PA168V SIP FXS **Gateway**

User Manual

➢ PA168V SIP FXS Gateway Appearance

- **Front view** (Refer to Fig1.1) :

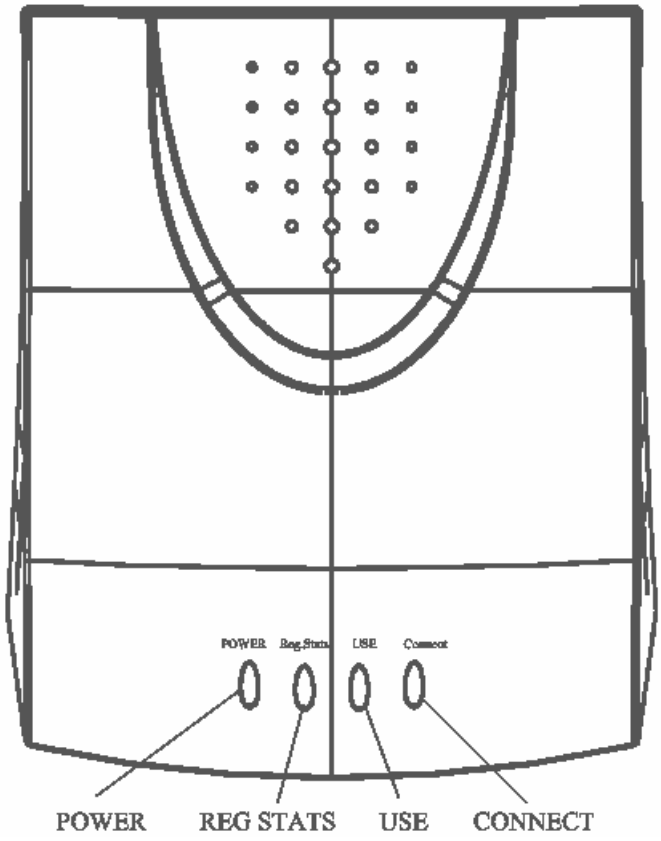


Fig 1.1 PA168V SIP FXS Gateway Front View

- **Back view** (Refer to Fig1.2) :

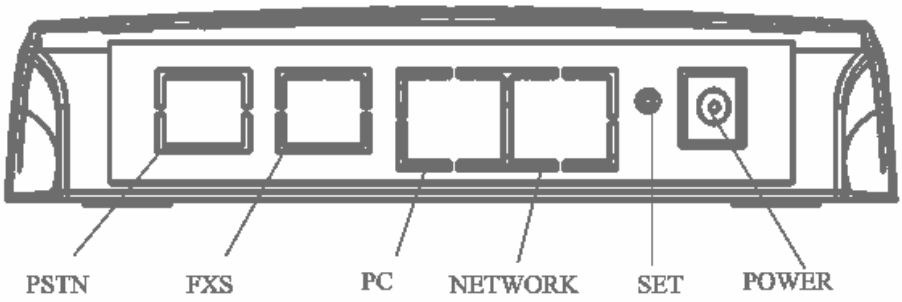


Fig 1.2 PA168V SIP FXS Gateway Back Front View

➢ Indicators and the setting key functions：

Indicators	Functions	Indicators	Functions
Power	Light's on when power on.	Reg.Stats	Light's off when registered, flashing when register failed.
USE	Light's on when picking up, off when hung up.	Connect	Light's flashing when call is connected, off when call is disconnected.
Button	Functions		
SET	1. With handset hung, press this key to indicate local IP address with voice prompt. Please refer to the details in the "Use ordinary telephone keyboard pre-setting" chapter.		
	2. Set the connect network type, please refer to the details in the "Use ordinary telephone keyboard pre-setting" chapter.		
	3. When IP type using the "static IP", use the required static IP address.		
	4. To set PA168V in "setup mode", please refer to the "Use ordinary telephone keyboard pre-setting" chapter.		

➢ PA168V SIP FXS Gateway features：

➢ Hardware

- Main chip—PA1688LQ 50MHz
- Data Memory—2MB SDRAM
- Program Memory—2 MB Flash memory

- FXS Jack— 1 XRJ-11
- POTS Jack— 1XRJ11 PSTN telephone line jack
- Ethernet Jack—2X10/100M auto-negotiate interface
- AC/DC adapter—Input AC100-- 220V，Output 9V DC, 1A

➢ **Software**

- DHCP support for automatic assigning IP addresses
- PPPoE support for ADSL or Cable modem
- Set up by HTTP web browser or Telnet
- Upgraded and Configured by FTP and HTTP(TFTP optional)
- Support major G.7XX ;GSM610 audio codec
- VAD(Voice active detect)
- CNG (Comfort noise generation)
- Dynamic voice jitter buffer
- G.167/165 compliant 16ms acoustics echo cancellation
- Tone generation and Local DTMF re-generation according with ITU-T
- E.164 dial plan and customized dial rules
- 100 entries for speed dial
- Voice prompt local IP address
- Hotline
- Support adjustable user password and super password

➢ Standard and Protocol

PA168V SIP FXS gateway supports following standard and protocol:

- IEEE 802.3 /802.3 u 10 Base T / 100Base TX
- Major G.7XX; GSM610 audio codec
- SIP (RFC 2543; RFC3261)
- TCP/IP: Internet transfer and control protocol
- RTP: Real-time Transport Protocol
- RTCP：Real-time Control Protocol
- VAD/CNG save bandwidth
- DHCP：Dynamic Host Configuration Protocol
- PPPoE：PPP Protocol over Ethernet
- DNS：Domain Name Server
- Telnet：Internet's remote login protocol
- FTP：File Transfer protocol
- TFTP：File Transfer protocol (optional)
- HTTP：Hyper Text Transfer protocol

➢ Operating requirements:

- Operation temperature: 0 to 50° C (32° to 122° F)
- Storage temperature: -30° to 65° C (-22° to 149° F)
- Humidity: 10 to 90% no dew

- **Electric requirements:**

  - Voltage: 9V DC
  - Power: 9W (max.)
  - Power adapter: AC/DC input 100-230V，Output 9V 1A
  - Network interface:2X RJ-45 Ethernet Connectors
  - FXS jack：1XRJ-11 telephone jack
  - POTS jack：1XRJ-11 PSTN telephone line jack

- **Size：**

  153 x 124 x 27 mm (L x W x H)

Installation:

PA168V SIP FXS gateway adopts the standard RJ45 Ethernet connectors, which are put in use in cases that Ethernet Jack is used, such as those of users of LAN, Ethernet, ADSL or Cable Modem.

1．Connect to telephones: Connect the ordinary telephone to the PA168V FXS jack with a RJ11 connect cable.

2．Connect to PSTN: Connect the PSTN line to the PSTN jack of PA168V.

✎ Note: When power off, use ordinary telephones to make or receive a PSTN call to confirm PSTN line works well.

3．Link to the network: Plug one end of the RJ45 skips cable into the “NET WORK” marked RJ45 connector by of PA168V; Link the other end to the

HUB or switch, or RJ45 connector of ADSL or Cable Modem.

4．Link to the PC：Plug one end of the RJ45 skips cable into the “PC” marked RJ45 connector of PA168V ; Link the other end to the RJ45 connector of PC NIC.(optional)

5．Power on: plug the power cord adapter into the Power Jack at the back of the PA168V. Then plug the other end of the power cord adapter into the appropriate wall outlet.

➢ Configuration:

Two ways of configuring the PA168V SIP FXS gateway are available: web browser, Telnet commands.

➢ Preset the PA168V by Using ordinary telephone keyboard

Use the keyboard of an ordinary telephone which has been linked to the PA168V FXS, together with the “set” button, to make the presetting, or enable PA168V to enter into the “setup mode”. Details refer to the following table:

Keys	Functions
SET	1. With handset of the ordinary telephone lined to FXS port hung, press **SET** key to indicate local IP address with voice prompt.
1234+X+SET	2. With handset of the ordinary telephone lined to FXS port hung, push on the default password and then input numbers X + SET button, to set different the connect network type. X ranges from 0 to 3.

	0—static IP;1—DHCP;2-PPPoE;3—modem
1234+SET	3. With handset of the ordinary telephone lined to FXS port hung, push on the default password and then press **SET** button, enable the gateway to enter into the “setup mode”.
1234+xxx.xxx.xxx.xxx +SET	4. With handset of the ordinary telephone lined to FXS port hung, push on the default password and input purpose static IP address xxx.xxxx.xxx.xxx，then press the **SET** button. Use the “ * ” key on the keyboard of an ordinary telephone to replace“ . ”

After the presetting as mentioned above, PA168V has acquired the related network parameter. You can make specific settings on the PC .

Note: If PA168V has been set in the “double modes” and “PSTN First”, please first tap down the hook or press the flash key, shift to the IP mode, then conduct the operation above.

➢ Configuration with the standard WEB browser

Double click  icon to open the IE. Input the IP address of the PA168V into address bar (e.g.192.168.1.100) 

, and then input password of the PA168V into the following page. Default ordinary password is 1234 and super password is 12345678. If the default password is invalid, please consult the supplier.

With Debug set 0[disable], please input super password; while Debug

is not set as 0[disable], please input ordinary password. Then click login button. The following configured page wills popup. Refer to Fig 3.1 please.

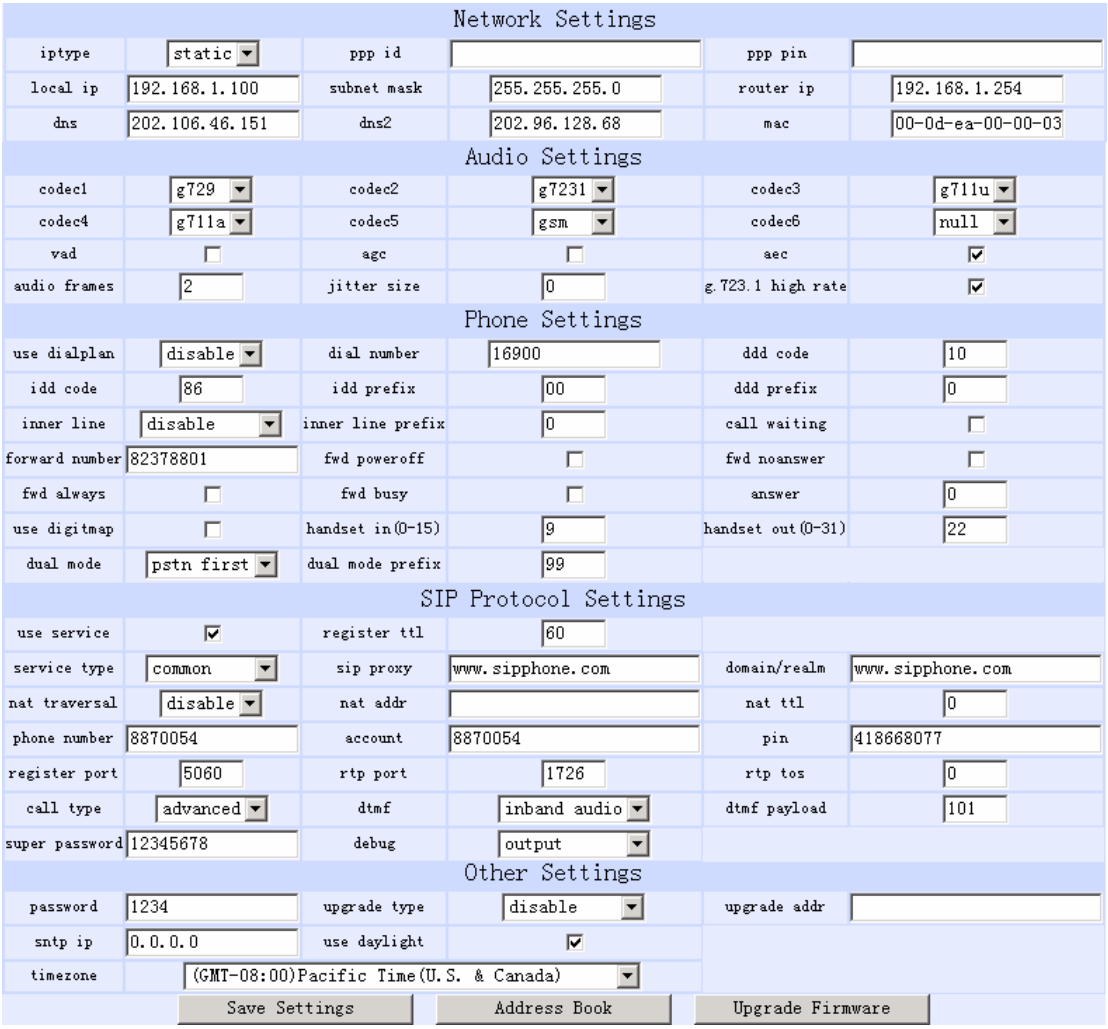


Fig 3.1 Http Setting

Network Setting：

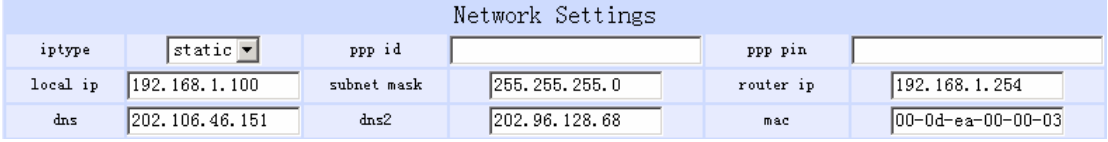


Fig 3.2 Network Setting

- **iptype**: Set how PA168V FXS Gateway gets relevant network parameters

by selecting corresponding item from drop down list.

- **static ip**: Select this item to authorize users to set IP address, subnet mask, router IP address and dns IP of PA168V FXS gateway manually.

- **dhcp**: Select this item to enable DHCP mode, and it will assign the IP address and other net parameters automatically.

- **pppoe** : Those ADSL, Cable Modem and Ether net users who take the way of virtual dial-up please select this item for it is a protocol especially designed for them.

- **modem** : Users of PA168V FXS gateway attached with modem, please select this item. Then please fill user name and password of dial-up network into **ppp id** and **ppp pin** fields.

- **ppp id:** With **pppoe** selected in **iptype** drop down list, please enter the ADSL user name here; with **modem** selected in **iptype** drop down list, please enter the modem dial-up user name here. The length of the user name is limited within 40 bytes.

- **ppp pin:** With **pppoe** selected in **iptype** drop down list, please enter the ADSL password here; with **modem** selected in **iptype** drop down list, please enter the modem dial-up password here. The length of the password is limited within 24 bytes.

- **local ip:** With **static ip** selected in **iptype** drop down list, please enter IP address acquired from the administrator or ISP.

- **subnet mask:** With **static ip** selected in **iptype** drop down list, please enter subnet mask acquired from the administrator or ISP.

- **router ip:** With **static ip** selected in **iptype** drop down list, please enter the default Gateway IP address on which the PA168V locates in the network.

- **dns:** With **static ip** selected in **iptype** drop down list, please enter the IP address of the main DNS server .

- **dns (spare):** With **static ip** selected in **iptype** drop down list, please enter IP address of backup DNS server here.

- **mac:** MAC address is the physical address supplied by the Ethernet NIC. Every PA168V FXS Gateway is preset while shipped from the factory with a unique algorism MAC address printed on the back of the base.

Audio settings:

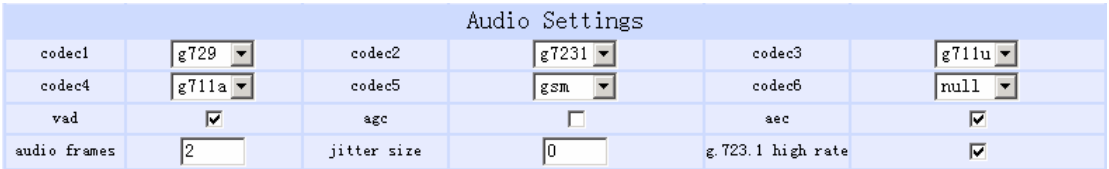


Fig 3.3Audio Setting

- **codec1:** Set the priority 1 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec2:** Set the priority 2 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec3:** Set the priority 3 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec4:** Set the priority 4 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec5:** Set the priority 5 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec6:** Set the priority 6 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **vad:** Enable/disable VAD (voice activity detection).

- **agc:** Enable/disable AGC.

- **aec:** Enable/disable VEC.

- **audio frame:** Set audio frames in RTP package. Minimum is 1 and maximum is 8.
- **jitter size :** Set buffer size of RTP package. The value range is 0-32.

- **g.723.1 high rate:** enable/disable g.723.1 high rate. G.723.1 high rate is 6.3kbps, low rate is 5.3kbps.

Gateway Setting：

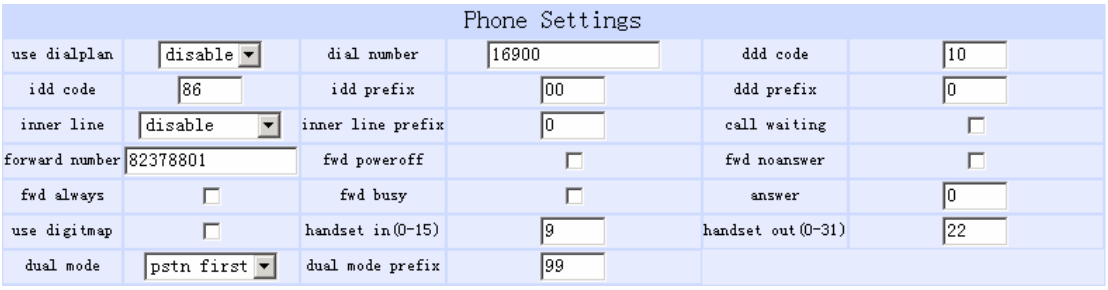


Fig 3.4 Gateway Setting

- **use dialplan:** Set whether use dial plan or use dial number by selecting the corresponding item in drop down list.
  - **disable:** Do not use dial plan or dial number by selecting this item.
  - **enable:** Use dial plan by selecting this item.
  - **dialnum:** Use dial number by selecting this item. With this item selected, please enter the dial prefix into **dial number** field.
  - **prefix:** Use 179XX service by selecting this item.
  - **Hotline:** Use Hotline function by selecting this item. With this item selected, please enter the hotline number into **dial number** field.
- **dial number:** With **dialnum** selected in **use dialplan** drop down list, please enter the dial prefix into this field according to requirement of log in server. For example, with eTalk card used, enter 00 here.
- **ddd code:** With **enable** or **dialnum** selected in **use dialplan** drop down

list, set area code according to E.164 dial rule. For example, Beijing is 10; Shanghai is 21.

- **idd code:** With **enable** or **dialnum** selected in **use dialplan** drop down list, set country code according to E.164 dial rule. For example, China is 86; U.S.A is1.
- **idd prefix:** With **enable** or **dialnum** selected in **use dialplan** drop down list, set international call prefix according to E.164 dial rule, such as 00.
- **ddd prefix:** With **enable** or **dialnum** selected in **use dialplan** drop down list, set long distance call prefix according to E.164 dial rule, such as 0.

Note With **dialnum** seletcted in use **dialplan** drop down list, you can also set dddcode, iddcode, iddprefix and dddprefix according to requirement of system.

- **innerline:** Enable/disable innerline call by selecting corresponding items from dropdown list.
  - **disable:** Disable call innerline by selecting this item.
  - **enable:** enable call innerline by selecting this item.
- **innerlineprefix:** With **enable** selected in **innerline** dropdown list, please fill the number prefix to pick up innerline , such as 0.
- **Call waiting:** Enable/disable call waiting by checking/unchecking the box.
- **forward number:** Enter receiving forwarded calls phone number into this

field; If the IP phone used with modem, with **modem** item selected in **iptype** list box, and then fill ISP number into this field.

- **fwd noanswer:** Forward calls without replying by checking this box. Please enter receiving forwarded calls phone number into **fwd number** field.

- **fwd always:** Forward all calls by checking this box. Please enter receiving forwarded calls phone number into **fwd number** field.

- **fwd busy:** Forward calls if busy by checking this box. Please enter receiving forwarded calls phone number into **fwd number** field.

- **answer:** Enter a number from 0 through 60 to set the entries of the seconds before the phone answer the call auto or forward the calls.

- **Use digitmap:** Enable/disable digit map by checking/unchecking the box.

- **handset in:** Set the volume of handset input.

- **handset out:** Set the volume of handset output.

- **Dual mode:** Set this item to enable or disable the PSTN line.

  - **Disable:** This item selected Disable PSTN line.

  - **PSTN First :** This item selected, PA168V FXS gateway will choose

PSTN calling first.

- **IP First :** This item selected, PA168V FXS gateway will choose IP calling first.

- **dual modes prefix:** When IP first is set in the dual modes setting, setting switches to PSTN prefix such as 9.

Protocol Setting :

SIP Protocol Settings

use service	☑	register ttl	60		
service type	common	sip proxy	www.sipphone.com	domain/realm	www.sipphone.com
nat traversal	disable	nat addr		nat ttl	0
phone number	8870054	account	8870054	pin	418668077
register port	5060	rtp port	1726	rtp tos	0
call type	advanced	dtmf	inband audio	dtmf payload	101
super password	12345678	debug	output		

Fig 3.5 Protocol Setting

- **use service:** Enable/disable service by checking/clearing this box. To make calls through SIP Proxy Server, please check this box; otherwise, PA168V can only make IP-to IP calls.

- **register ttl :** PA168V will send a keep-alive registration message to SIP proxy server every "**register ttl**" seconds. The minimum value is 10, maximum value is 65535. Default is 60.

- **service type**: This option is used to accommodate the miscellaneous requirements of the system providers.

- **Common:** no special requirements
- **Huawei:** Use Huawei's system
- **zte:** Use ZTE's SIP system
- **harbour:** Use Harbour's system
- **utstarcom:** Use UtstarCom's SIP system
- **uptech:** Use Uptech's system
- **keimen:** Use Keimen's system
- **mediaring:** Use Mediaring's SIP system
- **italkbb:** Use ItalkBB's SIP system
- **stanaphone:** Use Stanaphone's SIP system
- **net2phone:** Use Net2phone's SIP system
- **Fwd:** Free SIP service; please visit www.freeworldialup.com for more information.
- **Inphonex:** Free SIP service; please visit www.inphonex.com for more information.
- **sipphone:** Free SIP service ; please visit www.sipphone.com for

more information.

- **ngtel:** Use NGTEL's SIP system
- **ayctel:** Use Ayctel's SIP system

- **sip proxy**: If "**use service**" is checked, please set the URI(domain name/IP address : service port) of the SIP proxy server into "**sip proxy**".

  The default service port is 5060; When the default service port is used, ": service port" can be omitted.

  If the system has an Outbound Proxy ,please set the URI of the Outbound proxy into "**sip proxy**" and set the domain name of SIP proxy server into "**domain/realm**".

  If "**use service**" is not checked, please clear "**sip proxy**" and "**domain/realm**".

- **domain/realm:** Set the domain name of the SIP proxy server .

- **nat traversal:** When PA168V gateway with private IP address need communicate with other PA168V gateway in a different LAN or on Internet, please select an item from dropdown list.

  - **disable:** Select this item when the sip proxy server and PA168V gateway in the same LAN, or the sip proxy system supports PA168V

gateway working behind the LAN.

- **enable:** When the system does not support PA168V gateway working behind the LAN, please select this item to search public IP address of the NAT device. With this item selected, "**nat addr**" field will be activated. Besides, port mapping (port forwarding) needs to be properly set up on NAT device.

- **stun:** Select this item with Stun server used according to requirement of system. With this item selected, **nat addr** field is activated.

- **nat addr:** When "**nat traversal**" is set to "**enable**", please put the domain name of the servers (These web server helps to find out the public IP of the NAT device) into "**nat addr**", such as www.whatismyip.com.

When "**nat traversal**" is set to "**stun**", please put the URI of the stun server into "**nat addr**", in the format as "domain name/IP address: service port". The default service port for stun is 3478.

- **nat ttl:** When PA168V gateway sit behind a NAT device, it will send packets to server every "**nat ttl**" seconds to keep the port mapping on the NAT device alive. "**nat ttl**" is an integer between 10 and 65535, default value is 20.

- **phone number:** The local phone number or username of PA168V

gateway, usually is allocated by system.

- **account**: With SIP system which requires authentication, please put the username/account into this field.

- **pin:** With SIP system which requires authentication, please put the password into this field.

- **register port:** The local UDP port registered with server to accept incoming handshaking messages. The default port number is 5060.

- **rtp port:** RTP port is the port transferring and receiving voice packets using UDP protocol. This is an even number between 1024 and 65535.

- **rtp tos:** Set the TOS field of the IP header of the RTP packets. The bigger this value is 0, the higher priority the packet is 224.

- **call type:** Set call type by selecting the items in drop down list.

  - **normal:** When SIP system not support “outbound proxy”, selecting this item.

  - **advanced:** When SIP system support “outbound proxy”, selecting this item. Default setting is this item.

- **dtmf:** Set DTMF signal sending way by selecting **inband audio**, **rfc 2833** and **sip info** from list box.

- **dtmf payload :** When DTMF select **rfc 2833**.This parameter can be used indicating type of RTP payload type. The value can be use integer 96-101.

- **super password:** Set the super password of PA168V gateway.(Default super password is 12345678).
- **debug:** Set the debug level of PA168V gateway.
  - **disable:** Disable output the debug message by selecting this item.
  - **output:** Output the operation information to the window, such as register, input by selecting this item.
  - **output all:** Output all debug information and data in test window by selecting this item.
  - **remote debug:** Save the debug information in SDRAM of PA168V by selecting this item.
  - **no check:** Disable checking firmware tags when upgrading. This is not suggested, because it will increase the risk of upgrading the wrong firmware into PA168V gateway.

Other settings：

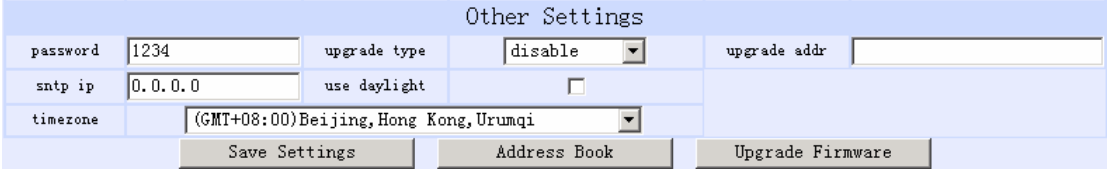


Fig 3.6 Other Setting

- **password:** Set the ordinary password of PA168V . (Default is 1234).
- **upgradetype:** Set the auto-upgrade type of the PA168V FXS gateway.
  - **disable :** Disable auto-upgrade .
  - **all:** pa168V will find matching firmware binary file and configuration file of the hardware type only at the FTP server specify by **upgradeaddr** item .
  - **mac:** pa168V will find matching firmware binary file and configuration file of the MAC address only at the FTP server specify by **upgradeaddr** item .
  - **ppp id:** pa168V will find matching firmware binary file and configuration file of the ppp id only at the FTP server specify by **upgradeaddr** item .
  - **account:** pa168V will find matching firmware binary file and configuration file of the account only at the FTP server specify by **upgradeaddr** item .
  - **phonenumber**: pa168V will find matching firmware binary file and configuration file of the phone number only at the FTP server specify by **upgradeaddr** item .
- **upgrade addr:** Put IP address or domain name obtained by ISP of FTP server supplying upgrade program into this field.
- **nts ip:** Fill IP address of time server here. When network without Internet,

Fill special address IP 255.255.255.255 here.

- **use daylight:** Enable/disable daylight.

- **timezone:** Select correct time zone in list box.

When debug set as 0[disable], if input ordinary password (default one is 1234), then following page will pop up after clicking login. And only those parameters can be modified.

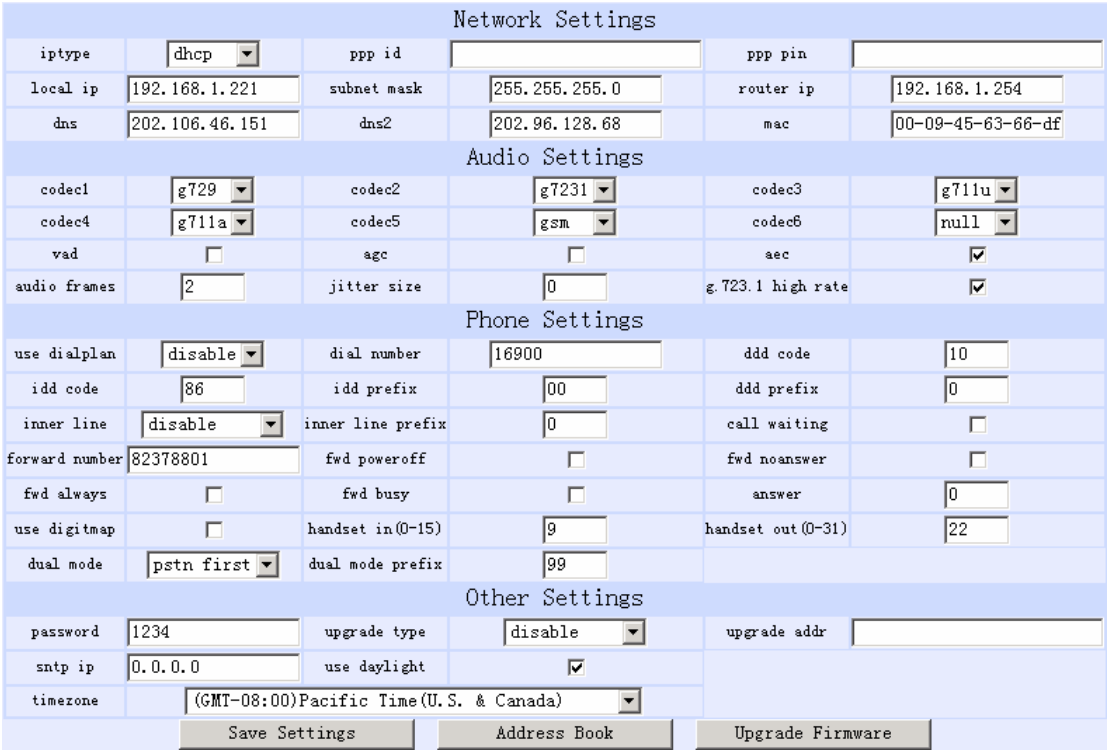


Fig 3.7 Setting Page using ordinary password with Debug set as 0 [disable]

- **Update:** Click this button to save the configuration and PA168V will reboot. Once PA168V reboots successfully, the new configuration is effective.

Note After entering set page, if **Update** button is not clicked within 10 minutes, then

when you click it again, the index page asking for pin will pop up again. Then please input the password again to enter the set page and then click **Update** button to confirm the modification.

Phone Book: Click this button to open the speed dial settings page. Please refer to Fig 3.7. In this page, you can set and save the speed dial number by typing the name into the **Name** field and then entering the corresponding number following the name. For example, input Jack in Name field following 001, and then input 5989426454 into Phone number field. Then Jack's number 5989426454 is saved in phone book. Then please click **Save/Back** button. In normal state, you can use speed dial to call numbers saved in phone book.

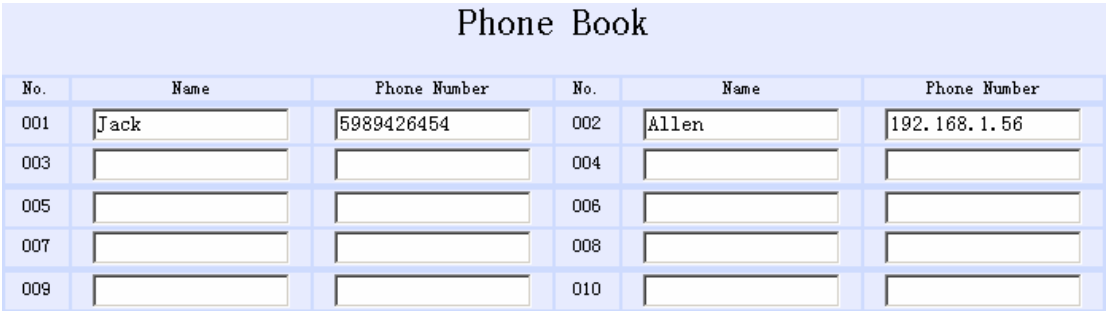


Fig 3.8 Phone Book Illustration

Upgrade Program: Click this button to update the program of the PA168V.

Update Digitmap: Click this button to update the digitmap of the PA168V.

- **Telnet Configuration**

  - On the PC choose **Start>Run**, and then type **telnet 192.168.1.100** into

Run field in popuping Run dialog. Or input **telnet 192.168.1.100** in the DOS window. Then the following information will be display.

```
PA168X V1.42 settings
Password :
```

Then please type password. With debug is set as 0[disable], if type ordinary password (default one is 1234), after Retun, you will see：

```
Password : ****
P:\>
```

If you type super password, then you will see:

```
Password : ********
P:\>
```

Above information indicates that PA168V FXS gateway is under setting mode, and then you can set the PA168V FXS gateway by using the telnet commands.

- **PA168V Telnet Commands Explanation**

PA168V Telnet Commands

Command	Function
?	Supply command name and parameters
get	Display basic parameters of the PA168V FXS gateway
set	Set parameters of the PA168V FXS gateway

store	Save current settings to designated position
load	Load designated settings to current position
exit	Exit from the setting mode without saving the configuration
write	Exit with saving all configurations and restart PA168V
ping	Ping other net parameter
ftp	The PA168V connects to FTP server and then get the files

Detail description of PA168V Telnet commands

Command ?

Syntax description: No optional parameter

Usage: Type command name and parameters following P:\> . Be used as the keyword to supply keyword and parameters of the relevant commands.

Relevant usage: None

Detailed description:

? List help of all commands

For example:

```
P:\>?
set
get              list settings
store x          store current to xth settings
load x           load xth settings to current
exit
write            save settings
```

Command get

Syntax description: No optional parameter of keywords

Usage: Display basic parameters of the PA168V FXS gateway

Relevant usage: None

Detailed description:

get Display basic running parameters of the PA168V FXS gateway. Input ordinary password without debug being set as 0[disable], or input super password with debug set as 0[disable], then following parameters of PA168V FXS gateway will be displayed:

```
PA168X V1.42 settings
Password: ********
P:\>get
***************Network Settings***************
iptype 0[static]
ip 192.168.1.100            subnetmask 255.255.255.0    router 192.168.1.254
dns 202.106.196.152         dns 2202.106.196.115        mac    00-09-45-65-a3-e6
***************Audio Settings***************
codec1 0[g729]              codec2 1[g7231]                 codec3 2[g711u]
codec4 3[g711a]             codec5 4[gsm]                   codec6 6[null]
vad 1[enable]               agc 0[disable]                  aec 1[enable]
audioframes 1               jittersize 0                    6.3k 1[enable]
***************Phone Settings***************
dialplan 1[enable]          dddcode 10
iddcode 86                  iddprefix 00                    dddprefix 0
innerline 1[enable]         innerlineprefix 0               callwaiting 1[disable]
fwdnumber 82378009          fwdpoweroff 1[enable]
fwdalways 1[enable]         fwdbusy 1[enable]           fwdnoanswer 1[enable]
answer 30
digitmap 1[enable]          handsetin 5                     handsetout 20
ringtype 0[dtmf]            speakerout 20                   speakerin 1
***************Protocol Settings***************
service 1[enable]           registerttl 60
servicetype 0[common]       sipproxy www.iax2.com
domain/realm www.sipphone.com
```

```
nattraversal 0[disable]
nataddr [empty]              natttl 0
phonenumber 8870054        account 8870054              pin 418668077
registerport 5060          rtpport 1726                 rtptos 0
calltype 1[advanced]       dtmf 0[inband audio]         dtmfpayload 101
***************Other Settings***************
superpassword 12345678    debug 1[output]
password 1234               upgradetype 0[disable]
upgradeaddr [empty]
sntpip 0.0.0.0              daylight 0[disable]
timezone 55[(GMT+08:00)Beijing,Hong Kong,Urumqi]
```

Input ordinary password with debug set as 0[disable], following information will be seen:

```
PA168X V1.42 settings
Password:****
P:\>get
***************Network Settings***************
iptype 0[static]
ip 192.168.1.100        subnetmask 255.255.255.0        router 192.168.1.254
dns 202.106.46.151    dns2 202.96.128.68              mac 00-0d-ea-00-00-03
***************Audio Settings***************
codec1 0[g729]              codec2 1[g7231]              codec3 2[g711u]
codec4 3[g711a]             codec5 4[gsm]                codec6 6[null]
vad 1[enable]               agc 0[disable]               aec 1[enable]
audioframes 2               jittersize 0                 6.3k 1[enable]
***************Phone Settings***************
dialplan 1[enable]          dddcode 10
iddcode 86                  iddprefix 00                 dddprefix 0
innerline 1[enable]         innerlineprefix 0            callwaiting 1[enable]
fwdnumber 82378009          fwdpoweroff 1[enable]
fwdalways 1[enable]         fwdbusy 1[enable]          fwdnoanswer 1[enable]
answer 30
digitmap 1[enable]          handsetin 5                  handsetout 20
ringtype 0[dtmf]            speakerout 20                speakerin 1
***************Other Settings***************
password 1234               upgradetype 0[disable]
upgradeaddr [empty]
sntpip 0.0.0.0              daylight 0[disable]
```

timezone 55[(GMT+08:00)Beijing,Hong Kong,Urumqi]

Command set

Syntax description: set keywords value

Usage: Used to configure password and other running parameters of PA168V FXS gateway.

Detailed description:

set iptype X

Set how PA168V FXS gateway gets relevant network parameters. X ranged from 0 through 3. 0: authorize users set IP address, subnet mask and router IP address of PA168V manually; 1: use DHCP mode. With this system, 2: use PPPoE mode. Those ADSL and Cable Modem users please select this item. 3: use modem mode. Those who use PA168V with modem please set the value as 3.

set pppid XXX

With **iptype** set as **2**, use this command to set user name of PPPoE; with **iptype** set as **3**, use this command to set user name of dial-up network.

set ppppin XXX

With **iptype** set as **2**, use this command to set user name of PPPoE; with **iptype** set as **3**, use this command to set user name of dial-up network.

set ip XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set IP address of PA168V FXS gateway.

set subnetmask XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set subnet mask of PA168V FXS gateway.

set router XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set router IP of network.

set dns XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set IP address of DNS server.

set dns2 XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set IP of backup DNS server.

set mac XX-XX-XX-XX-XX-XX

Set MAC address of the PA168V FXS gateway. Parameter xx-xx-xx-xx-xx-xx must be an HEX number.

---

set codec1 X

Set the priority 1of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec2 X

Set the priority 2 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec3 X

Set the priority 3 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec4 X

Set the priority 4 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec5 X

Set the priority 5 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec6 X

Set the priority 6 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set vad X

Enable/disable VAD. X is ranged from 0 through 1: 0: disable VAD; 1: enable VAD.

set agc X

Enable/disable AGC. X is ranged from 0 through 1: 0: disable AGC; 1: enable AGC.

set aec X

Enable/disable AEC. X is ranged from 0 through 1: 0: disable AEC;

1: disable AEC.

set audioframes X

Set audio frames in RTP package. X is Arabic numerals between 0 and 7.

set jittersize X

Set buffer size of RTP package. X is range from 0-32.

set 6.3k X

With G.7231 codec selected; set PA168V FXS gateway to use 6.3K rate or not. X is ranged from 0 through 1: 0: use 6.3K rate; 1: use 5.3K rate.

---

set dialplan X

Enable/disable dial plan and dial number. Parameter X ranged from 0 through 4: 0: disable dial plan; 1: enable dial plan; 2: use dial number; 3: use 179XX service; 4: use hotline function.

set dialnumber XX

When **set dialplan** value set as 2, please use this command to set **dial number.** For example, with eTalk card used, please set it as 00. When **set dialplan** value set as 4, please use this command to set **hotline number.**

set dddcode XX

Set the area code when set **dialplan** value set as **1** or **2**. For

example, the area code of Beijing is 10; the area code of Shanghai is 21, and the area code of Chengdu is 28, etc. Parameter xxx must be an Arabic numeral and no longer than 3 characters.

set iddcode XXX

Set the country code when set **dialplan** value set as **1** or **2**. For example, the country code of China is 86; the country code of USA is 1, etc. Parameter xxxx must be an Arabic numeral and no longer than 4 characters.

set iddprefix XX

Set IDD service prefix number when set **dialplan** value set as **1** or **2**. For example, IDD service prefix number of china is 00; IDD service prefix number of USA is 1, etc. Parameter xxx must be an Arabic numeral and no longer than 3 characters.

set dddprefix XX

Set DDD service prefix number when set **dialplan** value set as **1** or **2**. For example, DDD service prefix number of china is 0; DDD service prefix number of USA is 1, etc. Parameter xxx must be an Arabic numeral and no longer than 3 characters.

set innerline X

Set use innerline call or not. X ranged from 0 through 1: 0: disable; 1: enable innerline call.

set innerlinepreifx X

With **innerline** set as **1[enable]**, please set the prefix to pick up inner line, such as 0.

set callwait X

Set whether to use call wait. X ranged from 0 to 1: 0: do not use call wait; 1: use call wait.

set fwdnumber XXXXXXX

Set receiving forwarded calls phone number. XXXX must be an Arabic numeral and no longer than 16 characters

set fwdalways X

Enable/disable forward all calls. X is ranged from 0 through 1. 0: do not forward all calls; 1: forward all calls.

set fwdbusy X

Enable/disable forward calls if busy. X is ranged from 0 through 1. 0: do not forward calls if busy; 1: forward call if busy.

set fwdnoanswer X

Enable/disable forward calls without replying. X is ranged from 0 through 1. 0: do not forward calls without replying; 1: forward call without replying.

set answer X

Set the ring seconds before the phone answers the call auto or forward the calls. X is ranged from 0 through 60.

set digitmap X

Set whether to use digitmap. X ranged from 0 to 1: 0: do not use digitmap; 1: use digitmap.

set handsetin X

Set initial volume of handset. X is ranged from 0 through 15.

set handsetout X

Set initial volume of handout. X is ranged from 0 through 31.

set dualmode X

Set to enable or disable the PSTN line. X is ranged from 0 through 2. 0: do not use PSTN line; 1: use PSTN line first. 1: use IP side call first.

set dual modes prefix XX

When IP first is set in the dual modes setting, setting switches to PSTN prefix ; XX is ranged from 0 through 99.

---

set service X

Set register the SIP proxy server or not. X ranged from 0 through 1. 0: do not register; 1: register.

set registerttl X

Set register TTL. X is range from 10 through 65535 Sec. default value is 60 Sec.

set service type X

Enable/disable the repaid and service system .choose the repaid server provider. Parameter x ranged from 0 through 15:

0: common: disable repaid card or specially system ;

1: use huawei's system;

2: use ZTE's system;

3: use harbour's system;

4: use utstarcom's system;

5:use uptech system;

6: use keimen's system;

7: use meidaring's service;

8: use italkBB service;

9: use stanaphone service;

10: use net2phone SIP service;

11: use fwd(freeworlddialup) service;

12: use inphonex system;

13: use sipphone system;

14: use ngtel system ;

15: use ayctel system

set sipproxy XXXX

Set IP address or domain name of SIP Proxy Server.If the system has an Outbound Proxy , set IP address or domain name of Outbound Proxy.

set domain/realm XXXXX

If the system has an Outbound Proxy ,Set the domain name of SIP proxy server such as xxxx.

set nattraversal X

X ranged from 0 through 2: 0: do not use NAT traversal. When the log in server and PA168V in the same LAN, or the log in system supports PA168V working behind the LAN; 1: Use NAT traversal. When the login system does not support PA168V working behind the LAN, With this item selected, please make port mapping on NAT device; 2: stun.

set nataddr XXXXX

When "**nattraversal**" is set to "**1**";set IP address of NAT device wan port or URI of free assistant service (Such as www.showmyip.com etc.) in Internet.

When "**nattraversal**" is set to "**2**", set IP address or URI of the stun server, in the format as "domain name/IP address : service port". The default service port for stun is 3478.

NOTE The free service list of Internet：www.ip-calculator.com; www.ipchicken.com; www.ipchicken.com;www.showmyip.com;www.whatismyip.com; www.myipaddress.com; www.whatismyipaddress.com; ip.sbbs.net; www.whatismyipaddress.net;checkip.dyndns.org

---

set natttl XX

Set NAT TTL XX is an integer between 10 and 65535 sec. default value is 20 sec.

set phonenumber XXXXXXXX

Set a local ID of PA168V gateway. Value xxxxx must be an Arabic numeral and no longer than 16 characters.

set account XXXXXX

Set the account; Value xxxxxx must be an Arabic numeral and no longer than 32 characters.

set pin XXXXXXXXXX

Set the account; Value xxxxxx must be an Arabic numeral and no longer than 32 characters.

set registerport XXXX

Set register port. Value XXXX default is 5060.

set rtpport XXXX

RTP port is the port transferring and receiving voice flow using UDP protocol. XXXX is an even number between 1024 and 65535.

set rtptos X

Set TOS segment of IP head package in RTP digital follow. X is range from 0 through 224.

set calltype X

Set call type of PA168V gateway. X is ranged from 0 through 1: 0: when SIP systems not support “outbound proxy”; 1: when SIP

systems not support “outbound proxy”.

set dtmf X

Set DTMF relay type. X is ranged form 0 through 2: 0: inband audio ; 1: rfc 2833 ; 2: sip info.

set dtmf payload X

When **dtmf X** select 1(**rfc 2833)**.This parameter can be used indicating type of RTP payload type. The value can be use integer 96-101.

---

set password XXXX

Set password of the PA168V FXS gateway. XXX must be ASCII characters.

set superpassword XXXX

Set super password of the PA168V FXS gateway. XXX must be ASCII characters.

set debug X

Set open debugging message output grade for special tool. X is ranged from 0 through 5: 0: close debugging output; 1: output the operation information to the window; 2: output all the bug information and data in test window; 3: save the bug information into SDRAM; 4: disable checks the mark.

set upgradetype X

Set auto-upgrade matching type , X is range from 0 through 5 , 0------disable ; 1------all ; 2------ mac ; 3------ppp id; 4------ account; 5------ phone number。

set upgradeaddr XXX.XXX.XXX.XXX

Set IP address or domain name of FTP server supplying upgraded program of PA168V gateway.

set ntsip XXX.XXX.XXX.XXX

Set IP address of time server.

set daylight X

Set use daylight or not. X ranged from 0 through 1: 0: do not use daylight; 1: use daylight.

set timezone XX

Set time zone.

Command store

Syntax description: no keyword. Parameter ranged from 0 through 4.

Usage: Save the current settings to the designated position.

Relevant Usage: store 1

Command load

Syntax description: no keyword. Parameter ranged from 0 through 4.

Usage: Load the designated settings to the current position.

Relevant Usage: load 1

Command exit

Syntax description: no keyword and parameter

Usage: Exit from Telnet command window without saving the configuration.

Relevant usage: None

Command write

Syntax description: No keyword and parameter

Usage: Save the configuration and restart the PA168V FXS gateway.

Command ping

Syntax description: **ping IP address**

Usage: ping IP address of other NAT device

Relevant usage: In telnet window, input ping xx.xxx.xx.xx (an IP address) and return, then the result will be displayed. If the address is effective, "ping OK" will be seen; If the address is ineffective, nothing will be seen. Fox example:

```
P:\>ping 203.93.9.57
P:\>
ping OK
P:\>ping 27.56.120.56
```

P:\>

Note Usually, the echo time of ping command is no more than 1 second. So if the result is not displayed in 5 seconds, ping command is fail.

ftp command

Syntax description: **ftp value**

Usage: the system connects to the FTP server auto to get the corresponding file and deal with it.

Relevant usage: ftp X

X ranged from 0 through 2:

X-0: Connect to FTP Server to get the file of updating program and save it to the SDRAM of PA168V. Then the file can be read by PalmTool. This operation aims at testing.

X-1: Connect to FTP Server to get the file of updating program and update program Flash. This operation aims at updating program.

X-2: Connect to FTP Server to get the file of updating dial rules and update program Flash. This operation aims at updating dial rule.

Note When you use ftp 0 and ftp 1 commands, if the file get from FTP server is too large or the net speed is too slow, then the process will not be seen in telnet window. Please be patient. Using ftp command in telnet to get file spends almost same minutes as getting file using PA168V. So if nothing is displayed after too long time, it means that ftp is fail.

Note All the Telnet commands of PA168V FXS gateway should be written in low case and the password is case sensitive.

➢ Operation of PA168V FXS gateway

➢ Receiving a call:

When a call incomeing, whether from IP net work or PSTN, all the ordinary phones linked with the FXS jacks of PA168V FXS gateway will ring to remind you. You can receive the call by picking up the phone or using the hand free set.

➢ When the dual mode of the PA168V is disable

■ Make a call

- **Make a call using phone number：**

1．Use the handset to make the call: Picking up the handset of the ordinary phone, and after hearing the dial tone, dial your number to make a call.

2．Use the handfree to make the call: Press the handfree of the ordinary phone and after hearing the dial tone, dial your number to make a call.

3. Redial: When you want to redial, Pick up the handset or press the handfree, then after hearing the dial tone; Press the Redial key.

- **Make a call using IP address：**

If PA168V FXS gateway does not register to the SIP Proxy, you can make a call directly through dialing the IP address of other party.

1 .Picking up the handset of the ordinary phone, and after hearing the dial tone, input the IP address, then press # key to make a call.

2．Press the handfree of the ordinary phone, and after hearing the dial tone, input the IP address, then press # key to make a call.

✎ Note:When input the IP address by keypad of ordinary phone, use “*” to replace” • ”

➢ When the dual mode of the PA168V is set as PSTN first

■ **Make a call with PSTN line**

When PA168V is set as PSTN first and when you pick up the handset, the pone will be linked with the public telephone network. Use the same way as the dialing of a PSTN call.

■ **Make a call with IP network**

Tap the hook or press the “Flash” key on an ordinary phone, and switch PA168V to the network from PSTN. After hearing the dial tone, you can make a call in different ways. Please refer to the part of “make a call” in “When the dual mode of the PA168V is disable”.

➢ When the dual mode of the PA168V is set as IP first

■ **Make a call with IP network**

When PA168V is set as IP first, and while you pick up the handset, it will be linked to the IP network. After hearing the dial tone, you can make a call in different ways. Please refer to the part of “make a call” in “When the dual mode of the PA168V is disable”.

■ **Make a call with PSTN line**

Dial the prefix number of the preseting “Dual mode prefix”, PA168V will be switched to PSTN. After hearing the dial tone, dial the phone number then make a call.

➢ **Emergency call**

When PA168V is power cut or failed, the ordinary phone on the PA168V FXS jacks will be linked directly to the PSTN to make a “life line”, for the purpose of emergency call.

➢ Centralize Upgrade and configuration of PA168V FXS gateway

➢ Prepare firmware and configuration file

Please ask the latest version of upgrade program from the agents or suppliers. Or visit http:// www.aredfox.com download.

➢ Manual upgrading and configuration

■ Use FTP server

FTP server can be supplied by the service provider as well as setup by the users in LAN. Please set the IP address or domain name of FTP server to PA168V FXS gateway relevant field.

As to the related operations of centralize upgrade and configuration, please refer to the following table:

step	operation	Operation illustration
1	1234+SET	Pick up the handset, enter the default password, then press“**SET**” button, and the PA158V will enter the “setup mode”.
2	8+SET	In the “setup mode” , PA168V will be linked to FTP server to get the firmware and upgrade.
3	5+SET	In the “setup mode” , PA168V will be linked to FTP server to get the configuration file and upgrade.

4	6+SET	In the “setup mode”, PA168V will be linked to FTP server to get the dialplan rule file and upgrade.

✎ **Note:** Please do NOT change the name of the upgrading files, or the upgrading will fail.

- **Use Telnet command to upgrade**

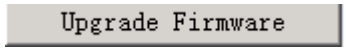
Use telnet connect to PA168V. Please use the supper password to log in, and then start the upgrading with **FTP X** command. X ranges from 0 to 2:

X-0: Link to the FTP Server to get the firmware, and save the files to the sadram of the PA168V. The files can be read with Palmtool and are used for debug.

x-1: Link to the FTP Server to get the firmware，and then upgrade.

x-2 Link to the FTP Server to get the dialplan rules file，and then upgrade.

- **Use HTTP**

Use Web brownser to visit PA168V FXS gateway. Please use super password to log in. Click 

, there will pop up a corresponding page. As to the details please refer to the part of “**Upgrading Program, Update Digitmap**” in the chapter of “**Configured with the standard web browser”**

➢ **Automatic upgrading**

The auto-upgrading is used only with the FTP server. It is mostly used by the service provider or manufactory.

When the auto-upgrading is done and PA168V FXS power-on, the PA168V

will to link with the FTP server automatically to get the firmware; configuration and dial rules files.

According different purposes, the following different matching ways, together with different the firmware; configuration and dial rules files, can be adopted to configure and updateing.

- **Upgrade the matching type of hardware**

Use this way to match the type of hardware. When the type of the hardware complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, the type of hardware will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching MAC address**

Use this way to match MAC address. When MAC address of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, MAC address of PA168V will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching PPP ID**

Use this way to match PPPID. When PPPID of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, PPPID of PA168V will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching Account**

Use this way to match the account. When the account of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, the account of PA168V will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching phone number**

Use this way to match the phone number. When the phone number of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, the phone number will keep unchanged, while other parameters will be upgraded as in the new configuration files.

➢ **Recover the factory setting**

If you want to recover the default parameters setting, please pick up the handset and input the ordinary password (default is 1234). Then press the SET button at the back end of PA168V, and PA168V will then enter into the setup mode. In the setup mood, after press # 5 * 5, PA168V will restart and the factory setting is recovered.

Reserves the right to make changes in technical and product specification without prior notice.