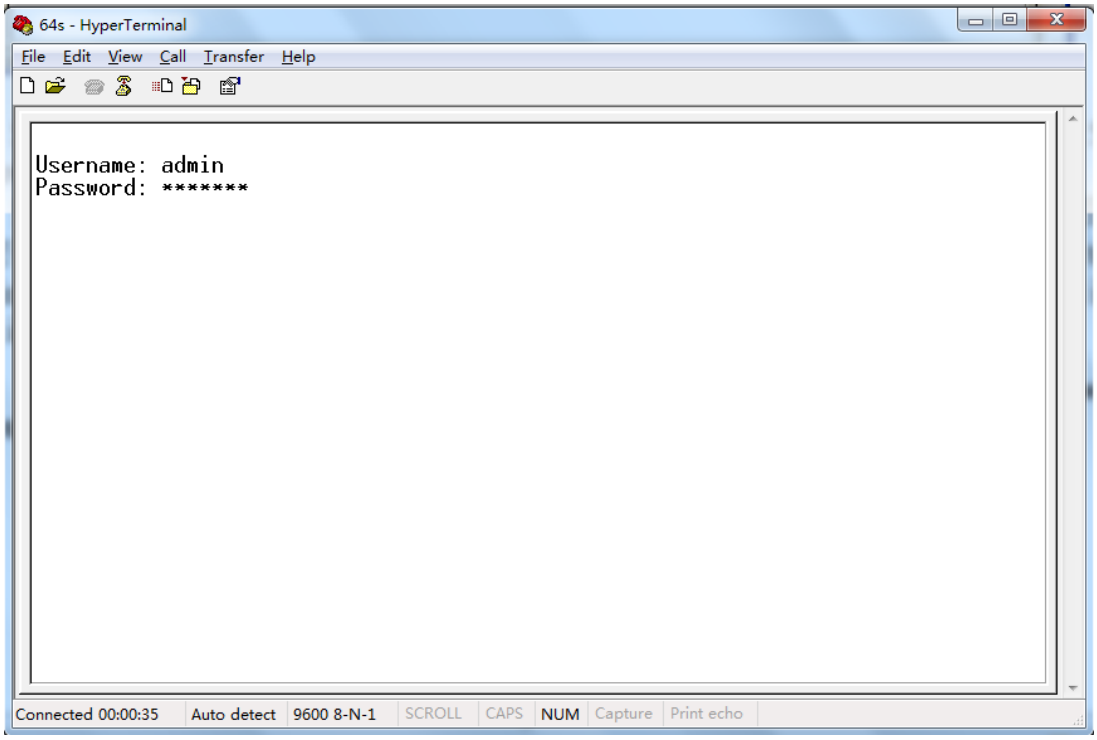


Perform settings as follows for port parameters:

- baudRate: 9600
- DataBits: 8
- Parity: Non
- Stopbits: 1
- Flow control: Non

Press enter key or use mouse to click “OK”.

4. Once the device is started up (it will automatically start up once energized), user login interface will appear promptly.



5. Fellow the system reminders and import correct username and password to log in.

If it is your first time to log in, please use the default account. Default username is admin, and default password is psw.iad. The detailed settings of the command are set forth in the later instructions.

✍ Note: draw attention to capital and small letters of username and password when performing login.

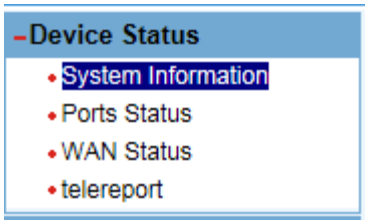
Chapter IV Detailed Configuration

This chapter has a detailed introduction to all configurations on Voice gateway's WEB web. It mainly includes:

- 🕮 Current status inquiry
- 🕮 Network settings
- 🕮 SIP settings
- 🕮 User port settings
- 🕮 Fax settings
- 🕮 Dialing routing settings

🕮 Global parameter settings

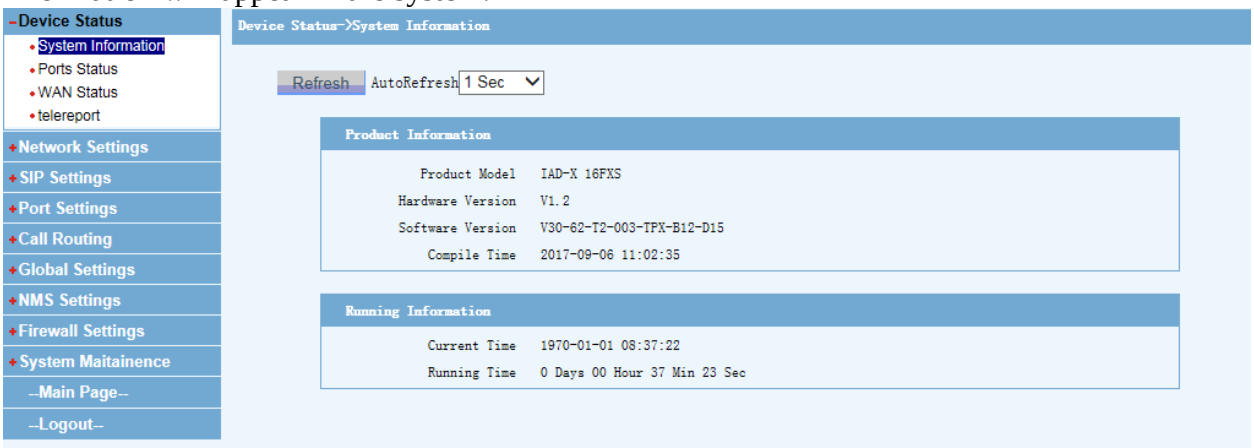
4.1 Device Status



Here you are able to inquire Voice gateway's every status, including device model, operation time, software and hardware versions, WAN's status information, LAN port information status, user port status and traffic statistic information, etc.

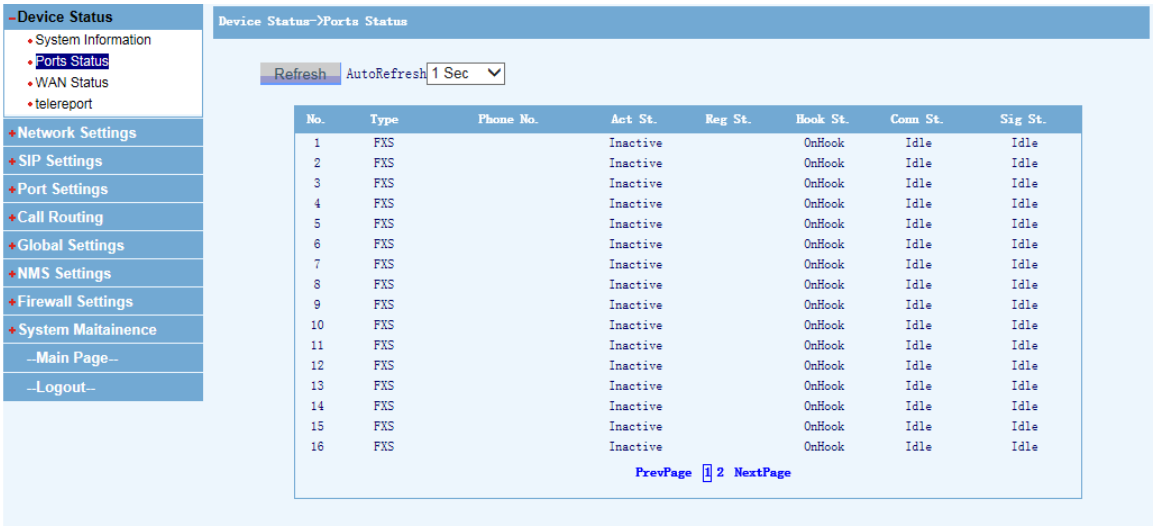
4.1.1 System Information

Click "Device Status", and then click "System Information", the following information will appear in the system.



4.1.2 Port Status

Click "Device Status", and then click "Port state", the following information will appear in the system.

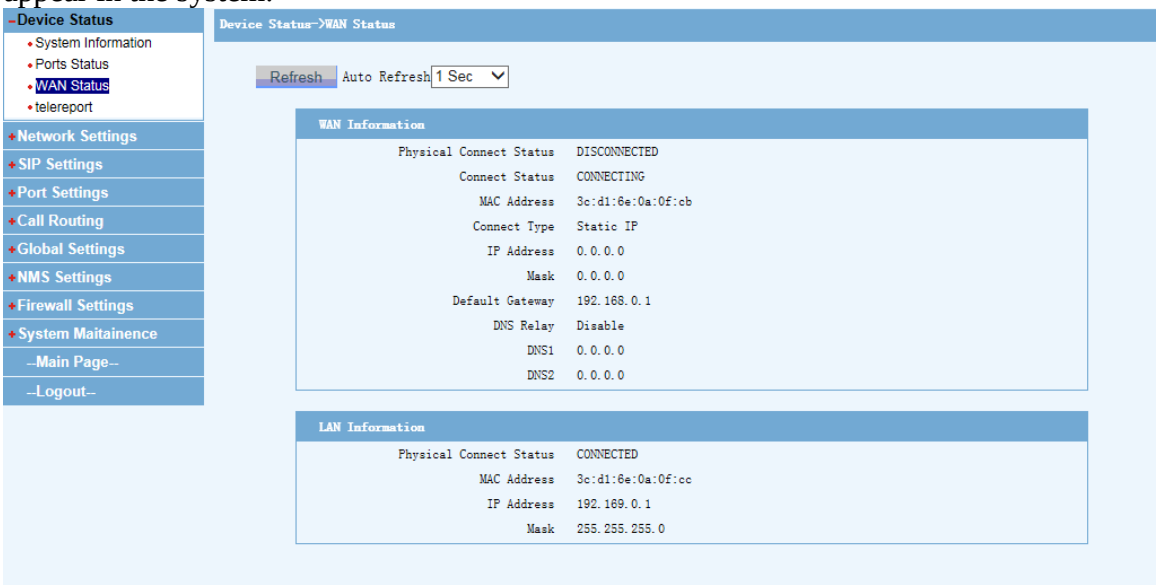


Explanations: It is essential to review the port's corresponding number and registered status of SIP business.

The current statuses include idleness, waiting for dialing, ringback tone, conversation, busy tone and ringing.

4.1.3 WAN Status

Click "Device Status", and then click "WAN state", the following information will appear in the system.

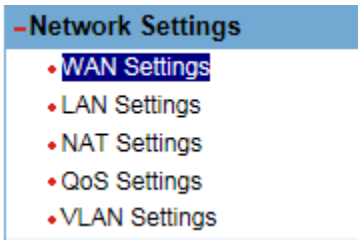


4.1.4 Telereport

Click “Device Status”, and then click “telereport”, the following information will appear in the system.

Explanations: Traffic statistics cover the real-time state of current activated port, conversation time and other information.

4.2 Network Settings



Network settings include:

WAN Setting: It refers to the upward access network port;

LAN Setting: It refers to the lower access network port including DHCP configuration;

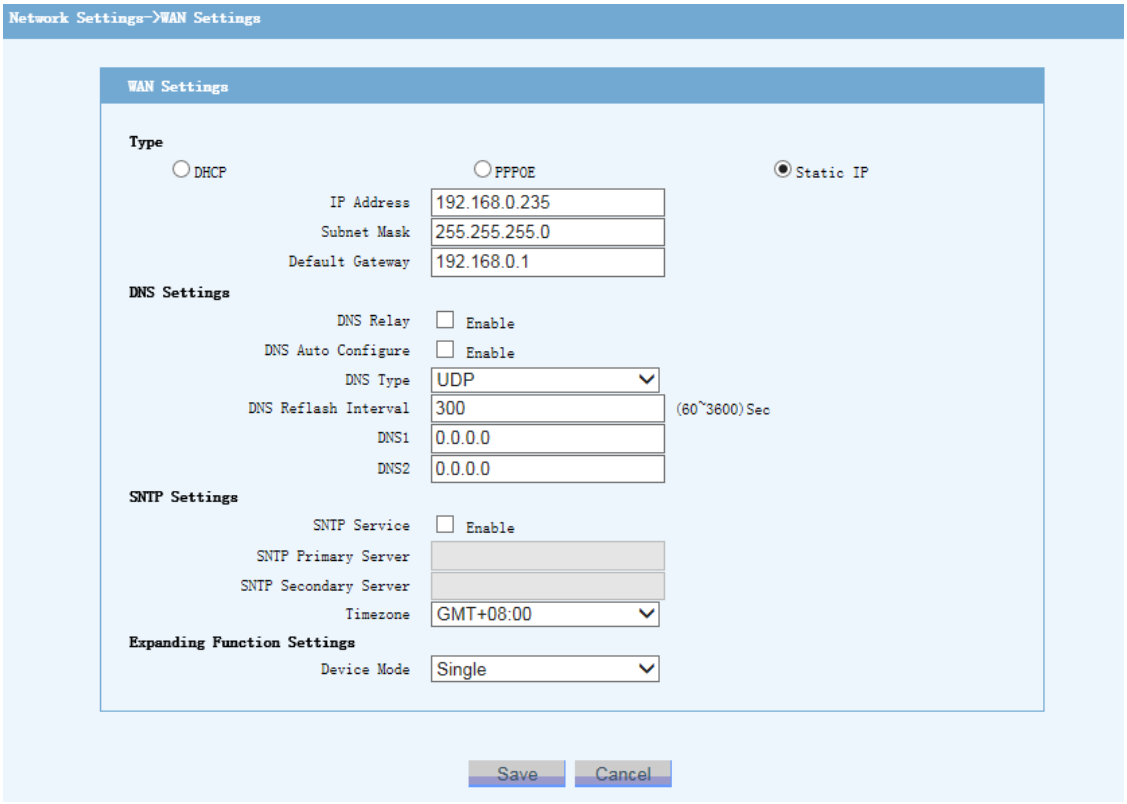
NAT Setting: It refers to network address transfer including DMZ configuration;

QOS Setting: It refers to quality of network service.

VLAN Setting: It refers to virtual local area network.

4.2.1 WAN Setting

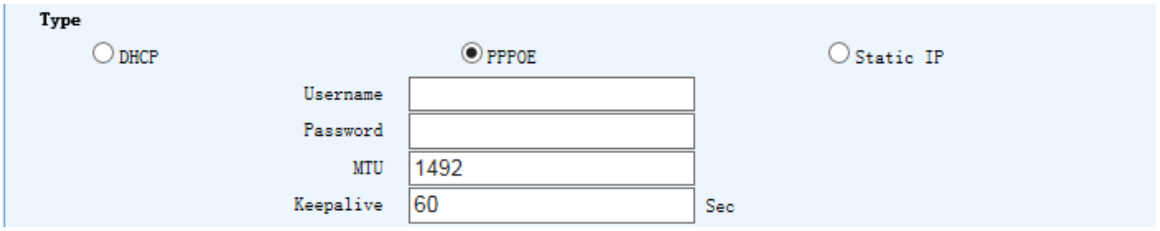
After entering WEB interface, choose “Network settings >> WAN Settings”. Voice gateway can be get access to via three network access methods.



Explanations:

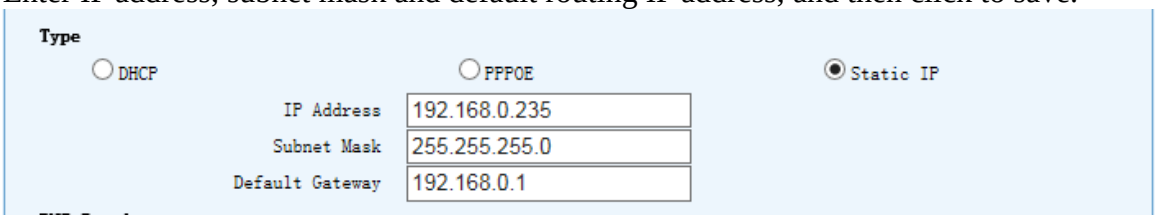
1. Choose IP type

- Use DHCP to acquire IP
- By "online pattern" to open "DHCP", then click to save.
- PPPoE dialing, input account and password and then click to save.



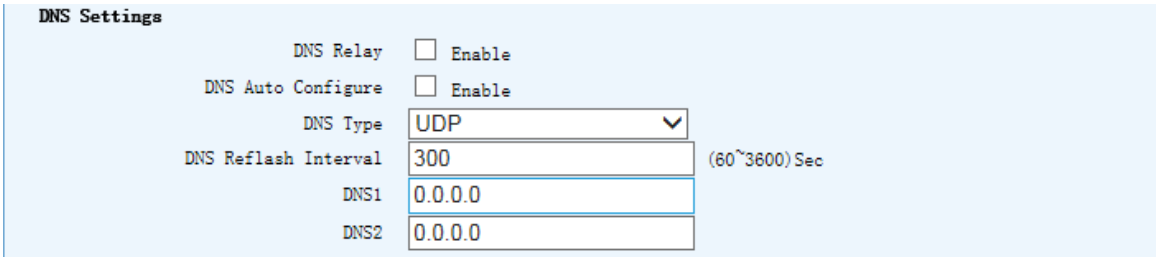
2. Static IP

Enter IP address, subnet mask and default routing IP address, and then click to save.

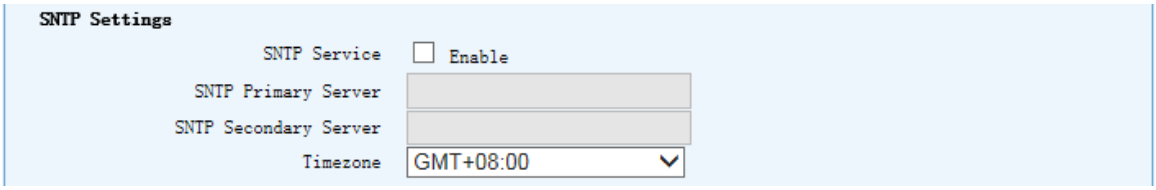


3. DNS settings

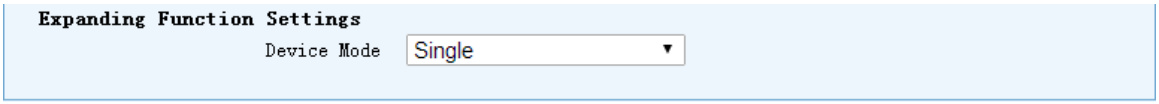
DNS service, Use start, choice of DNS transmit type, DNS refreshing interval (usually it defaults 5 minutes), and prior and standby DNS address setting;



4.SNTP settings coincide with network time protocol, and automatically synchronize with the device time.



5. Cascade configuration, it has standalone mode and primary device mode, slave device mode.



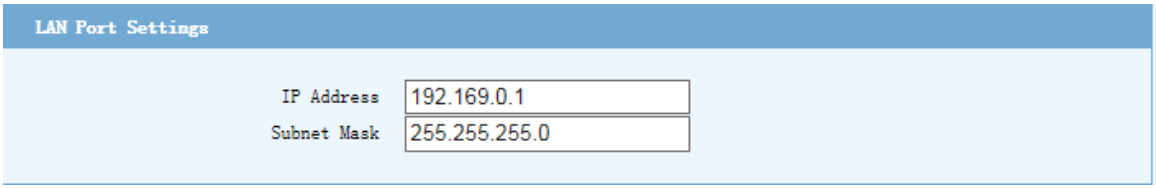
- if cascaded, need to differentiate the primary device and slave device;
- need to turn on the primary mode if used as primary device, need to turn on the slave mode if used as slave device,
- The max cascaded device number is three
- After cascaded, can manage the device in primary device Web GUI. The data is saved in primary device, and can used the devices as a whole. Primary device WAN port connects the upward network, and the last device LAN port connects downward network.

✍: **1. It needs to be the same software version between primary and slave devices.**

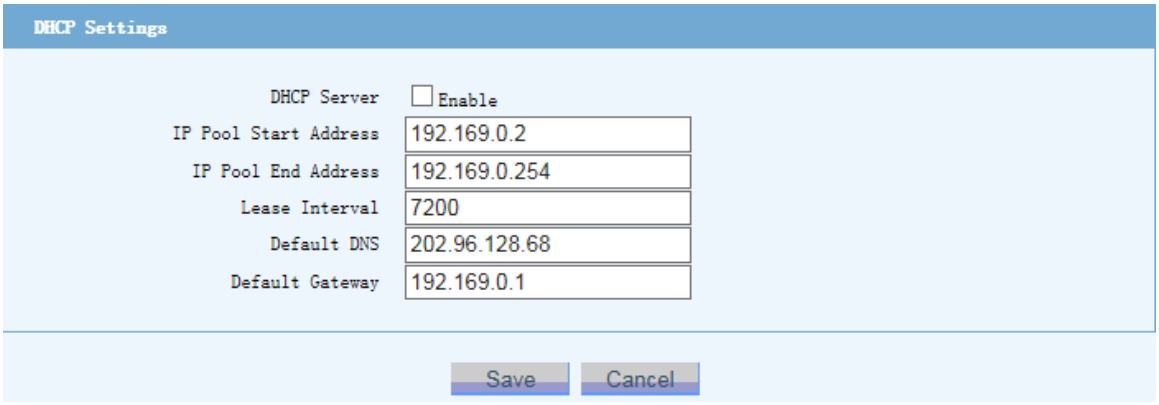
2. After turn the cascaded mode, the primary LAN port could only connect slave device, and cannot connect the local area network.

4.2.2 LAN Setting

Open “Network Settings >> LAN Settings” to configure LAN port’s IP address.



: LAN port's default IP is 192.169.0.1 / 255.255.255.0. It is suggested not to make any modification but a special case! Especially ensure not to repeat LAN port IP network segment and WAN port IP segment!

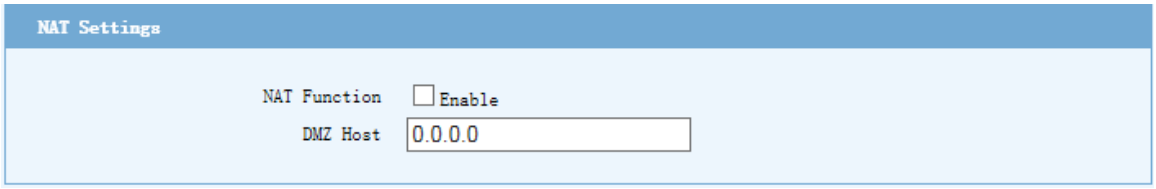


Explanations:

- In Voice gateway there is a DHCP server, which is defaulted not to start using.
- IP pool Start/End address cessation: It refers to DHCP server automatically allocates IP's beginning/ addresses cessation. To full extent it could have 254 addresses.
- Lease Interval: It refers to the service time that terminal acquires an IP address, defaulting to be 7200 seconds.
- Default DNS (optional), input it in the DNS server offered by ISP. If there is any question, please consult ISP.
- Default gateway (optional), it is suggested to fill in LAN port's IP address or in designated exit gateway IP.

: If LAN port IP parameters (including IP address, subnet mask) are altered, make sure IP pool address set in DHCP parameters is in the network segment where new LAN port IP is also in, and restart Voice gateway. In order to make DHCP server display its functions, TCP/IP protocol of each computer in local area network must be set as "automatically acquired IP address".

4.2.3 NAT Settings



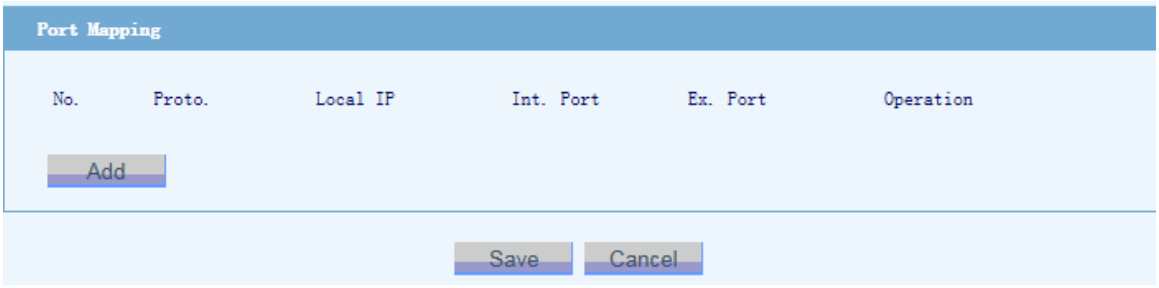
Explanations:

- NAT function is not started using by default. If it is started, the computer connected with LAN port can share network.
- Open the host, and offer DMZ function. In special cases, a computer in local area network needs to be exposed to wide area network completely, to realize double-way communication. At this time the computer can be set as DMZ host.

: After setting DMZ host, the firewall settings related to the IP will not work.

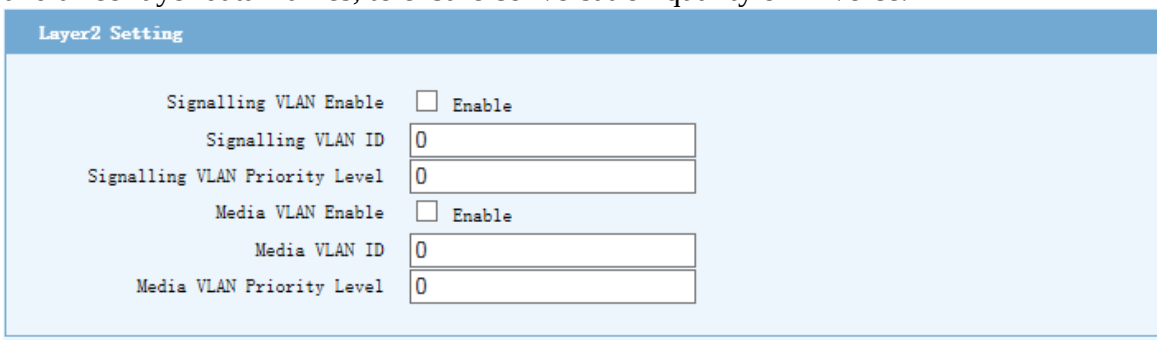
Explanations:

- Port mapping table defines the mapping relation between wide area network service port and local area network device.
- Protocol: Port mappings of UDP and TCP are all applicable.



4.2.4 QOS Settings

Network service quality (QOS), Voice gateway supports prior marks of two-layer and three-layer data frames, to ensure conversation quality of IP voice.

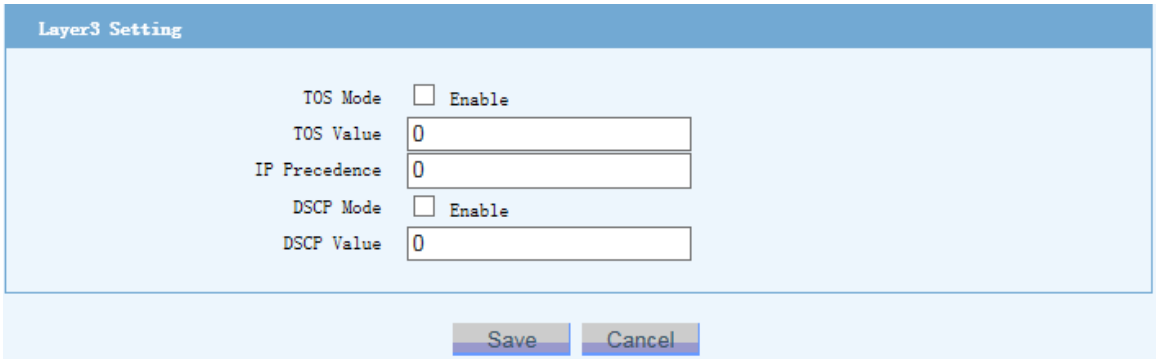


Explanations:

- Two-layer Qos settings: VLAN ID is the tag based on 802.1Q.
- ID value ranges from 1~4096.

➢ VLAN prior level is 802.1P. It ranges from 0~7.

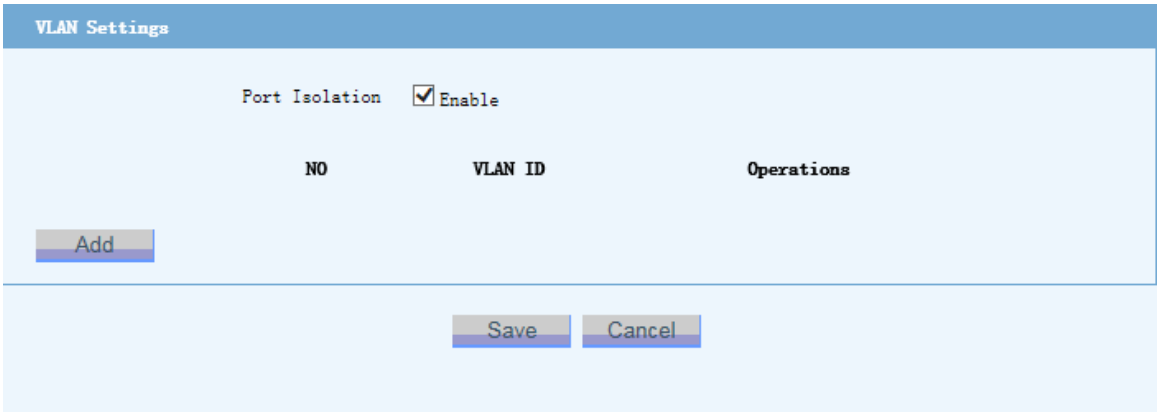
Note: Before start, please firstly determine whether the entire transit network backs up VLAN or not. Otherwise, it will contribute to some faults, such as IP disconnection, DNS analysis failure, registration failure and so on.



Explanations:

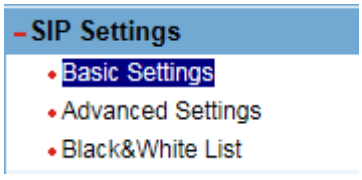
➢ Either TOS or DSCP, only one mode can be adopted;
➢ TOS mode is not turned on by default;
➢ TOS value is 5 by default;
➢ IP Precedence is 5 by default;
➢ DSCP mode is not opened by default;
➢ DSCP value is 0 by default.

4.2.4 Vlan Settings



➢ Port isolation:Enable by default.

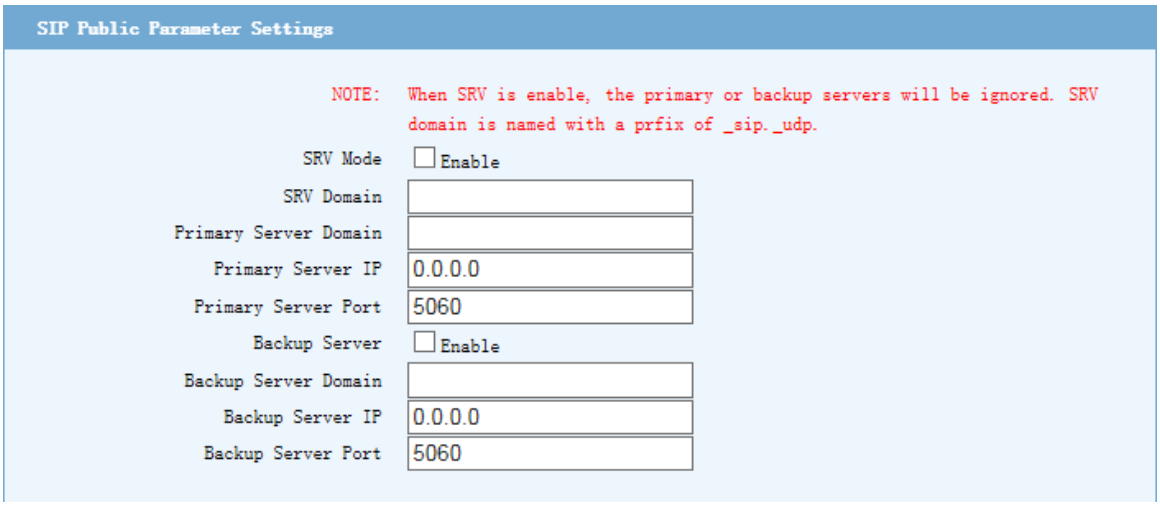
4.3 SIP Settings



SIP parameters are set pursuant to soft switch. The service provider usually has set the server's parameters beforehand. In case you need to set them by yourself,

please inquire the address, account and password from the facilitator to register the server.

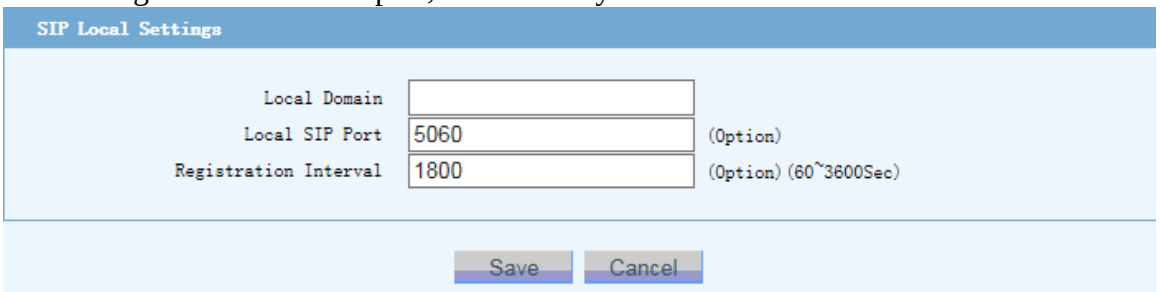
4.3.1 Basic Settings



- SRV mode: It needs opening when DNS server adopts SRV-type DNS analysis;
- SRV domain: When it is the SRV-type DNS analysis, SRV domain name needs to be configured. Domain name starts with _sip._udp. For example, if the allocated domain name is sbc.chinamobile.com, the configured one will be _sip._udp.sbc.chinamobile.com.

Explanations:

- Primary server: It supports domain name or IP address form;
- Primary server port: It defaults to be 5060, but to fill in practically;
- Backup server: To fill in it as per the main server's parameters;
- Voice gateway support: if there is something wrong with the main server, it will automatically register into the backup server. (at this time please open heartbeat switch).
- If the main/backup servers adopt domain name mode, please open DNS configured under WAN port, and correctly fill in DNS address.

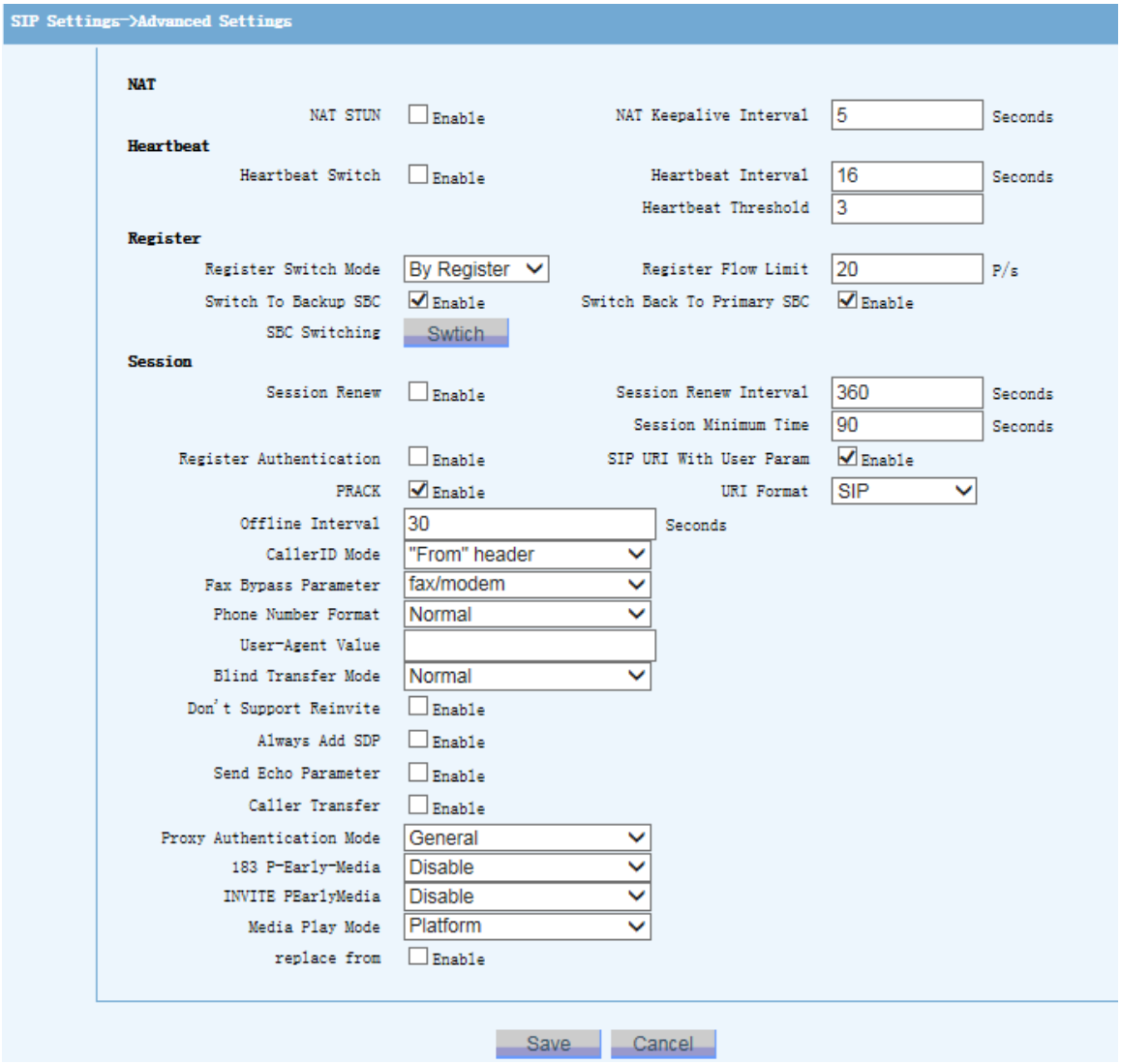


Explanations:

- Local domain: It is usually the same as the registered server;
- Local sip port: It is defaulted to be 5060, and Voice gateway need restarting if it has any modification;
- Registered Interval: It refers to the interval that Voice gateway sends online information to SIP server, 60 to 3600 seconds are available, and factory default one is 600 seconds.

4.3.2 Advanced Settings

Voice gateway supports multiple soft switch systems. The specific parameters are conditional on soft switch.



Explanations:

1. NAT: Usually, Voice gateway in intranet is in need of turning on NAT penetration.

It can normally communicate with Voice gateway once used in SIP platform;

- NAT STUN: It defaults to being open;
- NAT keepalive interval: It is 5 seconds by default;

2.Heartbeat

- Heartbeat switch: It is set to send heartbeat parameters to platform, not turned on by default;
- Heartbeat Interval: It refers to the cycle that Voice gateway sends heartbeat packet in a set time. Unit is second.
- Heartbeat silence time: It refers to the quantity of these heartbeat packets without response which are sent out by Voice gateway. Unit is piece.

Note: If the heartbeat switch starts to work when using DNS to acquire SIP and relay IP, DNS request will not be sent on a regular basis, and SBC will not be switched over until cutover to original SBC by network is interrupted.

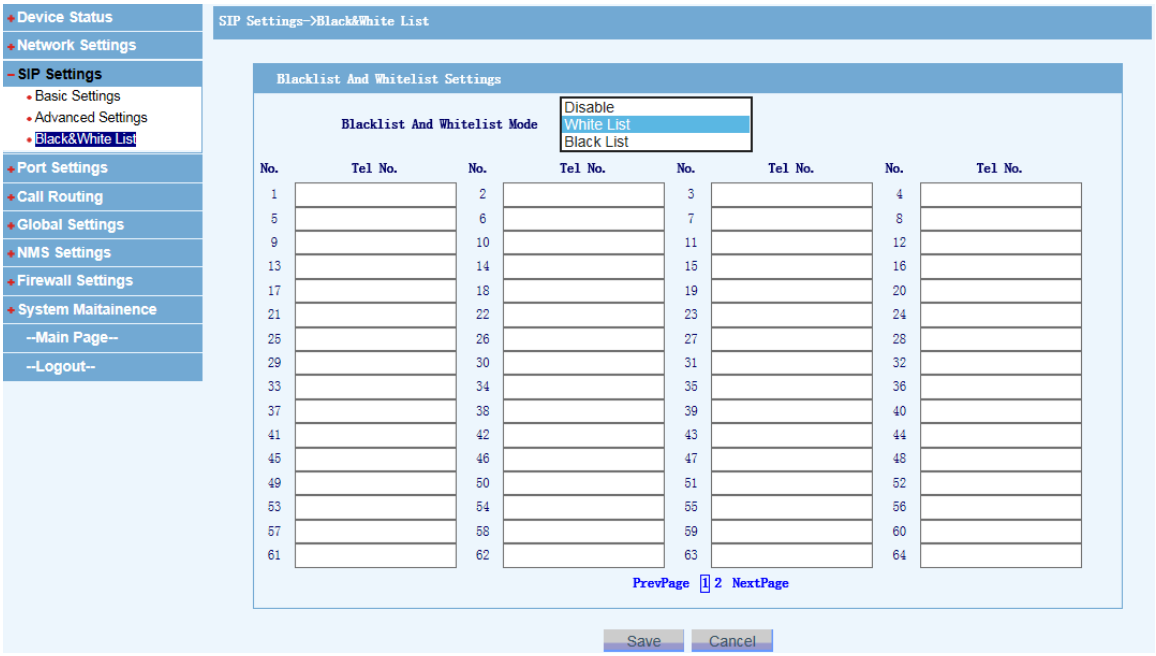
3. Register

- Registered switch mode, the option means use option message as judgment way of SBC switch. The register does not use option message mode, with the number of success or failure as a judgment way;
- Registered flow limit, It can set the number of packets per second
- Switch to backup SBC.
- Switch back to primary SBC.
- SBC Switching.

4.Session

- Session renew: It is closed by default;
- Session renew interval: It means the interval for conversation update;
- Register authorization: It needs clicking when platform supports SIP DIGIST notarization. While it needs closing when platform supports HTTP digist notarization. Close is defaulted.
- SIP URI with User parameters: It refers to the configured parameters connected with platform.
- PRACK: It is not started using by default. SIP protocol develops response header fields.
- Offline interval: when the SBC server is unavailable, resulting in no response to the registration message, Voice gateway initiates a registration request to the SBC server at an offline interval;
- CallerID mode:Get the explicit number from the From header field or the PPI(P-Prefered-Identity) header field
- Fax bypass parameters: set the parameters that are incidental to the fax negotiation in order to accommodate different platform requirements, fax/modem or x-fax/x-modem.
- Phone number format:respectively, normal and escape characters.

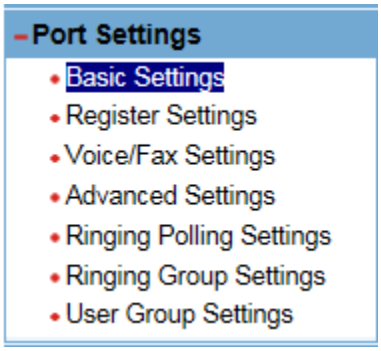
4.3.3 Black And White List



Explanations: It is used to filter incoming calls with specified numbers

- Select disable, and it does not enable incoming black and white lists;
- Select white list, it only allows the specified number of calls, prohibit other calls, the maximum 128 numbers.
- Select the blacklist. It only specifies the number of incoming calls, allows other numbers to be called, and the maximum 128 numbers.

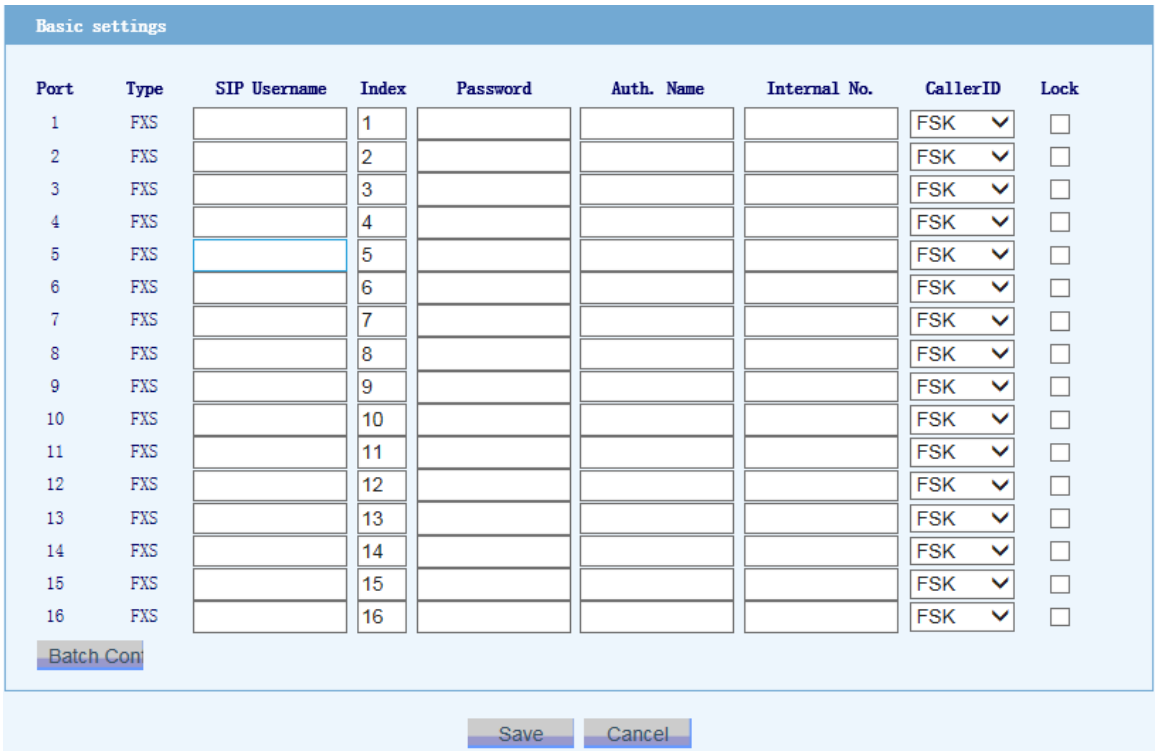
4.4 Port Settings



Opening “user port settings” can execute the basic settings like Voice gateway’s SIP registered account, registered code and other parameters;

Besides, users also can set user group, relay search group, voice fax and advanced business.

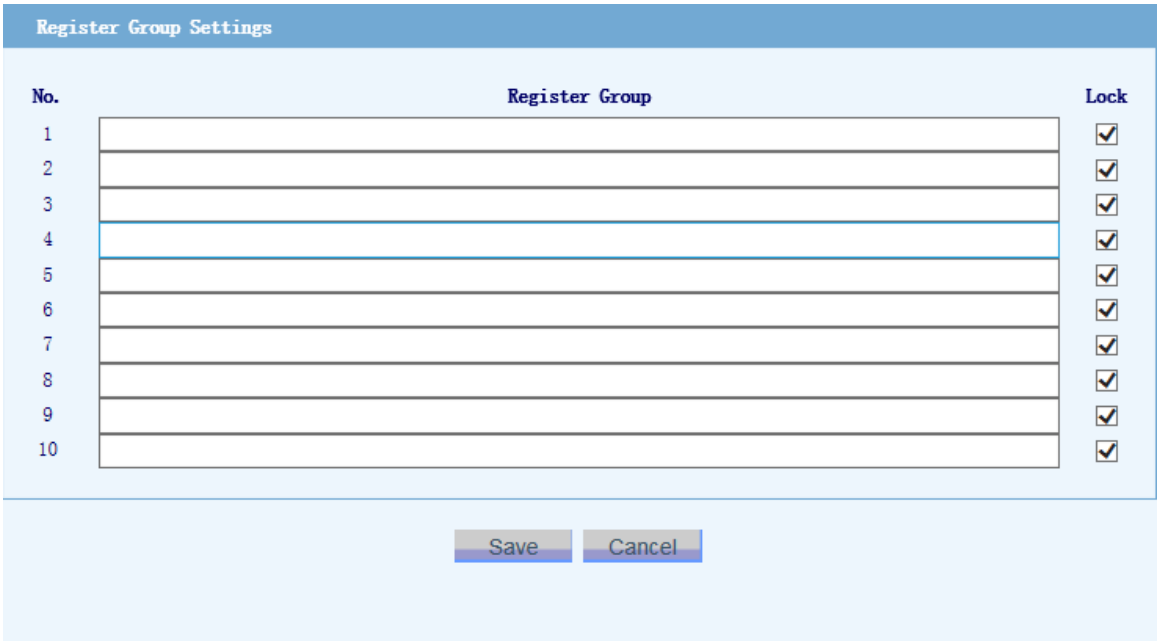
4.4.1 Basic Settings



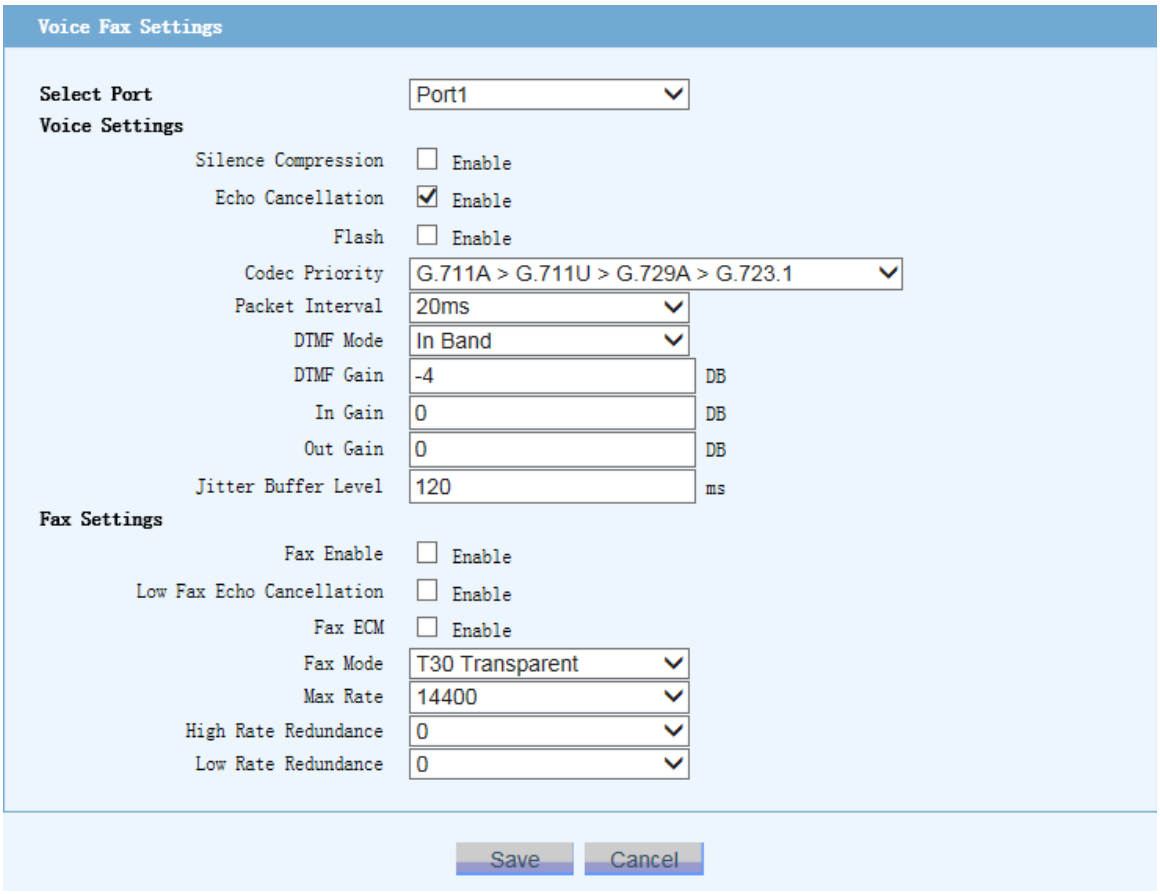
Explanations:

- Port: The sequence for telephone cable is in accordance with the marks on machine's external case;
- Port type: FXS and FXO;
- SIP Username: SIP account;
- Password: IIP account's password;
- Auth.name: It is usually identical to the username and needful for part of soft switch systems;
- Internal numbers;
- Caller ID display: It includes three types like forbiddance, FSK and DTMF;
- Lock: It means SIP cancellation state. The port is not allowed to be opened under this state.

4.4.2 Register Group Settings



4.4.3 Voice Fax Settings



Explanations:

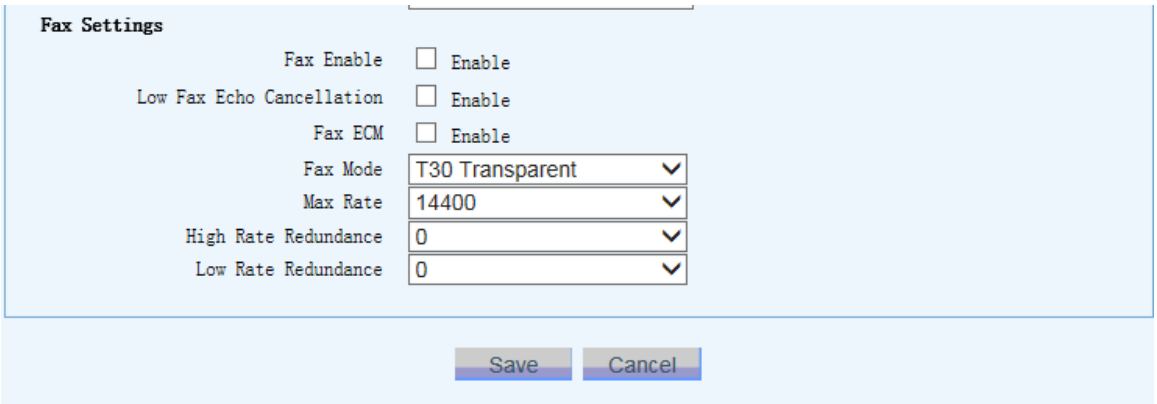
- Port configuration choice: It refers to choosing the port needs configuring.

  Voice Setting:

- Silence Compression: It is closed by default, means the period to recognize and eliminate the long-time silence from sound signal flow, so as to save network resources;
- Echo Cancellation: It is turned on by default;
- Flash: they are not opened by default;
- Codec Priority: It means voice coding of set port, and supports G711A/U, G723/5/6 and G729/A/B/AB;
- Package iterative: It means the size of voice data package of conversation setting. The more bigger the value is, the more bigger the voice data package transmitted at the time of conversation will be, which suggests it makes full use of the network broadband. Normally, it is applicable to the network with low broadband. However, the voice delay therefrom is more bigger as well.

Accordingly, set the value small depending on the network rate. The default value is 1, equal to 15ms;

- DTMF Mode: It supports inband, SIPINFO and RFC2833;
- DTMF gain: It is defaulted to be -4dB;
- Input gain; DSP input gain
- Output gain; DSP output gain
- Jitter buffer level: It is defaulted to be 120 milliseconds.

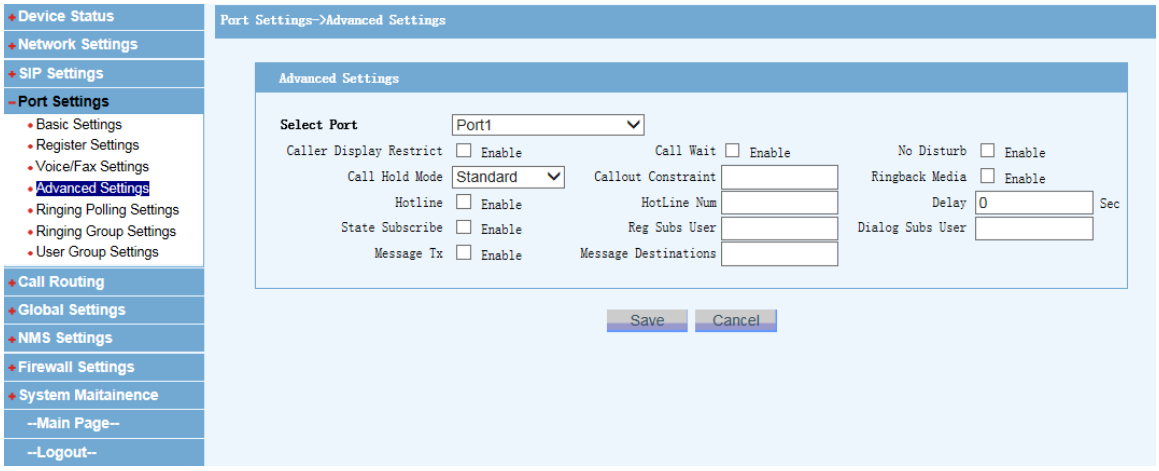


Explanations:

Fax parameters

- Fax error correction;
- Fax modes: It includes three modes of Voice, T38 and bypass (T30);
- The maximum rate;
- High-speed fax redundancy;
- Low-speed fax redundancy.

4.4.4 Advanced Settings

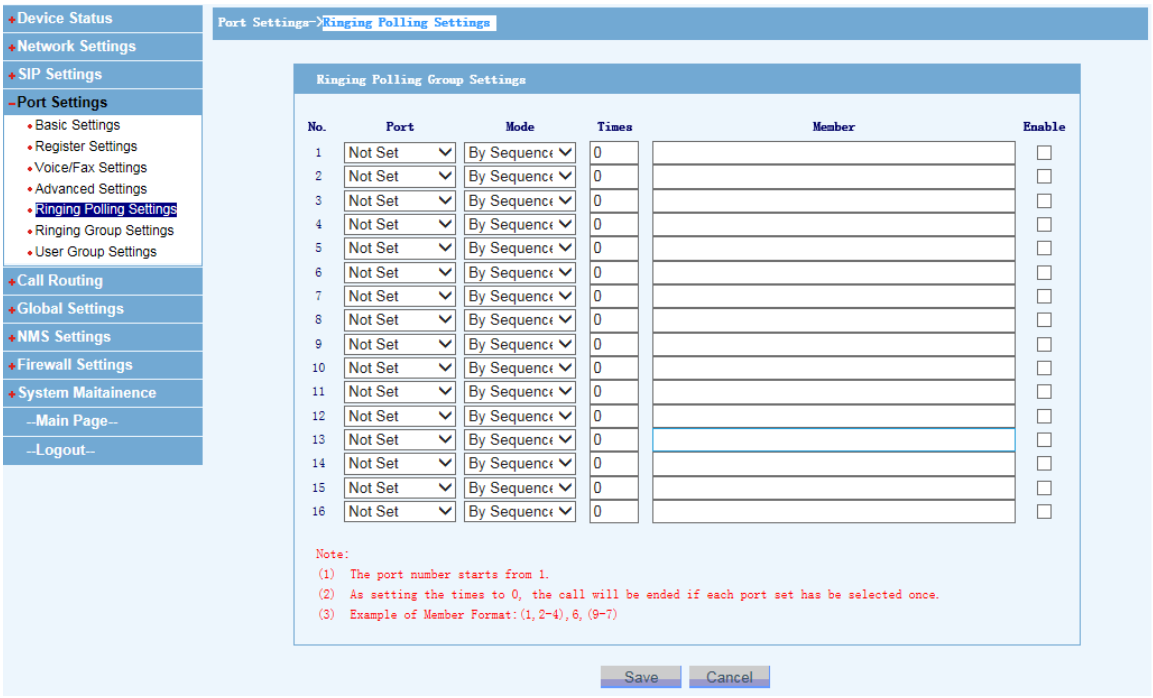


Explanations:

- Port choice: It means to choose serial number of the port needing configuration;

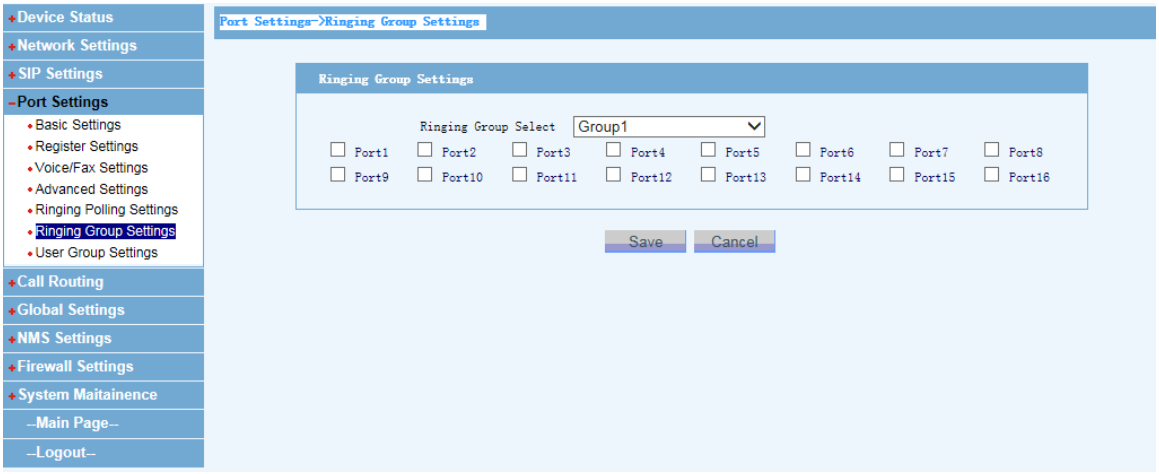
- The Caller Display Restrict:It is not enabled by default.
- Call Wait: It deems to be stated using;
- No disturb: The port will not be called in in enabled mode, so it needs to be started;
- Call Hold mode: It covers standard, forbiddance, SSCC, PassiveMGC and default standard;
- Callout Constraint.
- Usage pattern: Convention means common application, hotline means hotline mode, and the default one is conventional mode;
- Hotline number: Enter the designated hotline number here after setting the usage pattern as the hotline;
- Delay: It deems to be stated using;
- State Subscription: It is not started using by default;
- The registered status subscription user specifies the subscription user, which is not enabled by default
- Session status subscription user, specified subscription user, not enabled by default;
- Message Tx, specified message sent user, not enabled by default;

4.4.5 Ringing Polling Setting



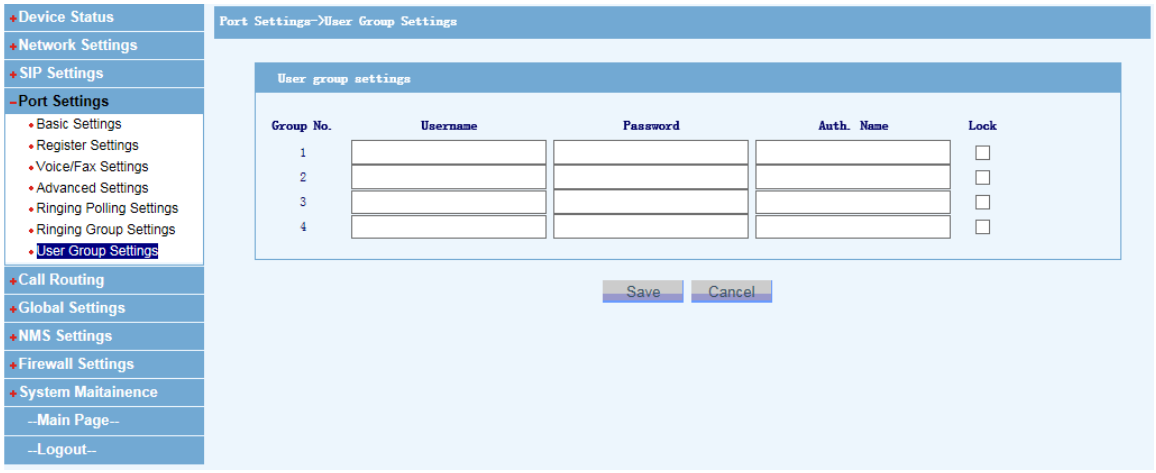
When using sequential ringing, need the turn them to the minimum: Global Parameter setting-timer setting-time of no answer.

4.4.6 Ringing Group Setting



Explanations:
Make the function of multiple extensions ring in the same ring group when call in, the max ring group number is 16;
Telpo suggestion: it is better to least than 16 users in a ring group when only one device.

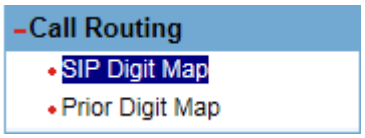
4.4.7 User Group Settings



Set it as a gateway user to register on the platform

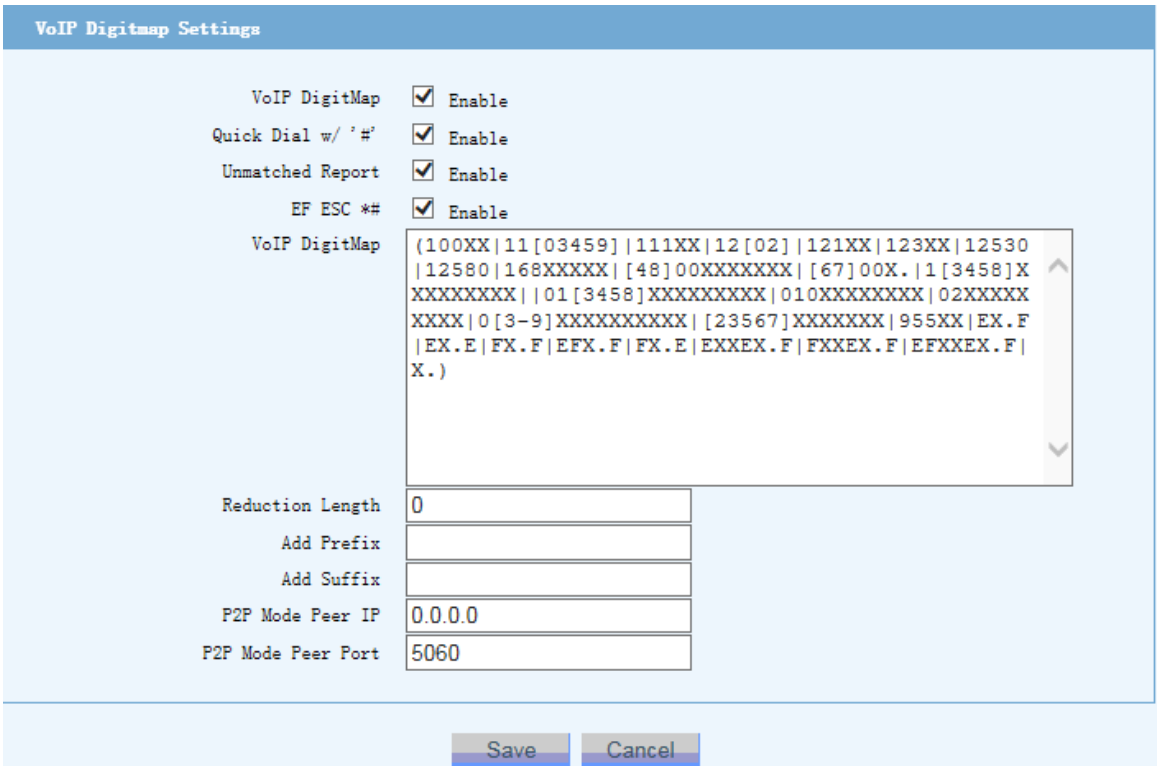
.

4.5 Dialing Routing Settings



The dialing routing settings include Sip Digit Map and Prior Digit Map.

4.5.1 SIP Digit Map

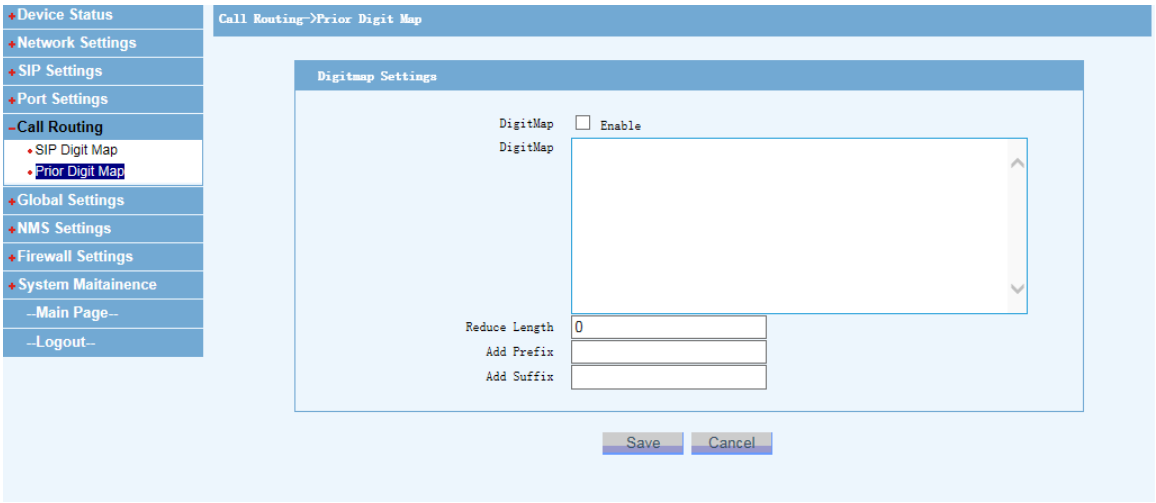


Explanations:

- Diagram: It is defaulted to be enabled;
- #speed dialing: Call out when getting # number, and set up according to requirements;
- Diagram: It is configured as “X”, which means it can call out by dialing any number; also can be configured as “XXX”，completely matching with the length of three numbers. If * and # combined together with a number, for instance, dialing #700*, the diagram will be set as FX.E; use “ | ” to separate more than one dialed numbers, for example, X.| FXXXE.

- Underweight length: It refers to the replacement rule of the number set as called number;
- Overweight: It refers to the replacement rule of the number set as called number;
- Additional overweight: It refers to the replacement rule of the number set as called number;
- Routing address: It is 0.0.0.0 by default, and used to register SIP server configuration. If it is mutually called in a same device, it will be set as 127.0.0.1; if it is point-to-point callin, it should be configured as the IP address of counter party;
- Routing port: It should be filled in as requested by SIP server, and the default is 5060.

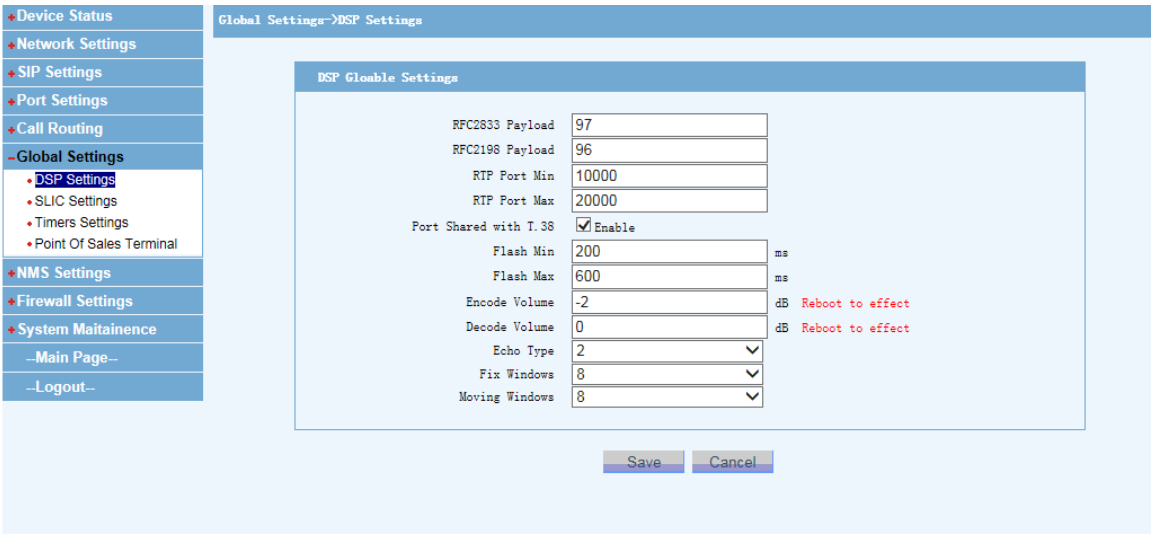
4.5.2 Prior Digit Map



- DigitMap: It is defaulted to be not enabled;

4.6 Global Parameter Settings

4.6.1 DSP Settings

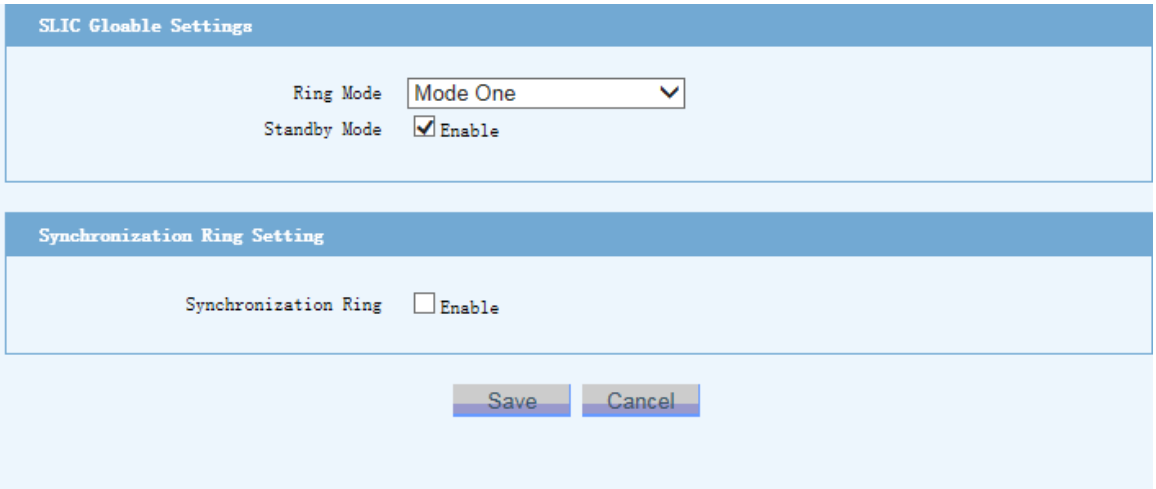


Explanations:

- RFC2833 Payload: The corresponding value is set as 97～101 based on demands, and the default is 97;
- RTP port scope: It refers to the port that RTP protocol is using at the time of setting conversation. SIP protocol ranges from 5000-6000 by default;
- RTP port minimum: It is 10000 by default;
- RTP port maximum: It is 20000 by default;
- Feeding mode: It is 48V by default, and 24V is optional;
- Ringing current mode: It is 75V by default, and 90V is optional;
- DSP type: The type under which DSP operates can be modified.
- Shoot fork upper and lower limit: you can modify the upper and lower time of the racket fork

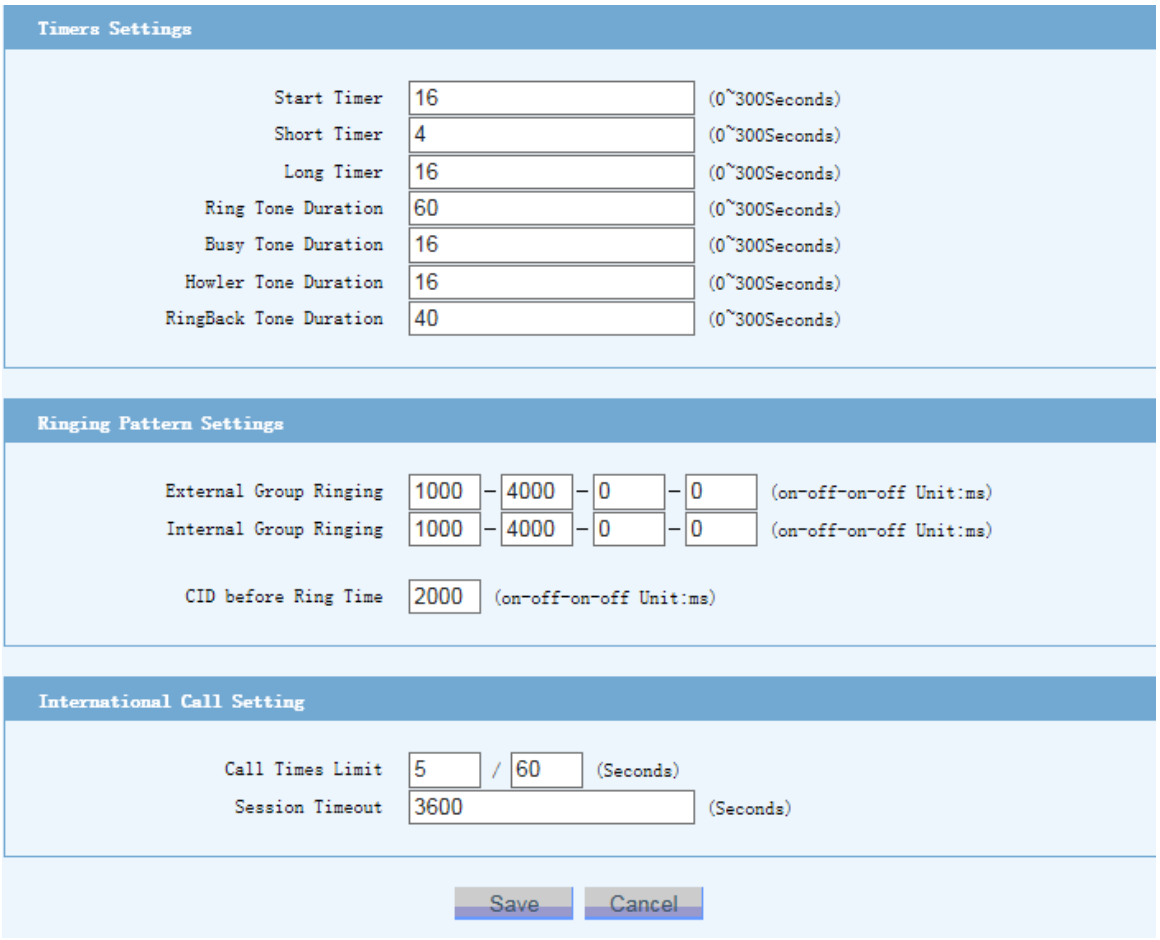
Note: Restart is needful after modifying the parameters.

4.6.2 SLIC settings



- Ring mode: different ringing modes can be set, including mode 1, mode 2 and mode 3; different modes of ringing voltage are different; defaults to mode 2.
- Standby mode: enabled by default.

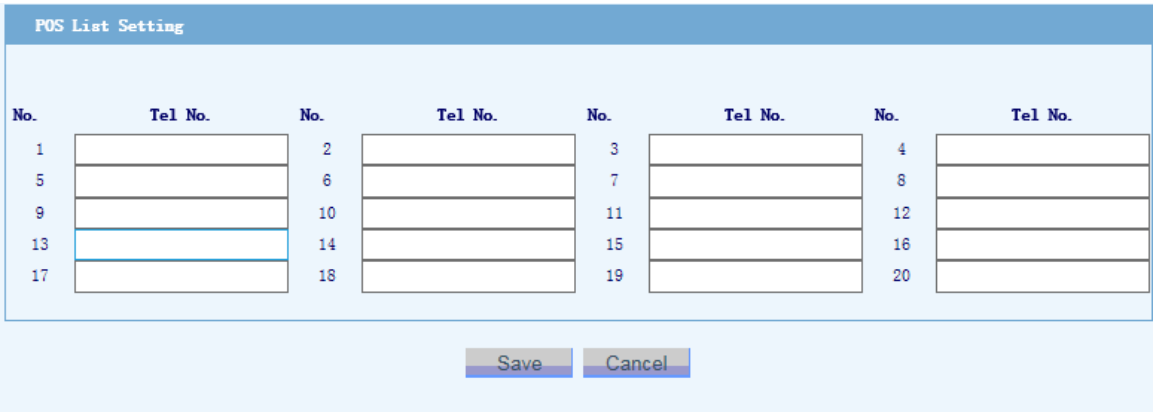
4.6.3 Timers



Explanations:

- No dial-up timeout (T timer): It is 16 seconds by default;
- Dail-up timeout (S timer): It is 4 seconds by default;
- Timeout of number matching failure (L timer): It is 16 seconds by default;
- Timeout for no response to long calling: It is 32 seconds by default;
- Busy tone timeout: It is 16 seconds by default;
- Howler tone timeout: It is 16 seconds by default;
- Dialing-party ringback tone timeout: It is 60 seconds by default.
- The ringing sequence setting, set different ringing modes to distinguish between group and out of group call.
- International Call setting, which limits international call out.

4.6.4 POS settings



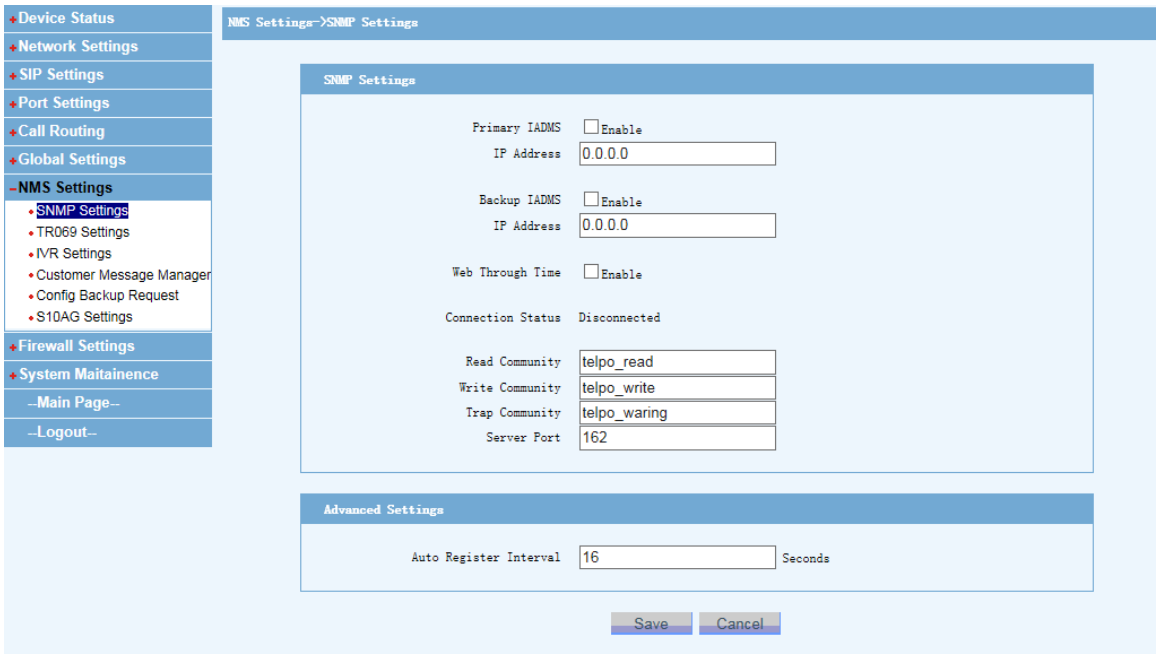
When it connects to the POS, you need to set the called number of the POS call, and you can set 20 called numbers.

Chapter V Advanced Settings

This chapter introduces how to make use of Voice gateway to perform some advanced settings by WEB web to let users utilize expanded functions. The contents contain in this section as follows:

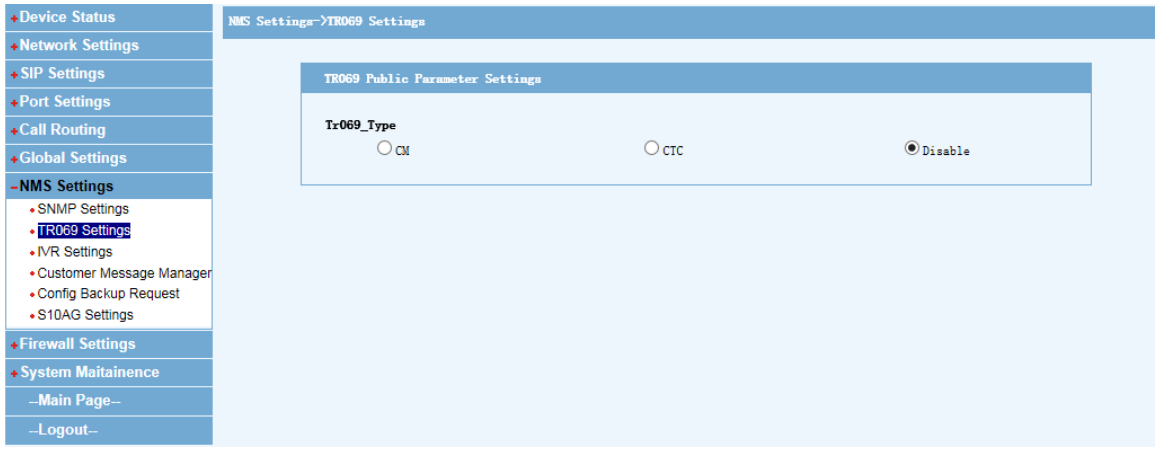
- Network management settings
- Firewall settings
- System functions

5.1 NMS Settings



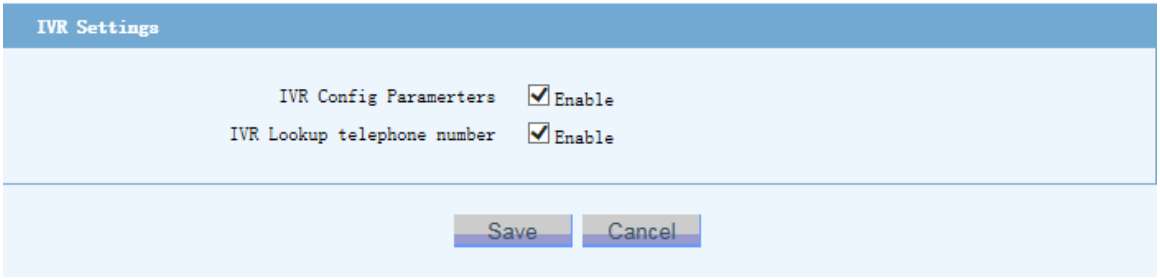
Explanations:

- Settings like whether to enable network management function, IP configuration of network management system and relevant parameter setting. Additionally, settings also include to set gateway's device name and automatically register cycle of network management station;
- Gateway port: It configures the port of network management server;
- Read Community: It is utilized to inspect GET command between Voice gateway and network management server;
- Write Community: It is utilized to inspect SET command between Voice gateway and network management server;
- Trap Community: It is utilized to verify TRAP between Voice gateway and network management server;



Explanations:

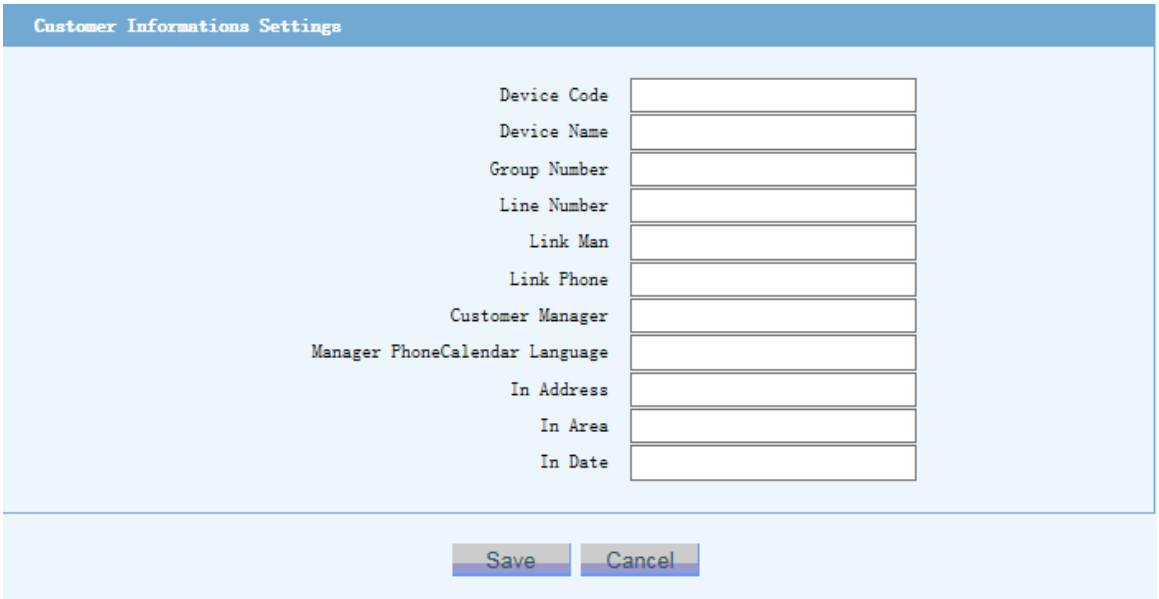
➢ Trun on/off TR069 function, support TR069(CM) and TR069(CTC)



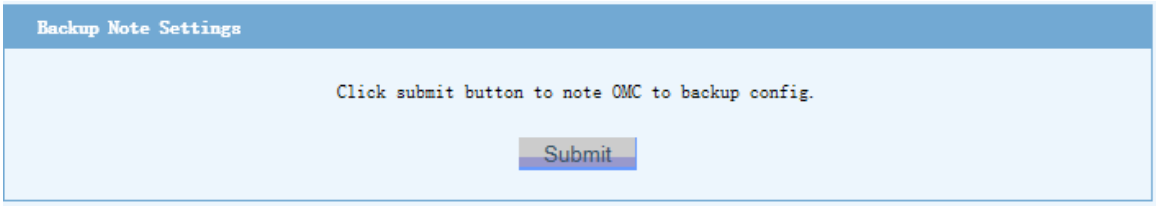
Explanations:

➢ IVR configuration parameters: It sets whether to turn on the IVR phone configuration function. After Voice gateway is started, you can access the phone at any port and enter the function code (*33*) into the voice interaction mode. According to the voice prompt, you can set Voice gateway's IP access mode, Restore rhe default configuration (including the IP address), set up the OMC network manager IP, and turn off or turn on the OMC network management. Global password: 0324, restore the default configuration password: 1234 (pay attention to confidentiality).

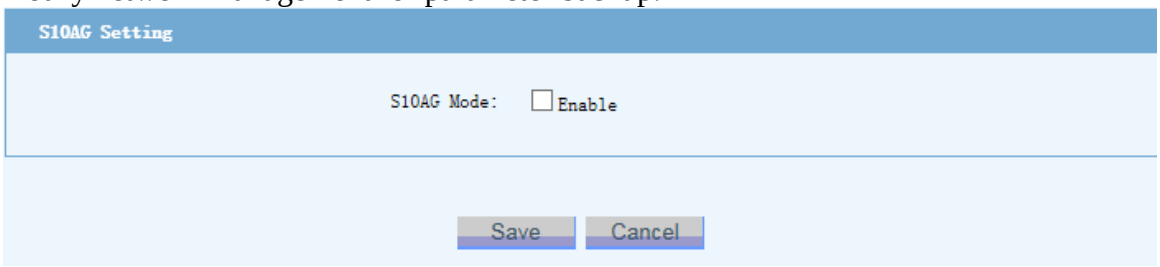
Attention: When need to use the PBX platform value-added service(like call forward unconditional, call transfer on busy, call transfer on no answer), please turn off IVR call business. If need to use the local call forward, please turn on the IVR call business.



Fill in customer information



Notify network management for parameter backup.

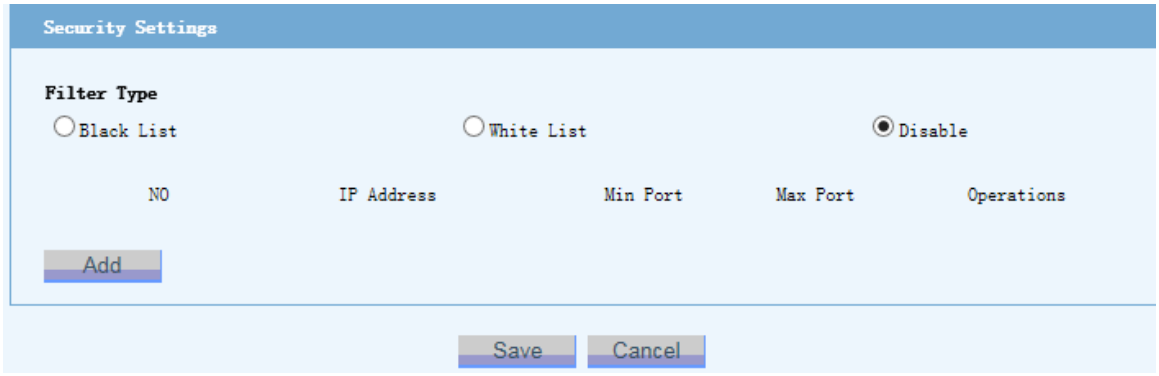


Explanations:

- Turn on S10 AG mode, it is not star up by default; Use to manage voice gateway device by S10 softswitch, the management includes account management, parameter management, software upgrade.
- It will prompt to restart when save, then it will work.

5.2 Firewall Settings

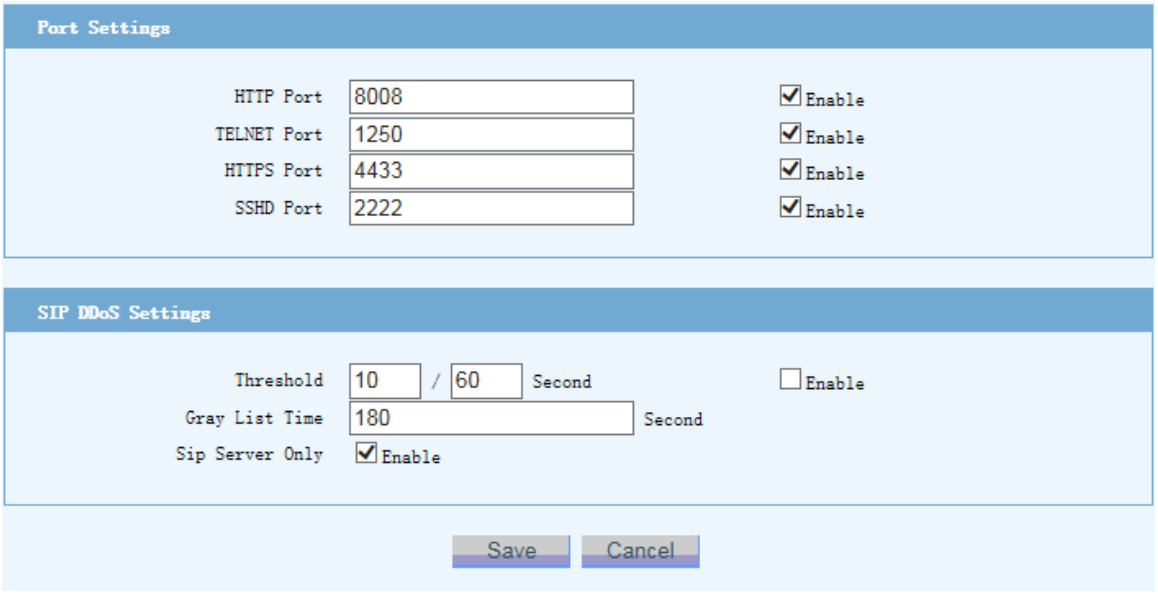
5.2.1 Security Settings



Explanation: The white list function is closed by default.

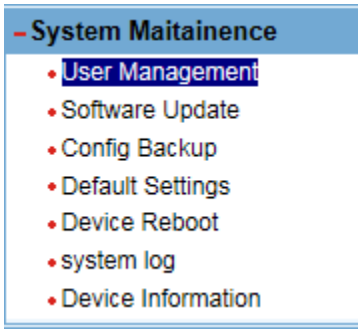
Note: when turn on the white list function, if do not add white list address, then it will forbid all IP to login WEB GUI. So if do not use white list function, please turn it off.

5.2.2 Port Settings



Only accept SIP server message, it is turn on by default. Reject to accept the non-SIP server message. If want to use FXO jumper, please turn off this function.

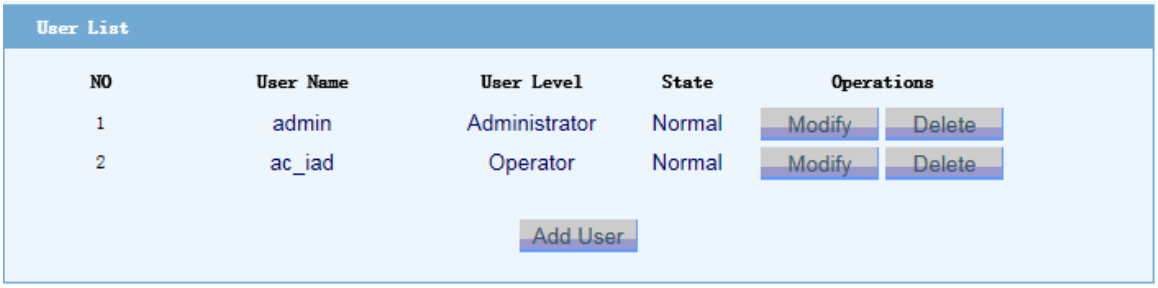
5.3 System Maintenance



System functions cover authority management, software upgrading, data backup upgrading, factory setting restoration, etc.

With the help of system functions, it is very easy to manage and back up Voice gateway rights, and to upgrade Voice gateway settings and replace software for Voice gateway.

5.3.1 User Management



✍ **Pay attention to capital and small letters when entering password.**

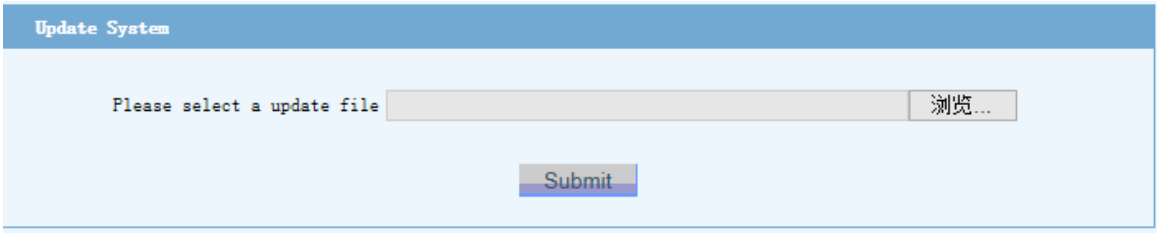
Account number: admin Password: psw.iad

Account number: ac_iad password: psw.access

- User account will be locked after 5 password error, and can not login. Need to login by console port, fill in the right password and enter system, use the user command to unlock.
- If forget password, please do factory reset.

5.3.2 Software Updata

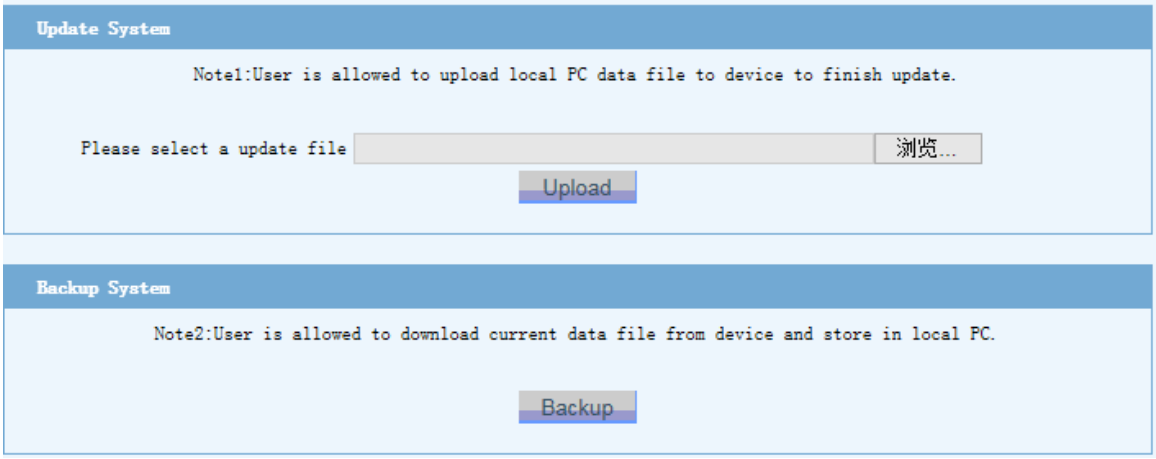
A: It is more likely to provoke irreparable damage in case of improper operation! Be cautious to use!



Voice gateway supports to update the software via http loaded file.

A: During upgrade, be sure to supply power for device, and forbid to cut off Voice gateway's power supply!

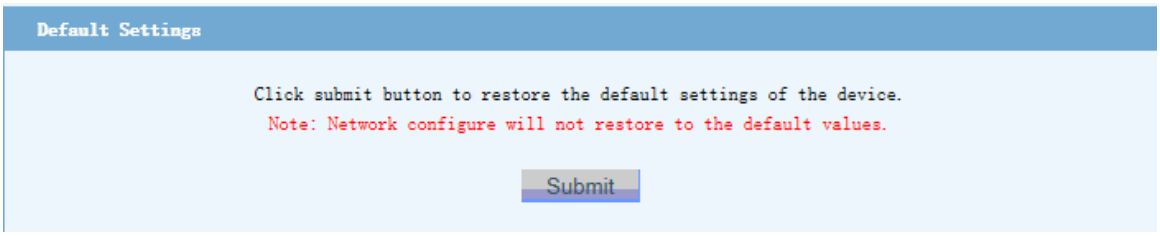
5.3.3 Config Backup



A: Prohibit the use of non configuration file, if you do not operate properly, it may cause irreversible damage! Please be careful with!!

To back up and restore the gateway configured information.

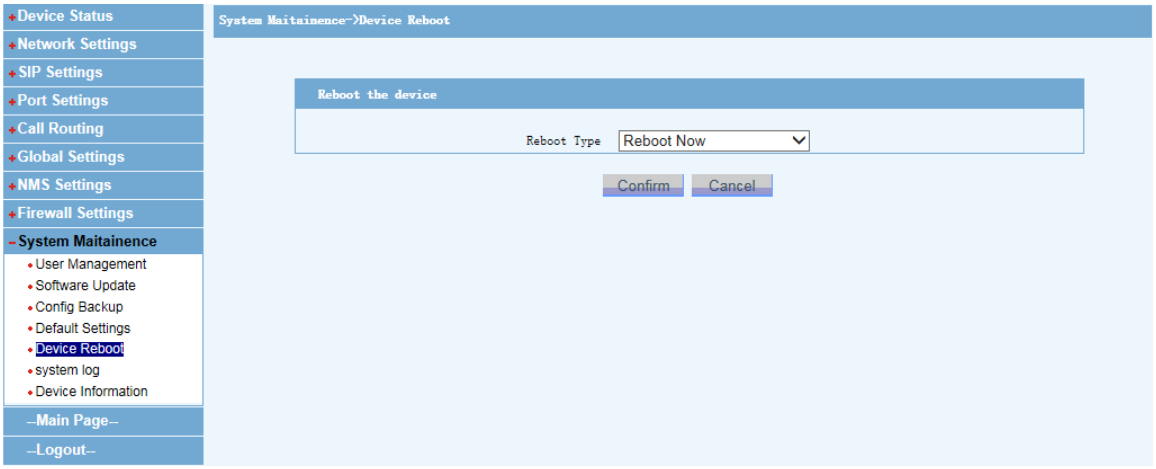
5.3.4 Default Settings



Explanation:

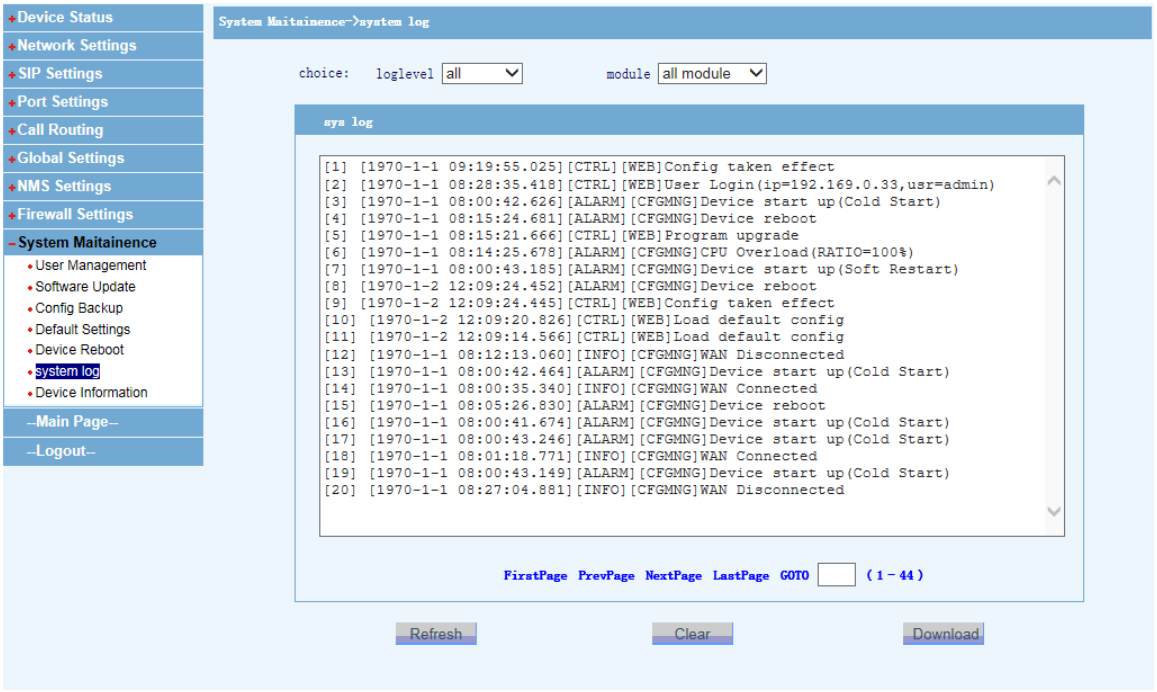
It needs to reserve gateway's IP address and routing settings except for factory settings.

5.3.5 Device Reboot



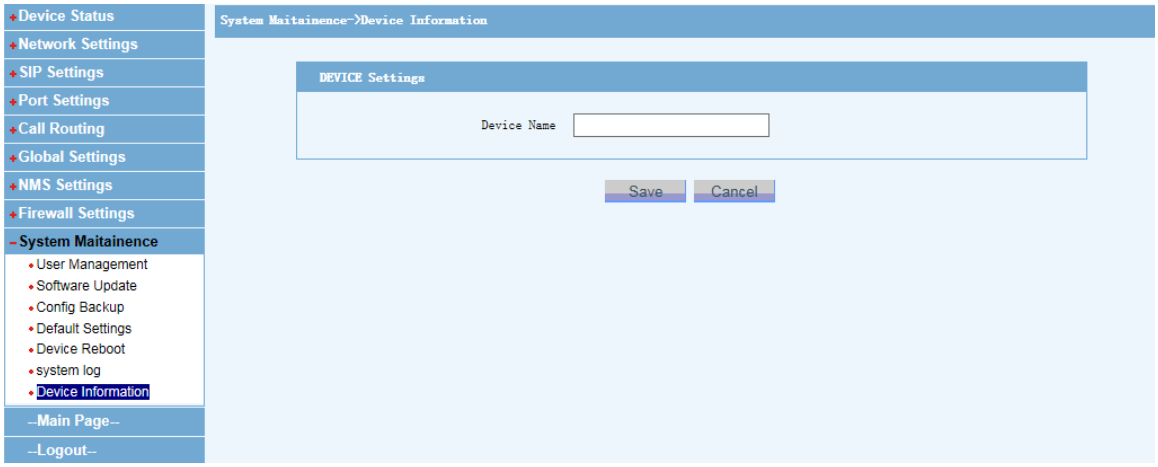
Explanations: Restarting gateway causes the unsaved parameters to be lost. Restart takes around 2 minutes.

5.3.6 System log



You can see the detailed system logs here.

5.3.6 Device information



You can name the device here.

Chapter VI Appendix

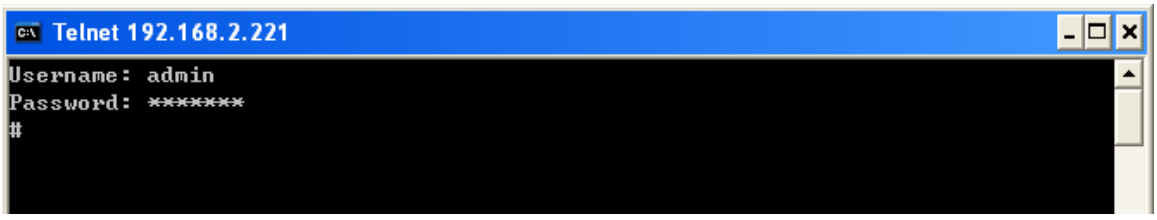
Appendix I Basic Configuration Commands

This section includes:
Command line interface profile: It focuses on introducing how to log onto the command line interface, command line format and characteristics;
Compressed chip configuration: It focuses on introducing the configuration commands and methods related to compressed chip;
Network parameters configuration: It focuses on introducing the configuration commands and methods related to network parameters;
System parameters configuration: It focuses on introducing the configuration commands and methods related to system.

6.1 Profile of Voice Command Line Interface

6.1.1 Command Line Entry

Users can get access to command line interface via the two ways as follows.
Link target board with PC via serial port, and then make use of super terminal and other software to log in;
Link target board with PC via network port, and then make use of Telnet login software to log in;
Under either login method, it needs to import the default username and password to log in. The default username is admin, and password is psw.AG. How to configure the users with different authorities, refer to section 1.2.4. Now it is possible for you to operate all introduced commands. See command line login interface as follows:



6.1.2 Command Line Prompts

CLI mould's command line prompts include the following two levels:

Root command level: Cursor display with "#" after, it means the current command is in the root command layer;

Sub-command level: current setting directory name with ">" and cursor display after , it means the current command is in the sub-command layer;

6.1.3 Command Classification and Command Format

Two major commands are root command and sub-command:

Root command

It refers to the first-layer command set after entering CLI, including

codec: compressed chip configuration command

network: network parameters setting command

protocol: protocol-related parameters setting command

switch: CLI command entering data configuration

system: command of system-related parameters setting and tool

manage: CLI command of management protocol-related settings

logout: CLI cancellation command

Help: command for help

show: various parameters display command

reboot: MDU restart command

take-effect: command to take make parameters effect.

Among the above said commands, 1～5 belong to the directory commands, namely, they have sub-commands.

Sub-command

It refers to the command set after entering a particular setting directory, see below:

Command Layer	Sub-command
Codec-layer sub-command	audio_port，cid，cn，dtmf，df_codec，ec，fax，fax_ctrl_mode，g.723.1，gain，jb，line_hook，oa，pktintvl，priority，rfc2833_pt，rfc2833_neg_mode，rfc2833_red_pt，ring，ring_pattern，sc，t38_ev_det_mode，t38_mode ，t38_port，tone，tone_duration，dm_timer，keepRTP，vbd，show，exit，help
Network-layer sub-command	dns，gateway，hostname，ip-mask，mode，ntp，vlan，pppoe，show，exit，help
Protocol-layer sub-command	al_par_en ， cmddelay ， digitmap ， empty_no_with_blank ，ep_name，ephterm，heartbeat，howler_logout，local_ctrl_resp，local_tone_ctrl，md5，mg，mgc，mgc2，mgc3，mgcmode，port_vis，pos_num，reg_reason_code，remote_dscr_resp，rereg，resend_time ， send_local_sdp ， sig_ab_mode ， trans_type ，wt_to_handle，show，exit，help
System-layer sub-command	debug，dmesg，download，ifshow，load，logoutep，logoutmg，mem，regmg，resourceinquiry，ping，protocol，ps，regep，

	reboot_type，route，save，test，timezone upload，version， exit，help
Manage/snmp-layer sub-command	agent, community, exit, group, help, show, switch, trap, user

Every command format is organized in the form of “command name, parameter 1, parameter 2.....”. For instance, network> ip-mask 192.168.1.2/24

Therein, “network>” is the command prompt, “ip-mask” is the command name, and “192.168.1.2/24” is a parameter.

Part of commands have no need of parameters, and can be operated by way of interaction.

6.1.4 Auxiliary Function

Automatic completion functions of command and parameter

CLI module has the automatic completion functions of command and partial parameters. If users press “TAB” button when entering command word or parameters, CLI will automatically look for the words matching with the entered ones. If it looked for a sole matched command or parameter, CLI will automatically make the whole word complete and add a space after it so as to smoothly import a next parameter. For instance, after inputting “n”＋TAB in the root command layer, CLI will automatically complete the command “network”: ＃n（TAB）—> ＃network.

If no any match word can be found, TAB button will be ignored.

Function for command line history record

After ending the command line entry (press enter key after nonempty character string), CLI will write the contents input last time into command history butter memory; After pressing upkey or downkey, users are able to search command history records and the searched records will be automatically written into command line.

Parameter absence reminding function

When parameters are not filled in or incorrect ones are completed in, a lot of available parameters will display once enter key is pressed. For example, input “cid” in “codec” command layer and press enter key, CLI will display reminding information codec_ep1> cid (enter key): The command is not completed! Available parameters: dtmf fsk command usage: cid {dtmf | fsk}

Hidden command and maskoff command

The hidden command refers to the command that the user fails to complete by CLI command or help function. These commands only work after users manually enter the preset hidden command name. For instance: system> user

The maskoff command refers to the command is not allowed to execute under the command line logged in by Telnet. These commands also are the ones that were preset via procedure code.

6.2 Detailed Explanations for Voice Command Usage

6.2.1 Compressed Chip Setting Command Set

You could go to compressed chip setting contents once entering “codec” command, see below: # codec
Please input endpoint index (1 ~ 24): 1

In consideration of many ONU ports, so the subport displays port’s parameters. The host of parameters are the global parameters, and the parameters showing in every port mode is the same as the set ones. Including
Endpoint1 audio port: 4000
Endpoint1 T.38 port: 14000
The above two are different from the parameters shown in each port, and they can be set respectively.

CID mode setting command
codec_ep1> cid { parameter }
This command is used to set the caller ID display mode, parameter is “dtmf”or “fsk”.

Comfort noise setting command
codec_ep1> cn {parameter}
The parameter is only “enable” or “disable”, “enable” means to turn on the comfort noise function, and “disable” means to turn it off.

DTMF mode setting command
codec_ep1> dtmf
DTMF Mode:
[1] In Band
[2] RFC2833
[3] RFC2833 Redundance
Input your choice[1~3]:
This command is set by way of interaction, and it will work if only the corresponding serial number is chosen.

Command to cancel Echo switch setting
codec_ep1> ec {parameter}
The parameter is only “enable” or “disable”, “enable” means to turn on the echo canceling function, and “disable” means to turn it off.

Fax mode setting command

codec_ep1> fax {parameter}
The parameter is only “t38” or “transparent”, “t38” means the fax protocol is T.38, and “transparent” means the fax protocol is EAP over radius.

G.723.1 code rate setting command
codec_ep1> g.723.1 {parameter}
The parameter is only “high” or “low”, “high” means the code rate is 6.3Kbps, and “low” means it is 5.3Kbps.

Gain setting command
codec_ep1> gain { parameter 1} { parameter 2}
Therein, parameter 1 is the In-Gain, the value of In-Gain; parameter 2 is Out-Gain, the value of Out-Gain. The value of the both ranges from -31to 31, unit is dB.

Vibrating buffer depth setting command
codec_ep1> jb {parameter}
The parameter is only “0”, 50”, 100”, 150” or “200”, unit is ms.

“line hook” parameter setting command
codec_ep1> line_hook
This command is set by way of interaction, it does not need any parameter, and the set parameters include:

- ☐ Pulse Min Width
- ☐ Pulse Max Width
- ☐ Inter Digit Min Time
- ☐ Flash Min Time
- ☐ Flash Max Time
- ☐ Off Hook Time
- ☐ On Hook Time

Such as:
codec_ep1> line_hook
Pulse Min Width [40]:
Pulse Max Width [75]:
Inter Digit Min Time [150]:
Flash Min Time [100]:
Flash Max Time [400]:
Off Hook Time [40]:
On Hook Time [400]:
Therein, the value in “[ ]” refers to the value set to the parameter currently, unit is ms.

Output attenuation setting command
codec_ep1> oa {parameter}

The parameter is only " - 3.5", " - 7" or "0", unit is dB.

Command to set compressed chip package cycle

codec_ep1> pktintvl {parameter}

The parameter is the package cycle, unit is ms. For example:

codec_ep1> pktintvl 20

Coding priority setting command

Interaction setting mode:

codec_ep1> priority

Only "priority" command is entered, the command line will inquire the priority that user is going to set, as shown below:

Algorithm priorities:

[1] G711A G.711U G.729 G.723.1
[2] G711U G.711A G.723.1 G.729
[3] G729 G.711A G.711U G.723.1
[4] G729 G.723.1 G.711A G.711U
[5] G723.1 G.711A G.711U G.729
[6] G723.1 G.729 G.711A G.711U

Input your choice[1~6]:

At this time it is only allowed to enter numbers from choice [1~6]. Users are able to press "Ctrl + C" or directly button enter key to get out of priority setting status if driven by the intention to give up setting.

Non-interaction setting method

codec_ep1> priority {parameter}

The parameter is only chosen from [1~6], which stands for the sequences of six coding priorities under interaction method.

Setting command of value of RFC2833 payload type

codec_ep1> rfc2833_pt {parameter}

The parameter ranges from 96 ~ 127.

Ring time setting command

codec_ep1> ring {parameter1} {parameter2}

Parameter 1 is "on time", namely the ring duration time; parameter 2 is "off time", namely the ring interval time. The parameters for the both range from 0 ~ 65535, unit is ms.

Command of mute compressed switch setting

codec_ep1> sc {parameter}

The parameter is only "enable" or "disable". Therein, "enable" means to open the mute compressing

function; and “disable” means to close it.

T38 control mode setting command

codec_ep1> t38_mode {parameter}

The parameter is only “mgc” or “mg”. Therein, “mgc” means T38 mode is controlled by mgc; and “mg” means T38 mode is controlled by mg.

T38 port setting command

codec_ep1> t38_port

The command is set by mode of interaction, it does not need any parameter. After carrying out a command, CLI will show the value range of port is 1 ~ 65535, and show the port number of Endpoint 1, input new port number after Endpoint1. For example:

Port range: 1 ~ 65535

Endpoint1 [14000]: 10000

During the setting, users button the enter key to keep the original port setting, and press “Ctrl + C” to cancel it.

Ring style setting command

codec_ep1> tone {parameter}

The parameter is only “0”, 1” or “2”, which stands for different ring styles.

Command for progress tone duration time setting codec_ep1> tone_duration

The command is set by mode of interaction, it does not need any parameter. The set parameters include:

- ☐ Dial Tone Duration
- ☐ Busy Tone Duration
- ☐ Howler Tone Duration
- ☐ Digit max interval
- ☐ Ringback Tone Duration
- ☐ Ring Max Time

Call Waiting Time

- ☐ Confirm Tone Duration

Such as:

Dial Tone Duration (1 ~ 254), [60]:

Busy Tone Duration (1 ~ 254), [60]:

Howler Tone Duration (1 ~ 254), [60]:

Digit Max Interval (10 ~ 60), [25]:

Ringback Tone Duration (1 ~ 254), [60]:

Ring Max Time (1 ~ 254), [60]:

Call Waiting Time (1 ~ 30), [30]:

Confirm Tone Duration (1 ~ 254), [0]:

Therein, the numbers in “[ ]” means the value set for the parameter currently, unit is second.

H.248 timer setting command

codec_ep1> dm_timer {parameter1} {parameter2} {parameter3}

Therein, parameter1 is the short timer, parameter 2 is the long timer, parameter 3 is the start timer, and unit is second.

Setting command of RTP flow keeping of H.248

codec_ep1> keepRTP

The command is set by mode of interaction, it does not need any parameter. After performing the command, CLI will show RTP flow keeping on-off state, and then inquire the user whether to turn it on or turn it off. For example:

RTP keeping is enabled.

Enable RTP keeping? [y/n]:

At this time users only can enter bite “y” or “n”, and have no need of noting capital and small letters. “y” means to turn on, and “n” means to turn off.

Users can close, or directly press enter key to automatically get out of the setting, or press “Ctrl + C” to cancel the setting.

codec_ep1> show {parameter}

The parameter can be “all” or the command name of each compressed chip setting, for instance:

codec_ep1> show dtmf

When the parameter is “all”, it will show all parameter values in directory of this layer; when the parameter is the designated command name, it will show the parameter value. Therein, when the parameter configuration value is different from the value which is being used, CLI will show the value which are being used together, and with “*” before them. For instance:

codec_ep1> show fax

("*" means the Running Config Value)

FAX mode: T.38 * Transparent

Exit command

Interactive exit mode

codec_ep1> exit

If there is no any parameter set, please directly go back to the root command layer.

If there is one or more parameter sets, after buttoning “exit”, the command line will inquire the users whether to save the setting or take effect immediately, see below:

Changes found, please select the operations:

[1] Discard changes.

[2] Save changes without taking effect.

[3] Save changes with taking effect instantly.

Your choice? (Press Ctrl-C or Enter to cancel exiting):

Therein, “[1]” means to give up setting, “[2]” stands for only to save the changed parameters instead

of taking effect immediately, and "[3]" refers to saving the changed parameters and take effect immediately. After making a choice, CLI will go back to the root command layer. Users can button "Ctrl-C" or enter key to cancel the operation.

Non-interaction mode

codec_ep1> exit discard

Give up setting and return back to the root command layer.

codec_ep1> exit save-only

Only save the setting and do not take effect immediately.

codec_ep1> exit effect

Save the setting and take effect immediately

How to perform "exit" command in the directory of each layer? It is the same as the above said. So there will be no any detailed explanations.

Help command

codec_ep1> help [parameter]

The parameter is the name of any command in this directory, it is optional. For instance, enter "help ring"：codec_ep1> help ring in codec layer.

Function: Set ring on time and off time.

Command usage: ring {On Time} {Off Time}

Therein, "Functioln" is the functional explanation of this command; and "Command usage" is the grammar of it.

When command "help" has no any parameter, CLI will show the function explanations of all commands in this layer.

In future, usage of command "help" in directory of each layer is same, and there will be no any detailed explanation.

6.2.2 Network Parameter Setting Command Set

Once input "network" command in the root command layer, you could go to network parameter setting content, for example, ＃network

If the network setting is based on the unit of connection, every connection can be set different network configurations.

Add connection#network> add connection {parameter}

Parameter is the identifier of connection which is going to be added. After adding connection, you could go into the corresponding connection to set related parameters.

Go into the corresponding connection

#network> connection {parameter}

Parameter is the identifier of connection which is going to be gone into. You could go into the corresponding connection to set related parameters, including IP, VLAN and the like.

Example: #network> connection connection1

Setting of the physical port for connection
network/conn connection1> set phyport {parameter}
Parameter is the physical port. There are two physical ports on the device, one is FEO, the other is FE1. So parameter's value is fec0 or fec1.

Setting of connection static network mode
#network/conn connection1> set ip static {parameter1} {parameter2}
Parameter 1 is the IP address that will be set, and parameter 2 is netmask.

Setting of connection dhcp network mode
#network/conn connection1> set ip dhcp
There is no need of any parameter when setting connection dhcp network mode, just button enter key.

Setting of connection PPPoE network mode
#network/conn connection1> set ip pppoe {parameter1}{parameter2}
Parameter 1 is the username of pppoe; and parameter 2 is the password of it.

VLAN of connection closure
#network/conn connection1> set vlan {parameter}
Setting parameter as disable can close VLAN of connection.

VLAN of connection setting
#network/conn connection1> set vlan enable {param1} {param2}
Parameter 1 is the ID of vlan; and parameter 2 is the priority of it.

configuration of connection effect taking
network/conn connection1> exit effect
The configuration of connection will take effect once this command is carried out.

DNS setting command
network> dns {parameter1} {parameter2}
Parameter 1 is the IP of DNS1; and parameter 2 is the IP of DNS2.
The address format is xxx.xxx.xxx.xxx. For instance, 202.116.128.86. All the IP addresses mentioned below are subject to this format.

Gateway setting command
network> gateway {parameter}
The parameter is the gateway IP address.

NTP setting command

network> ntp

The command is set by mode of interaction, it does not need any parameter. After performing the command, CLI will show the on-off state of current NTP client service, and then inquire users whether to open or close it. Users can choose “disable” or directly button enter key to get out of the setting, or else, CLI will show the value set for the address of current NTP server, and inquire users about the server address that is going to be reset. For instance:

Ntp service is disabled.

Enable Ntpserver? [y/n]: y

Current Ntp IP or domain name is "www.asia.pool.ntp.org".Please input a new Ntp IP or domain name.

NTPSERVER (Enter to pass):

Ntp IP or domain name is not changed.

Buttoning “Ctrl + C” during setting can give up setting.

Exit command

network> exit [parameter]

Help command

network> help [parameter]

6.2.3 Protocol-related Parameter Setting Command Set

It will immediately go into the protocol-related parameter setting content once input “protocol” command in the root command layer, see below:

protocol

Port name setting command

protocol_ep1> ep_name {parameter}

The parameter is the port name, and the max bit is 255.

Command to set heartbeat mode and interval protocol_ep1> heartbeat

The command is set by mode of interaction, it has no need of any parameter. Buttoning enter key will remind you whether to close heartbeat mode or which heartbeat mode should be chosen. Choosing “disable” or directly buttoning enter key will automatically get out of settings; choosing “[2]MGC” or “[3]MG” will let system require to set heartbeat interval and heartbeat survival time, and choosing “[3]GC” mode will inquire whether to send heartbeat package. Heartbeat interval’s value ranges from 1~65535, and its survival time’s value ranges from 1~255, unit is ms.

Command to set MG domain name and port

protocol_ep1> mg {parameter1} [parameter2]

Parameter 1 is the MG domain name, and parameter 2 is the MG port number (optional). The max domain name bit is 255, and port number ranges from 0 ~ 65535.

Command to set MGC domain name and port protocol_ep1> mgc {parameter1} [parameter2]
Its usage is the same as the “mg” command.

Command for setting standby MGC domain name and port

protocol_ep1> mgc2 {parameter1} [parameter2]
or
protocol_ep1> mgc3 {parameter1} [parameter2]
Its usage is the same as the “mg” command.

Command of H.248 permission mode setting
protocol_ep1> trans_type {parameter}
The parameter is only “tcp” or “udp”.

Command for setting H.248 signaling abbrev-mode
protocol > sig_ab_mode {parameter}
The parameter is only “enable” or “disable”. “enable” means to open it, and “disable” means to close it.

Command for setting H.248 temporary endpoint
protocol > ephterm
The command is set by mode of interaction, it does not need any parameter. After carrying out the command, CLI will require users to set relevant parameters. Direct buttoning of the enter key by users will keep the original set value, and buttoning “Ctrl + C” can cancel the settings. For instance:

protocol_ep1> ephterm
Ephterm Prefixion [RTP/]:
Start NO. [0]:
Ephterm Max Number [10000]:
Ephterm Step [1]:
Ephterm Name same length [n] (y/n)?

Command to set H.248 command re-sending time
protocol_ep1> resend_time {parameter}
The parameter is the time value of resent command, and unit is second.

MGC platform setting command of H.248
Interaction setting mode
protocol_ep1> mgcmode
After only entering “mgcmode” command, the command will inquire users about the MGC platform

that will be set. See below:

MGC Mode:

[0] DEFAULT

[1] HW

[2] ZTE

[3] BELL

Input your choice[0~3]:

At this time only numbers chosen from 0～3 can be input. If the users want to give up the settings, they are able to button “Ctrl + C” or directly button enter key to get out of priority setting state.

Non-interaction setting mode

protocol_ep1>mgcmode {parameter}

Only numbers chosen from 0～3 can be input, which stands for the three MGC platforms under interaction mode.

Command to set H.248 command delay

protocol_ep1> cmddelay {parameter}

The parameter is the time value of command delay, and unit is ms.

Parameter displaying command

protocol_ep1> show {parameter}

The parameter is only “all”, auth“, “ep”, heartbeat”, mg”, mgc” or “type”. If the configured parameter value is not the same as the valued being used, CLI will display the being used value concurrently, and before them there is “*”, for instance:

system> show mg

("*" means the Running Config Value)

MG name: 192.168.1.1 * 192.1681.166

MG port: 2727

Exit command

protocol_ep1> exit [parameter]

Help command

protocol_ep1> help [parameter]

6.2.4 System Parameter Settings and System Tool Command Set

You are able to enter system parameter settings and system tool contents once input “system” command in the root command layer, see below:

system

System user configuration command

The user groups of the system cover Admin, DataUser, VoiceUser and Guest. Each group has the default users, they are Admin, DataUser, VoiceUser and Guest respectively. Password and username are not different. Users from different group have different rights. User from guest group only has right to read, but has no right to configure; user from VoiceUser is only able to configure voice business but unable to configure data business; user from DataUser is only able to configure data business but unable to configure voice business; and user from Admin group is administrator, possessing all rights. The following command is for user from Admin group, and they are invisible for users from other groups after login.

System users increase

#system> user add {parameter1} {parameter2} {parameter3}

Parameter 1 is the username which will be added; parameter 2 is the login password of users; and parameter 3 is the group that the users belong to. The parameter 3 is only 1, 2, 3 or 4, they are Admin, DataUser, VoiceUser and Guest respectively.

System users modification

#system> user modify {parameter1} {parameter2} {parameter3}

Parameter 1 is the modified username; parameter 2 is the login password of users; and parameter 3 is the group that the users belong to. The parameter 3 is only 1, 2, 3 or 4, they are Admin, DataUser, VoiceUser and Guest respectively.

System users deletion

#system>user delete antion {parameter}

The parameter is the username that will be deleted.

All system users displaying

#system>user list

This command has no need of any parameter. All information, including username and user group, will be displayed after the command is performed..

Commission command

system> debug {parameter1} {parameter2}

Parameter 1 is only “call”, pri” or “start”; and parameter 2 is only 0～3. Parameter 1 refers to the commissioned objects that will be set, such as “Call” module and private protocol module, or the “start” when the users begin to enter the commission status. Parameter 2 refers to commission level. Normally, display of more information means the level is more lower. No any information will be displayed at level 0. For example:

system> debug pri 3

system> debug start

Users are unable to perform other commands in the commission status. The command line status can not be restored until you button “Ctrl + C” to get out of the status.

Document upload/download command

Download command

system> download {parameter1} {parameter2} {parameter3}

Parameter 1 only can be “config”, pf0”, pf1”, pf2” or “program”. Of them, “program” refers to procedure mapping files, others refer to parameter configuration files, they are required to be relative to the different parts of Flash respectively. Parameter 2 is the IP address of server, for instance, 192.168.1.3. Parameter 3 is the name of server port document, for example:

system> download config 192.168.1.3 cfg-pf2

system> download program 192.168.1.3 prog

Upload command

system> upload {parameter1} {parameter2} {parameter3}

Usage is similar with download command.

Internet interface information display command

system> ifshow

This command does not need any parameter. It is transplanted into ifconfig command of busybox, and used to display network access information, but is without configuration function. For example:

```
eth0      Link encap:Ethernet  HWaddr 001D:2B:02:AB:0C
          inet6 addr: fe80::21d:2bff:fe02:ab0c/64 Scope:Link
          UP BROADCAST RUNNING  MTU:1500  Metric:1
          RX packets:736646 errors:0 dropped:0 overruns:0 frame:0
          TX packets:471395 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RXbytes:63351556(60.4 MiB) TXbytes:31267836
          Interrupt:1
```

Manual-cancellation endpoint command

system>logoutep

This command is performed by way of interaction, it does not need any parameter. It is used to force endpoint to be canceled from MGC, so as to forbid this endpoint’s NGN business. After the command is executed, CLI will display the following information:

```
system> logoutep
Start endpoint (1~24): 1
Number of endpoints (1~24): 1
POTS1 Status
Act:
Port:
Reg:
Hook:                                   HOOK_ON
Conn:                                   IDLE
Sig:                                    IDLE
```

Among them, “Start endpoint” is the operating start endpoint number, beginning with 1; and “Number of endpoint” refers to the quantity of the operating endpoints, it is at least 1, but is not allowed to exceed the practical endpoint number.

Memory status display command
system> mem
This command does not need any parameter. It is used to display the current memory status of the system.

Network connectivity test command
system> ping {parameter}
The parameter is the IP address planned to be tested, for instance:
system> ping 192.168.1.1
Users can button “Ctrl + C” to get out of the command.

Protocol mode setting command
system> protocol {parameter}
The current protocol type will not be listed into the parameter reminding list. For example:
system> protocol h248

Progress information display command
system> ps
This parameter has no need of any parameter. It is transplanted into ps command of busybox and used to display related information of current each progress of the system. For instance:

PID	TTY	TIME	CMD
9930	pts/2	00:00:00	bash
19587	pts/2	00:00:01	Init315
19588	pts/2	00:00:00	Init315
19589	pts/2	00:00:00	cli
19967	pts/2	00:00:00	ps

Manual-registration endpoint command
system> regep
This command is adopted to manually open the endpoint of the forbidden NGN business, and then the endpoint will be used to register at MGC once more. The usage of the command is similar with 2.4.4.

Routing table display command
system> route
This parameter has no need of any parameter. It is transplanted into the route command of busybox to display current route setting state of the system, but it has no configuration function.

Command to save and load parameters
Parameter saving command
system> save or
system> save as {parameter}

The parameter only can be “pf0”, pf1”or “pf2”. “save as pf0” means there is no any parameter for this command. The command is used to save the configured values of the all current parameters into the different parts of Flash. For example:
system> save as pf1
Parameters loading command
system> load {parameter}
The parameter only can be “pf1”, pf2”, df1” or “df2”. “pf1” and pf2” means two places of the memory, with two sets of default configured values saved, which are not allowed to be changed by users. The command is used to load the configured values in the Flash or memory as the current configured values. For example:
system> load pf2

Testing command
system> test {parameter}
The parameter only can be ring, connect, playtone {parameter}, loop or gr909{ parameter }. Therein, the parameter of playtone only can be Silence, dial, ringback, busy, callwaiting or howler; and the parameter of gr909 is Channel No.
system> timezone
This command is set by way of interaction, and does not need any parameter. After carrying out the command, CLI will display the time zone set currently and require new time zone to be entered. Negative number means east time zone, positive number means west time zone. For example, China locates at east time zone 8, UTC offset [-8].

During setting, users button enter key to keep the original port settings, and button “Ctrl + C” to cancel the setting.

Command to display software and hardware version numbers
system> version
It has no need of any parameter. After the command is performed, CLI will display the following information:

Hardware Version: … …
Software Version: … …
Created Time: … …

“Hardware Version” and “Software Version” refer to the version number of hardware and software respectively, and “Created Time” refers to the software compilation time.

Exit command
system.> exit [parameter]

Help command
system.> help [parameter]

6.2.5 CLI Cancellation Command

#logout

The command has no need of any parameter, and it is used to cancel CLI.

6.2.6 System Restart Command

reboot

The command has no need of any parameter, and it is used to restart the target board.

6.2.7 Parameter Display Command

show {parameter}

The parameter can only be “codec”, protocol”, net”, private” or “epstatus”. Of them, “codec” refers to the compressed chip; “protocol” refers to the protocol; “net” refers to network; and “private” means the private protocol. If the configured parameter value differs from the value being used, CLI will display all values which are being used together, and with “*” before them. When the parameter is “net” or “private”, CLI will also show the state of current module, for example:

show private

("*" means the Running Config Value)

Private IP:	10.25.101.1
OLT:	255
ONU:	255
Current status:	CONFIGING

If the parameter is “epsatus”, the system will remind to input port number after the command is performed. Once entered, the state of the port number, including actived state, registered MGC state, hookswitch state, linking state and signal state, etc., will be shown, for instance:

show epstatus

Please input endpoint index(0 for MG status) (0 ~ 24): 1

POTS1 Status

Act:	ACTIVED
Port:	REGISTERING
Reg:	REGISTERING
Hook:	HOOK_ON
Conn:	IDLE
Sig:	IDLE

6.2.8 Parameter Effect-taking Command

take-effect

The command does not need any parameter. It is adopted to force the current all configured values to

take effect.

6.2.9 SNMP-related Parameter Setting Command Set

Command to enable or disable snmp setting

#manage/snmp> switch { parameter }

This command is to turn on or off the snmp module. The parameter only can be “on” or “off“. “on” means to turn on snmp function; and “off” means to turn off snmp function.

Example：#manage/snmp> switch on

Command to add community

#manage/snmp>community set { parameter1 }{ parameter2} { parameter3}

The command with two parameters is used to add community. Parameter 1 refers to the name of the community being going to be added, and parameter 2 refers to the rights of community, the right only can be “ro” or “rw”. “ro” indicates that community only has the right to read, while “rw” indicates that it has the right of both writing and reading. Parameter 3 is an IP address, showing the community only can be visited via that IP. This parameter is not essential. Absence of it means the community can use any IP.

Example：#manage/snmp> community set public rw

Community deletion command

#manage/snmp> community delete { parameter }

This command is used to delete system’s community. Parameter is the name of deleted community.

Command to display all community information

#manage/snmp> community list

This command displays all community information in the system, including name of community, right, and the IP designated to be visited.

Command for setting snmp proxy port

#manage/snmp> agent port { parameter }

This command is to set the proxy port. Its defaulted number is “162”. Parameter is the number of the proxy port planned to be set.

Example：#manage/snmp> proxy port 161

Command to enable or disable trap

#manage/snmp> trap switch { parameter }

This command is adopted to turn on or turn off trap function of snmp. Parameter only can be “on” or “off”. “on” means to turn on trap function; and “off” means to turn it off.

Example：#manage/snmp> trap switch on

Command for setting trap-related parameters

#manage/snmp> trap set { parameter1 } { parameter2 }

The command is used to set trap's port number and host IP. Parameter 1 is host IP, namely the address that trap information is sent to; parameter 2 is trap's port number, the default is 162. (All communities here use the same trap configuration).

Example：#manage/snmp> trap set 192.168.3.17 162

Command for displaying SNMP configured information

#manage/snmp> show all

Once the command is carried out, all of snmp configured information will be shown.