



MyPBX Standard Administrator Guide

Version 20.19.0.23

Yeastar Information Technology Co. Ltd

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1. Introduction

MyPBX—IP-PBX for Medium Businesses/Home Office

MyPBX is a standalone embedded hybrid PBX for small businesses and remote branch offices of larger organizations (1-100 users per site). MyPBX also offers a hybrid solution (a combination of VoIP applications using legacy telecom equipment) alternative for enterprises who are not yet ready to migrate to a complete VoIP solution.

Note: This guide applies to MyPBX Standard V6/V7; the hardware pictures in this document are for MyPBX Standard V7.

1.1 Features

• Alert	• HTTPS
• Auto-provision	• Integrated built-in packet capture tools
• Blacklist	• Interactive Voice Response (IVR)
• BLF Support	• Intercom/Zone Intercom
• Blind Transfer	• L2TP
• Call Back	• LDAP
• Call Detail Records(CDR)	• Mobility Extension
• Call Forward	• Multiple administrators
• Call Parking	• Music On Hold
• Call Pickup	• Music On Transfer
• Call Recording	• Open VPN
• Call Routing	• Paging/Zone Paging
• Call transfer	• PIN Users
• Call Transfer	• PPPoE
• Call Waiting	• QoS
• Caller ID	• Queue
• Conference	• Ring Group
• Database Grant	• Route by Caller ID
• DDNS	• Security Center
• Define Office Time	• Skype Integration (Skype Connect)
• Dial by Name	• Speed Dial
• DIDs	• Spy functions
• Direct Inward System Access (DISA)	• Static Route
• Distinctive Ringtone	• T.38
• Do Not Disturb(DND)	• Three-way Calling
• External Storage	• VLAN
• Firewalls	• Voicemail
• Follow me	• WAN

For more info, please click: <http://www.yeaster.com/Products/MyPBX.asp>

1.2 Hardware Specifications

1.2.1 Exterior Appearance

Front Panel

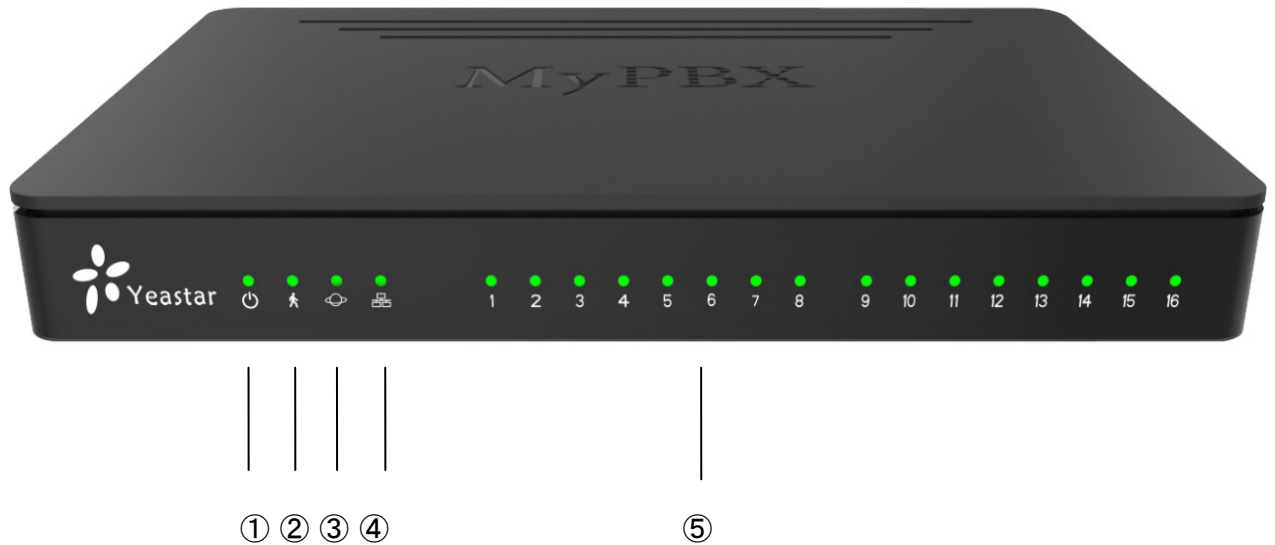


Figure 1-1 MyPBX Standard V7 Front Panel

No.	Identification
①	Green LED indicates correct power is being supplied to the unit
②	Green LED indicates the MyPBX is fully functional.
③	Green LED indicates stable WAN Port connection
④	Green LED indicates stable LAN Port connection
⑤	<p>Red LED indicates presence of an FXO/GSM port.</p> <p>Orange LED indicates presence of a BRI port.</p> <p>Green LED indicates presence of an FXS port.</p> <p>LED Blinking- Red blinking: No connection between FXO port and PSTN</p> <p>Alternately blinks Red and Green: FXO port has an incoming call.</p> <p>Alternately blinks Red and Green fast: FXO port is in a call.</p> <p>Alternately blinks Green and Red: FXS port is ringing.</p> <p>Alternately blinks Green and Red fast: FXS port is in a call.</p>

2. System Setup

2.1 Connection Drawing

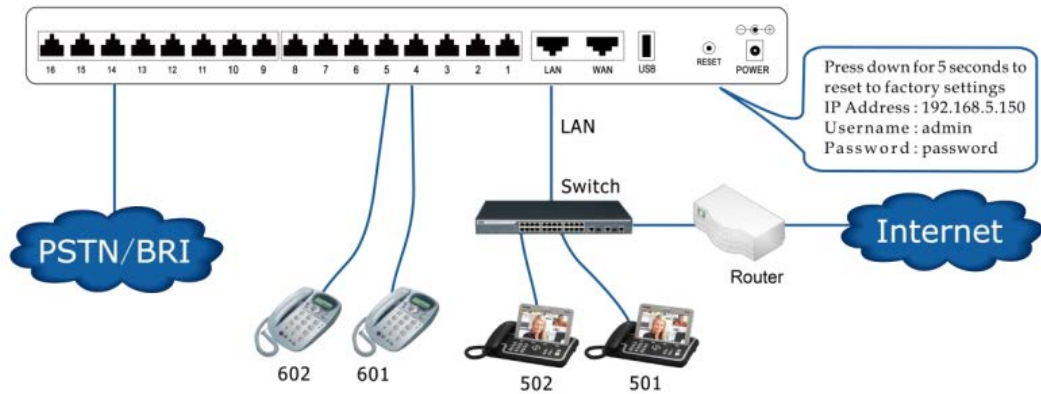


Figure 2-1 MyPBX Standard Connection Drawing

2.2 Connecting Ethernet Line

MyPBX provides two 10/100M Ethernet ports with RJ45 interface and LED indicator. Plug Ethernet line into MyPBX's Ethernet port, and then connect the other end of the Ethernet line with a hub, switch, router, LAN or WAN. Once connected, check the status of the LED indicator. A yellow LED indicates the port is in the connection process, and a green LED indicates the port is properly connected.

2.3 Supplying Power

MyPBX utilizes the high-performance switch power supply, which supplies the required power for the unit.

AC Input: 100~240V DC Output: 12V, 5A

Please follow the steps below to connect MyPBX unit to a power outlet:

1. Connect the small end of the power cable to the power input port on the MyPBX back panel, and plug the other end of the cable into a 100V AC power outlet.
2. Check the Power LED on the front panel. A solid green LED indicates that power is being supplied correctly.

3 Administrator Login

From your web browser, input the IP address of the MyPBX server.

If this is the first time you are configuring MyPBX, please use the default settings as below (your PC should be in the same local network with MyPBX):

IP Address: <http://192.168.5.150>

Note: MyPBX supports multiple administrators in hierarchical mode (Administrator, General Manager, CDR Manager)

• **Administrator**

Has all the authority.

Username: **admin**, Password: **password**

• **General Manager**

Has basic authority; without the advanced authority to create VoIP trunks, reset, update, backup and restore MyPBX.

Username: **user**, Password: **password**

You should enable this account before you use it.

• **CDR Manager**

Only has the authority to check the call recordings.

Username: **cdr**, Password: **password**

In this example, the IP address is 192.168.5.148.

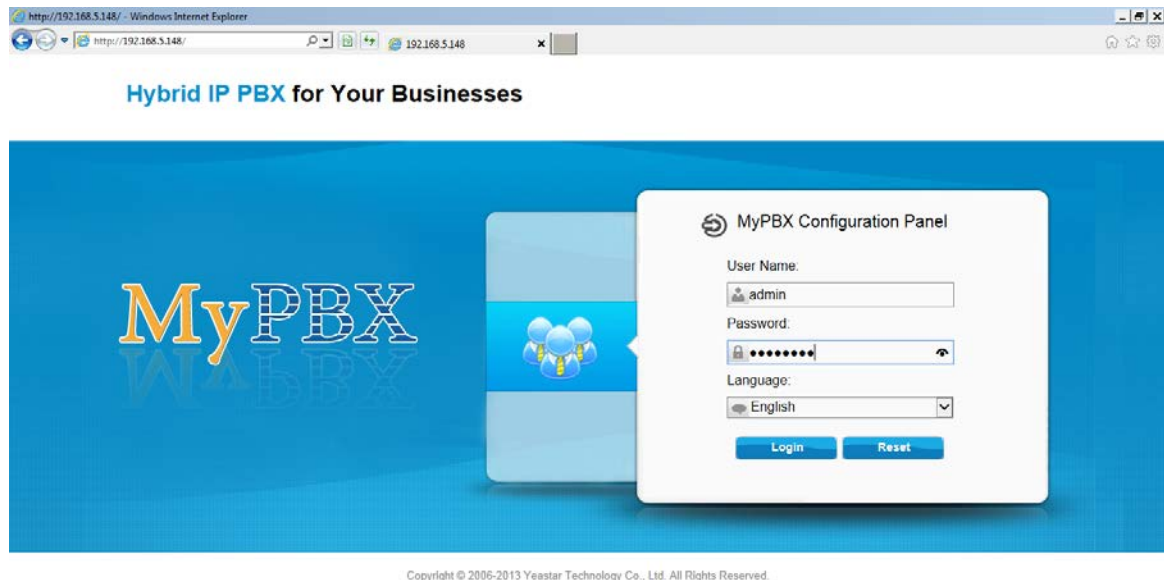


Figure 3-1 Login Page

This is the welcome page of MyPBX Standard V7 after successful login.



Figure 3-2 Welcome Page

You can also login via HTTPS protocol

Like `https://192.168.5.147` , you will see a prompt that is a certificate problem. Click "Continue to ...", then you can login after enter user and password .HTTPS is HTTP over SSL, and it is safer than HTTP.

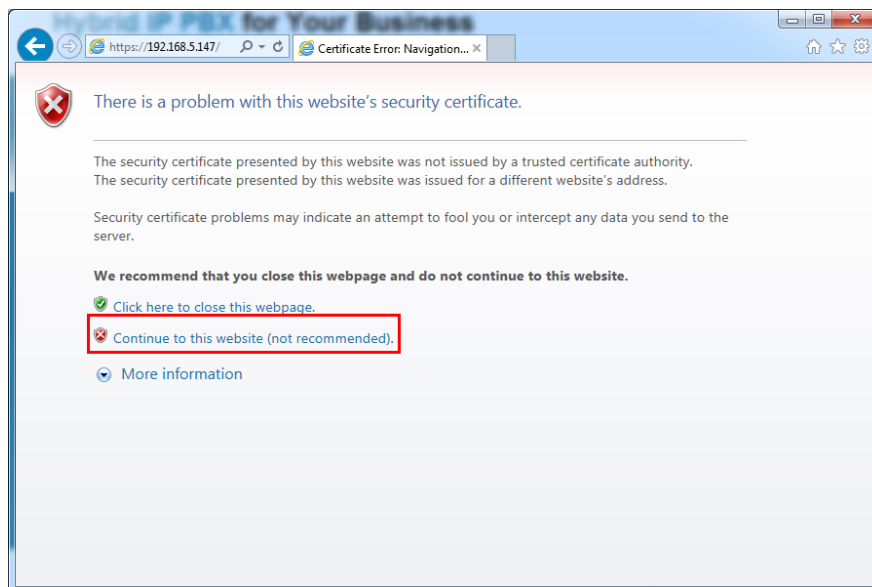


Figure 3-3 HTTPS warning page

Note:

MyPBX firmware upgrade follow-up

- Reboot the device twice to make the new firmware take effect
- Clean the cache and cookies of the browser before login.
- There is a compatibility issue with IE11. Configure IE11 browser "Compatibility View Settings", add MyPBX IP address, and check "Display Intranet sites in Compatibility View" and "Use Microsoft compatibility lists".

See the following picture. MyPBX IP is 192.168.5.147 in this example.

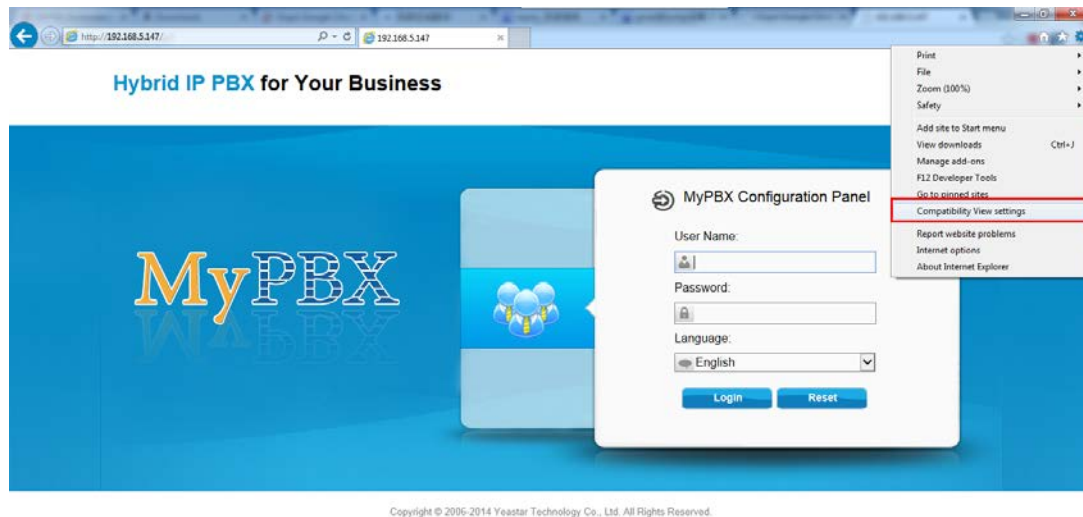


Figure 3-4 Login Page in IE11

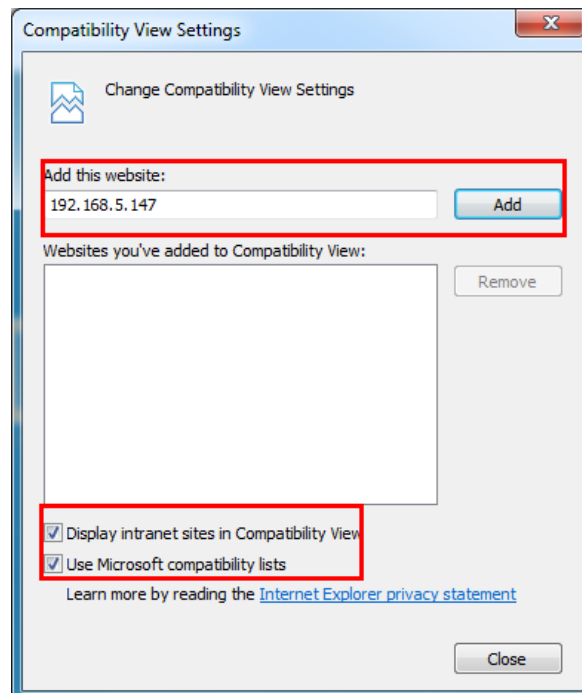



Figure 3-5 Compatibility View Setting

4 Status



Click  to start to check the status of MyPBX Standard V7. We can check the status of extensions, trunks, and network and system information.

4.1 Line Status

In this page, we can check the status of extensions and trunks

4.1.1 Extension Status

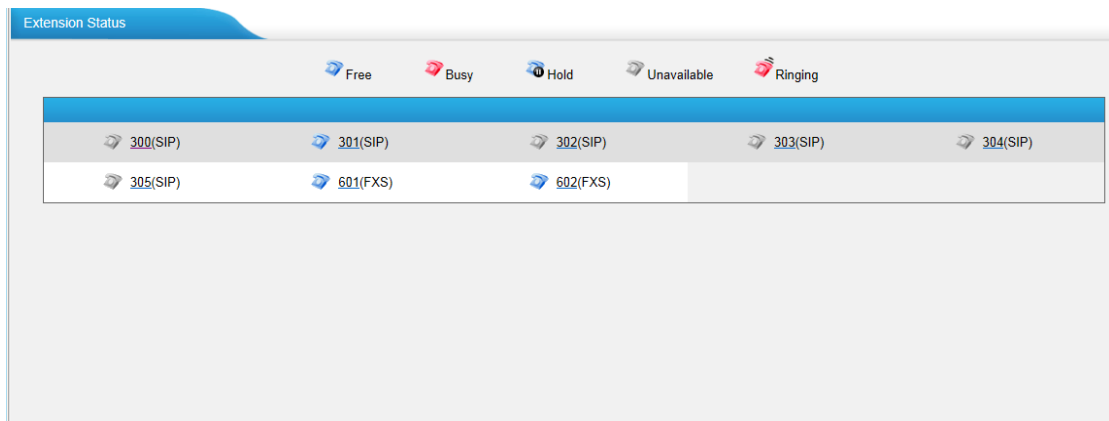







Figure 4-1 Extension Status Page

MyPBX Status Description:

Extensions:

- 1)  : Extension is unavailable
- 2)  : Extension is idle
- 3)  : Extension is ringing
- 4)  : Extension is busy
- 5)  : Extension is on hold

4.1.2 Trunk Status

Status	Signal	Trunk Name	Type	User Name	Port/Hostname/IP	Reachability
Registered		Yeastar	SIP	305	192.168.5.146	OK
OK (7 ms)		Support	SP-SIP		192.168.4.141	OK (7 ms)
Disconnected		pstn13	FXO		Port 13	
Disconnected		pstn14	FXO		Port 14	
Idle		GSM1	GSM		Port 1	
Disconnected		BriTrunk3	BRI		Port 3	
Disconnected		BriTrunk4	BRI		Port 4	
Disconnected		BriTrunk7	BRI		Port 7	
Disconnected		BriTrunk8	BRI		Port 8	

Figure 4-2 Trunk Status Page

VoIP Trunk:

Status

Rejected: Trunk registration failed.

Registered: Successful registration, trunk is ready for use.

Request Send: Registering.

Waiting: Waiting for authentication.

Service Provider:

Status

OK: Successful registration, trunk is ready for use.

Unreachable: The trunk is unreachable.

Failed: Trunk registration failed.

FXO Trunk:

Status

Idle: The port is idle.

Busy: The port is in use.

Disconnected: The port hasn't connected to the PSTN line.

For more detailed info, please refer to the LED indication of front panel.

GSM Trunk:

Status

Idle: The port is idle.

Busy: The port is in use.

Signal

: No signal.

: Poor.

: Average.

: Good.

: Excellent.

BRI Trunk:

Status

Ok: The ports connect correctly.

Disconnected: The port hasn't connected to the BRI line or the signaling mismatch.

4.2 System Status

In this page, we can check the status of MyPBX system, including the hardware, firmware version and the network status of LAN and WAN ports.

4.2.1 System Info

In this page, we can check the hardware/firmware version, and the disk usage of MyPBX.



The screenshot shows the 'System Info' page with the following content:

System Info

General

Product Type:
MyPBX-Standard V6

Hardware Version:
V1.00 0000-0000

Firmware Version:
20.19.0.23

Uptime:
7:49:14 up 4 days, 21:23

Disk Usage

Note:if there is not enough disk space on the system, the oldest voicemail messages, call record files and call log files will be automatically deleted as necessary.

Disk Usage:

	Used/Total (1K-blocks)	use%
flash:	138992/389120	36%

Memory Usage

Memory Usage:

	Used/Total (1K-blocks)	use%
Mem:	177716/417768	42%

Figure 4-3 System Information

4.2.2 Network Status

In this page, the IP address of LAN and WAN port will appear. If OpenVPN is configured well, the information will be displayed here, too.



LAN
Hostname : MyPBX
MAC Address : f4:b5:49:00:4b:79
IP Address : 192.168.5.148
Subnet Mask : 255.255.255.0
Gateway : 192.168.5.1
Primary DNS : 192.168.5.1
Secondary DNS :

WAN
Status : Connect
MAC Address : f4:b5:49:00:4b:7a
IP Address : 192.168.1.2
Subnet Mask : 255.255.255.0
Gateway : 192.168.1.1
Primary DNS : 192.168.1.1
Secondary DNS : 8.8.8.8
Type : Static IP Address

Figure 4-4 Network Status

5 System



Click  to access.

In this page, we can configure the network settings, firewall settings, storage management and some other settings like firmware update and hot standby.

5.1 Network Preferences

5.1.1 LAN Settings

The screenshot shows the 'LAN Settings' configuration page. The settings are as follows:

- DHCP: No
- Enable SSH: No (Port: 8022)
- Enable FTP: No (Port: 21)
- Hostname: MyPBX
- IP Address: 192.168.5.142
- Subnet Mask: 255.255.254.0
- Gateway: 192.168.5.1
- Primary DNS: (empty)
- Secondary DNS: (empty)
- IP Address2: (empty)
- Subnet Mask2: (empty)

At the bottom, there are 'Save' and 'Cancel' buttons.

Figure 5-1 LAN Settings

•DHCP

If this option is set, MyPBX will use DHCP to get an available IP address from your local network. Not recommended as without the right IP address you cannot access MyPBX.

•Enable SSH

This is the advanced way to access the device. You can use the software "putty" to access the device. In the SSH access, you can do more advanced settings and debug. Disabled by default.

•**Port:** the default is 8022; you can change it.

•Enable FTP

Users will be able to log in MyPBX via FTP if FTP is enabled. You can access FTP resource on MyPBX via Windows explorer or Web browser.

FTP default user: **root**, password: **ys123456**

•**Port:** the default is 21; you change it to another one.

• **Hostname**

Set the host name for MyPBX.

• **IP Address**

Set the IP Address for MyPBX.

A static IP address for MyPBX is recommended.

• **Subnet Mask**

Set the subnet mask for MyPBX.

• **Gateway**

Set the gateway for MyPBX.

• **Primary DNS**

Set the primary DNS for MyPBX.

• **Secondary DNS**

Set the secondary DNS for MyPBX.

• **IP Address2**

Set the second IP Address for MyPBX.

• **Subnet Mask2**

Set the second subnet mask for MyPBX.

5.1.2

The screenshot displays the WAN Settings interface. At the top, there's a blue header with 'WAN Settings'. Below it, a form contains several sections:

- Use WAN:** A checked checkbox.
- Connection Type:** Three radio buttons: 'DHCP' (unselected), 'Static IP Address' (selected), and 'PPPoE' (unselected).
- Static IP Address Fields:**
 - IP Address: 192.168.1.2
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.1.1
 - Primary DNS: 192.168.1.1
 - Secondary DNS: 8.8.8.8
- PPPoE Fields:**
 - User Name: (empty)
 - Password: (empty)
- Buttons:** 'Save' (with a green checkmark icon) and 'Cancel' (with a red X icon).

Figure 5-2 WAN Settings

It supports three connection types: DHCP (obtain an IP automatically), PPPoE, Static IP Address.

Notes:

1. WAN port is disabled by default.
2. WAN port cannot be used as a router to route the Internet packages from WAN port to LAN port.

•DHCP

If your ISP says that you are connecting through DHCP or a dynamic IP address, perform these steps:

- Step1: Select **DHCP** as the WAN Connection Type.
- Step2: Click **Save** button to save the settings.
- Step3: Reboot the device.
- Step4: Check the WAN Status (Status → Network status).

•Static IP Address

If your ISP says that you are connecting through a static or fixed IP address, perform these steps:

- Step1: Select **Static IP Address** as the WAN Connection Type.
- Step2: Enter the IP Address.
- Step3: Enter the Subnet Mask.
- Step4: Enter the Gateway Address.
- Step5: Enter the Primary DNS and Secondary DNS.
- Step6: Click the **Save** button to save the settings.
- Step7: Reboot the device.
- Step8: Check the WAN Status (Status → Network status).

·PPPoE

If your DSL provider says that you are connecting through PPPoE or if you normally enter a user name and password to access the Internet, perform these steps:

Step1: Select **PPPoE** as the WAN Connection Type.

Step2: Enter the User Name.

Step3: Enter the Password.

Step4: Click the **Save** button to save the settings.

Step5: Reboot the device.

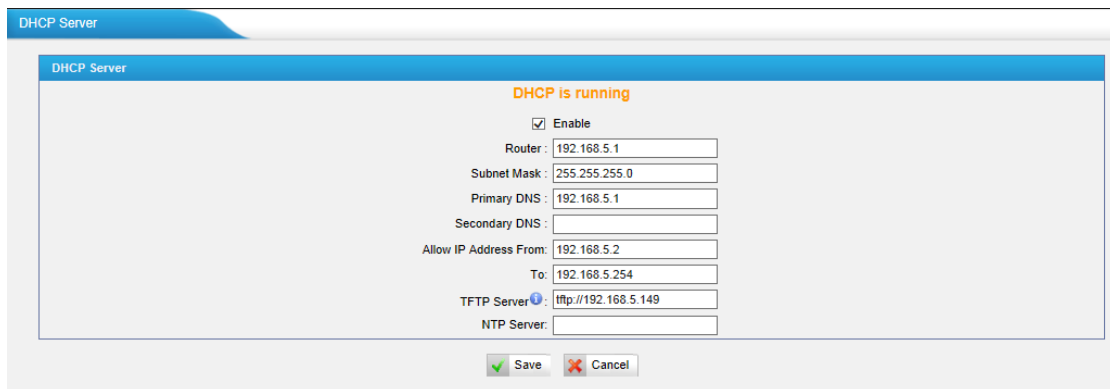
Step6: Check the WAN Status (Status → Network status)

5.1.3

Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a server to automatically assign an IP address to a computer from a defined range of numbers (i.e., a scope) configured for a given network. You can also set a local network NTP server for MyPBX here.

Note1: When using "Phone Provisioning" for Grandstream IP phone, enter the IP address of the server directly, e.g. 192.168.5.150; for other phones using the default configuration.

Note2: MyPBX Standard V7 can work as a DHCP server, but cannot be regarded as a router.



The screenshot displays the DHCP Server configuration interface. At the top, it indicates 'DHCP is running'. Below this, there is a checked 'Enable' checkbox. The configuration fields are as follows:

Router:	192.168.5.1
Subnet Mask:	255.255.255.0
Primary DNS:	192.168.5.1
Secondary DNS:	
Allow IP Address From:	192.168.5.2
To:	192.168.5.254
TFTP Server:	ftp://192.168.5.149
NTP Server:	

At the bottom of the form, there are 'Save' and 'Cancel' buttons.

Figure 5-3 DHCP Server Settings

A VLAN (Virtual LAN) is a logical local area network (or LAN) that extends beyond a single traditional LAN to a group of LAN segments, given specific configurations.

Note: MyPBX Standard V7 is not the VLAN server, a 3-layer switch is still needed, please configure the VLAN information there first, then input the details in MyPBX, so that the packages via MyPBX will be added the VLAN label before sending to that switch.

Figure 5-4 VLAN Settings

1) VLAN Over LAN

·NO. 1

Click the NO.1 you can edit the first VLAN over LAN.

·VLAN Number

.The VLAN Number is a unique value you assign to each VLAN on a single device.

·VLAN IP Address

Set the IP Address for MyPBX VLAN over LAN.

·VLAN Subnet Mask

Set the Subnet Mask for MyPBX VLAN over LAN.

·Default Gateway

Set the Default Gateway for MyPBX VLAN over LAN

·NO.2

Click the NO.2 you can edit the first VLAN over LAN.

• **VLAN Number**

.The VLAN Number is a unique value you assign to each VLAN on a single device.

• **VLAN IP Address**

Set the IP Address for MyPBX VLAN over LAN.

• **VLAN Subnet Mask**

Set the Subnet Mask for MyPBX VLAN over LAN.

• **Default Gateway**

Set the Default Gateway for MyPBX VLAN over LAN.

2) VLAN Over Wan

• **NO. 1**

Click the NO.1 you can edit the first VLAN over Wan.

• **VLAN Number**

.The VLAN Number is a unique value you assign to each VLAN on a single device.

• **VLAN IP Address**

Set the IP Address for MyPBX VLAN over Wan.

• **VLAN Subnet Mask**

Set the Subnet Mask for MyPBX VLAN over Wan.

• **Default Gateway**

Set the Default Gateway for MyPBX VLAN over Wan.

• **NO. 2**

Click the NO.2 you can edit the first VLAN over Wan.

• **VLAN Number**

.The VLAN Number is a unique value you assign to each VLAN on a single device.

• **VLAN IP Address**

Set the IP Address for MyPBX VLAN over Wan.

• **VLAN Subnet Mask**

Set the Subnet Mask for MyPBX VLAN over Wan.

• **Default Gateway**

Set the Default Gateway for MyPBX VLAN over Wan.

5.1.5 VPN Settings

A virtual private network (VPN) is a method of computer networking—typically using the public internet—that allows users to privately share information between remote locations, or between a remote location and a business' home network. A VPN can provide secure information transport by authenticating users, and encrypting data to prevent unauthorized persons from reading the information transmitted. The VPN can be used to send any kind of network traffic securely. MyPBX supports OpenVPN, IPsec and L2TP.

The screenshot shows the 'VPN Settings' page in the MyPBX administrator interface. It is divided into three main sections: 'OpenVpn Settings', 'IPSec Settings', and 'L2TP Settings'. Each section contains a dropdown menu for 'Enable' (currently set to 'No') and a file upload area for 'Import VPN Profile' with a 'Choose File' button and 'No file chosen' text. At the bottom of the page, there are 'Save' and 'Cancel' buttons.

Figure 5-5 OpenVPN Settings

- **Enable OpenVPN**

- **Import VPN Profile**

Import configuration file of OpenVPN. Don't configure "user" and "group" in the "config" file.

- **Enable IPsec**

- **Import VPN Profile**

Import configuration file of IPsec. There can be only one "lan" in the "conf" file.

- **Enable L2TP**

- **Import VPN Profile**

Import configuration file of L2TP. There can be only one "conn" in the "conf" file.

Note: for more details about the above VPN settings, please contact our technical support.

DDNS(Dynamic DNS) is a method/protocol/network service that provides the capability for a networked device, such as a router or computer system using the Internet Protocol Suite, to notify a Domain Name System (DNS) name server to change, in real time, the active DNS configuration of its configured hostnames, addresses or other information.

DDNS Settings

Note: DDNS allows you to access your network using domain names instead of IP address. The service manages changing IP address and updates your domain information dynamically. You must sign up for service through dyndns.org, freedns.afraid.org, www.no-ip.com, www.zoneedit.com

DDNS is not running

Enable DDNS:

DDNS Server:

User Name:

Password:

Host Name:

Figure 5-6 DDNS Settings

• **Enable DDNS**

• **DDNS Server**

Select the DDNS server you sign up for service.

• **User Name**

User name the DDNS server provided.

• **Password**

User account's password.

• **Host Name**

Note: DDNS allows you to access your network using domain names instead of IP address. The service manages changing IP address and updates your domain information dynamically. You must sign up for service through dyndns.org, freedns.afraid.org, www.no-ip.com, www.zoneedit.com

MyPBX will have more than one Internet connection in some situations but it has only one default gateway. You will need to set some Static Route for MyPBX to force it to go out through different gateway when accessing different Internet. The default gateway priority of MyPBX from high to low is OpenVPN, WAN port, LAN port.

Destination	Subnet Mask	Gateway	Metric	Interface
192.168.0.0	255.255.254.0	0.0.0.0	0	LAN
192.168.0.0	255.255.254.0	0.0.0.0	0	WAN
224.0.0.0	224.0.0.0	0.0.0.0	0	LAN

Static Route Rules

Destination: Subnet Mask: Gateway: Metric: Interface: LAN

No Static Routes Defined

Figure 5-7 Static Route Settings Page

1) Route table

The current route rules of MyPBX.

•Destination

The destination network to be accessed by MyPBX.

•Subnet Mask

Specify the destination network portion.

•Gateway

Define MyPBX will go through which gateway when accessing the destination network.

•Metric

The cost of a route is calculated by using what are called routing metric. Routing metrics are assigned to routes by routing protocols to provide measurable statistic which can be used to judge how useful (how low cost) a route is.

•Interface

Define which Internet port to go through.

2) Static Route Rules

You can add new static route rules here.

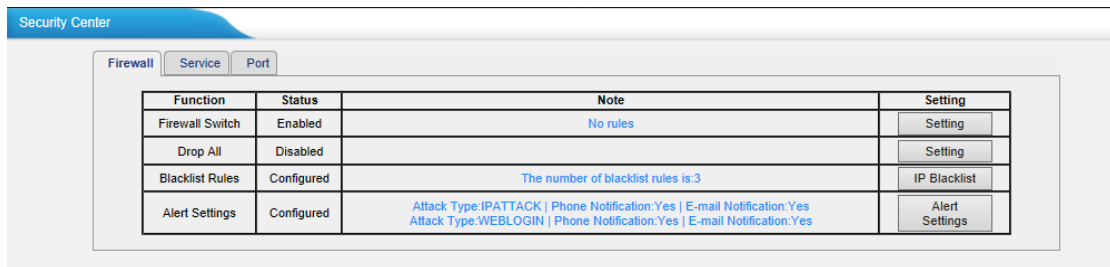
5.2 Security Settings

Firewalls are used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

5.2.1 Security Center

You can check MyPBX security configuration in “Security Center” page. And also, you can enter the relevant security settings page rapidly.

Firewall:

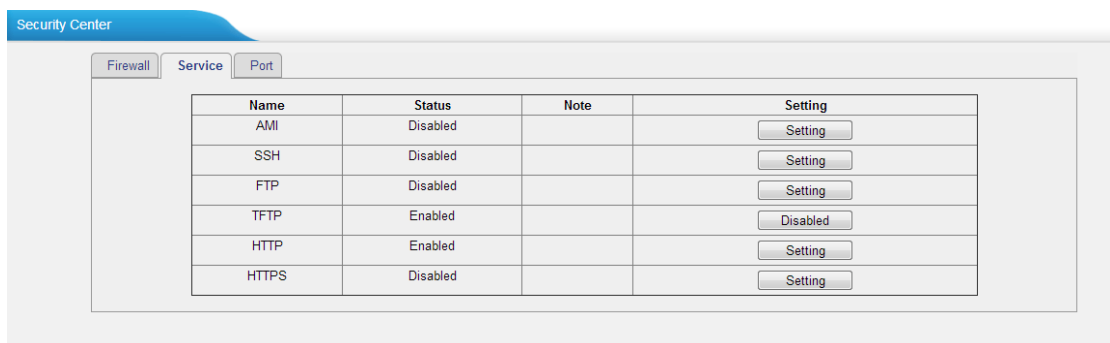


Function	Status	Note	Setting
Firewall Switch	Enabled	No rules	Setting
Drop All	Disabled		Setting
Blacklist Rules	Configured	The number of blacklist rules is 3	IP Blacklist
Alert Settings	Configured	Attack Type:IPATTACK Phone Notification:Yes E-mail Notification:Yes Attack Type:WEBLOGIN Phone Notification:Yes E-mail Notification:Yes	Alert Settings

Figure 5-8 Security Center-Firewall

In the “Firewall” tab, you can check firewall configuration and alert settings. By clicking the relevant button, you can enter the configuration page directly.

Service:



Name	Status	Note	Setting
AMI	Disabled		Setting
SSH	Disabled		Setting
FTP	Disabled		Setting
TFTP	Enabled		Disabled
HTTP	Enabled		Setting
HTTPS	Disabled		Setting

Figure 5-9 Security Center-Service

In “Service” tab, you can check AMI/SSH/TFTP status. For AMI/SSH, you can enter the according page by clicking the button in “Setting” column. For TFTP, you can directly disable or enable it.

Port:

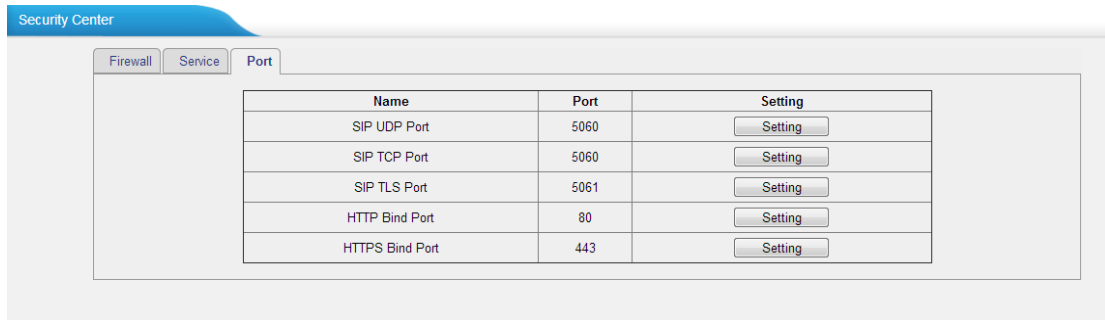


Figure 5-10 Security Center-Port

In "Port" tab, you can check SIP port and HTTP port. You can also enter the relevant page by clicking the button in "Setting" column.

5.2.2 Firewall Rules

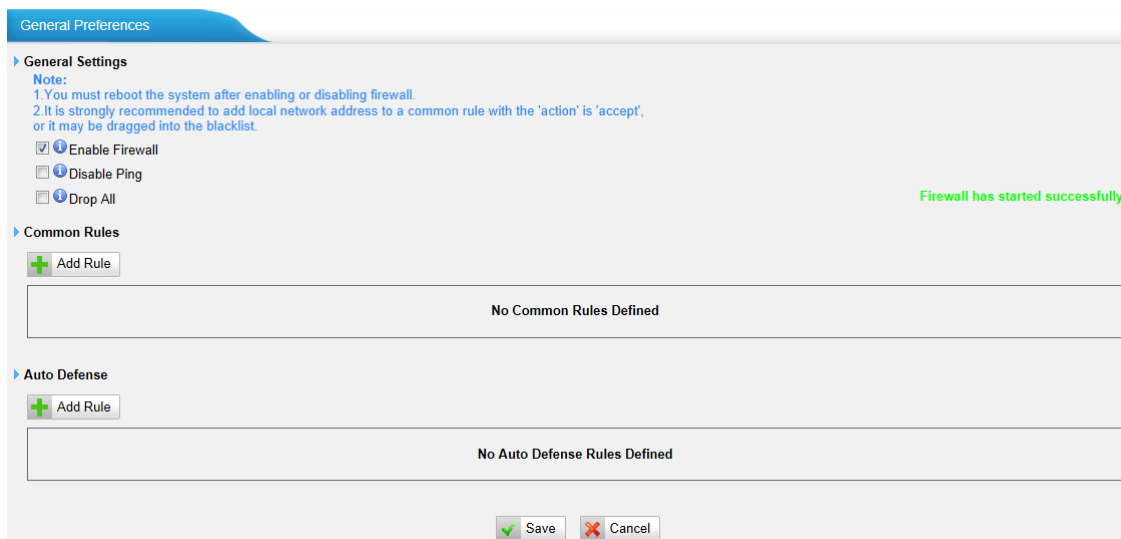


Figure 5-11 Firewall Settings

1) General Settings

•Enable Firewall

Enable the firewall to protect the device.

•Disable Ping

Enable this item, net ping from remote hosts will be dropped.

•Drop All

When you enable "Drop All" feature, system will drop all packets or connection from other hosts if there are no other rules defined. To avoid locking the devices, at least one "TCP" accept common rule must be created for port used for SSH access, port used for HTTP access and port sued for CGI access.

2) Common Rules

There is no default rule; you can create them as required.

Figure 5-12 Add Common Rules

•Name

A name for this rule, e.g. "HTTP".

•Description

Simple description for this rule. E.g. Accept the specific host to access the web interface for configuration.

•Protocol

The protocols for this rule.

•Port

Initial port should be on the left and end port should be on the right.

The end port must be equal to or greater than start port.

•IP

The IP address for this rule. The format of IP address is: IP/mask

E.g. 192.168.5.100/255.255.255.255 for IP 192.168.5.100

E.g. 216.207.245.47/255.255.255.255 for IP 216.207.245.47

E.g. 192.168.5.0/255.255.255.0 for IP from 192.168.5.0 to 192.168.5.255 .

•MAC Address

The format of MAC Address is XX:XX:XX:XX:XX:XX, X means 0~9 or A~F in hex, the A~F are not case sensitive.

Note: The MAC address will be changed when it's a remote device, so it will not be working to filter using MAC for remote devices.

•Action

Accept: Accept the access from remote hosts.

Drop: Drop the access from remote hosts.

Ignore: Ignore the access.

3) Auto Defense

By default, there is no rule.

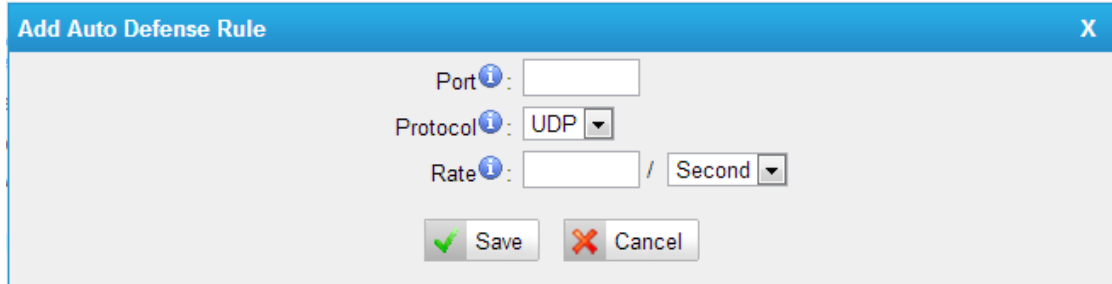


Figure 5-13 Add Auto Defense Rule

Port

The port you want to auto defense, for example, 8022.

Protocol:

Select the protocol. You can select UDP or TCP.

Rate:

The maximum packets or connections can be handled per unit time.

For example, if you configure it as below:

Port: 8022

Protocol: TCP

Rate: 10/min

Then, it means maximum 10 TCP connections can be handled in 1 minute. The 11th connection will be dropped.

5.2.3 IP Blacklist

You can set some packets accept speed rules here. When a IP address which hasn't been accepted in common rules sends packets faster than the allowed speed, it will be set as black IP address and blocked automatically.

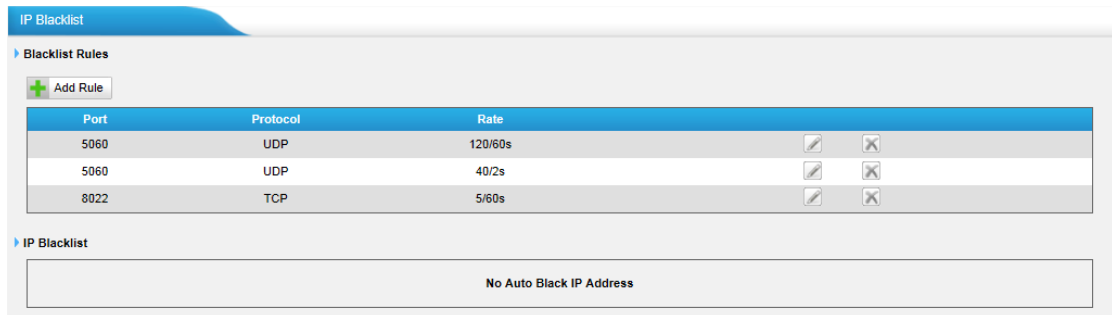


Figure 5-14 IP Blacklist Settings Page

1) Blacklist rules

You can add the rules for IP blacklist rate as you wish.

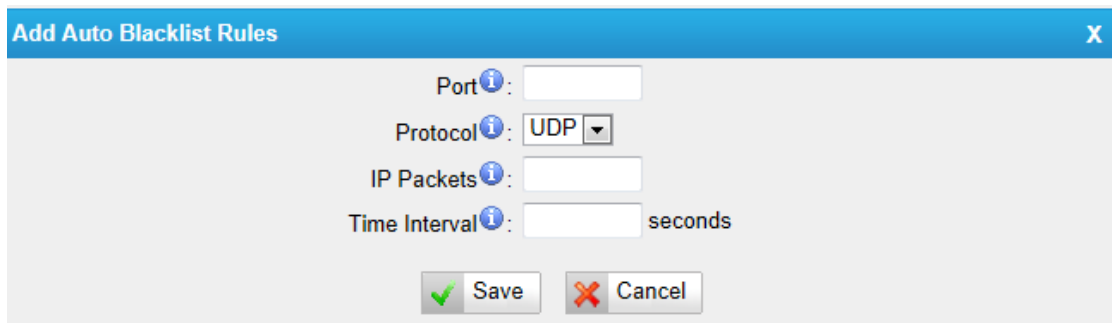


Figure 5-15 Add Blacklist Rule

•Port

Auto defense port

•Protocol

Auto defense protocol. TCP or UDP.

•IP Packets

Allowed IP packets number in the specific time interval.

•Time interval

The time interval to receive IP packets. For example, IP packets 90, time interval 60 means 90 IP packets are allowed in 60 seconds.

2) IP blacklist

The blocked IP address will display here, you can delete it as you wish.

5.2.4 AMI Settings

The Asterisk Manager Interface (AMI) is a system monitoring and management interface provided by Asterisk. It allows live monitoring of events that occur in the system, as well enabling you to request that Asterisk perform some action. The actions that are available are wide-ranging and include things such as returning status information and originating new calls. Many interesting applications have been developed on top of Asterisk that take advantage of the AMI as their primary interface to Asterisk.

There are two main types of messages on the Asterisk Manager Interface: manager events and manager actions.

The 3rd party software can work with MyPBX using AMI interface. It is disabled by default. If necessary, you can enable it.

Figure 5-16 AMI Settings

Username & password: after enabling AMI, you can use this username and password to log in MyPBX AMI

IP Restriction: you can set which IP can log in MyPBX AMI interface

5.2.5 Database Grant

Standard V7 are using MySQL database from 14.18.0.22. The 3rd party software can access MySQL via internet. Before that, you need to grant the authority to the database user.

After entering "Database Grant" page, clicking "Add", you can add a database user, set user password and grant authority.

Figure 5-17 Database Grant


Username/password: The 3rd party can use this username and password to access the MySQL.

Database: there are 2 options, CDR and Record. If you choose CDR, then this user has authority to check CDR database; if you choose Record, then the user has authority to check which call has been recorded automatically.

5.2.6 Alert Settings

If the device is attacked, the system will notify users the alert via call or E-mail. The attack modes include IP attack and Web Login.

For more details on the system security configuration, please refer to [APPENDIX B MyPBX Security Configuration Guide](#).



Attack Type	Phone Notification	E-mail Notification	
IPATTACK	Yes	Yes	
WEBLOGIN	Yes	Yes	

Figure 5-18 Alert Settings

1. IPATTACK

When the system is attacked by IP address, the firewall will add the IP to auto IP Blacklist and notify the user if it match the protection rule.

1) Phone Notification Settings

•PHONE Notification

Whether enable phone notification.

•Number

The numbers could be set for alert notification; users can setup multiple extension and outbound phone numbers. Please separate them by ";". Example: "500;9911", if the extension has configured Follow Me Settings, the call would go to the forwarded number directly.

•Attempts

The attempts to dial a phone number when there is no answer.

•Interval

The interval between each attempt to dial the phone number. Must be greater than 3 seconds, the default value is 10 seconds.

•Prompt

Users will hear the prompt while receiving the phone notification.

2) E-mail Notification Settings

Note: Please ensure that all voicemail settings are properly configured on the System Settings -> Voicemail Settings page before using this feature.

•E-mail Notification

Whether to enable E-mail Notification or not

•Recipient's Name

The recipients for the alert notification, and multiple email addresses are allowed, please separate them by ";".

Example: jerry@yeastar.com; jason@yeastar.com, 456@sina.com .

•Subject

The subject of the alert email.

•Email Content

Text content supports predefined variables. Variable names and corresponding instructions are as follows:

\$(HOSTNAME)	Host name
\$(LOCALIP)	Local IP address
\$(SOURCEIP)	Attack source IP address
\$(DATETIME)	Occurred
\$(USERNAME)	User name (WEBLOGIN effective)
\$(DESTMAC)	Attacks destination MAC (IPATTACK effective)
\$(DESTPORT)	Attacks destination Port number (IPATTACK effective)
\$(PROTOCOL)	Protocol type (IPATTACK effective)
\$(INTERFACE)	Network interface name (IPATTACK effective)

The screenshot shows the IPATTACK configuration window with the following settings:

Phone Notification Settings

- Phone Notification: Yes
- Number: 915812345678
- Attempts: 1
- Interval: 60 s
- Prompt: default (with a link to Custom Prompts)

E-mail Notification Settings

- E-mail Notification: Yes
- To: jerry@yeastar.com
- Subject: IP Attack
- Message body template:


```
pbx hostname:${HOSTNAME}
attack source ip address:${SOURCEIP}
attack dest mac:${DESTMAC}
attack source port:${DESTPORT}
attack source protocol:${PROTOCOL}
attack occurred:${DATETIME}
```

Buttons: Save, Cancel

Figure 5-19 IP Attack Configuration

2. WEBLOGIN

Web Login Alert Notification: Enter the password incorrectly five times to login MyPBX Web interface will be considered as an attack, the system will limit the IP login within 10 minutes and notify the user.

The screenshot shows the WEBLOGIN configuration window with the following settings:

Phone Notification Settings

- Phone Notification: Yes
- Number: 915812345678
- Attempts: 1
- Interval: 60 s
- Prompt: default (with a link to Custom Prompts)

E-mail Notification Settings

- E-mail Notification: Yes
- To: jerry@yeastar.com
- Subject: Web Login
- Message body template:


```
pbx hostname:${HOSTNAME}
login ip address:${SOURCEIP}
login username:${USERNAME}
login occurred:${DATETIME}
```

Buttons: Save, Cancel

Figure 5-20 Web Login Alert Setting

5.3 LDAP Server

5.3.1 LDAP Server

LDAP is used as a phone book on MyPBX so that you can search a key word from your IP phone. The key word can be a name, a mobile number, an email or other key words in the phonebook.

Note:

It requires that the IP phone should support LDAP feature.

1) LDAP Settings

Figure 5-21 LDAP Server page

•Enable LDAP

Enable LDAP to use LDAP on your IP phone.

•Root Node

A root node for this LDAP, e.g. dc=pbx, dc=com.

•PBX Node

A pbx node for this LDAP, e.g. ou=pbx, dc=pbx, dc=com.

•User Name

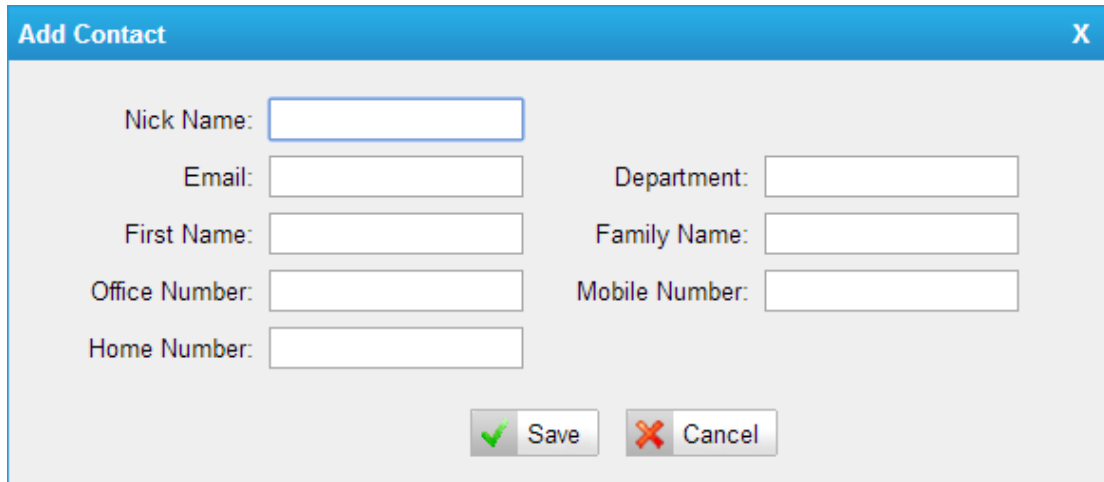
A user for this LDAP, e.g. cn=admin, dc=pbx, dc=com

•Password

A password used to access LDAP.

2) Add Contact

In Add Contact you can create them as required.



The screenshot shows a dialog box titled "Add Contact" with a close button (X) in the top right corner. The dialog contains the following fields:

- Nick Name:
- Email:
- First Name:
- Office Number:
- Home Number:
- Department:
- Family Name:
- Mobile Number:

At the bottom of the dialog, there are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 5-22 Add Contact

If you want to know how to use LDAP, please refer to [Appendix J](#)

5.4 Storage Management

5.4.1

The External Storage feature is used to extend storage space. Once configured, the files (voicemail, call recording files) created before the configured days will be moved to the Net-Disk.

Note: The shared folder must be based on Windows Operation System. And if it's windows Vista/2008/7, please add "Everyone" into the shared account list.

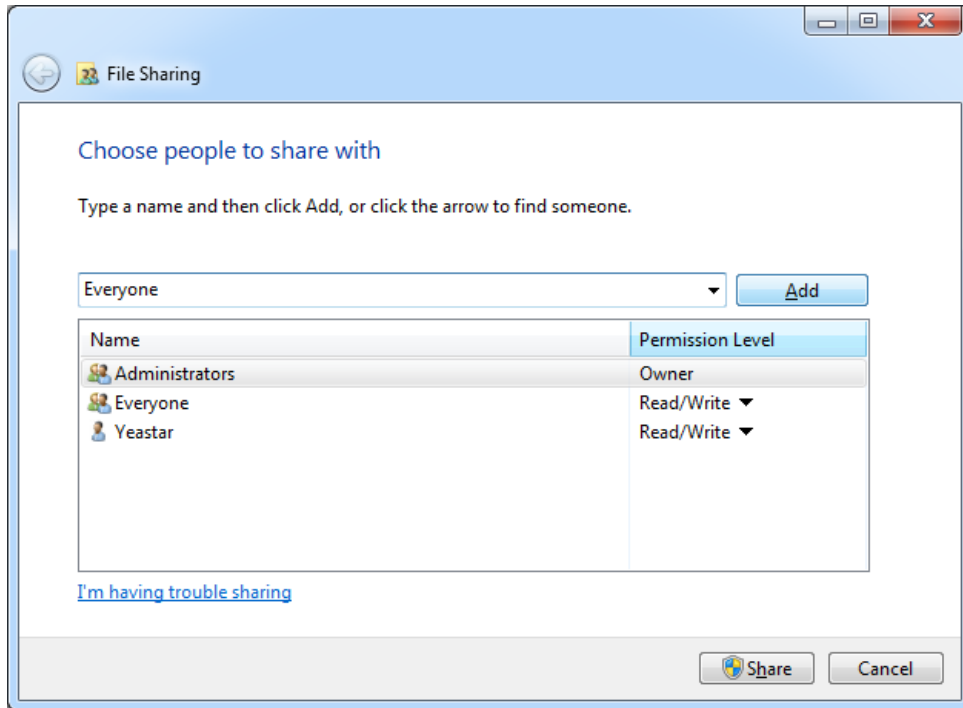


Figure 5-23 File Sharing

Before external storage can be properly configured, an SMB share folder accessible from MyPBX must be set up on a Windows based machine. Once that has been set up, please follow the steps below.

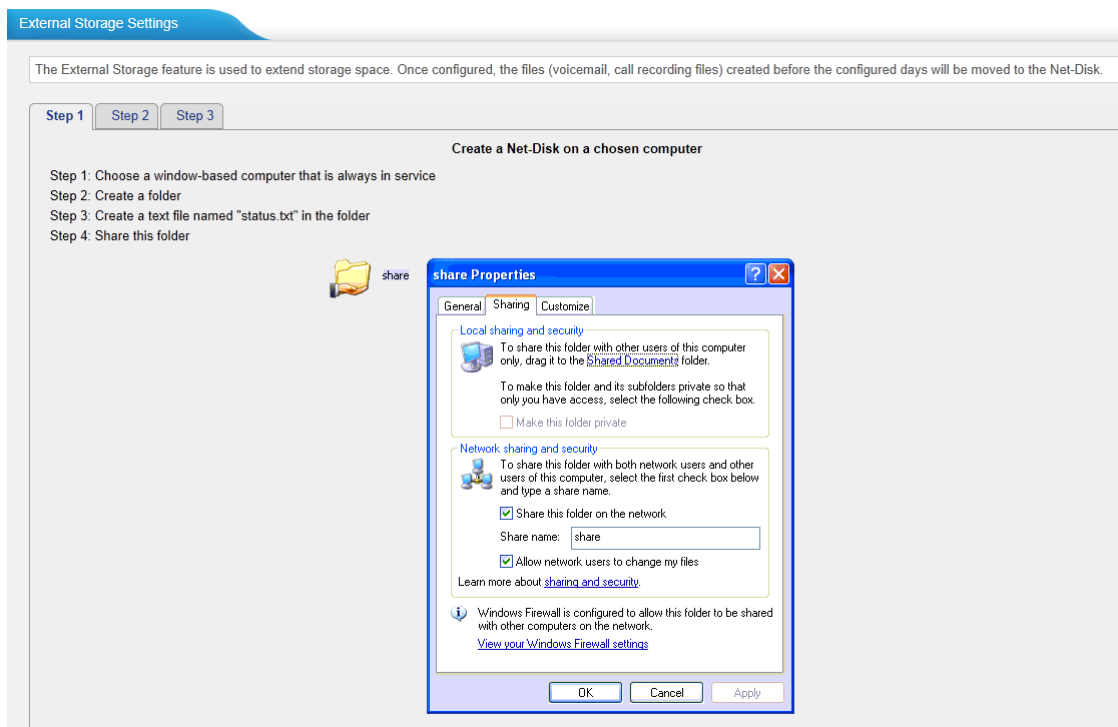


Figure 5-24 External Storage Settings

Step 1: Choose a window-based computer that is always in service

Step 2: Create a folder

Step 3: Create a text file named "status.txt" in the folder

Step 4: Share this folder

Then we need input the Net-Disk information in step2 page.

The screenshot shows the 'External Storage Settings' interface. At the top, there's a blue header with the text 'External Storage Settings'. Below it, a message states: 'The External Storage feature is used to extend storage space. Once configured, the files (voicemail, call recording files) created before the configured days will be moved to the Net-Disk.' There are three step indicators: 'Step 1', 'Step 2' (selected), and 'Step 3'. The main content area is titled 'Step 2: Input the Net-Disk properties' and contains the following fields:

- Net-Disk Host/IP: [text input field]
- Net-Disk Share Name: [text input field]
- Net-Disk Access User Name: [text input field]
- Net-Disk Access Password: [text input field]
- Move files created before: 5 [dropdown menu] days ago

 At the bottom, there are 'Save' and 'Cancel' buttons.

Figure 5-25 Enter the Net-disk information

Net-Disk Host/IP: Change this to the IP address of the computer where backup files will be stored.

Net-Disk Share Name: Change this to the name of the shared folder where backups will be stored.

Net-Disk Share Username: The user name used to log into the network share. Leave this blank if it is not required

Net-Disk Share Password: The password used to log into the network share. Leave this blank if it is not required

If the configuration is correct, open the Windows share folder you will see the MyPBX backup files and folders has been created. If the contents of the backup folder look similar to step3 page, then you have successfully configured external storage on the MyPBX unit.

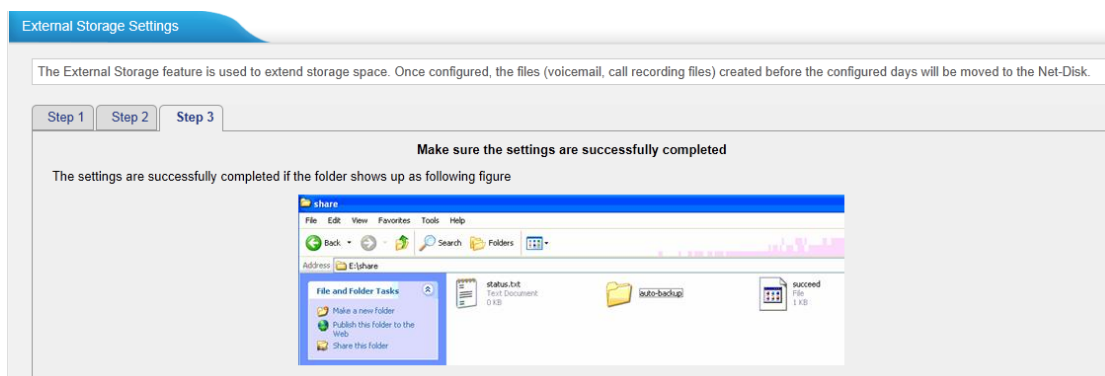


Figure 5-26 Configuring External Storage Successfully

5.5 System Preferences

In this page, we can set other system preference, like the password for admin account, system date and time, firmware update, hot standby, backup and restore, reset and reboot.

5.5.1 Password Settings

MyPBX has 3 accounts: admin, user, and cdr. User and cdr account is disabled by default.

Admin account:

The default password for account "admin" is "password". To change the password, select "admin" in "User", enter the old password and new password, and click "Save". The system will then prompt you to re-login using your new password.

After you enter the new password, MyPBX will prompt the password strength. It is recommended that you use numbers, upper-case letters, and lower-case letters to increase the security.

When you log in MyPBX using "admin" account, you can enable "user" and "cdr" account; also, you can change their passwords.

The screenshot shows the 'Change Password' web interface. At the top, there's a blue header with the text 'Change Password'. Below it, a form contains a 'User' dropdown menu currently showing 'admin'. Underneath are three password input fields: 'Enter Old Password', 'Enter New Password', and 'Retype New Password'. To the right of the 'Enter New Password' field is a green progress bar and the word 'Strong', indicating the password strength. Below the password fields is a 'User Setting' section with two dropdown menus: 'Enable User Account' and 'Enable CDR Account', both currently set to 'No'. At the bottom of the form is a green 'Save' button.

Figure 5-27 Modify admin's Password

User account:

User account is disabled by default and its default password is "password". When enabling "user" account for the first time, MyPBX will ask you to change "user" password. If you don't change it, you can't enable "user" account.

To change the password, select "user" in "User", enter the old password and new password, and click "Save". The system will then prompt you to re-login using your new password.

After you enter the new password, MyPBX will prompt the password strength. It is recommended that you use numbers, upper-case letters, and lower-case letters to increase the security.

The screenshot shows the 'Change Password' section of the MyPBX administrator interface. The 'User' dropdown menu is set to 'user'. Below it are three password input fields: 'Enter Old Password', 'Enter New Password', and 'Retype New Password'. A green progress bar next to the 'Enter New Password' field indicates the password strength, labeled 'Strong'. In the 'User Setting' section below, the 'Enable User Account' dropdown is set to 'Yes' and the 'Enable CDR Account' dropdown is set to 'No'. A 'Save' button is located at the bottom of the form.

Figure 5-28 Modify user's Password

After enabling "user" account, you can log in MyPBX using "user". "user" account can change its own password.

CDR account:

"cdr" account is disabled by default and its default password is "password". You can enable it after you log in MyPBX using "admin" account.

To change the password, select "cdr" in "User", enter the old password and new password, and click "Save". The system will then prompt you to re-login using your new password.

After you enter the new password, MyPBX will prompt the password strength. It is recommended that you use numbers, upper-case letters, and lower-case letters to increase the security.

The screenshot shows the 'Change Password' section of the MyPBX administrator interface. The 'User' dropdown menu is set to 'cdr'. Below it are three password input fields: 'Enter Old Password', 'Enter New Password', and 'Retype New Password'. A green progress bar next to the 'Enter New Password' field indicates the password strength, labeled 'Strong'. In the 'User Setting' section below, the 'Enable User Account' dropdown is set to 'Yes' and the 'Enable CDR Account' dropdown is set to 'Yes'. A 'Save' button is located at the bottom of the form.

Figure 5-29 Modify cdr's Password

After enabling "cdr" account, you can log in MyPBX using "cdr". "cdr" account can change its own password.

5.5.2 Date and Time

Set the date and time for MyPBX.

The screenshot shows the 'Date & Time' configuration interface. At the top, it displays the 'Server Time: Tue Jul 30 22:51:40 2013'. Below this, there are three dropdown menus: 'Time Zone: -8 United States - Pacific Time', 'Daylight Saving Time: Disabled', and 'Automatically Synchronize With An Internet Time Server' (which is selected). Under the selected option, there is a text input field for 'NTP Server' containing 'pool.ntp.org'. Below that, the 'Set Date & Time Manually' option is unselected. This option has a 'Date' input field and a 'Time' input field with AM/PM dropdowns. At the bottom of the form are 'Save' and 'Cancel' buttons.

Figure 5-30 Configuring Date & Time

•Time Zone

You can choose your time zone here.

•Daylight Saving Time

Set the mode to Automatic or disabled

•Automatically Synchronize With an Internet Time Server

Input the NTP server so that MyPBX will update the time automatically

•Set Date & Time Manually

You can set the time to your local right time manually here

5.5.3 Firmware Update

Upgrading of the firmware is possible through the Administrator web interface using a TFTP Server or an HTTP URL.

Enter your TFTP Server IP address and firmware file name, then click start to update the firmware

Notes:

1. If "Reset configuration to Factory Defaults" is enabled, the system will restore to factory default settings.
2. When updating the firmware, please don't turn off the power. Or the system will get damaged.
3. For more information on the steps of updating the firmware, please refer to this link:

http://www.yeostar.com/download/MyPBX/MyPBX_Standard&Pro_FirmwareUp

grade_en.pdf

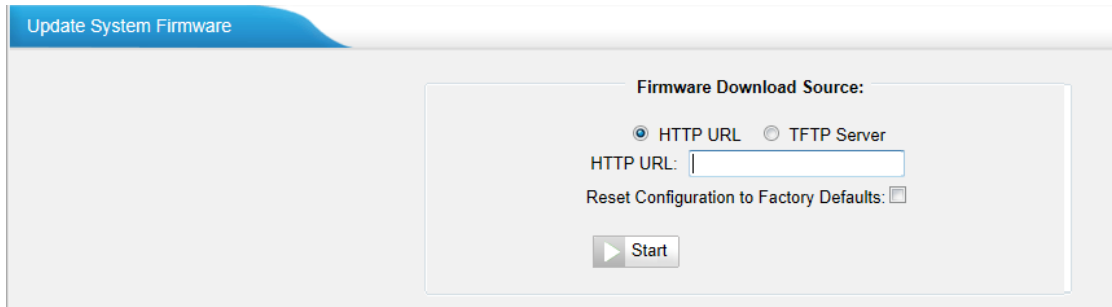


Figure 5-31 Firmware Update Page

5.5.4 Backup and Restore

We can back up the configurations before resetting MyPBX SOHO to factory defaults, and then restore it using this package. The backup created on MyPBX is encrypted with file format ".bak".

Notes:

1. Only configurations, custom prompts will be backed up, the voicemail and recording files are not included.
2. When you have updated the firmware version, it's not recommended to restore using old package.

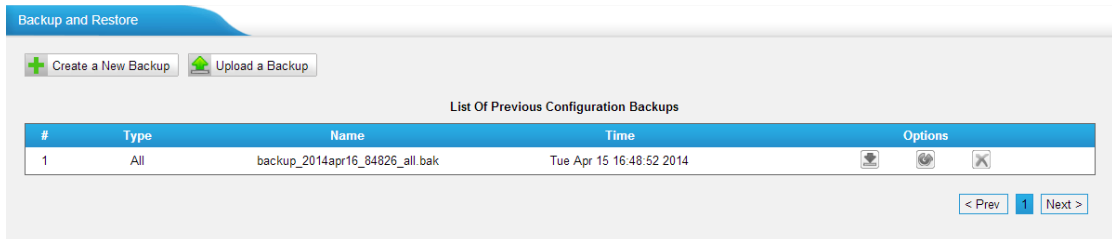


Figure 5-32 Backup and Restore Page

•Create a New Backup

Users are able to create a new backup for "All" or for separate backup extensions.

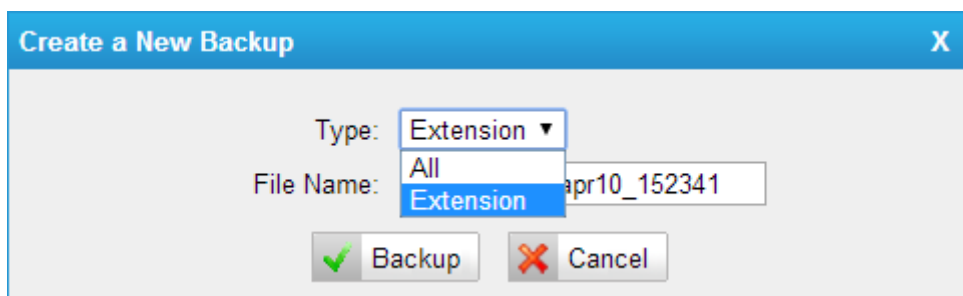


Figure 5-33 Create a New Backup

·Upload a Backup

Users are able to create a new backup for "All" or for separate backup extensions.

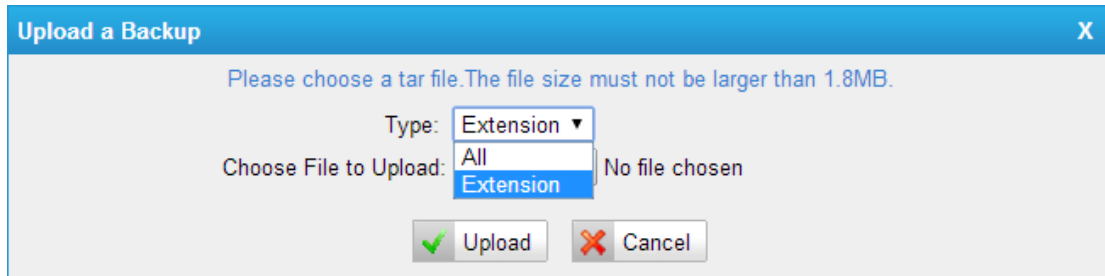


Figure 5-34 Upload a Backup

5.5.5 Reset and Reboot

We can reset or reboot MyPBX Standard V7 via web directly in this page.

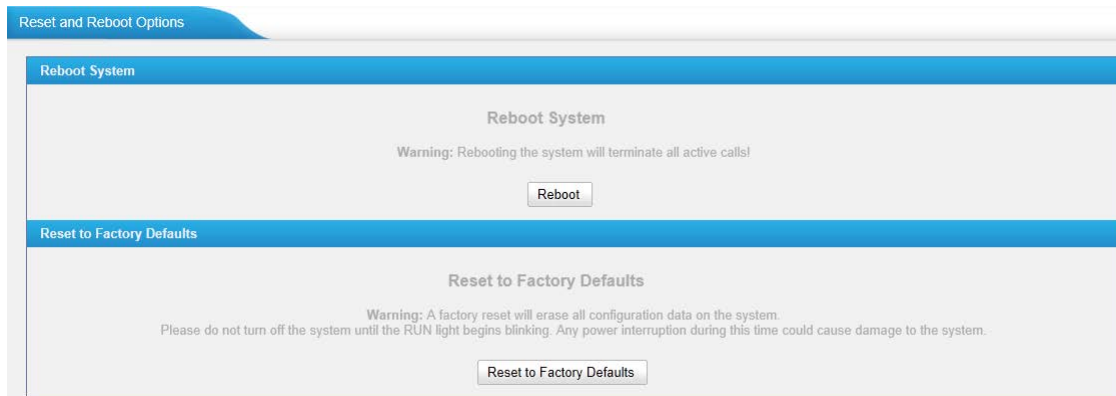


Figure 5-35 Reset and Reboot Options

·Reboot System

Warning: Rebooting the system will terminate all active calls!

·Reset to Factory Defaults

Warning: A factory reset will erase all configuration data on the system. Please do not turn off the system until the RUN light begins blinking. Any power interruption during this time could cause damage to the system.

5.5.6 Hot Standby

Redundancy is achieved by using duplicate hardware and software installations and synchronizing data and operating state. Redundancy assures smooth operation even if a system goes down. Essentially a duplicate backup system takes over with virtually no loss of service. This technique assures absolute

reliability no matter what failure occurs. In mission critical installations, redundancy is a way to address possibility of any failure.

Note 1: Before enabling the Hot Standby feature, please make sure that the two servers in the failover pair are the same model, own the same modules installed in the same slots, the same hardware configurations and firmware version.

Note 2: Please configure the primary server first and configure the secondary server only after the running status of primary server becomes "active".

Note 3: The virtual IP address inputted in this page will be the one used for registering in each IP phone.

Note 4: Before configuring the Email list in this page, please configure the "voicemail settings" in "PBX→Basic settings", and make sure the SMTP test successfully.

Note 5: Before configuring the SMS list; please make sure the SIM and GSM/UMTS modules are installed well.

Hot Standby

Note 1: Before enabling the Host Standby feature, please make sure that the two servers in the failover pair are the same model, have the same modules installed in the same slots, the same hardware configurations and firmware version.
 Note 2: Please configure the primary server first and configure the secondary server only after the running status of primary server becomes "active".

Step 1: [Verify the basic information of the server](#)
 Step 2: [Configure the IP address and hostname of the primary and secondary servers](#)
 Step 3: [Configure Hot Standby Settings \(Example\)](#)

Basic

Running Status: Disabled
 Enable: No
 Mode: Primary
 Secondary HostName:
 Secondary IP:
 Access Code:
 Virtual IP Address:
 Network Connection Detection:

Down Notification

Notification Methods: None
 Email List:
 SMS List:

Advanced

Heartbeat Options
 Keep Alive: 2 s
 Dead Time: 120 s

Figure 5-36 Hot Standby Configuration

Mode: Primary means the main unit; Secondary means the standby unit;

Secondary/Primary Hostname: If this unit mode is primary, then you need to input the hostname of standby unit; vice versa, if this unit is selected as secondary, then the hostname of primary unit is required. In brief, you need to input each other's host name on this field.

IP: You need to input each other's IP address on this field.

Access code: To make an identification number to verify each other. The number must be the same to both units.

Virtual IP address: To fill in a virtual IP address includes mask, which is always points to the currently activated unit. Customer can register IP phones through this virtual IP address. Please make sure the virtual IP address netmask is the same on both units but different from their former IP address.

Network Connection Detection: Generally it requires the IP address of the router or gateway that connects both units. MyPBX will connect another unit through this IP address.

Down Notification: The way of informing customer that the system down.

Keep Alive: Every 2 seconds, a package will be sent from one unit to another, which can test whether they are working properly.

Dead Time: The default setting is 120 seconds. If there's no response within 120s after one receiving a package from the other, then the normal working unit will figure the other unit is dead and send an email or SMS to report the failure.

6 PBX



Click  to access.

In this page, we can configure the settings of extension, trunk, inbound call control, outbound call control, audio settings and the others. When configured well, we can make calls as scheduled.

6.1 Extensions

In this page, we can configure the extensions' details and provision the supported models automatically.

6.1.1

There are three types of extensions supported in MyPBX Standard V7: SIP, IAX and analog extension.

FXS/VoIP Extensions					
FXS Extensions					
Port	Extension	Name	Caller ID		
1	601	601	601		
2	602	602	602		

VoIP Extensions					
Add Extension		Add Bulk Extensions		Edit the Selected Extensions	
				Delete The Selected Extension	
Total: 6 Show: 1-6					
<input type="checkbox"/>	Extension	Type	Name	Caller ID	
<input type="checkbox"/>	300	SIP	300	300	
<input type="checkbox"/>	301	SIP	301	301	
<input checked="" type="checkbox"/>	302	SIP	302	302	
<input type="checkbox"/>	303	SIP	303	303	
<input type="checkbox"/>	304	SIP	304	304	
<input type="checkbox"/>	305	SIP	305	305	

1

Figure 6-1 Extension List

FXS Extensions

Port	Extension	Name	Caller ID		
1	601	601	601		
2	602	602	602		

Figure 6-2 FXS Extension List

There are two analog extensions in MyPBX Standard V7 if S2 module is installed, to modify the extension number, please delete it first, and then recreate it again.

1) General

Edit Extension - 601
X

General

Other Settings

General

Extension :

Port:

Name :

Caller ID :

Voicemail

Enable Voicemail Voicemail Access PIN # :

Mail Setting

Enable Send Voicemail

Email Address :

Note: Please ensure that the section 'SMTP Settings for Voicemail'(in the 'Voicemail Settings') have been properly configured before using this feature.

Flash

Hook Flash Detection : ms

Group

Pickup Group : ▼

Call Duration Setting

Max Call Duration : s

Save

Cancel

Figure 6-3 Edit FXS Extension

•Extension

The numbered extension, e.g. 1234, that will be associated with this particular User/Phone.

•Port

The extension correspond port.

• **Name**

A character-based name for this user, e.g. "Bob Jones".

• **Caller ID**

The Caller ID (CID) string will be used when this user calls another internal user.

2) Voicemail

• **Enable Voicemail**

Check this box if the user should have a voicemail account.

• **Voicemail Access PIN #**

Voicemail Password for this extension, e.g. "1234".

3) Mail Setting

• **Enable Send Voicemail**

Once enabled, the voicemail will be sent to the email address below as an attachment.

• **Send Voicemail to Email Address**

This option defines whether or not voicemails/Fax is sent to the Email address as an attachment.

Note: Please ensure that all voicemail settings are properly configured on the System Settings -> Voicemail Settings page before using this feature.

4) Flash

• **Hook Flash Detection**

Sets the amount of time, in milliseconds, that must pass since the last hook-flash event received by MyPBX before it will recognize a second event. If a second event occurs in less time than defined by Hook Flash Detection, then MyPBX will ignore the event. The default value of Flash is 1000ms, and it can be configured in 1ms increments.

5) Group

• **Pickup Group**

If this extension belongs to a pickup group, any calls that ring this extension can be picked up by other extensions in the same pickup group by dialing the Call Pickup feature code (the default is *4).

Note: *4 is the default setting, it can be changed under Feature Codes -> General -> Call Pickup.

6) Call Duration Settings

Setup the max cull duration for every call of this extension, but it's only valid for outbound calls. Enter "0" or leave this blank empty, the value would be equal to the max call duration configured in the Option Settings page.

Note: this setting will not be valid for internal calls.

Other Settings

The screenshot shows the 'Edit Extension - 601' configuration window with the 'Other Settings' tab selected. The 'Other Options' section includes checkboxes for 'Call Waiting', 'DND', and 'User Web Interface', along with a 'Ring Out' field set to 30. The 'Follow me' section has checkboxes for 'Always', 'No answer', and 'When Busy', and radio buttons for 'Voicemail' and 'Number'. The 'Volume Settings' section features 'Rxgain' and 'Txgain' dropdown menus both set to 40%. The 'Mobility Extension' section includes checkboxes for 'Enable Mobility Extension' and 'Ring Simultaneously', and input fields for 'Mobility Extension Number' and 'Outbound Prefix'. The 'Caller ID Type' section has a 'Caller ID Setting' dropdown set to 'Default'. The 'Spy Settings' section has a checkbox for 'Allow Being Spied' and a 'Spy Modes' dropdown. At the bottom, there are 'Save' and 'Cancel' buttons.

Figure 6-4 FXS Extension Other Settings

7) Other options

•Call Waiting

Check this option if the extension should have Call Waiting capability. If this option is checked, the "When busy" follow me options will not be available.

•DND

Don't Disturb.

•User Web Interface

Check this option to allow the user to log in to the MyPBX User Web interface, which can be used to access voicemail and extension recordings. Users may log in the MyPBX User Web interface by using their extension number and voicemail PIN as the user name and password respectively.

•**Ring Out**

Check this option if you want to custom the ring time. Tone will stop over the time defined.

8) Follow me (Call Forwarding)

This function sets inbound call forwarding on an extension. An administrator can configure Follow Me for this extension.

9) Volume Settings

Rxgain: The Volume sent to FXS extension.

Txgain: The Volume sent out by the FXS extension

10) Mobility Extension

MyPBX allows you to use your mobile phone as an extension. If you set your mobile phone as a mobility extension and then you call MyPBX with this mobile phone, you will hear a dial tone. MyPBX will recognize your call as a call from an extension. You can dial the number of other extensions (your caller ID will be the number of your extension) or dial out via outbound routes just like dialing from your extension.

Note: If callback is enabled in the inbound route, the mobility extension function of this inbound route will be disabled.

Enable Mobility Extension

Enable this feature.

•**Mobility Extension Number**

When you dial the server with this number, the mobile phone gets the permission of the extension. For example: dialing the other extensions, playing the voicemail.

•**Ring Simultaneously**

When the extension has an incoming call, it rings its mobility extension simultaneously.

•**Outbound Prefix**

Fill in proper prefix of mobile number so that it can match an outbound route to dial the mobility extension. For example, if you set the prefix 9, it will send "9+ mobility extension number" to the outbound route.

11) Call ID type

•**Call ID Setting**

Normally, you choose the "default" option except for using MyPBX in Japan, in

which case you should choose "Japan".

12) Spy Settings

MyPBX allows extension to monitor/barge in other conversation. Once this feature is enabled, the extension has the ability to monitor/barge in other calls using the feature codes for each spy mode. Refer to "Feature Codes" section for more information.

•spy modes

There are 4 spy modes available:

General spy: you have the permission to use the following 3 modes.

Normal spy: you can only hear the call, but can't talk.

Whisper spy: you can hear the call, and can talk with the monitored extension.

Barge spy: you can hear the call and talk with them both.

Note: for example, if 500 want to monitor extension 501, we need to enable the "allow being spied" for 501, and choose the spy mode for extension 500. Then pick up 500 and dial "feature codes + 501" to start monitoring when 501 is in a call

If 500 choose "normal spy", it should dial "**90501" to start monitoring.

If 500 choose "whisper spy", it should dial "**91501" to start monitoring.

If 500 choose "barge spy", it should dial "**92501" to start monitoring.

If 500 choose "general spy", it can dial "**90501", "**91501" or "**92501" to start monitoring.

VoIP Extensions

A VoIP extension is a SIP/IAX Account that allows an IP Phone or an IP soft phone client to register on MyPBX.

Extension	Type	Name	Caller ID
300	SIP	300	300
301	SIP	301	301
302	SIP	302	302
303	SIP	303	303
304	SIP	304	304
305	SIP	305	305

Figure 6-5 VoIP Extension List

We can click "Add extension" to start.

Figure 6-6 Add/Edit VoIP Extension

1) General

• **Type**

Extension type: SIP, IAX or SIP/IAX.

SIP—The extension sends and receives calls using the VoIP protocol SIP.

IAX—The extension sends and receives calls using the VoIP protocol IAX.

• **Extension**

The numbered extension, e.g. 1234, that will be associated with this particular User/Phone.

• **Password**

The password for this extension, but it is not a fixed one. When you add new extension, a random and robust password will be generated like “Gtwfup642”.

• **Name**

A character-based name for this user, e.g. “Bob Jones”.

•**Caller ID**

The Caller ID will be used when this user calls another internal extension.

•**Register Name**

It is for extension registration validation. Users will not be able register the extension if the authorization name is incorrect even though the username and password are correct.

2) Voicemail

•**Enable Voicemail**

Check this box if the user should have a voicemail account.

•**Voicemail Access PIN**

The voicemail password for this extension, e.g. "1234".

3) Mail Setting

This option defines whether or not voicemails or faxes are sent to an Email Address as an attachment.

•**Enable Send Voicemail**

Once enabled, the voicemail will be sent to email as an attachment.

•**Email Address**

Email address used to receive the voicemail or Fax.

Note: Please ensure that the section "SMTP Settings For Voicemail" (in the "Voicemail Settings") has been properly configured before using this feature.

4) Group

•**Pickup Group**

If this extension belongs to a pickup group, any calls that ring this extension can be picked up by other extensions in the same pickup group by dialing the Call Pickup feature code (the default is *4).

Note: *4 is the default setting, it can be changed under Feature Codes -> General -> Call Pickup.

5) Call Duration Settings

Set up the max call duration for every call of this extension, but it's only valid for outbound calls. Enter "0" or leave this blank empty, the value would be equal to the max call duration configured in the Option Settings page.

Note: This setting will not be valid for internal calls.

6) VoIP Settings

•NAT

This setting should be used when the system is using a public IP address to communicate with devices hidden behind a NAT device (such as a broadband router). If you have one-way audio problems, you usually have problems with your NAT configuration or your firewall's support of SIP and/or RTP ports.

•Qualify

Send check alive packets to IP phones.

•Enable SRTP

Enable extension for SRTP (RTP Encryption).

•Transport

This will be the transport method used by the extension. The options are UDP (default) or TCP or TLS.

•**DTMF Mode**—RFC2833, Info, Inband, Auto.

•Remote Register

Allow to register remote extensions.

If you enable "Remote Register", the extension password must include uppercase letters, lowercase letters, and digits.

This option is used to enhance the system security, it's disabled by default.

More details for the system security configuration, please refer to [APPENDIX B MyPBX Security Configuration Guide](#)

Other Options

The screenshot shows the 'Add VoIP Extension' dialog box with the 'Other Settings' tab selected. The dialog is organized into several sections:

- Other Options:** Contains checkboxes for 'Call Waiting', 'DND', and 'User Web Interface'. The 'Ring Out' field is set to 30.
- Follow me:** Contains checkboxes for 'Always', 'No answer', and 'When Busy'. The 'Transfer to:' section has radio buttons for 'Voicemail' (selected) and 'Number'.
- IP Restriction:** Contains an 'Enable IP Restriction' checkbox and four input fields for 'Permitted IP address/Subnet mask' (labeled 1 through 4).
- Mobility Extension:** Contains checkboxes for 'Enable Mobility Extension' and 'Ring Simultaneously'. It also has input fields for 'Mobility Extension Number' and 'Outbound Prefix'.
- Spy Settings:** Contains an 'Allow Being Spied' checkbox and a 'Spy Modes' dropdown menu.

At the bottom of the dialog are 'Save' and 'Cancel' buttons.

Figure 6-7 VoIP Extension Other Settings

7) Other Options

.Call Waiting

Check this option if the extension should have Call Waiting capability. If this option is checked, the “When busy” follow me options will not be available. The call waiting function of IP phone has higher priority than MyPBX’s call waiting function.

.DND

Don Not Disturb. When DND is enabled for an extension, the extension will not be available.

.User Web Interface

Check this option to allow the user to login to the MyPBX User Web interface, which can be used to check voicemail and extension recordings. Users may log in MyPBX User Web interface by using their extension number and voicemail PIN as the user name and password respectively.

.Ring Out

Check this option if you want to customize the ring time. Ring tone will stop over the time defined.

8) Follow me (Call Forwarding)

Call forwarding for an extension can be configured here. The administrator can configure Follow Me option for this extension. If you want to transfer the call to an outbound number, please follow the dial pattern of outbound route filled in the outbound number.

For example: forwarding a call to your mobile phone number 123456789, and the dial pattern of outbound route is "9.", you should fill in 9123456789 here.

9) IP Restriction

•Enable IP Restriction

Check this option to enhance the VoIP security for MyPBX. If this option is enabled, only the permitted IP/Subnet mask will be able to register this extension number. In this way, the VoIP security will be enhanced.

For more details on the system security configuration, please refer to [APPENDIX B MyPBX Security Configuration Guide](#).

•Permitted "IP address/Subnet mask"

The input format should be "IP address" + "/" + "Subnet mask".

E.g."192.168.5.100/255.255.255.255" means only the device whose IP address is 192.168.5.100 is allowed to register this extension number.

E.g."192.168.5.0/255.255.255.0" means only the device whose IP address is 192.168.5.XXX is allowed to register this extension number.

10) Mobility Extension

MyPBX allows you to use your mobile phone as an extension. If you set your mobile phone as a mobility extension and then you call MyPBX with this mobile phone, you will hear a dial tone. MyPBX will recognize your call as a call from an extension. You can dial the number of other extensions (your caller ID will be the number of your extension) or dial out via outbound routes just like dialing from your extension.

Note: If callback is enabled in the inbound route, the mobility extension function of this inbound route will be disabled.

•Enable Mobility Extension

Enable this feature.

•Mobility Extension Number

When you dial the server with this number, the mobile phone gets the permission of the extension. For example: dialing the other extension, playing the voicemail.

•Ring Simultaneously

When the extension has an incoming call, it rings mobile simultaneously.

•Outbound Prefix

Fill in proper prefix of mobile number so that it can match an outbound route to dial the mobility extension. For example, if you set the prefix 9, it will send "9+ mobility extension number" to the outbound route.

11) Spy Settings

MyPBX allows extension to monitor/barge in other conversation. Once this feature is enabled, the extension has the ability to monitor/barge in other calls using the feature codes for each spy mode. Refer to "Feature Codes" section for more information.

•spy modes

There are 4 spy modes available:

General spy: you have the permission to use the following 3 modes.

Normal spy: you can only hear the call, but can't talk.

Whisper spy: you can hear the call, and can talk with the monitored extension.

Barge spy: you can hear the call and talk with them both.

Note: for example, if 500 want to monitor extension 501, we need to enable the "allow being spied" for 501, and choose the spy mode for extension 500.

Then pick up 500 and dial "feature codes + 501" to start monitoring when 501 is in a call.

If 500 choose "normal spy", it should dial "**90501" to start monitoring.

If 500 choose "whisper spy", it should dial "**91501" to start monitoring.

If 500 choose "barge spy", it should dial "**92501" to start monitoring.

If 500 choose "general spy", it can dial "**90501", "**91501" or "**92501" to start monitoring.

6.1.2

The Auto Provision sub menu provides users a method to Auto Provision IP Phone after the Express Setup process.

Note: Auto Provision functions fully test with these models:

Yealink (T12, T18, T19, T20, T21, T22, T26, T28, T32, T38, T41, T42, T46, W52P, VP530, VP-2009)

Snom (300, 320, 360, 370)

Polycom (IP 6000, IP 7000, IP 32X, IP33X, IP430, IP450, IP550, IP560, VVX1500)

Cisco (IP7940, IP7960)

Aastra (9480i, 9480i-CT, 6730i, 6731i, 6737i, 6753i, 6755i, 6757i, 6757i CT)

GrandStream (GXP1450, GXP2100, GXP2110, GXP2120)

Escene (ES220, ES320, ES330, ES410, ES620)

Fanvil (C56, C58, C60, C62)

Panasonic (UT113, UT123, UT133, UT136, UT248, UT670, TGP500, TGP550)

News:

When provisioning Yealink, Grandstream, Fanvil, Snom IP phone, MyPBX is not needed to be set as the only DHCP server any more.

General Settings for Yealink
 General Settings for Aastra
 Phone Book
 Configured Phone
 Add Phone Add Bulk Phones Configure the Selected Phones Delete the Selected Phones Total: 0 Show: 0-0 View: 15

Mac Address List

Not Configured Phone
 Configure the Selected Phones Refresh Total: 99 Show: 1-15 View: 15

ID	MAC Address	Manufacturer	Phone Type
1	001565113844	Yealink	--
2	001565114094	Yealink	--
3	0015651be4a4	Yealink	--

< Prev 1 2 3 4 5 6 7 Next >

Upload a file
 No Files Found.

Figure 6-8 Phone Provisioning Page

6.1.2.1 General Settings for Yealink

In this page, you can configure the general settings before provisioning Yealink IP phones, including the items like general preferences, codecs, remote phone book and firmware upgrade.

Note: if firmware download server is enabled, IP phone will update the firmware automatically according to the version and server you have configured during the provision process.

General Settings for Yealink

[Go Back to Phone Provisioning](#)

General Preferences | Codecs | Remote Phone Book | Firmware Download Server

Language: English

Web server Type: HTTP&HTTPS

Admin Password: Fixed Prefix
admin

Time Zone: +8 China(Beijing)

Primary NTP Server: cn.pool.ntp.org

Secondary NTP Server: cn.pool.ntp.org

Daylight Saving Time: Disabled

Time Format: 12 Hour

Date Format: WWW MMM DD

Voicemail: Yes

PNP URL: Automatic Custom

Figure 6-9 General Settings for Yealink

6.1.2.2 Aastra General Settings

In this page, you can configure the general settings before provisioning Aastra IP phones, including the items like general preferences, program keys configuration, soft keys configuration.

General Settings for Aastra

[Go Back to Phone Provisioning](#)

General Preferences | Programkeys Configuration | Softkeys Configuration

Local Dial Plan: 91x|92xx|[4-8]xxxxxxxx|5xx

Send Dial Plan Terminator: Enable

Time and Date Setting

Time Server1:

Time Server2:

Auto-Resync

Resync Mode: none

Resync Time: 00:00

Figure 6-10 General Setting for Aastra

6.1.2.3 Phone book

You can add your contacts here and when you use phone provisioning; IP phone will download the phone book.

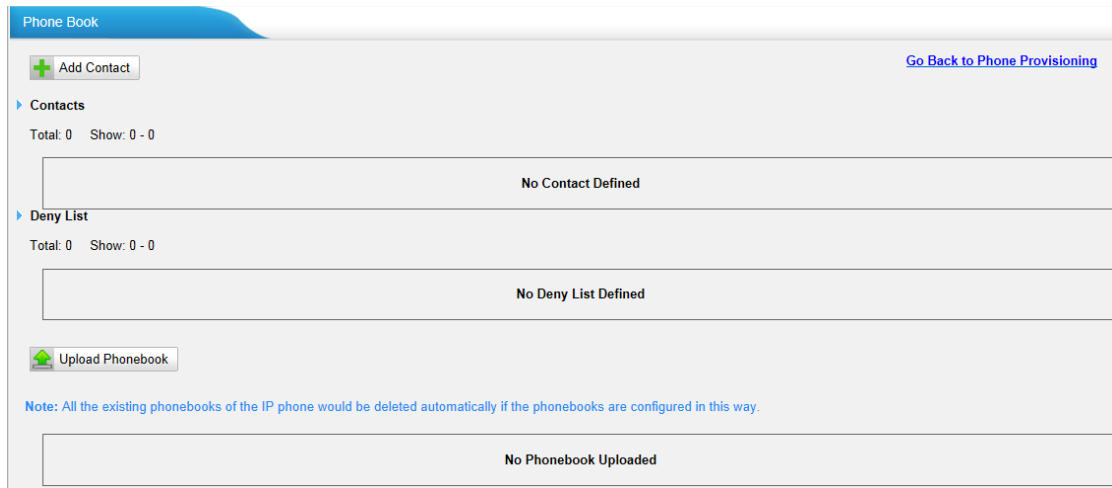


Figure 6-11 Phone Book

1) Add Contact

•Type

There are three types: None, VIP and Deny list (Blacklist).

•Group

There are 5 groups: None, Friends, Family, Work, Colleagues list.

•Nick Name

You can set a nick name for this number.

•Favorite

Only works with snom phone.

•Organization

Input the organization of this contact. Only works with snom phone.

•Title

Input the title of this contact. Only works with snom phone.

•Email

Input the email of this contact. Only works with snom phone.

•Birthday

Input the birthday of this contact. Only works with snom phone.

•First Name

Input the first name of this contact. Only works with snom phone.

•Family Name

Input the family of this contact. Only works with snom phone.

•Office Number

Input the office number here

•Mobile Number

Input the mobile number here

•Home Number

Input the home number here

•Sub Number

Add sub number of this contact. Only works with snom phone.

•Note

Take some note of this contact. Only works with snom phone.

The screenshot shows the 'Add Contact' dialog box. It features a blue header with the title 'Add Contact' and a close button (X). The main area contains two columns of input fields. The left column includes: Type (dropdown menu, currently 'None'), Nick Name (text input), Organization (text input), Email (text input), First Name (text input), Office Number (text input), and Home Number (text input). The right column includes: Group (dropdown menu, currently 'None'), Favorite (dropdown menu, currently 'No'), Title (text input), Birthday (text input), Family Name (text input), and Mobile Number (text input). Below these fields is a 'Sub Number' section, which includes a large text area for the sub number, 'Sub Name' (text input), 'Sub Number' (text input), and an 'Add Sub' button. At the bottom of the dialog is a 'Note' section with a large text area. At the very bottom are 'Save' and 'Cancel' buttons.

Figure 6-12 Add a Contact

2) Upload Phonebook

You can upload a phonebook before auto provision, which will be provisioned to the IP phone when using auto provision feature to configure your IP phones. The

format of phonebook should be *.xml.

Note: All the existing phonebooks of the IP phone will be replaced automatically if the phonebooks are configured in this way.

6.1.2.4 Configure phone

Let's take provisioning Yealink phone as an example.

There are two modes to create new phones: create new phones in webpage and upload the IP Phone's configuration file.

Add new phone via webpage

Click "Add Phone" and fill in the corresponding information in the pop-up window.

The screenshot shows the 'Add Phone' configuration window with the following settings:

- Enabled: Yes
- NewConfig: Yes
- MAC Address: 001565
- Name: (empty)
- Manufacturer: Yealink
- Phone Type: T28
- Call Waiting: Enabled
- Key As Send: #
- Auto Redial: Disabled
- Auto Answer: Disabled
- Phone Book: Enabled

The 'Line' section contains the following table:

Line	Extension	Label	Line Active
<input type="checkbox"/> Line1	Extension: [v]	Label: []	Line Active: <input type="checkbox"/>
<input type="checkbox"/> Line2	Extension: [v]	Label: []	Line Active: <input type="checkbox"/>
<input type="checkbox"/> Line3	Extension: [v]	Label: []	Line Active: <input type="checkbox"/>
<input type="checkbox"/> Line4	Extension: [v]	Label: []	Line Active: <input type="checkbox"/>
<input type="checkbox"/> Line5	Extension: [v]	Label: []	Line Active: <input type="checkbox"/>
<input type="checkbox"/> Line6	Extension: [v]	Label: []	Line Active: <input type="checkbox"/>

Buttons: Save, Cancel

Figure 6-13 Configure Yealink T28

1) General

·Enabled

Choose yes or no to enable or disable this extension.

·New Config

If your IP phone's firmware version is above x.70.x.x, you should select "Yes".

Or else, it should be "No".

• **MAC address**

Input the MAC address of the IP phone.

• **Name**

Put the name of this Phone here.

• **Manufacturer**

You can choose the Manufacturer of the IP phone.

• **Phone Type**

Choose the model of your phone. Only for snom phone.

• **Call Waiting**

This call feature allows your phone to accept other incoming calls to an extension already in an active call.

• **Key as Send**

Configure a key as the send key, you choose #, * or disable this feature

• **Auto redial**

Enable or disable the auto redial for the IP Phone.

• **Auto answer**

Enable or disable auto answer for the IP phone.

• **Phone book**

Enable or disable the feature of phone book for the IP phone.

• **Line**

You can set each line of IP phone for the account you want, active or not.

Extension: Select the extension number for IP Phone.

Label: It is shown on the LCD for users to identify the account.

Line Active: You can choose on/off to enable/disable the account respectively.

2) Codecs

In this page, we can set the codecs for the IP phone.

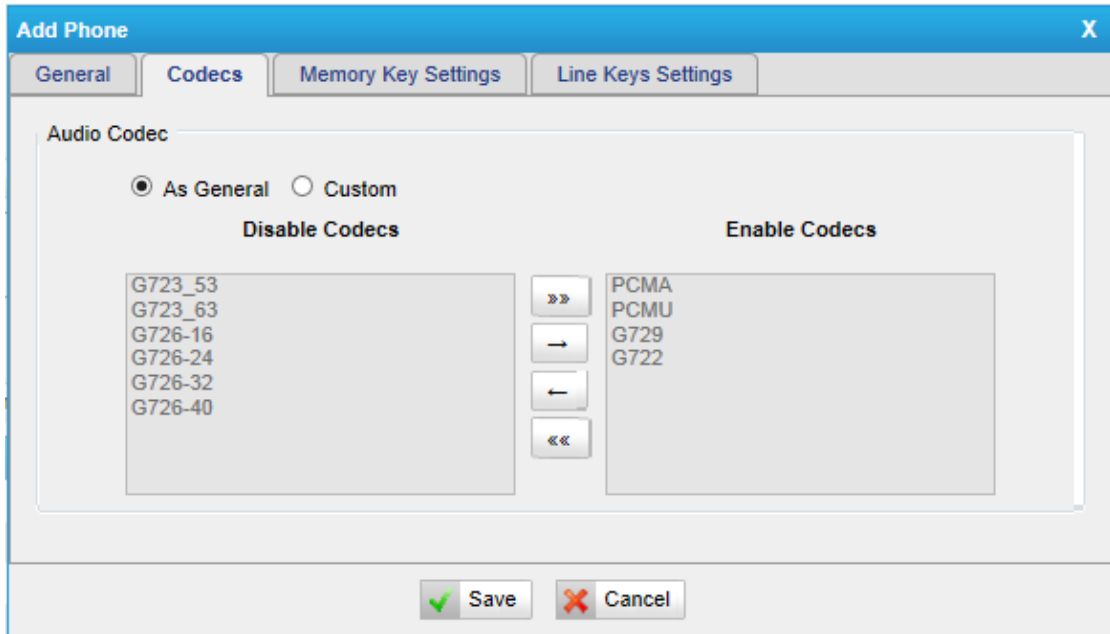


Figure 6-14 Select the Codec

3) Memory key settings

In this page, we can configure the DSS keys of the IP phone one by one.

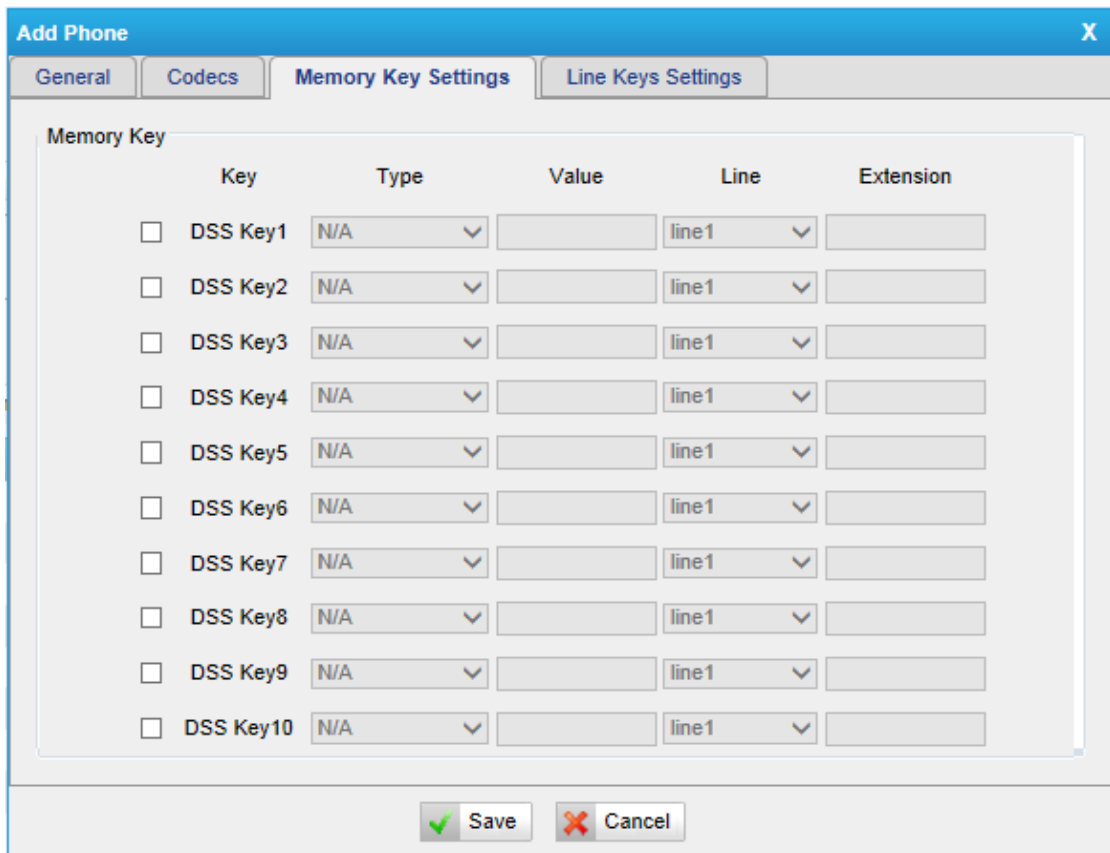


Figure 6-15 Configure Memory Key

4) Line keys settings

We can configure the line key settings for this IP phone.

Key	Type	Value	Label	Line	Extension
<input type="checkbox"/> Line Key 1	N/A			Line1	
<input type="checkbox"/> Line Key 2	N/A			Line2	
<input type="checkbox"/> Line Key 3	N/A			Line3	
<input type="checkbox"/> Line Key 4	N/A			Line4	
<input type="checkbox"/> Line Key 5	N/A			Line5	
<input type="checkbox"/> Line Key 6	N/A			Line6	

Figure 6-16 Configure Line Key

6.1.2.4 Not configured phone

In this section, MyPBX will scan all the supported IP phones and display them here. We can click the “MAC address” of an IP phone and input the corresponding information in the pop-up window, like figure 6-13.

ID	MAC Address	Manufacturer	Phone Type
1	0015651208d5	Yealink	--
2	001565148155	Yealink	--
3	0015651118bd	Yealink	--
4	0015652c2cc8	Yealink	--
5	00156511189c	Yealink	--
6	0015652991f2	Yealink	T28

Figure 6-17 Not Configured Phone List

6.1.2.5 Upload a file

Click “Upload a file” and choose the configuration file of IP phone in the popup window.

Note: the file format must be

Yealink: .cfg file

Snom: .htm file

Grandstream: .xml file

Please edit the configuration files in advance before uploading.

Figure 6-18 Upload Configuration File

6.2 Trunks

6.2.1

Multiple physical trunks are supported in MyPBX Standard V7, like BRI, PSTN, GSM/UMTS. Please make sure you have installed the modules inside before you use the relevant physical trunk. BRI trunk requires B2 module, PSTN trunk requires the O2, while GSM/UMTS trunk needs to install the GSM/UMTS modules inside.








Physical Trunk			
BRI Trunk			
Trunk Name	Port		
BriTrunk3	3		
BriTrunk4	4		
BriTrunk7	7		
BriTrunk8	8		
Analog Trunk			
Trunk Name	Port		
pstn13	13		
pstn14	14		
GSM/UMTS Trunk			
Trunk Name	Port	Type	
GSM1	1	GSM	

Figure 6-19 Physical Trunk List

BRI Trunk

Basic Rate Interface (BRI, 2B+D, 2B1D) is an Integrated Services Digital Network (ISDN) configuration intended primarily for use in subscriber lines similar to those that have long been used for plain old telephone service. The BRI configuration provides 2 bearer channels (B channels) at 64 kbit/s each and 1 data channel (D channel) at 16 kbit/s. The B channels are used for voice or user data, and the D channel is used for any combination of data, control/signalling, and X.25 packet networking.





BRI Trunk			
Trunk Name	Port		
BriTrunk3	3		
BriTrunk4	4		
BriTrunk7	7		
BriTrunk8	8		

Figure 6-20 BRI Trunk

Click edit to configure the details of BRI trunks.

Edit BRI Trunk - BriTrunk1

Trunk Name: BriTrunk1

Signaling: BRI-CPE

Switch Type: euroisdn

Overlap Dial: no

Reset Interval: never

PRI Indication: Inband

Enable Facility: Disabled

Nsf: none

Echo Cancellation: Off

Hide Caller ID: No

Codec: alaw

Caller ID Prefix

ISDN Dialplan: Yes

International Prefix:

Local Prefix:

Unknown Prefix:

National Prefix:

Private Prefix:

Dialplan

Remote Dialplan: unknown

Remote Number Type: unknown

Location Dialplan: unknown

Location Number Type: unknown

DOD Settings

Global DOD:

DOD:

Associated Extension: 601

↑Add DOD

↑Add Bulk

Save Cancel

Figure 6-21 Edit BRI Trunk

•Trunk Name

A unique label used to identify this trunk when listed in outbound rules, incoming rules, etc. E.g. "BriTrunk1"

•Signaling

Signaling method

BRI-CPE: ISDN BRI in TE mode and Point to Point.

BRI-CPE-PTMP: ISDN BRI in TE mode and Point to multi Point.

BRI-NET: ISDN BRI in NET mode and Point to Point.

BRI-NET-PTMP: ISDN BRI in NET mode and Point to multi Point.

•Switch Type

National: National ISDN type2 (common in the US)

ni1: National ISDN type 1

dms100: Nortel DMS100

4ess: AT&T 4ESS

5ess: Lucent 5ESS

euroisdn: EuroISDN

qsig: D-channel signaling protocol at Q reference point for PBX networking.

•Over Lap Dial

Define whether MyPBX can dial this switch using overlap digits or not. If you need Direct Dial-in (DDI; in German "Durchwahl") you should change this to yes, then MyPBX will wait after the last digit it receives.

•Reset interval

Set the time in seconds between restart of unused channels. Some PBXs don't like channel restarts. So set the interval to a very long interval e.g. 100000000 or "never" to disable entirely. If you are in Israel, the following is important: As Bezeq in Israel doesn't like the B-Channel resets happening on the lines, it is best to set the reset interval to "never" when installing a box in Israel. Our past experience also shows that this parameter may also cause issues on local switches in the UK and China.

•PRI Indication

Tells how Device should indicate Busy() and Congestion() to the switch/user. Accepted values are:

inband: Device plays indication tones without answering; not available on all PRI/BRI subscription lines .

outofband: Device disconnects with busy/congestion information code so the switch will play the indication tones to the caller. Busy() will now do same as setting PRI_CAUSE=17 and Hangup().

•Enable Facility

To enable transmission of facility-based ISDN supplementary services (such as caller name from CPE over facility).

•NSF

Used with AT&T PRIs. If outbound calls are being rejected due to "Mandatory information element missing" and the missing IE is 0x20, then you need this setting.

•Echo Cancellation

Disable or enable echo cancellation; it is recommended not to turn this off.

•Hide Caller ID

If you want others to see your CID, please disable this option.

•Codec

You can choose alaw or ulaw.

1) Caller ID Prefix

• ISDN Dialplan

These settings are set to make the caller ID prefix work according to information sent from the E1 provider. ISDN telephony numbering plan Recommendation E.164.

• International Prefix

When there are international calls coming in via this BRI trunk, the International Prefix you have set here will be added before the CID. So you can know this is an international call before you answer it.

• National Prefix

When there are national calls coming in via this BRI trunk, the National Prefix you have set here will be added before the CID. So you can know this is a national call before you answer it.

• Local Prefix

When there are Local calls coming in via this BRI trunk, the Local Prefix you have set here will be added before the CID. So you can know this is a local call before you answer it.

• Private Prefix

When there are Private calls coming in via this BRI trunk, the Private Prefix you have set here will be added before the CID. So you can know this is a Private call before you answer it.

• Unknown Prefix

When there are calls with unknown number coming via this BRI trunk, the Unknown Prefix you set here will be shown as the caller ID.

2) Dialplan

• Remote Dialplan

Calling number type

• Remote Number Type

Calling number identification

• Location Dialplan

Called number type

•Location Number Type

Called number identification

3) DOD Setting

•Global DOD

Global Direct Outward Dialing Number

•DOD

Direct Outward Dialing Number.

•Associated Extension

The extension making call out via BRI Trunk will display the associated DOD.

•Add DOD

Add DOD for one associated extension.

•Add Bulk DOD

The screenshot shows a dialog box titled "Add Bulk DOD" with a close button (X) in the top right corner. The dialog is divided into three main sections: "All Extensions", "Associated Extension", and "DOD".

- All Extensions:** A list box containing the numbers 100, 101, 102, 103, 104, and 105.
- Associated Extension:** An empty list box with a "0" at the bottom right corner.
- DOD:** A label "Begin:" followed by an empty text input field.

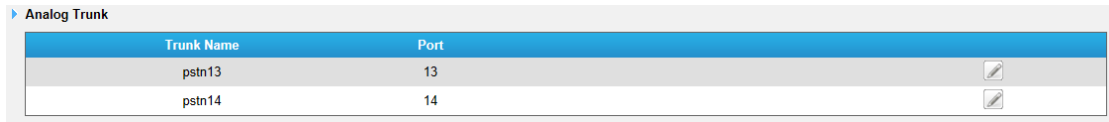
Between the "All Extensions" and "Associated Extension" list boxes are four directional buttons: ">>", "→", "←", and "<<". At the bottom of the dialog are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 6-22 Add Bulk DOD

Add bulk DOD for bulk extensions in ascending sequence with the "Begin DOD" you fill in. For example, if the Associated Extensions are 100, 101, 102, 103, 104, 105 with "Begin DOD" as 5500100, the corresponding DOD will be 5500100, 5500101, 5500102, 5500103, 5500104, and 5500105.

PSTN trunk

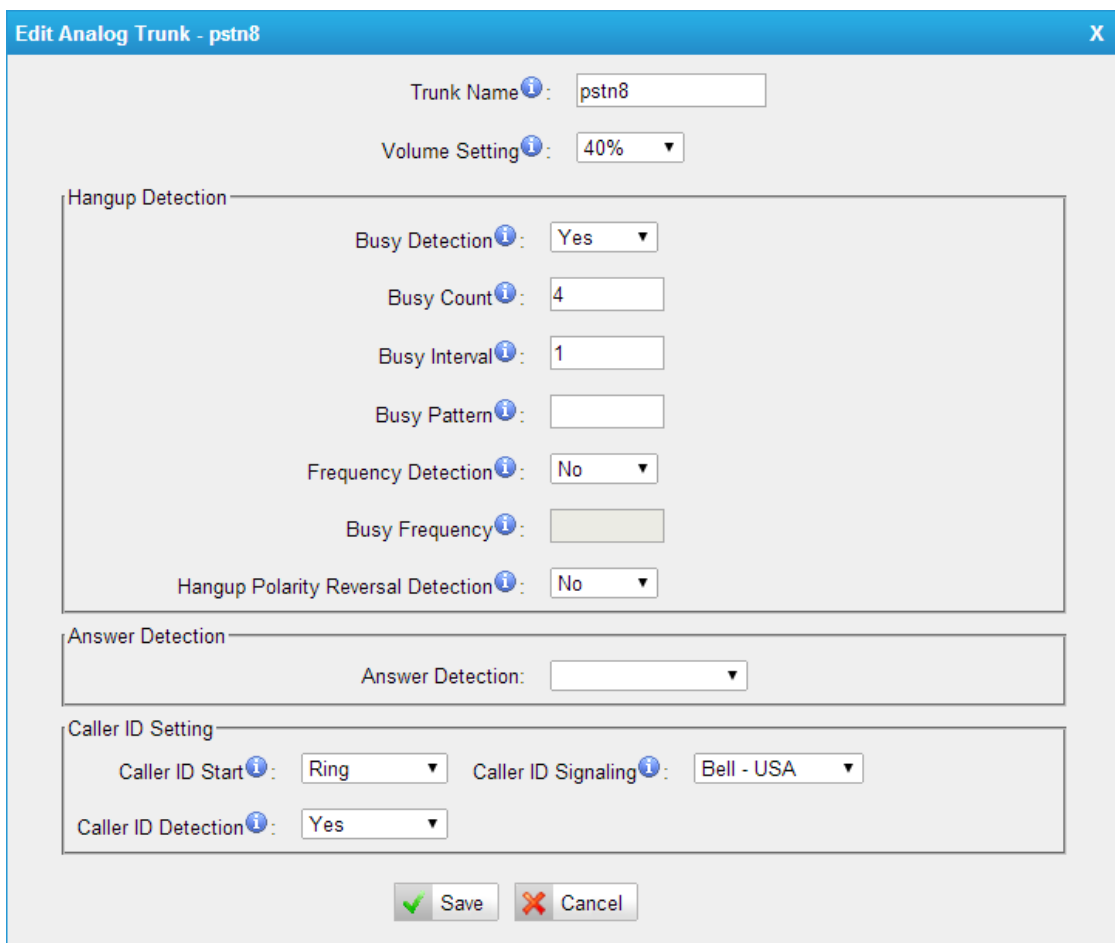
The public switched telephone network (PSTN) is the network of the world's public circuit-switched telephone networks.



Trunk Name	Port
pstn13	13
pstn14	14

Figure 6-23 PSTN Trunk

Click edit to configure more details.



Edit Analog Trunk - pstn8

Trunk Name: pstn8

Volume Setting: 40%

Hangup Detection

Busy Detection: Yes

Busy Count: 4

Busy Interval: 1

Busy Pattern:

Frequency Detection: No

Busy Frequency:

Hangup Polarity Reversal Detection: No

Answer Detection

Answer Detection:

Caller ID Setting

Caller ID Start: Ring

Caller ID Signaling: Bell - USA

Caller ID Detection: Yes

Save Cancel

Figure 6-24 Edit PSTN Trunk

• Trunk Name

A unique label used to identify this trunk when listed in outbound rules, incoming rules, etc. E.g. "pstn5".

• Volume Setting

Used to modify the volume level of this trunk. Normally, this setting does not

need to be changed.

1) Hangup Detection

• **Busy Detection**

Busy Detection is used to detect far end hang-up or for detecting a busy signal. Select "Yes" to turn this feature on.

• **Busy Count**

If Busy Detection is enabled, it is also possible to specify how many busy tones to wait for before disconnecting the call. The default is 4, but better results can be achieved if set to 6 or even 8. Remember, the higher the number, the more time will be required to release a channel. A higher setting lowers the probability that you will encounter random hang-ups.

• **Busy Interval**

The busy detection interval

• **Busy Pattern**

If Busy Detection is enabled, it is also possible to specify the cadence of your busy signal. In many Countries, it is 500 msec on, 500 msec off. Without Busy Pattern specified, MyPBX will accept any regular sound-silence pattern that repeats <Busy Count> times as a busy signal. If you specify Busy Pattern, then MyPBX will further check the length of the tone and silence, which will further reduce the chance of a false positive disconnection.

• **Frequency Detection**

Used for Frequency Detection (Enable detecting the busy signal frequency or not).

• **Busy Frequency**

If the Frequency Detection is enabled, you must specify the local frequency.

• **Hangup Polarity Reversal Detection**

The call will be considered as "hang up" on a polarity reversal.

2) Answer Detection

• **Answer Detection**

Answer Detection settings are configured for accurate billing. If the PSTN trunk sends polarity after answering the call, users can choose "Polarity Detection"; or else choose "Ring Detection", and configure the detailed settings according to the PSTN line ring tone.

3) Caller ID setting

• **Caller ID Start**

This option allows you to define the start of a Caller ID signal:

Ring: Start when a ring is received (Caller ID Signaling: Bell_USA, DTMF).

Polarity: Start when a polarity reversal is started (Caller ID Signaling: V23_UK, V23_JP, DTMF).

Before Ring: Start before a ring is received (Caller ID Signaling: DTMF).

•Caller ID Signaling

This option defines the type of Caller ID signaling to use. It can be set to one of the following:

Bell: bell202 as used in the United States

v23_UK: suitable in the UK

v23_Japan: suitable in Japan

v23-Japan pure: suitable in Japan

DTMF: suitable in Denmark, Sweden, and Holland

.Caller ID Detection

For FXO trunks, this option forces MyPBX to clarify Caller ID incoming calls.

GSM/UMTS Trunk

GSM/UMTS trunks are supported in MyPBX Standard V7 if you have got the GSM/UMTS module and SIM cards installed. One GSM/UMTS trunk supports only one SIM card for one concurrent call.

GSM/UMTS Trunk		
Trunk Name	Port	Type
GSM1	1	GSM

Figure 6-25 GSM/UMTS Trunk

Click edit to configure more details.

Edit GSM Trunk - GSM1 X

General

Trunk Name ⓘ:

Volume Setting ⓘ: ▼

PIN Code:

Warning: Be careful. If you failed to enter your correct PIN code 3 times in succession, SIM card will be blocked.

Figure 6-26 Edit GSM/UMTS Trunk

Trunk Name

A unique label used to identify this trunk when listed in outbound rules,

incoming rules, etc. E.g. "GSM9".

•Volume Setting

Used to modify the volume level of this trunk. Normally, this setting does not need to be changed.

•PIN Code

Please enter your SIM card PIN code here if your card has a PIN code.

6.2.2

There are two types of VoIP trunk in MyPBX: SIP and IAX, in this page, we can also configure the "service provider" trunk, which doesn't need the use name and password for authorization, when you have bought a trunk from provide with IP address only, please choose "Service Provider" trunk .

Provider Name	Type	Hostname/IP	User Name
test	SIP	192.168.5.143	103
test2	SIP	192.168.5.146	102

Provider Name	Type	Hostname/IP
Test	SIP	192.168.4.149
Test2	SIP	192.168.4.150

Figure 6-27 VoIP Trunk

6.2.2.1 VoIP Trunk

In this page, we can configure VoIP trunk (SIP/ IAX) you have got from provider with the authorization name and password.

Provider Name	Type	Hostname/IP	User Name
test	SIP	192.168.5.143	103
test2	SIP	192.168.5.146	102

Figure 6-28 VoIP Trunk

1) Add VoIP Trunk

Input the correct SIP information (provided by VoIP provider). Inaccurate information will prevent the trunk from registering. You can delete multiple trunks at once as required.

Figure 6-29 Add a SIP Trunk

•Type

SIP—Identifies whether the trunk sends and receives calls using the VoIP protocol SIP.

•Provider Name

A unique label to help you identify this trunk when listed in outbound rules, incoming rules etc. E.g. "yeastar".

•Hostname/IP

Service provider's hostname or IP address.5060 is the standard port number used by SIP protocol. Don't change this part if it is not required.

•Domain

VoIP provider's server domain name.

• **Username**

Username of the SIP account. Used for SIP trunk registration.

• **Authorization name**

Used for SIP authentication. Leave this blank if not required.

• **Password**

Password of the SIP account.

• **From User**

All outgoing calls from this SIP Trunk will use the From User (In this case the account name for SIP Registration) in From Header of the SIP Invite package. Keep this field blank if not needed

• **Online number**

Define the online number that expected by “Skype Connect” and some other SIP service providers. Leave this field blank if not needed.

• **Maximum Channels**

Control the maximum number of outbound channels (simultaneous calls) that can be used on this trunk. Inbound calls are not counted against the maximum. Set as 0 to specify no maximum.

• **Caller ID**

Specify the caller ID to use when making outbound calls over this trunk. The caller ID set in the “extension” page will override the caller ID set in the “VoIP trunk” page. Please note that not all the service providers support this feature. Contact your service provider for more information.

• **Outbound Proxy Server**

A proxy that receives requests from a client. Even though it may not be the server resolved by the Request-URI.

• **Realm**

Realm is a string to be displayed to users so they know which username and password to use.

• **Codecs**

Define the codec for this SIP trunk and its priority

Note: To change the codec type and priority of this trunk, please create it first, it will appear when you edit it again.

• **Transport**

This will be the transport method used by the SIP Trunk. This method is given by the SIP trunk provider. The options are UDP (default) or TCP or TLS.

• **Enable SRTP**

Define if SRTP is enabled for this trunk.

• **Qualify**

Send check alive packets to the SIP provider.

• **DTMF mode**

Set default mode for sending DTMF of this trunk. Default setting: rfc2833

• **DOD**

DOD (Direct Outward Dialing) means the caller ID displayed when dialing out. Before configuring this, please make sure the provider supports this feature.

• **Associated Extension**

The extension making call out via SIP Trunk will display the associated DOD.

• **Add DOD**

Add DOD for one associated extension.

• **Add Bulk DOD**

The screenshot shows a dialog box titled "Add Bulk DOD" with a close button (X) in the top right corner. The dialog is divided into three main sections: "All Extensions", "Associated Extension", and "DOD".

- All Extensions:** A list box containing the numbers 100, 101, 102, 103, 104, and 105.
- Associated Extension:** An empty list box with a "0" at the bottom right corner.
- DOD:** A text input field preceded by the label "Begin:".

Between the "All Extensions" and "Associated Extension" list boxes are four arrow buttons: a double right arrow (»»), a single right arrow (→), a single left arrow (←), and a double left arrow (««).

At the bottom of the dialog are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 6-30 Add a SIP Trunk

Add bulk DOD for bulk extensions in ascending sequence with the "Begin DOD" you fill in. For example, if the Associated Extensions are 100, 101, 102, 103, 104, 105 with "Begin DOD" as 5500100, the corresponding DOD will be 5500100, 5500101, 5500102, 5500103, 5500104, and 5500105.

2) Add IAX trunk

Input the correct IAX information (provided by VoIP provider). Inaccurate information will prevent the trunk from registering.

Figure 6-31 Add an IAX Trunk

•Type

IAX—Identifies whether the trunk sends and receives calls by using the VoIP protocol IAX.

•Provider Name

A unique label to help you identify this trunk when listed in outbound rules, incoming rules etc. E.g. "yeastar2".

•Hostname/IP

Service provider's hostname or IP address. 4569 is the standard port number used by IAX protocol. Don't change this part if it is not required.

•Username

Username of IAX account; Used for IAX trunk registration.

•Password

Password of IAX account

.Online number

Define the online number that expected by “Skype Connect” and some other SIP service providers. Leave this field blank if it's no required.

.Maximum Channels

Control the maximum number of outbound channels (simultaneous calls) that can be used on this trunk. Inbound calls are not counted against the maximum. Set as 0 to specify no maximum.

.Caller ID

Specify the caller ID to use when making outbound calls over this trunk. The caller ID set in the “extension” page will override the caller ID setting in the “VoIP trunk” page. Please note that not all the service providers support this feature. Contact your service provider for more information.

.DOD

DOD (Direct Outward Dialing) means the caller ID displayed when dialing out. Before configuring this, please make sure the provider supports this feature

.Associated Extension

The extension making call out via IAX Trunk will display the associated DOD.

.Add DOD

Add DOD for one associated extension.

.Add Bulk DOD

Figure 6-32 Add Bulk DOD

Add bulk DOD for bulk extensions in ascending sequence with the “Begin DOD” you fill in. For example, if the Associated Extensions are 100, 101, 102, 103,

104, 105 with "Begin DOD" as 5500100, the corresponding DOD will be 5500100, 5500101, 5500102, 5500103, 5500104, and 5500105.

6.2.2.2 Service Provider

In this page, we can configure Service Provider.

You can add Service Provider as required. And also you can delete multiple trunks at once by ticking the checkbox as required.

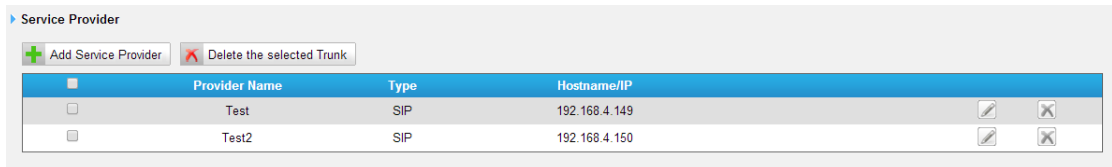


Figure 6-33 Service Provider page

Below is service provider trunk (peer to peer mode), which authorize using IP address only. If you have got a trunk with IP address only, please choose this type.

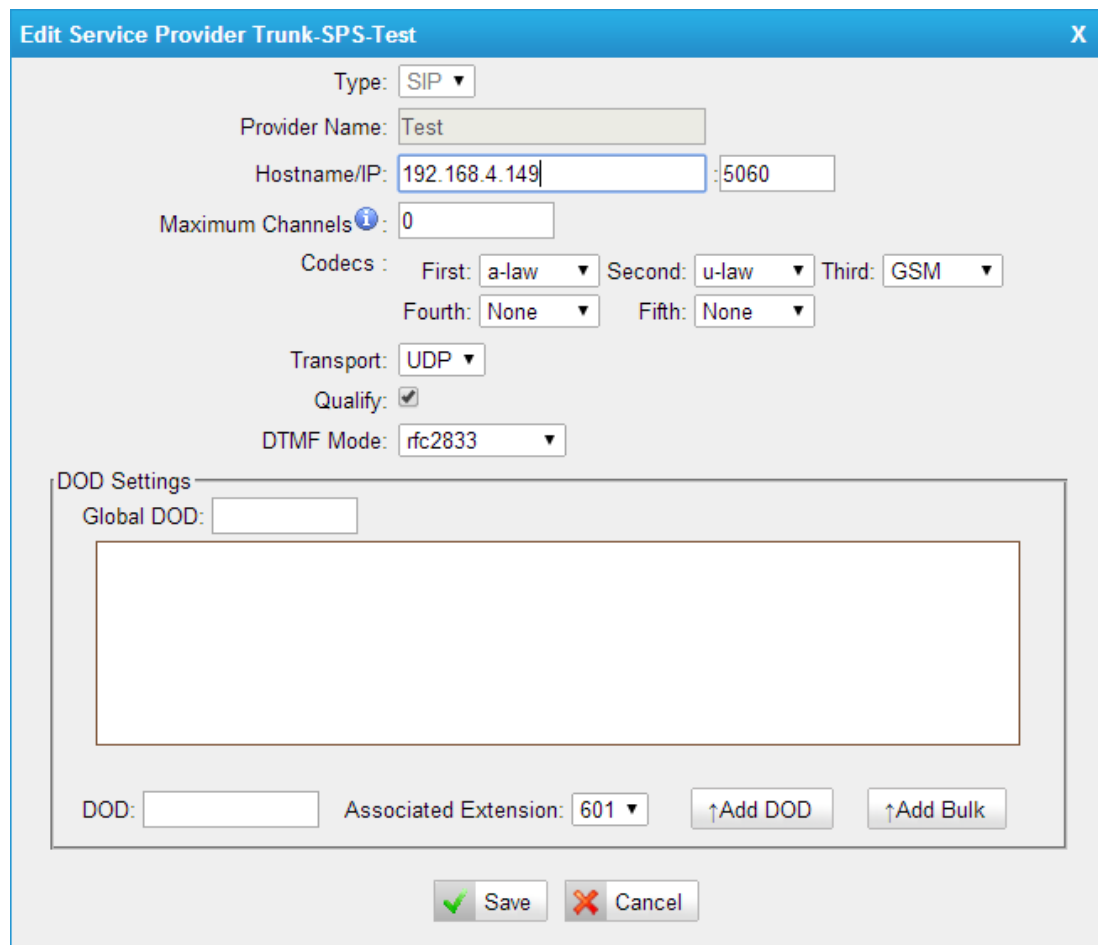


Figure 6-34 Service Provider Trunk

·**Type**

SIP or IAX

SIP – Identifies whether the trunk sends and receives calls by using the VoIP protocol SIP.

IAX – Identifies whether the trunk sends and receives calls by using the VoIP protocol IAX.

·**Provider Name**

A unique label would help to you identify this trunk. E.g. "Provider2".

·**Hostname/IP**

Service provider's hostname or IP address.

Note: 5060 is the standard port number used by SIP protocol, 4569 is the standard port number used by IAX protocol. Don't change this part if it is not required.

·**Maximum Channels**

Control the maximum number of outbound channels (simultaneous calls) that can be used on this trunk. Inbound calls are not counted against the maximum. Leave blank to specify no maximum.

·**Codecs**

Define the codec for this SIP trunk and its priority

Note: codec can only display when editing it after creating the trunk.

·**Transport**

This will be the transport method used by the SIP Trunk. This method is given by the SIP trunk provider. The options are UDP (default) or TCP or TLS.

·**Qualify**

Send check alive packets to the SIP provider.

·**DTMF mode**

Set default mode for sending DTMF of this trunk. Default setting: rfc2833.

·**DOD**

DOD (Direct Outward Dialing) means the caller ID displayed when dialing out. Before configuring this, please make sure the provider supports this feature.

·**Associated Extension**

The extension making call out via this Trunk will display the associated DOD.

·**Add DOD**

Add DOD for one associated extension.

•Add Bulk DOD

The screenshot shows a dialog box titled "Add Bulk DOD" with a close button (X) in the top right corner. The dialog is divided into three main sections: "All Extensions", "Associated Extension", and "DOD".

- All Extensions:** A list box containing the numbers 100, 101, 102, 103, 104, and 105.
- Associated Extension:** An empty list box with a "0" at the bottom right corner.
- DOD:** A section with a "Begin:" label followed by an empty text input field.

Between the "All Extensions" and "Associated Extension" list boxes are four arrow buttons: a double right arrow (»»), a single right arrow (→), a single left arrow (←), and a double left arrow (««).

At the bottom of the dialog are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 6-35 Add Bulk DOD

Add bulk DOD for bulk extensions in ascending sequence with the "Begin DOD" you fill in. For example, if the Associated Extensions are 100, 101, 102, 103, 104, 105 with "Begin DOD" as 5500100, the corresponding DOD will be 5500100, 5500101, 5500102, 5500103, 5500104, and 5500105.

6.3 Outbound Call Control

6.3.1 Outbound Routes

In this page, we can configure the outbound rules to control the outgoing calls.

Notes:

1. The max number of outbound route is 64.
2. If the dial patterns are the same in several routes, MyPBX will choose the available routes from top to the last one.
3. When you have created a new extension, please edit the outbound route so that it can dial out too.

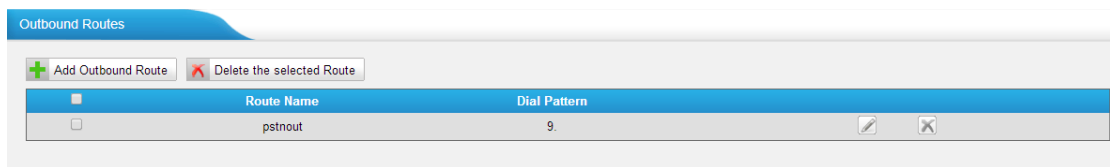


Figure 6-36 Outbound Route Page

We can create outbound route or use the default route "pstnout" (dial 9+numbers to dial out). Also you can delete multiple outbound routes at once as required.

Figure 6-37 Add/Edit Outbound Route

•Route Name

Name of this Outbound Route. E.g. "Local" or "Long Distance".

•Password

The route password can be used to protect this route from being accessed without a password. You can choose one of the passwords in the PIN list that you can click the "Pin Settings" to edit it in "Pin Settings" page.

T.38 Support:

Enable T38 fax in this outbound route (Only for SIP Trunk).

·Rrmemory Hunt

Round robin with memory, remembers which trunk was used last time, and then use the next available trunk to call out.

·Office Hours

When a specific office hour is selected, this outbound route can only be used during this office hour, and can't be used in non-office hours.

·Dial Pattern

X: Any Digit from 0-9

Z: Any Digit from 1-9

N: Any Digit from 2-9

[12345-9] : Any digit in the brackets (in this example, 1,2,3,4,5,6,7,8,9)

The "." Character will match any remaining digits. For example, "9011." will match any phone number that starts with "9011", excluding "9011" itself.

The "!" will match none remaining digits, and causes the matching process to complete as soon as it can be determined that no other matches are possible.

Example 1: **NXXXXXX** will match any 7-digit phone number.

Example 2: **1NXXNXXXXX** will match a phone number starting with a 1, followed by a 3-digit area code, and then 6-digit number.

·Strip

Allows the user to specify the number of digits that will be stripped from the front of the phone number before the call is placed. For example, if users must press 0 before dialing a phone number, one digit should be stripped from the dial string before the call is placed.

·Prepend

These digits will be prepended to the phone number before the call is placed. For example, if a trunk requires 10-digit dialing, but users are more comfortable with 7-digit dialing, this field could be used to prepend a 3-digit area code to all 7-digit phone numbers before calls are placed.

·Add

Add multiple dial patterns in this outbound route.

·Member Extensions

Define the extensions that will be permitted to use this outbound route.

·Member Trunks

Define the trunks that can be used for this outbound route.

6.3.2

Figure 6-38 Speed Dial Page

1) Options

•The prefix of speed dial

The prefix should be dialed before the speed dial number. The default is *99.

Figure 6-39 Speed Dial Settings

2) Add new speed dial.

•Source Number

The speed dial number.

•Destination Number

The number you want to call.

E.g. the source number is "123". The destination number is 5503305. The prefix number is *99. You can use an extension with any type to dial *99123, then it will call the number 5503305.

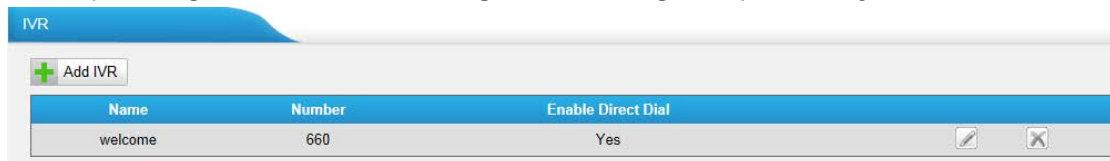
Note: Don't forget to add the outbound dial prefix if you would like to dial the speed dial number through trunk.

6.4 Inbound Call Control

In this page, we can configure the details of IVR, ring group, queue and inbound routes.

6.4.1

When there's an inbound call aims at Auto Attendant, MyPBX will play an IVR recording and route the caller to the requested destination (for example, "Welcome to XX company, for sales press 1, for technical support press 2, for operator press 0", etc.). The system will transfer the call to corresponding extension according to DTMF digits inputted by the user.



Name	Number	Enable Direct Dial
welcome	660	Yes

Figure 6-40 IVR Page

There is a default IVR here, we can edit it directly or add IVR by yourself.

Number: 660

Name: welcome

Prompt: default [Custom Prompts](#)

Repeat Count: 3

Key Timeout: 3

Enable Direct Dial

Key	Action	Destination
0	Connect to Extension	Extension -- 300
1	No Action	
2	No Action	
3	No Action	
4	No Action	
5	No Action	
6	No Action	
7	No Action	
8	No Action	
9	No Action	
#	No Action	
*	No Action	
Timeout	Connect to Extension	Extension -- 300
Invalid	Connect to Extension	Extension -- 300

Save Cancel

Figure 6-41 IVR Settings

•Number

MyPBX treats IVR as an extension; you can dial this extension number to reach the IVR from internal extensions.

•Name

A name for the IVR.

•Prompt

The prompt recording that will be played when this IVR is reached.

•Repeat Count

The number of times that the selected IVR prompt will be played.

•Key Timeout

Wait for the user to enter a new extension for a specified number of seconds.

•Enable Direct Dial

Allow the caller to dial other extensions number directly.

•Key Press Events

A list of actions that can be performed depending on the digit dialed by the user.

•Key

The Key pressed when the callers hear the IVR prompt.

•Action

When the callers press the corresponding key, the action that MyPBX will execute.

No Action: Do nothing

Connect to Extension: Connect the call to an extension.

Connect to Voicemail: Connect the call to the voicemail of an extension.

Connect to RingGroup: Connect the call to a ringgroup.

Connect to IVR: Connect the call to an IVR.

Connect to Conference Room: Connect the call to a conference room.

Connect to DISA: Connect the call to a DISA.

Connect to Queue: Connect the call to a queue.

Connect to Faxes: Connect the call to Faxes of extensions.

Dial by Name: The callers can dial the name of an extension to connect to the corresponding extension.

Hung up: Hang up the call.

•Destination

Where will MyPBX route the call when the action occurs.

•Time Out

Define the timeout action. A timeout occurs after the IVR prompt has finished playing for the number of times specified by the "Repeat Count" field.

•Invalid

Define the invalid action. The invalid action is triggered if the user enters a DTMF digit that is not defined for this IVR.

6.4.2

Ring groups can be configured to balance the call traffic for multiple users and give callers a higher level of availability for incoming calls. Multiple ring methods and voicemail are supported.

Note: follow me feature in extension page will not take effect when it's ringing as an agent.



Figure 6-42 Ringgroup Page

There is a default ringgroup, you can edit it or create a new one

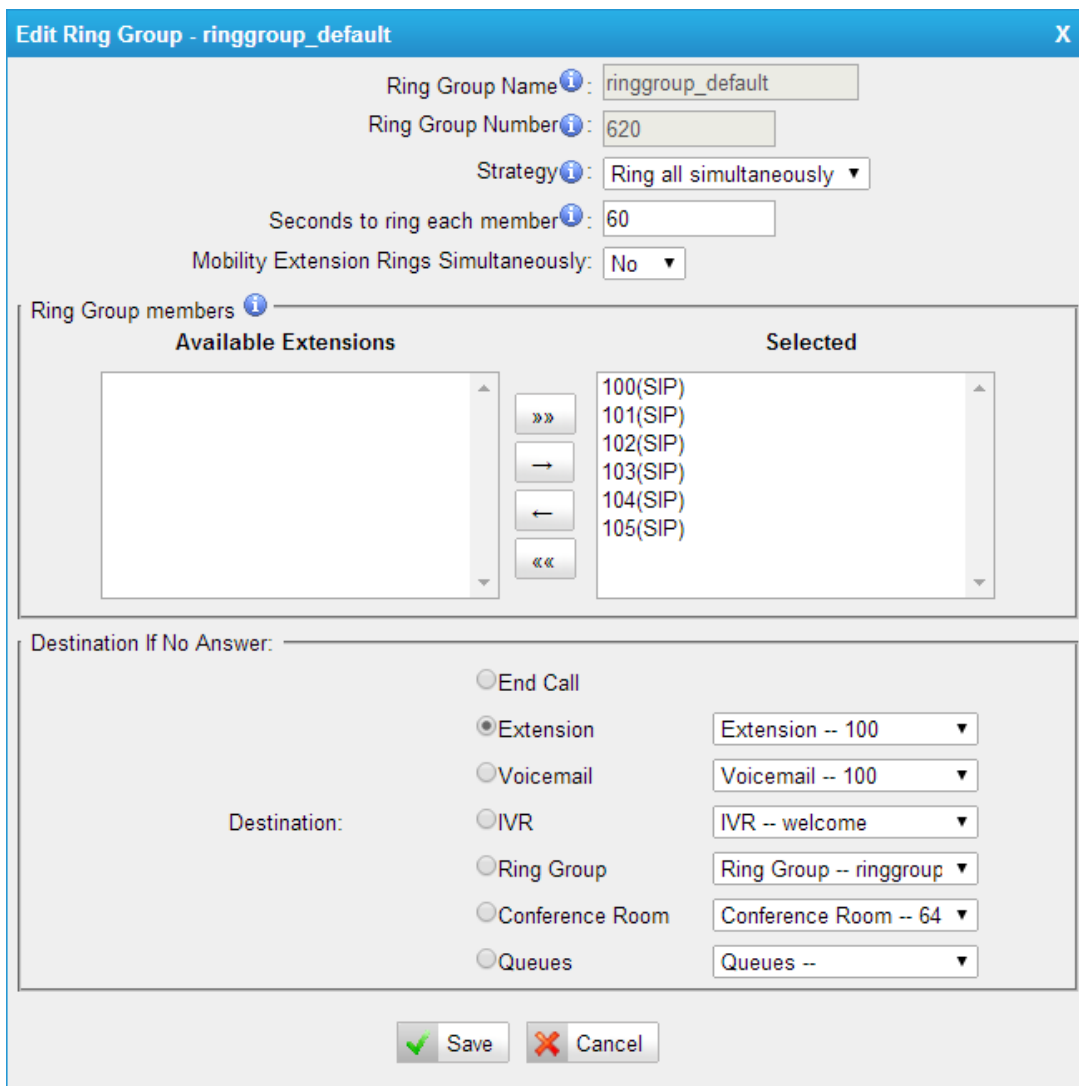


Figure 6-43 Add/Edit Ringgroup

• **Ring Group Name**

This option defines a name for this group, e.g. "Sales". "Ring Group Name" is a label to help you identify this group in the group list.

• **Ring Group Number**

This option defines the numbered extension that can be dialed to reach this group.

• **Strategy**

This option sets the Ringing Strategy for this Group. The options are as follows:

1. Ring All Simultaneously: Ring all available Extensions simultaneously.
2. Ring Sequentially: Ring each extension in the group one at a time.

• **Mobility Extension Rings Simultaneously**

If set to yes, when the extension in the Ring group is called, the associated mobility extension will ring simultaneously. Beforehand, the option of "Rings Simultaneously" should be ticked in the extension settings.

• **Seconds to ring each member**

1. If the strategy is "Ring All Simultaneously", it means the number of seconds to ring this group before routing the call according to the "Destination if No Answer" settings.
2. If the strategy is "Ring Sequentially", it means the number of seconds to ring a single extension before moving onto the next one.

• **Ring Group Members**

An extension can be made a member of this ring group by moving it into the "Selected" box.

• **Destination If No Answer**

When all members on this group fail to answer the call, system will handle the call according to the selected destination.

6.4.3

Call Queues give users (e.g. call centers) an efficient means to have their calls answered in the order they were received to deliver top tier customer service.

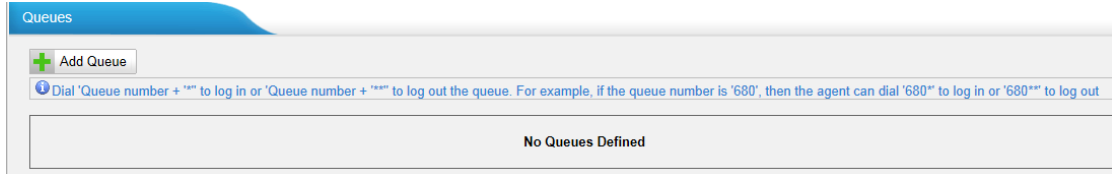


Figure 6-44 Queue Page

Call queues allow calls to be sequenced to one or more agents.

Notes:

1. Dial "Queue number + '*'" to log in or "Queue number + '**'" to log out the queue. For example, if the queue number is "680", then agent can dial "680*" to log in or "680**" to log out.
2. Follow me feature in extension page will not take effect when it's ringing as an agent of queue.

Add Queue
X

Queue Name ?:

Queue Number ?:

Queue Password ?:

Queue Agent Timeout ?:

Queue Max Wait Time ?:

Queue Ring Strategy ?:

Agents ?

Available Agents		Selected
<div style="border: 1px solid #ccc; padding: 5px; min-height: 100px;"> 300(SIP) 301(SIP) 302(SIP) 303(SIP) 304(SIP) 305(SIP) 601(FXS) 602(FXS) </div>	<input type="button" value="»»"/> <input type="button" value="→"/> <input type="button" value="←"/> <input type="button" value="««"/>	<div style="border: 1px solid #ccc; height: 100px;"></div>

Caller Position Announcements

Announce Position ?:

Announce Hold Time ?:

Frequency ?:

Periodic Announcements

Prompt ?: [Custom Prompts](#)

Frequency ?:

Events

Key:

Action:

Destination:

Failover-Destination

Action:

Destination:

Others

Music On Hold ?: [Music on Hold Prompts](#)

Leave When Empty ?:

Join Empty ?:

Agent Announcement ?:

Join Announcement ?:

Retry ?:

Wrap-up Time ?:

Figure 6-45 Add/Edit Queue

•Queue Name

A name for the Queue.

• **Queue Number**

Use this number to dial into the queue, or transfer callers to this number to put them into the queue.

• **Queue Password**

You can require agents to enter a password before they can log in to this queue.

• **Queue Agent Timeout**

The number of seconds an agent's phone can ring before we consider it a timeout.

• **Queue Max Wait Time**

The maximum number of seconds a caller can wait in a queue before being pulled out (0 for unlimited).

• **Queue Ring Strategy**

This option sets the Ringing Strategy for this Queue. The options are

RingAll: Ring all available Agents simultaneously until one answers.

LeastRecent: Ring the Agent which was least recently called.

FewestCalls: Ring the Agent with the fewest completed calls.

Random: Ring a Random Agent.

RRmemory: Round Robin with Memory, Remembers where it left off in the last ring pass.

1) Agents

This selection shows all users. Selecting a user here makes them an agent of the current queue.

2) Caller Position Announcements

• **Announce Position**

Announce position of caller in the queue

• **Announce Hold Time**

Enabling this option causes MyPBX to announce the hold time to the caller periodically based on the frequency timer. Either yes or no; hold time will not be announced if <1 minute.

• **Frequency**

How often to announce queue position and estimated hold time.

Note: "0 seconds" means disabling the announcement.

3) Periodic Announcements

• **Prompt**

Select a prompt file to play periodically.

•**Frequency**

How often to announce a prompt to the caller.

4) Events

If a caller presses the key while waiting in the queue, this setting selects which action should process the key press.

5) Failover-Destination

Define the failover action. A failover occurs after the user reach the Queue max wait time.

6) Others

•**Music on Hold**

Select the "Music on Hold" Class for this Queue.

•**Leave When Empty**

This option controls whether callers already on hold are forced out of a queue that has no agents. There are two options.

Yes: Callers are forced out of a queue when no agents are logged in.

No: Callers will remain in a queue with no agents.

•**Join Empty**

This option controls whether callers can join a call queue that has no agents.

There are two options,

Yes: Callers can join a call queue without agents or only unavailable agents

No: Callers cannot join a queue when there are no agents in the queue.

The default option is No.

•**Agent Announcement**

Announcement played to the Agent prior to bridging in the caller.

•**Join Announcement**

Announcement played to callers once prior to joining the queue.

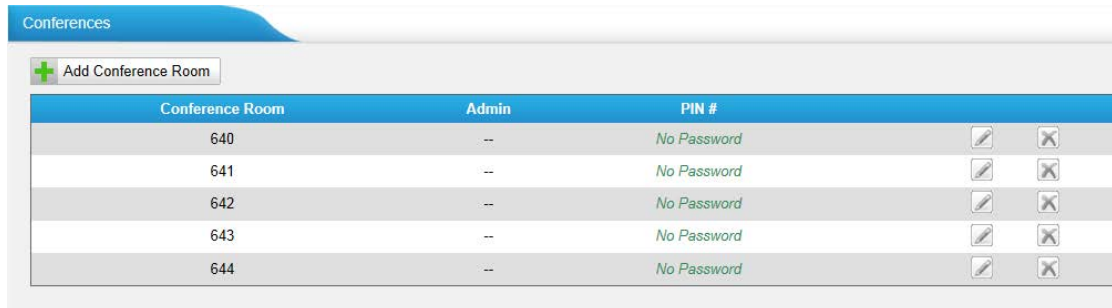
•**Retry**

The number of seconds we wait before trying all the phones again.

•**Wrap-up time**

How many seconds after the completion of a call an Agent will have before the Queue can ring them with a new call. The default is 30.

6.4.4



The screenshot shows a web interface for managing conference rooms. At the top, there is a blue header with the word "Conferences" and a button labeled "+ Add Conference Room". Below this is a table with three columns: "Conference Room", "Admin", and "PIN #". The table contains five rows of data, each representing a conference room with an extension number (640-644), an admin status (indicated by "--"), and a PIN status (indicated by "No Password"). To the right of each row are two small icons: a pencil for editing and a trash can for deleting.

Conference Room	Admin	PIN #		
640	--	No Password		
641	--	No Password		
642	--	No Password		
643	--	No Password		
644	--	No Password		

Figure 6-46 Conference Room List

Conference Calls increase employee efficiency and productivity, and provide a more cost-effective way to hold meetings. Conference agents can dial * to access the settings options and the admin can kick the last user out and can lock the conference room.

•Extension

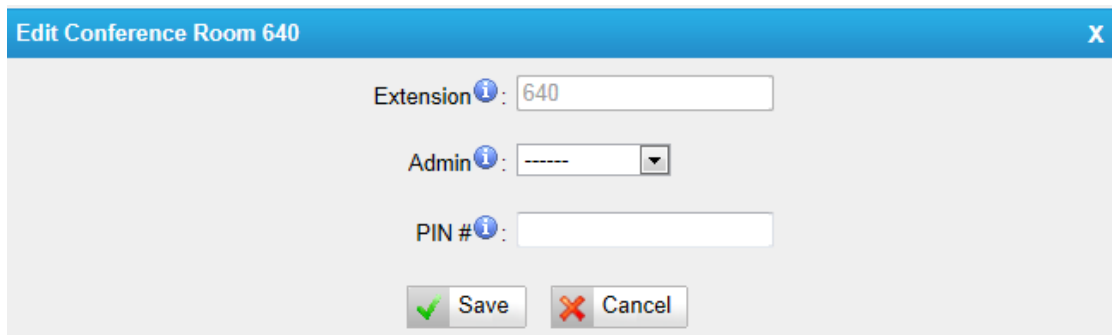
This is the number dialed to reach this Conference Room.

•Admin

Admin can kick a user out and can lock the conference room.

•PIN

Set a PIN that must be entered in order to access this conference room (e.g. 1234).



The screenshot shows a form titled "Edit Conference Room 640" with a close button (X) in the top right corner. The form contains three input fields: "Extension" with the value "640", "Admin" with a dropdown menu showing "-----", and "PIN #" which is currently empty. At the bottom of the form are two buttons: "Save" with a green checkmark icon and "Cancel" with a red X icon.

Figure 6-47 Add/Edit Conference Room

6.4.5

Inbound routing processes incoming call traffic to destination extensions during office hours or outside office hours

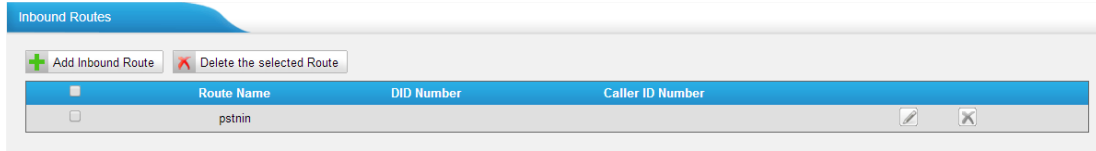


Figure 6-48 Inbound Route List

There is a default inbound route for all the trunks and set IVR as the destination, you can edit it or create a new one for your demands or you can delete multiple outbound routes at once as required. When an incoming call arrives, the system will first check "fax detection", then "Holidays", at last "Business Days".

Figure 6-49 Add/Edit Inbound Route

1) General

• **Route Name**

A name for this inbound route. E.g. "pstnin".

• **DID Number**

Define the expected DID Number if this trunk passes DID on incoming calls. Leave this field blank to match calls with any or no DID info. You can also use pattern matching to match a range of numbers. The following patterns may be used:

X: Any Digit from 0-9

Z: Any Digit from 1-9

N: Any Digit from 2-9

[12345-9]: Any digit in the brackets (in this example, 1, 2, 3, 4, 5, 6, 7, 8, 9)
The "." Character will match any remaining digits. For example, "9011." will match any phone number that starts with "9011", excluding "9011" itself.

The "!" will match none remaining digits, and causes the matching process to complete as soon as it can be determined that no other matches are possible.

Example 1: **NXXXXXX** will match any 7-digit phone number.

Example 2: **1NXXNXXXXXX** will match a phone number starting with a 1, followed by a 3-digit area code, and then 6-digit number.

For more information, please refer to [Appendix H How to Use DID](#).

•Extension

Define the extension for DID number. This field is only valid when you use BRI, SIP, SPS or SPX trunk for this inbound router. You can only input number and "-" in this field and the format can be xxx or xxx-xxx. The count of the number must be only one or equal to the count of the DID number.

•Caller ID Number

Define the Caller ID Number to be matched on incoming calls. Leave this field blank to match any or no DID info.

You can also use a pattern match (e.g. 2[345]X) to match a range of numbers. The following patterns may be used:

X: Any Digit from 0-9

Z: Any Digit from 1-9

N: Any Digit from 2-9

[12345-9]: Any digit in the brackets (in this example, 1, 2, 3, 4, 5, 6, 7, 8, 9)
The "." Character will match any remaining digits. For example, "9011." will match any phone number that starts with "9011", excluding "9011" itself.

The "!" will match none remaining digits, and causes the matching process to complete as soon as it can be determined that no other matches are possible.

Example 1: **NXXXXXX** will match any 7 digits phone number.

Example 2: **1NXXNXXXXXX** will match a phone number starting with a 1, followed by a 3-digit area code, and then 6-digit number.

•Distinctive Ringtone

MyPBX support mapping to custom ring tone files. For example, if you configure the distinctive ringing for custom ring tone to "**Family**", the ring tone will be played if the phone receives the incoming call.

•Enable Callback

You can enable the callback function of this inbound route. If you want to

configure the callback function, please refer to [chapter 6.7.4](#)

How do I configure distinctive ring tones? Please refer to [APPENDIX F](#).

Currently distinctive ringtone can be compatible with Yealink and Snom phone.

2) Member Trunks

This area allows you to select which trunks will be member trunks for this route. To make a trunk a member of this route, please move it to the "Selected" box.

3) Business Days

Define where the calls will be routed during Business Days.

·Office Hours

Select one defined business days office hours.

·Office Hours Destination

Configure where to route the incoming calls during office hours.

·End Calls

Route the incoming calls to end calls, the system will auto hang up the call.

·Extension

Route the incoming calls to a specific extension.

·Voicemail

Route the incoming calls to extension's voicemail.

·IVR

Route the incoming calls to a specific IVR.

·Ring Group

Route the incoming calls to a specific Ring Group.

·Conference Room

Route the incoming calls to a specific Conference Room.

·DISA

Route the incoming calls to a specific DISA.

·Queues

Route the incoming calls to a specific Queue.

·Faxes

Route the incoming faxes to a specific extension's mail address.

Note: This function only supports T.38 faxes.

·Outbound Routes

Route the incoming calls to a specific outbound route.

This function is mainly used for the connection of two branches.

For example: Company A locates headquarters in the USA with a branch B in China. A and B both have a MyPBX phone system.

Now if staff of A would like to make a call to a telephone or mobile phone in China from the extension of A but via the FXS line of B, that can be done by this configuration.

·**Non-office Hours Destination**

Configure where to route the incoming calls during non-office hours.

4) During Holidays

Define where the calls will be routed during Holidays.

·**Holiday**

Select which defined Holiday to use. When a time is defined in both Business Days and Holidays, it will be treated as Holidays.

·**Destination**

Configure where to route the incoming calls during holidays.

5) Fax Detection

Configure if detecting faxes in this inbound route.

Note: Please choose IVR as the destination above before configuring fax detection (recommended).

·**Destination**

Configure where the faxes will be routed when faxes are detected.

·**No detect**

Do not detect faxes.

·**Custom Email**

Customize an E-mail address to receive the faxes. You should first configure the "Voicemail Settings->SMTP Settings for Voicemail" correctly before you use this option.

·**Faxes**

Send faxes to an extension. If choosing a FXS extension here, the fax will be sent to the FXS port selected, you should connect a fax machine to this FXS port.

If Choosing a VoIP extension, the fax will be sent to the extension's voicemail as an attachment.

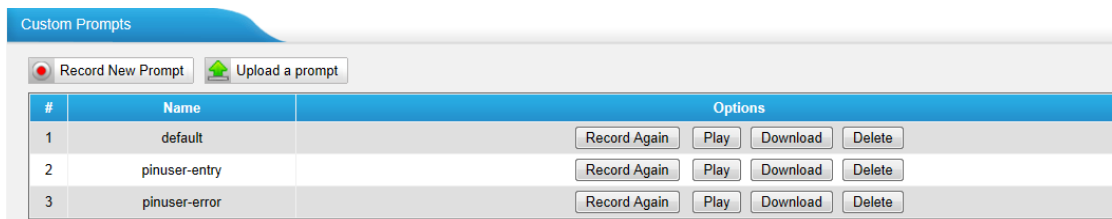
Note: If you want to receive faxes with custom Email address, the "SMTP settings" of "Voicemail Settings" should be configured successfully in advance. If you want to receive faxes with E-mail address configured in VoIP extension voicemail, you should first make sure the tested email to your email address works fine.

6.5 Audio Settings

Custom prompts are supported in MyPBX, and you can change the system prompts to your local country's prompt.

6.5.1

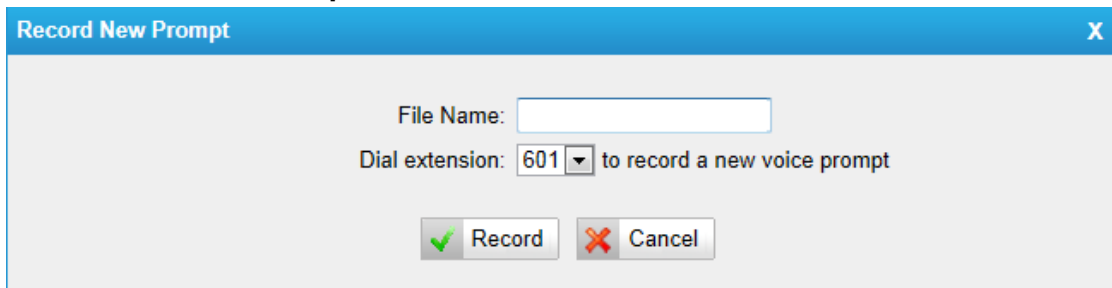
We can record or upload the prompts in this page; you can also play it directly to confirm if it's a valid one, you can also download it and save it as a backup.



#	Name	Options
1	default	Record Again Play Download Delete
2	pinuser-entry	Record Again Play Download Delete
3	pinuser-error	Record Again Play Download Delete

Figure 6-50 Custom Prompts List

1. Record new Prompt



Record New Prompt

File Name:

Dial extension: 601 to record a new voice prompt

Record Cancel

Figure 6-51 Record a New Prompt

The administrator can record custom prompts by doing the following:

- 1) Click "Record New Custom Prompt".
- 2) Input the desired file name on the popup window and choose an extension to call for recording (such as 500).
- 3) Click "Record". The selected extension will ring and you can pick up the phone to start recording.

2. Upload Prompt

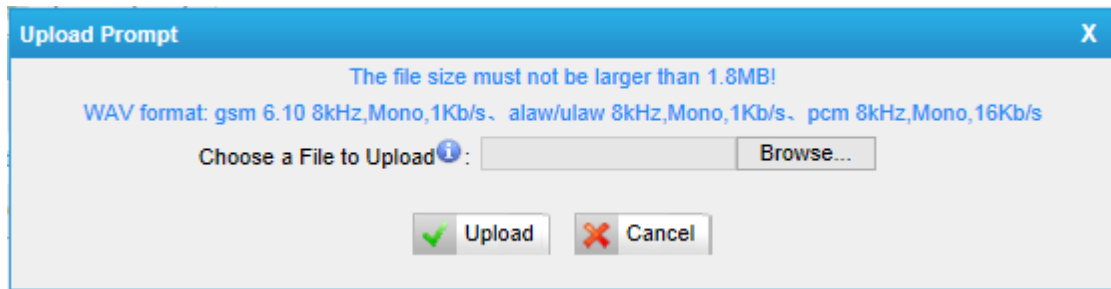


Figure 6-52 Upload a Prompt

The administrator can also upload prompts by doing the following:

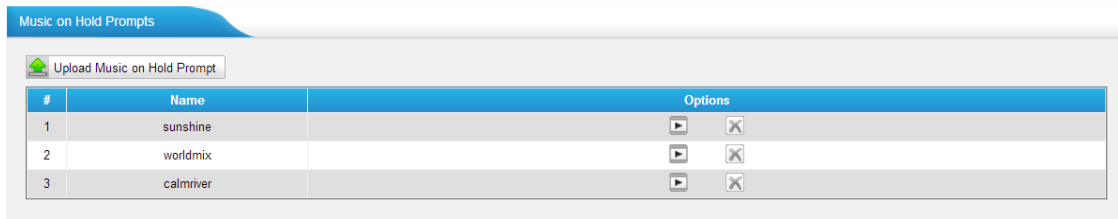
- 1) Click "Upload Prompt".
- 2) Click "Browse" to choose the desired prompt.
- 3) Click "Upload" to upload the selected prompt.

Note: The file size must not be larger than 1.8 MB, and the file must be WAV format:

GSM 6.10 8 kHz, Mono, 1 Kb/s;
Alaw/Ulaw 8 kHz, Mono, 1 Kb/s;
PCM 8 kHz, Mono, 16 Kb/s.

6.5.2

In this page, we can upload the music on hold prompts.

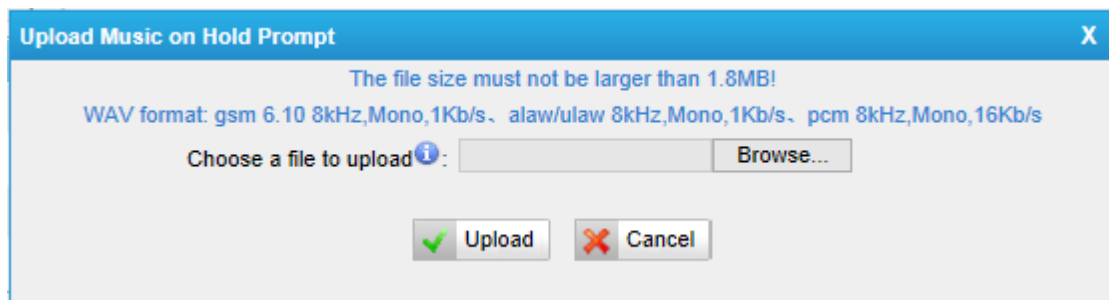


#	Name	Options
1	sunshine	
2	worldmix	
3	calmriver	

Figure 6-53 Music on Hold List

The administrator can upload on hold music as follows:

- 1) Click "Upload Music on Prompt".
- 2) Click "Browse" to choose the desired audio file.
- 3) Click "Upload" to upload the selected file.



Upload Music on Hold Prompt X

The file size must not be larger than 1.8MB!

WAV format: gsm 6.10 8kHz, Mono, 1Kb/s. alaw/ulaw 8kHz, Mono, 1Kb/s. pcm 8kHz, Mono, 16Kb/s

Choose a file to upload :

Figure 6-54 Upload Music on Hold

Note: The file size must not be larger than 1.8 MB, and the file must be WAV format:

- GSM 6.10 8 kHz, Mono, 1 Kb/s;
- Alaw/Ulaw 8 kHz, Mono, 1 Kb/s;
- PCM 8 kHz, Mono, 16 Kb/s.

6.5.3

MyPBX have prompts of many languages. You can download the appropriate language you need. MyPBX can support American English, Australian English, Chinese, Dutch, French, Canadian French, German, Greek, Hungarian, Italian, Polish, Portuguese, Brazilian Portuguese, Russian, Spanish, Mexican Spanish, Turkish, Thai, and Korean currently.

Notes:

1. Auto-detection is highly recommended. But if you prefer to download via HTTP or TFTP server, please contact the local dealer for the prompts.
2. When update successfully, just click "Apply Changes" on web then it will take effect, there is no need to reboot.

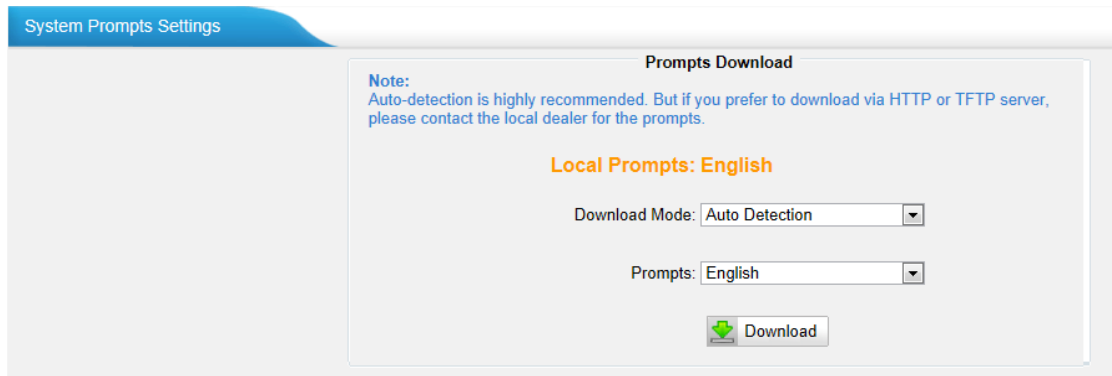


Figure 6-55 System Prompts Settings Page

6.6 Basic Settings

There are some basic settings we need to configure MyPBX Standard V7, like the general preferences, business hours, feature codes, voicemail settings.

6.6.1

In this page, there are some general settings of MyPBX.

Figure 6-56 General Settings

1) General

•Ring Timeout

Number of seconds to ring a device before handling the call as per the extension's Follow Me settings. The default value is 30s.

•MAX call duration

The absolute maximum amount of time permitted for a call. A setting of 0 disables the timeout. The default value is 6000s.

•Maximum concurrent calls

Maximum concurrent calls limits. The default value 0 means no limit

·Music on hold

Used to set hold music for the system.

·Tone Region

Please select your country or nearest neighboring country to enable the default dial tone, busy tone, and ring tone for your region.

Note: please reboot the system to take effect.

·HTTP bind port/Web Access Port

Port to use for HTTP sessions; Default: 80

Note: please reboot the system to take effect.

·Dsp Fax

Enable Dsp to optimize Fax reception.

·FXO Mode

FXO port's operation mode.

·Virtual Ring Back Tone

It's only for GSM/UMTS trunk. Once enabled, when the caller call out with GSM/UMTS trunks, the caller will only hear the virtual ring back tone generated by the system before callee answers the call.

·Distinctive Caller ID

When incoming calls are routed from ring group/queue/IVR, the caller ID displays with the name of ring group/queue/IVR, for example 5503302 (ringgroup_default).

Note: To display IVR's name, please press the key instead of the extension number directly.

·Attended Transfer Caller ID

When transferring an incoming call using the attended transfer feature code or the transfer key of IP phone, the Caller ID of transferee or transferer displayed on the screen of the callee. The default display is the Caller ID of the initiator. For example, if extension 500 makes a call to extension 501. After 501 picks up the call, 501 makes an attended transfer to extension 502. If selecting "Transferer", 502 will display the Caller ID as 500; if selecting "Transferee", 502 will display the Caller ID as 501.

·Follow Me Prompt

When set "Follow me" to "Transfer to number" on the extension page (e.g. when

500 is busy, transfer to 501), while 500 is busy, the call will be transferred to 501. If "Enable Follow Me Prompt" choosing yes, there will be prompt before transferring the call. Otherwise, the call will be transferred directly without any prompt. Default: Yes.

•**Music on Hold for Follow Me Prompt**

Configure whether to play a prompt "please hold while I try to locate the person you are calling" when transferring a call through follow me settings.

•**Invalid Phone Number Prompt**

Configure the prompt when the dialed phone number is invalid.

•**Busy Line Prompt**

Configure the prompt when the dialed phone number is busy.

•**Dial Failure Prompt**

Configure the prompt when dial failed due to conjunction or no-available channel.

2) Web Server

•**HTTP**

Enable or disable HTTP session.

•**HTTP Bind Port**

Default port to use for HTTP session is 80.

•**HTTPS**

Enable or disable HTTPS session.

•**HTTPS Bind Port**

Default port to use for HTTPS session is 443.

Note: please reboot the system to take effect.

3) Extension Preferences

•**User Extensions**

The default value is 500 to 616.

•**Ring Group Extensions**

The default value is 620 to 629.

•**Paging Group Extensions**

The default value is 630 to 639.

•Conference Extensions

The default value is 640 to 659.

•IVR Extensions

The default value is 660 to 679.

•Queue Extensions

The default value is 680 to 689.

6.6.2

Business Hours setting including “Holidays” is used to control the incoming calls, we can configure it in this page.

Figure 6-57 Business Hours Settings

1) General

•Enable Business Hours

•disable Business Hours

2) Others

•Enable Office Closed Timing

By dialing *81 (*81 is the default code) on an extension will force the office time closed for the device whatever the general setting is.

•Enable Office Timing

By dialing *82 (*82 is the default code) on an extension will force the office time to take effect for the device whatever the general setting is.

•Disable Office closed timing

By dialing *081 (*081 is the default code) on an extension will disable the Office

Closed Timing.

3) Add office hours

You can set up the business hours here.

4) Add Holiday

You can set up the holidays here.

If a time period is configured as both Holidays and office hours, it will be treated as Holidays.

6.6.3

There are many feature codes available in MyPBX, which allow users to dial from extension side to realize the exact feature.

Feature	Code	Default
<input checked="" type="checkbox"/> One Touch Record	*1	x
<input checked="" type="checkbox"/> Check Extension Voicemail	*2	
<input checked="" type="checkbox"/> Voicemail for Extension	#	
<input checked="" type="checkbox"/> Voicemail Main Menu	*02	
<input checked="" type="checkbox"/> Attended Transfer	*3	
<input checked="" type="checkbox"/> Attended Transfer Timeout	15	s
<input checked="" type="checkbox"/> Blind Transfer	*03	
<input checked="" type="checkbox"/> Call Pickup	*4	
<input checked="" type="checkbox"/> Extension Pickup	*04	
<input checked="" type="checkbox"/> Intercom	*5	
<input checked="" type="checkbox"/> Normal Spy	*90	
<input checked="" type="checkbox"/> Whisper Spy	*91	
<input checked="" type="checkbox"/> Barge Spy	*92	
Call Parking Preferences		
Call Parking	*6	
Extension range used to park calls	690-699	(Ex: 690-699)
Number of seconds a call can be parked for	60	
Call Forwarding Preferences		
<input checked="" type="checkbox"/> Reset to Defaults	*70	
<input checked="" type="checkbox"/> Enable Forward All Calls	*71	
<input checked="" type="checkbox"/> Disable Forward All Calls	*071	
<input checked="" type="checkbox"/> Enable Forward When Busy	*72	
<input checked="" type="checkbox"/> Disable Forward When Busy	*072	
<input checked="" type="checkbox"/> Enable Forward No Answer	*73	
<input checked="" type="checkbox"/> Disable Forward No Answer	*073	
<input checked="" type="checkbox"/> Forward to Number	*74	
<input checked="" type="checkbox"/> Forward to Voicemail	*074	
<input checked="" type="checkbox"/> Enable Do Not Disturb	*75	
<input checked="" type="checkbox"/> Disable Do Not Disturb	*075	

Figure 6-58 Feature Code Settings Page

1) General

•One Touch Record

A user may initiate or stop call recording by dialing *1 during a call. (*1 is the default setting).

•Extension for Checking Voicemail

Users can check their Voicemail by dialing *2 on their phone (*2 is the default setting).

•Voicemail for Extension

Users can leave a voicemail to other extensions by dialing # on their phone or the incoming call could be forwarded to an extension's voicemail directly. (# is the default setting).

For example, extension 500 want to leave a message for extension 501, users can use 500 dial "#501" to enter the voicemail of 501.

• **Voicemail main menu**

Users can go to the main menu by dialing *02 (*02 is the default setting).

• **Attended Transfer**

Users may transfer an incoming call by dialing *3 on their phone (*3 is the default setting).

• **Attended Transfer Timeout**

The timeout value of transferring a call

• **Blind Transfer**

Users may blind transfer an incoming call by dialing *03 on their phone (*03 is the default setting).

• **Call Pickup**

Users may pick up an incoming call by dialing *4 on their phone (*4 is default the setting)

• **Extension Pickup**

Users may pick up a specific extension's incoming call by dialing *04+extension number on their phone (*04 is the default setting)

• **Intercom**

Define the feature code that is used to dial an extension in intercom mode. For instance, setting this value to *5 would allow you to initiate an intercom call with extension 501 by dialing *5501.

• **Normal Spy**

In this mode, you can only listen to the extension being spied, for example you can dial *90501 to monitor extension 501

• **Whisper Spy**

In this mode you can listen/whisper to the extension being spied, for example, dialing *91501 to listen to extension 501, you can also talk with 501 too.

• **Barge Spy**

In this mode, you can barge in both extensions involved in the call, for example dialing *92501 to barge in and talk with extensions on both sides.

2) Call Parking Preferences

• **Call Parking**

User may park an incoming call on his own telephone by pressing “*6” (*6 is the default setting)

• **Extension range used to park calls**

User may park an incoming call on a designated extension at first and then pick up the call again on any other extensions.

• **Number of seconds a call can be parked before it is recalled.**

Define the time (in seconds) that a call can be parked before it is recalled to the station that parked it.

3) Call Forwarding Preferences

• **Reset to Defaults**

Users may reset all call forwarding defaults by calling *70 on their phone (*70 is the default setting).

Note: When reset to defaults. The call forwarding settings will be configured as follows:

Always forward: Disabled

Busy forward to Voicemail: Enabled

No answer forward to Voicemail: Enabled

Do not disturb: Disabled

• **Enable Forward All Calls**

Users may enable always forward by calling *71 on their phone (*71 is the default setting)

• **Disable Forward All Calls**

Users may disable always forward by calling *071 on their phone (*071 is the default setting)

• **Enable Forward When Busy**

Users may enable busy forward by dialing *72 on their phone (*72 is the default setting)

• **Disable Forward When Busy**

Users may disable busy forward by calling *072 on their phone (*072 is the default setting)

• **Enable Forward No Answer**

Users may enable no answer forward by calling *73 on their phone (*73 is the default setting)

·Disable Forward No Answer

Users may disable no answer forward by calling *073 on their phone (*072 is the default setting)

·Forward to number

Users may activate call forwarding by dialing this feature code, followed by the extension or phone number to forward all calls to this number.

Note: Users may activate Forward to number by dialing *74 + phone number. e.g. by dialing *74501, all calls will be forwarded to extension 501.

·Forward to Voicemail

Users may forward the call to Voicemail by calling *074 on their phone (*074 is the default setting)

·Enable Do Not Disturb

Users may enable do not disturb by calling *75 on their phone (*75 is the default setting)

·Disable Do Not Disturb

Users may disable do not disturb by calling *075 on their phone (*075 is the default setting)

6.6.4

In this page, we can configure some settings for voicemail feature, including general voicemail settings and SMTP settings, which is used for “voicemail to email”.

The screenshot shows the 'Voicemail Settings' interface. The main heading is 'General Voicemail Settings'. It is organized into three sections:

- Message Options:**
 - Max Messages per Folder: 100
 - Max Message Time: 5 Minutes
 - Min Message Time: 5 Seconds
 - Ask Caller to Dial 5:
 - Delete Voicemail:
 - Operator Breakout from Voicemail: No
 - Destination: welcome
- Greeting Settings:**
 - Busy Prompt: Play busy greeting
 - Unavailable Prompt: Play unavailable greetings
 - Leave a Message Prompt: Skip greeting
- Playback Options:**
 - Announce Message Caller ID:
 - Announce Message Duration:
 - Announce Message Arrival Time:
 - Allow Users to Review Messages:

Figure 6-59 General Voicemail Settings

1) General Voicemail Settings

a) Message Options

•Max Messages per Folder

Set the maximum number of messages that can be stored in a single voicemail box.

•Max Message Time

Set the maximum length of a single voicemail message.

•Min Message Time

Set the minimum length of a single voicemail message. Messages below this threshold will be automatically deleted.

•Ask Caller to Dial 5

If this option is set, the caller will be prompted to press 5 before leaving a message.

•Operator Breakout from Voicemail

If this option is set, the caller can jump out of the voicemail and go to the destination (IVR) you set by dialing “0”.

b) Greeting Settings

• **Busy Prompt**

Greeting played when the extension called is busy.

Skip greeting: Do not play a greeting.

Play busy greeting: play the extension busy greeting.

• **Unavailable Prompt**

Greeting played when the extension called is Unavailable.

Skip greeting: Do not play a greeting.

Play Unavailable greeting: play the extension Unavailable greeting.

• **Leave a Message Prompt**

Greeting played to ask the caller to dial 5 to leave a message.

Skip greeting: Do not play a greeting.

Play busy greeting: play the extension busy greeting.

Play Unavailable greeting: play the extension Unavailable greeting.

c) Playback Options

• **Announce Message Caller ID**

If this option is enabled, the Caller ID of the party that left the message will be played back before the voicemail message begins playing.

• **Announce Message Duration**

If this option is set, the duration of the message in minutes will be played back before the voicemail message begins playing.

• **Announce Message Arrival Time**

If this option is set, the arrival time of the message will be played back before the voicemail message begins playing.

• **Allow Users to Review Messages**

Allow callers to review their recorded message before sending it to voicemail.

2) SMTP Settings for Voicemail

Note: If you want to send voicemail messages as email attachments, please configure this section.

Figure 6-60 SMTP Server Settings

•E-mail Address

The E-mail Address that MyPBX will use to send voicemail.

•Password

The password for the email address used above

•SMTP Server

The IP address or hostname of an SMTP server that the MyPBX will connect to in order to send voicemail messages via email, e.g. mail.yourcompany.com.

•Port

SMTP Port: the default value is 25.

•Use SSL/TLS to send secure message to server

If the email sending server needs to authenticate the sender, you need to select the check box.

Note: Must be selected for Gmail or exchange server.

After filling out the above information, you can click on the "Test Account Settings" button to check whether the setup is OK.

- 1) If the test is successful, you can use the email safely.
- 2) If the test failed, please check if the above information is input correctly or if the network is OK.

6.7 Advanced Settings

6.7.1

1) General

The screenshot shows the 'SIP Settings' window with the 'Advanced Settings' tab selected. The 'General' sub-tab is active. The settings are as follows:

Setting	Value
UDP Port	5060
Enable	<input checked="" type="checkbox"/>
TCP Port	5060
Enable	<input checked="" type="checkbox"/>
TLS Port	5061
TLS Verify Server	No
TLS Verify Client	No
TLS Ignore Common Name	Yes
TLS Client Method	sslv2
RTP Port Start	10000
RTP Port End	12000
DTMF Mode	rfc2833
Max Registration/Subscription Time	3600
Min Registration/Subscription Time	60
Default Incoming/Outgoing Registration Time	120
Register Attempts	0
Register Timeout	20
Calling Channel Codec Priority	Yes
Video Support	Yes
Max Bit Rate	384 kb/s
DNS SRV Look Up	No
User Agent	

Buttons: Save, Cancel

Figure 6-61 SIP Settings—General

• UDP Port

Port used for SIP registrations. The default is 5060.

• TCP Port

Port used for SIP registrations. The default is 5060.

• TLS Port

Port used for SIP registrations. The default is 5061.

• TLS Verify Server

When using MyPBX as a TLS client, whether or not to verify server's certificate. It is "No" by default.

• TLS Verify Client

When using MyPBX as a TLS server, whether or not to verify client's certificate. It is "No" by default.

• TLS Ignore Common Name

Set this parameter as "No", then common name must be the same with IP or domain name.

• **TLS Client Method**

When using MyPBX as TLS client, specify the protocol for outbound TLS connections. You can select it as tlsv1, sslv2 or sslv3.

• **RTP Port Start**

Beginning of RTP port range.

• **RTP Port End**

End of RTP port range.

• **DTMF Mode**

Set default mode for sending DTMF. Default setting: rfc2833.

• **Max Registration/Subscription Time**

Maximum duration (in seconds) of a SIP registration. The default is 3600 seconds.

• **Min Registration/Subscription Time**

Minimum duration (in seconds) of a SIP registration. The default is 60 seconds.

• **Default Incoming/Outgoing Registration Time**

Default Incoming/Outgoing Registration Time: Default duration (in seconds) of incoming/outgoing registration.

• **Register Attempts**

The number of SIP REGISTER messages to send to a SIP Registrar before giving up. Default is 0 (no limit).

• **Register Timeout**

Number of seconds to wait for a response from a SIP Registrar before considering the register has timed out. The default is 20 seconds.

• **Calling Channel Codec Priority**

Once enabled, when dialing out via SIP/SPS trunks, the codec of calling channel will be selected in preference. If not, MyPBX will follow the priority in your SIP/SPS trunks.

• **Video Support**

Support for SIP video or no. The default is yes.

• **Max Bit Rate**

Configure the max bit rate for video stream. The default: 384kb/s

•DNS SRV Look Up

Please enable this option when your SIP trunk contains more than one IP address.

•User Agent

To change the user agent parameter of asterisk, the default is “MyPBX”; you could change it if needed.

2) NAT

Figure 6-62 SIP Settings—NAT

Note: Configuration of this section is only required when using remote extensions.

•Enable STUN

STUN (Simple Traversal of UDP through NATs) is a protocol for assisting devices behind a NAT firewall or router with their packet routing.

•STUN Address

The STUN server allows clients to find out their public address, the type of NAT they are behind and the Internet side port associated by the NAT with a particular local port. This information is used to set up UDP communication between the client and the VoIP provider and so establish a call.

•External IP Address

The IP address that will be associated with outbound SIP messages if the system is in a NAT environment.

•External Host

Alternatively you can specify an external host, and the system will perform DNS queries periodically.

This setting is only required when your public IP address is not static. It is recommended that a static public IP address is used with this system. Please

contact your ISP for more information.

•External Refresh Interval

If an external host has been supplied, you may specify how often the system will perform a DNS query on this host. This value is specified in seconds.

•Local Network Identification

Used to identify the local network using a network number/subnet mask pair when the system is behind a NAT or firewall.

Some examples of this are as follows:

"192.168.0.0/255.255.0.0": All RFC 1918 addresses are local networks;

"10.0.0.0/255.0.0.0": Also RFC1918;

"172.16.0.0/12": Another RFC1918 with CIDR notation;

"169.254.0.0/255.255.0.0": Zero conf local network.

Please refer to RFC1918 for more information.

•NAT Mode

Global NAT configuration for the system; the options for this setting are as follows:

Yes = Use NAT. Ignore address information in the SIP/SDP headers and reply to the sender's IP address/port.

No = Use NAT mode only according to RFC3581.

Never = Never attempt NAT mode or RFC3581 support.

Route = Use NAT but do not include rport in headers.

•Allow RTP Reinvite

By default, the system will route media streams from SIP endpoints through itself. Enabling this option causes the system to attempt to negotiate the endpoints to route packets to each other directly, bypassing the system. It is not always possible for the system to negotiate endpoint-to-endpoint media routing.

3) Codecs

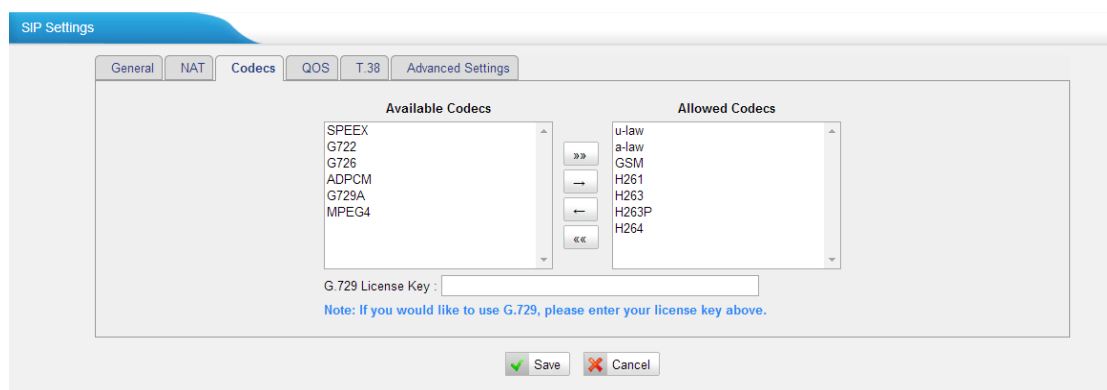


Figure 6-63 SIP Settings—Codecs

A codec is a compression or decompression algorithm used in the transmission of voice packets over a network or the Internet.

u-law: A PSTN standard codec, used in North America, which provides very good voice quality and consumes 64kbit/s in each direction (receiving and transmitting) of a VoIP call.

a-law: A PSTN standard codec, used outside of North America, which provides very good voice quality and consumes 64kbit/s in each direction (receiving and transmitting) of a VoIP call.

GSM: A wireless standard codec, used worldwide, that provides adequate voice quality and consumes 13.3kbit/s in each direction (receiving and transmitting) of a VoIP call. GSM is supported by many VoIP phones.

SPEEX: Speex is an Open Source/Free Software patent-free audio compression format designed for speech. The Speex Project aims to lower the barrier of entry for voice applications by providing a free alternative to expensive proprietary speech codecs. Moreover, Speex is well-adapted to Internet applications and provides useful features that are not present in most other codecs.

G.722: G.722 is a wideband speech coding algorithms which supports the bit rate of 64, 56 and 48kbps wideband. It's a broadband voice encoding of G series.

G.726: A PSTN codec, used worldwide, that provides good voice quality and consumes 32kbit/s in each direction (receiving and transmitting) of a VoIP call. G.726 is supported by some VoIP phones.

ADPCM, G.729A, H261, H263, H263p, H264, MPEG4.

Note: If you would like to use G.729, please enter your license.

4) QoS

The screenshot shows the 'SIP Settings' window with the 'QoS' tab selected. The configuration area contains the following fields:

Tos SIP:	CS3	Cos SIP:	3
Tos Audio:	EF	Cos Audio:	5
Tos Video:	AF41	Cos Video:	4

At the bottom of the configuration area, there are two buttons: 'Save' (with a green checkmark icon) and 'Cancel' (with a red X icon).

Figure 6-64 SIP Settings—QoS

QoS (Quality of Service) is a major issue in VoIP implementations. The issue is how to guarantee that packet traffic for a voice or other media connection will not be delayed or dropped due interference from other lower priority traffic. When the network capacity is insufficient, QoS could provide priority to users by setting the value.

5) T.38

The screenshot shows the 'SIP Settings' window with the 'T.38' tab selected. The configuration includes:

- Re-invite SDP Not Add T.38 Attributes: No
- Error Correction: FEC
- T38 Max BitRate: 14400

Buttons: Save, Cancel

Figure 6-65 SIP Settings-T.38

•Re-invite SDP Not Add T.38 Attributes

If set to Yes, SDP in re-invite packet will not add T.38 attributes.

•Error Correction

Re-invite SDP T38FaxUdpEc.

•T38 Max Bit Rate

Set T38 Max Bit Rate.

6) Advanced Settings

The screenshot shows the 'SIP Settings' window with the 'Advanced Settings' tab selected. The configuration includes:

- From Field: From
- To Field: INVITE
- 180 Ringing:
- Remote Party ID: send trust
- Allow Guest: No
- Pedantic: No
- Alwaysauthreject: Yes
- OPTIONS Response 200: No
- Session-timers: Accept
- Session-expires: 1800 s
- Session-minse: 90 s
- Session-refresher: Uas

Buttons: Save, Cancel

Figure 6-66 SIP Settings—Advanced Settings

•From Field

Where to get the caller ID in SIP packet.

• **To Field**

Where to get the DID in SIP packet.

• **180 Ringing**

It is set when the telecom provider needs. Usually it is not needed.

• **Remote Party ID**

Whether to send Remote-Party-ID on SIP header or not. Default: no.

• **Allow Guest**

Whether to allow anonymous registration extension or not. Default: no.

This option is used to avoid some anonymous calls by hackers. For more details about the system security configuration, please refer to [APPENDIX B MyPBX Security Configuration Guide](#).

• **Pedantic**

Enable pedantic parameter. Default: no.

• **Alwaysauthreject**

If enabled, when MyPBX rejects "Register" or "Invite" packets, MyPBX always respond the packets using "SIP404 NOT FOUND".

• **OPTIONS Response 200**

If set to yes, the response to an OPTIONS is always 200 OK.

• **Session -timers**

Enable session-timer mode, default: yes.

• **Session-expires**

The max refresh interval.

• **Session-minSE**

The min refresh interval, which mustn't be less than 90s.

• **Session-refresher**

Choose session-refresher, the default is Uas.

6.7.2

The screenshot shows the 'IAX Settings' configuration window. It has two main sections: 'General' and 'Codecs'. In the 'General' section, there are four input fields: 'UDP Port' with the value 4569, 'Bandwidth' with a dropdown menu set to 'Low', 'Minimum Registration/Subscription Time' with the value 60, and 'Maximum Registration/Subscription Time' with the value 1200. The 'Codecs' section contains a row of checkboxes for various codecs: u-law (checked), a-law (checked), GSM (checked), SPEEX (unchecked), G726 (unchecked), ADPCM (unchecked), G729A (unchecked), H261 (unchecked), H263 (unchecked), H263P (unchecked), and H264 (unchecked). At the bottom of the window, there are 'Save' and 'Cancel' buttons.

Figure 6-67 IAX Settings

1) General

•Bind Port

Port used for IAX2 registrations. Default is 4569.

•Bandwidth

Low/medium/high with this option you can control which codec to be used.

•Min Registration Time

Minimum duration (in seconds) of an IAX2 registration. The default is 60 seconds.

•Max Registration Time

Maximum duration (in seconds) of an IAX2 registration. The default is 1200 seconds.

2) Codecs

A codec is a compression or decompression algorithm used in the transmission of voice packets over a network or the Internet.

u-law: A PSTN standard codec, used in North America, which provides very good voice quality and consumes 64kbit/s in each direction (receiving and transmitting) of a VoIP call.

a-law: A PSTN standard codec, used outside of North America that provides very good voice quality and consumes 64kbit/s in each direction (receiving and transmitting) of a VoIP call.

GSM: A wireless standard codec, used worldwide, that provides adequate voice quality and consumes 13.3kbit/s in each direction (receiving and transmitting) of a VoIP call. GSM/UMTS is supported by many VoIP phones.

SPEEX: Speex is an Open Source/Free Software patent-free audio compression format designed for speech. The Speex Project aims to lower the barrier of entry for voice applications by providing a free alternative to expensive proprietary speech codecs. Moreover, Speex is well-adapted to Internet applications and provides useful features that are not present in most other codecs.

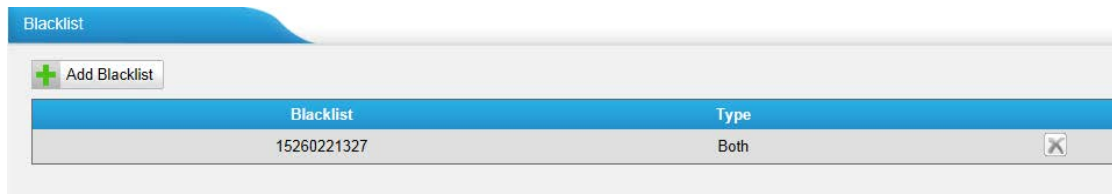
G.726: A PSTN codec, used worldwide, that provides good voice quality and consumes 32kbit/s in each direction (receiving and transmitting) of a VoIP call. G.726 is supported by some VoIP phones.

ADPCM, G.729A, H261, H263, H263p, H264.

Note: If you would like to use G.729, please enter your license.

6.7.3

Blacklist is used to block an incoming/outgoing call. If the number of incoming/outgoing call is registered in the number blacklist, the caller will hear the following prompt: "The number you have dialed is not in service. Please check the number and try again". The system will then disconnect the call.



Blacklist	Type
15260221327	Both

Figure 6-68 Blacklist List

We can add a number with the type: inbound, outbound or both.

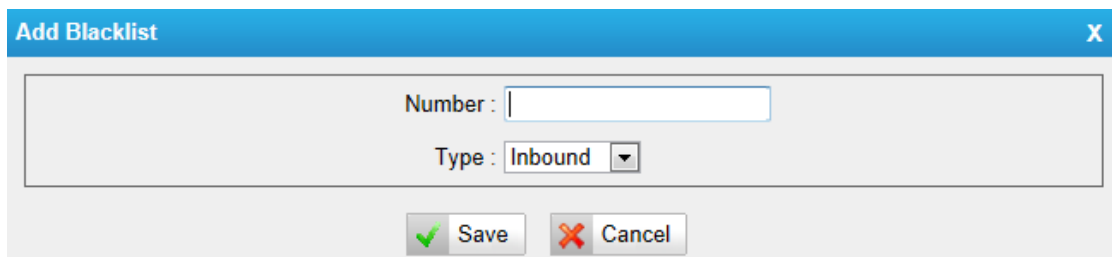


Figure 6-69 Add a Number as Blacklist

Note: Add a phone number in blacklist, such as "05921234567":

- 1) If the type is "inbound", then this number can't be called.
- 2) If the type is "outbound", then the extensions in MyPBX can't call this number.

6.7.4

MyPBX allows caller A to dial an inbound route number, and after hearing the ring, A can hang up the call or wait for MyPBX to cut off the call, then MyPBX will call A with this number. When A picks up the call, A can dial the number he wants to call; MyPBX will call the number with its outbound route.

Notes:

1. If you'd like to use callback feature, please make sure it's enabled on the inbound route setting panel.
2. No callback rules need to be set if the trunk supports call back with the caller ID directly.

Figure 6-70 Callback Settings Page

• Allow All Numbers

If you want to apply Callback function to all incoming numbers, please tick "Allow All numbers".

Follow the steps below to use this function.

Step 1: Enable Callback.

Inbound Routes—Choose "Yes" on "Enable Callback" to enable this function.

Figure 6-71 Enable Callback in Inbound Route

Step 2: Create Callback number.

Figure 6-72 Add a New Callback Number

Step 3: Create Callback Rules

You will need to create callback rules when the system should strip or add digits.

Figure 6-73 Create Callback Rule

•Trunk Name

Choose the trunk with callback rules.

•Strip digits from front

Define how many digits will be stripped from the call in number before the callback is placed. For example, when you call from number 123456789 into MyPBX, the caller ID is 0123456789, but you can only call 123456789 successfully from MyPBX trunk. You should configure number 0123456789 as the call back number and strip 1 digit before the callback is placed.

•Prepend before dialing

Define digits added before a callback number before the callback is placed. For example, the call in number (Caller ID) is 123456789, MyPBX need to send 9123456789 to its trunk when calling this number. You should configure 123456789 as the callback number and add 9 before the callback is placed. You can add "w" for analog trunks for some delay too.

6.7.5

DNIS (Dialed Number Identification Service) is a telephone service that identifies for the receiver of a call the number that the caller dialed.

Figure 6-74 Add a New DNIS

Note: If DID is not configured here, all the calls via this trunk will show the DNIS instead of the original caller ID.

6.7.6

DISA (Direct Inward System Access) allows someone calling in from outside the telephone switch (PBX) to obtain an “internal” system dial tone and make calls as if they were using one of the extensions attached to the telephone switch. To use DISA, a user calls a DISA number, which invokes the DISA application. The DISA application in turn requires the user to enter a PIN number, followed by the pound sign (#). If the PIN number is correct, the user will hear dial tone on which a call may be placed. Obviously, this type of access has serious security implications, and great care must be taken not to compromise your security.

Figure 6-75 Add a New DISA

1) General

•DISA Name

Give this DISA application a name to help you identify it.

•PIN

The password for this DISA.

•PIN Settings

Click to add, delete or edit PIN list.

•Response Timeout

The maximum amount of time the system will wait before hanging up the call if the user has dialed an incomplete or invalid number. The default is 10 seconds.

•Digit Timeout

The maximum amount of time permitted between each digit when the user is dialing an extension number. The default is 5 seconds.

2) Member Outbound Routes

Used to set the outbound routes that can be accessed from this DISA.

6.7.5

PIN User is used to manage lists of PINs that can be used to access restricted features such as Outbound Routes.

Figure 6-76 PIN User Settings Page

1) Options

•Access Code

Dial this code to access PIN.

•Prompt for Entry

Prompt caller to enter the PIN Number.

•Prompt for Entry Failure

Prompt the caller when an invalid PIN is entered.

Figure 6-77 Add a New PIN User

2) PIN User

MyPBX can store a number of PIN Users. PIN Users may be used to keep track of calls in relation to particular activities or clients. They can also be used to keep track of calls by particular users or sets of users.

- PINs entered are checked against those stored by the system. If an invalid PIN is entered, the PIN is requested again.
- The system administrator can configure certain numbers or types of numbers to require entry of a PIN before users can continue making a call to such a number.
- The system administrator can also configure to require users to enter a PIN before making any external call.

•Name

A character-based name for this PIN list, e.g. "YeostarPIN"

•PIN

The password for this PIN list

•PIN Settings

Click to add, delete or edit PIN list.

•Member Outbound Route

PIN User can use those outbound route to make call out.

6.7.8

In this page users can manage all the passwords of outbound routes, PIN User, and DISA.

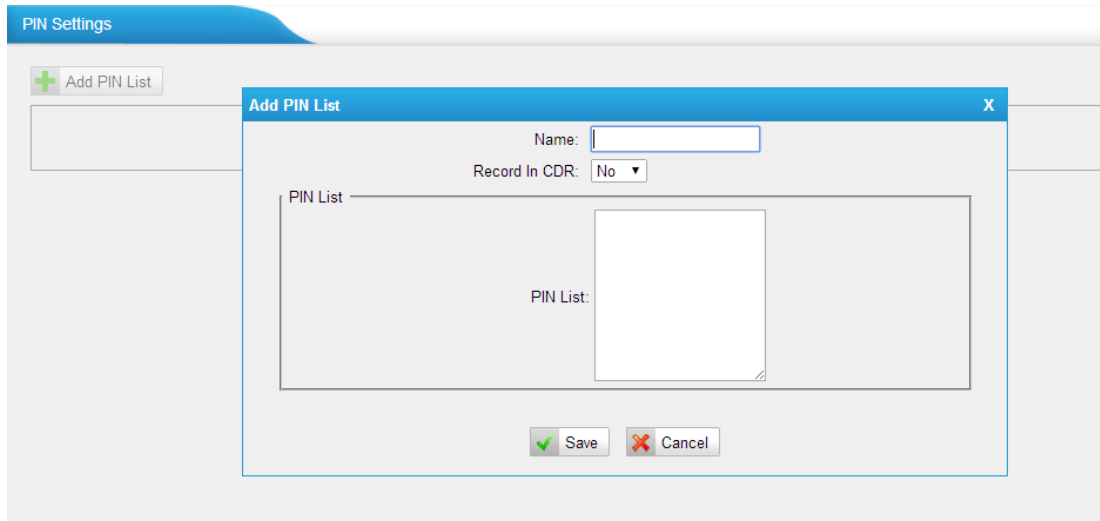


Figure 6-78 Add PIN List

•Name

A character-based name for this PIN list, e.g. "YeastarPIN"

•Record in CDR

If set yes, the PIN code will be displayed in call log.

•PIN list

PIN list is a numeric field. Letters and punctuation are not allowed in this field. Fill in one PIN and if you end with enter for each PIN, you could create multiple PINs.

6.7.9

Paging is used to make an announcement over the speakerphone to a phone or group of phones. Targeted phones will not ring, but instead answer immediately into speakerphone mode. Please note that this section is for configuring paging groups. If you would like to configure Intercom settings, please open the Other Settings -> Feature Codes screen.

This feature is supported by the following SIP phones:

Yealink's T28, T26, T22, T20, T10T, T9CM. Other SIP devices may also work with this feature but are not officially supported.

Note: A paging group can have a maximum of 20 members.

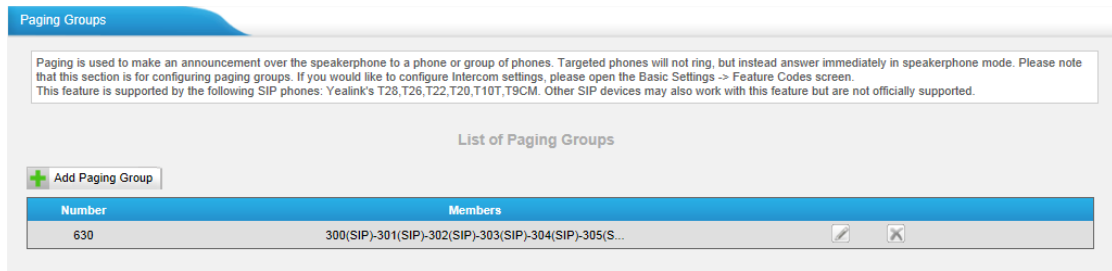


Figure 6-79 Paging Group List

In this mode, if you dial its number, MyPBX will help to pick up those chosen members and you can talk directly without any rings.

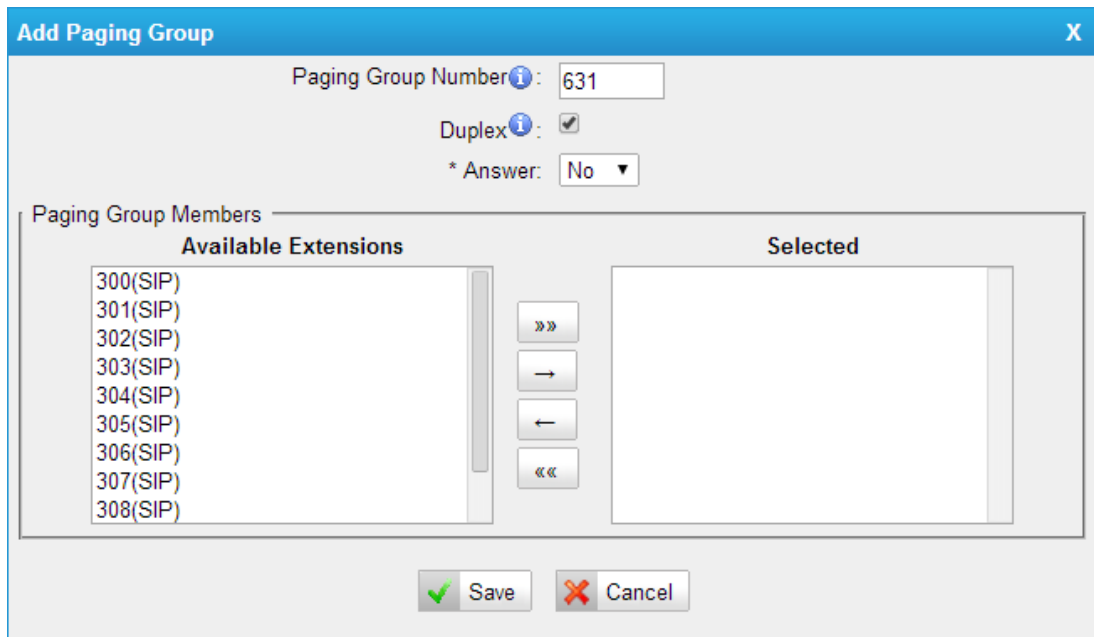


Figure 6-80 Add/Edit Internal Paging Group

•Paging Group Number

Define the numbered extension that may be dialed to reach this group.

•Duplex

Paging is typically one way for announcements only. Checking this will make paging duplex, allowing all users in the group to talk and be heard by all.

• *Answer

If it sets yes, any user in the group will talk with the caller when they press "*". If it sets no, users in the group can talk with each other without pressing "*".

6.7.10 SMS Settings

When GSM/UMTS modules are installed, SMS feature is supported.

1) Enable SMS to Email



Figure 6-81 Enable SMS to Email

If you enable this, as soon as the GSM/UMTS trunks receive a short message, MyPBX will send the text of this message to the email addresses listed on the Email List.

You can add email addresses to the Email List.

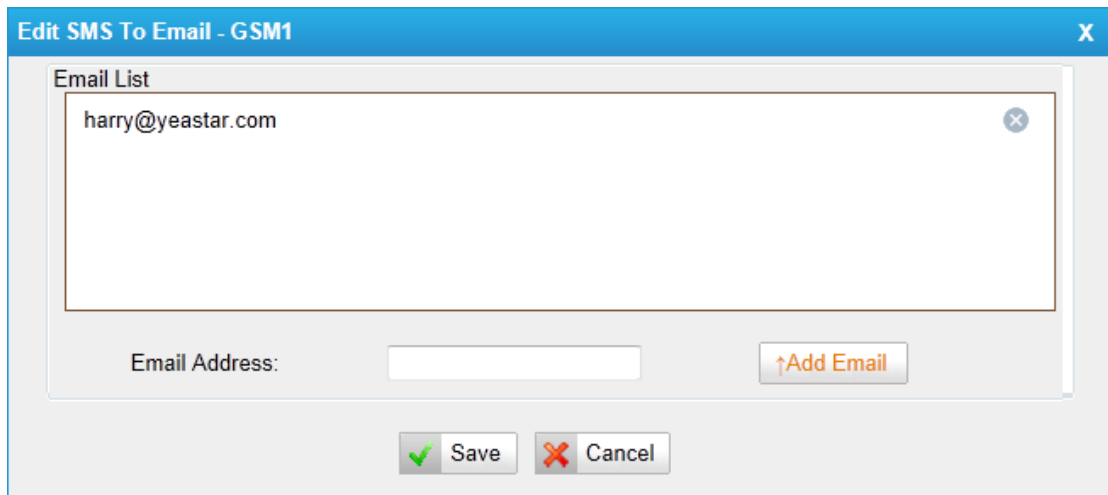


Figure 6-82 SMS to Email Settings

2) Enable Email to SMS

If you enable this, you can use MyPBX to send out message by sending an email to the specified address.

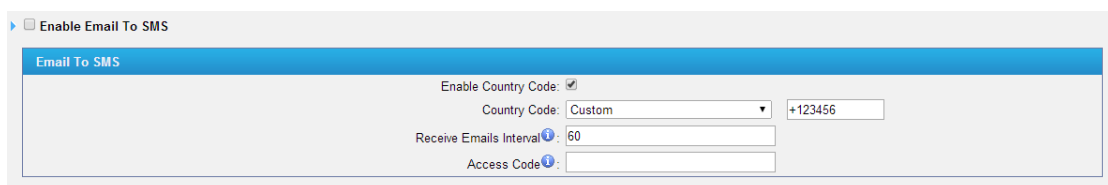


Figure 6-83 Email to SMS Settings

•Enable Country Code

If you want to add country code before the dialed numbers, please tick this.

•Country Code

If you enable country code, the country code will be added before the numbers

which you want to send SMS. Also you can use a custom country code, which makes it more flexible.

•Receive mails every

The interval of receiving mails from POP3 server.

•Access Code

This PIN code is used to verify the subject of the emails received. If the form of email passes the verification, it will be send out by SIM card. If not, this email will be deleted immediately.

3) Email Settings

▶ Email Settings

Email Settings

Note:
 1. (1) If you want to use 'SMS to Email', please configure SMTP setting. (2) If you want to use 'Email to SMS', please configure POP3 setting.
 2. If you configure the POP3 setting, MyPBX will download emails from the mail server regularly. Once downloaded, the emails will be deleted from the mail server.

Email Address ⁱ:

Password ⁱ:

SMTP Server (SMTP):

SMTP Server Port: 25

Receive Server (POP3):

Receive Server Port: 110

Use SSL/TLS for security on this server(SMTP) ⁱ

Figure 6-84 SMTP/POP Server Settings

Note:

1. If you want to use "SMS to Email", please configure POP3 setting.
2. If you configure the POP3 setting, MyPBX will download emails from the mail server regularly. Once downloaded, the emails will be deleted from the server.

•Email Address

This email address will be used to:

1. Send email to the addresses listed on "SMS to Email" setting.
2. Receive email and send the text of the email to the target mobile number by SMS.

Note: If you use Gmail, just put your user name here. E.g. email address: test@gmail.com, you just put "test" here.

•Password

Input the password of this email here.

•SMTP Server (SMTP)

•SMTP Server Port

•Receive Server (POP3)

•Receive Server Port

If you want to know more about Email to SMS, please refer to [APPENDIX G](#).

6.7.11 Certificates

MyPBX can support TLS extension. Before you register TLS extension on IP phone, you should upload certificates first.



Figure 6-85 Upload Certificate

Trusted Certificate

This certificate is a CA certificate. When selecting "TLS Verify Client" as "Yes", you should upload a CA. The relevant IP phone should also have this certificate.

PBX Certificate

This certificate is server certificate. No matter selecting "TLS Verify Client" as "Yes" or "NO", you should upload this certificate to MyPBX. If IP phone enables "TLS Verify server", you should also upload the relevant CA certificate on IP phone.

7 Reports



Click [Reports](#) to access.

We can check the call detailed logs for counting and system log for debugging.

7.1

The call Log captures all call details, including call time, caller number, callee number, call type, call duration, etc. An administrator can search and filter call data by call date, caller/callee, trunk, duration, billing duration, status, communication type and Pin User.

Figure 7-1 Call Log List

7.2

Figure 7-2 System Logs

You can download and delete the system logs of MyPBX.

Options

•**Enable Hardware Log**

Save the information of hardware (up to 4 log files).

•**Enable Normal Log**

Save the prompt information (up to 16 log files).

•**Enable Web Log**

Save the history of web operations (up to 2 log files).

•**Enable Debug Log**

Save debug information (up to 2 log files).

Packets Capture Tool

This feature is used by technicians to capture packets. Packet capture tool “Wireshark” is integrate in MyPBX.

Users also could specify the destination IP address and port to get the packets.

•**IP**

Specify the destination IP address to get the packets.

•**Port**

Specify the destination Port to get the packets.

•**NIC**

Choose the NIC (LAN or WAN) which you want to capture the packets.

8 Logout



Click  to log out safely.

9. Use MyPBX

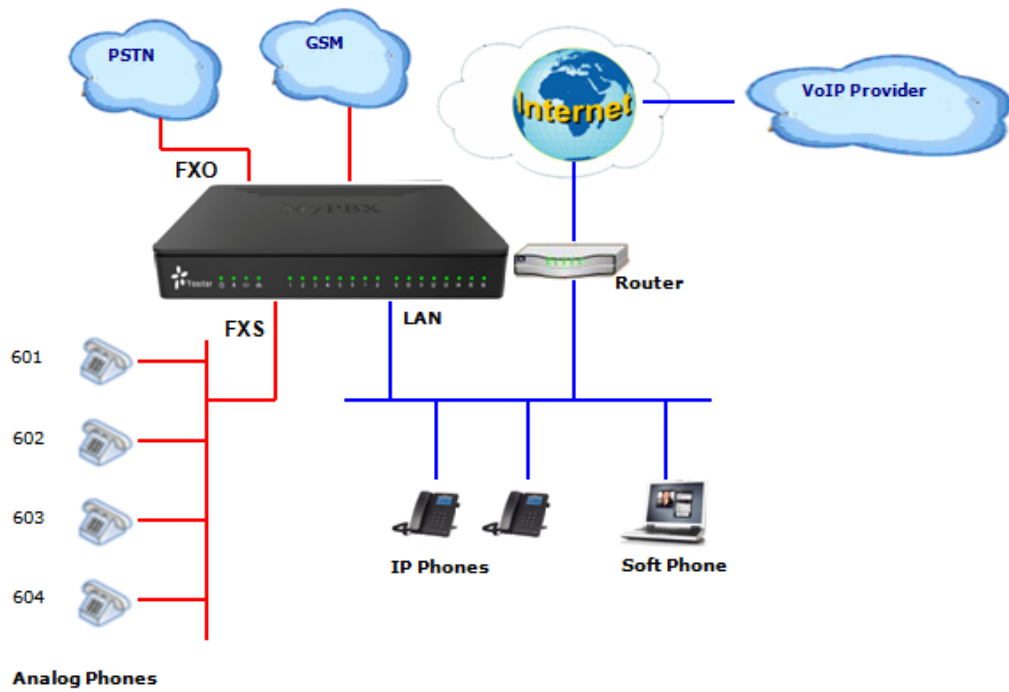


Figure 9-1 MyPBX Standard V7 Connection Drawing

9.1 Make outbound call

To make an outbound call, we need to add trunk first. There are 3 types of VoIP Trunk.

- **VoIP Trunk:** Connected to remote VoIP service server.
You should get an IP address with user name/ password from the provider.
- **Service Provider:** Connected to service provider server.
You will get only IP address for authorization.
- **Analog Trunk:** FXO ports of MyPBX, connected to a local PSTN.
- **GSM/UMTS Trunk:** GSM ports of MyPBX, connected to GSM Network.
- **BRI Trunk:** BRI ports of MyPBX, connected to ISDN provider

What are FXO and FXS?

FXS (Foreign Exchange Station) is an interface which drives an analog telephone or FAX machine. FXS interfaces deliver power, provide ringing, and use FXO signaling. FXS interfaces are what allow you to hook telephones and other analog devices to your PBX

FXO (Foreign Exchange Office) is an interface that connects to a phone line to supply your PBX with access to a public telephone network. FXO interfaces use FXS signaling. FXO interfaces allow you to connect your PBX to real analog phone lines.

9.1.1 Sample Routing via VoIP Trunk

Let's configure all inside extensions to dial "0" through the VoIP Trunk.

1. Add VoIP service provider

Before we add this, please make sure you have a VoIP Trunk account.

Trunks → VoIP Trunk → SIP Trunk

Enter your account information on this page, and click Save.

Edit VoIP Trunk - VOIP_Supplier

Provider Name: VOIP_Supplier

Hostname/IP: catnextgen.com

Domain: catnextgen.com

User Name: +6621070164

Authorization Name: 6621070164@catnextgen.com

Password:

From User:

Online Number:

Maximum Channels: 0

Caller ID: +6621070164

Realm:

Enable Outbound Proxy Server

Outbound Proxy Server: 202.129.61.102 Port: 5060

Codecs: First: a-law Second: u-law Third: GSM
Fourth: None Fifth: None

Transport: UDP Enable SRTP: Qualify:

DTMF Mode: rfc2833

DOD Settings

DOD:

Associated Extension: 601

Figure 9-3 Create a VoIP Trunk

2. Add Outbound Routes

As we can see from the Outbound Route of "VOIP_OUT", all phone numbers starting with 0 will have their first digit stripped off (digit 0) and will be sent to the SIP Trunk.

Edit Outbound Route - pstnout
X

Route Name i:

Password: [PIN Settings](#)

T.38 Support i:

Rmemory Hunt i:

Office Hours:

Dial Patterns i

Dial Pattern	Strip	Prepend	
<input type="text" value="9."/>	<input type="text" value="1"/>	<input type="text"/>	<input type="button" value="X"/>
<input type="button" value="+ Add"/>			

Member Extensions i

Available Extensions		Selected
	<input type="button" value="»»"/> <input type="button" value="→"/> <input type="button" value="←"/> <input type="button" value="««"/>	300(SIP) 301(SIP) 302(SIP) 303(SIP) 304(SIP) 305(SIP) 601(FXS) 602(FXS)

Member Trunks i

Available Trunks		Selected
pstn3(FXO) pstn4(FXO)	<input type="button" value="»»"/> <input type="button" value="→"/> <input type="button" value="←"/> <input type="button" value="««"/>	voipTest(SIP)

Figure 9-4 Create an Outbound route for VoIP trunk

Now that we have added two outbound dialing rules, any call starting with 9 will be routed to the PSTN, and any number starting with 0 will be routed to the SIP Trunk.

9.2 Incoming call

9.2.1 Sample Routing to an IVR

Let's configure an incoming call to route to the IVR. In the IVR itself, let's configure digit 0 to route the call to extension 300, and digit 1 to route the call to extension 301.

1. Add IVR

To add a new IVR, go to IVR → Create New IVR.

Edit IVR - welcome

Number: 660
 Name: welcome
 Prompt: default [Custom Prompts](#)
 Repeat Count: 3
 Key Timeout: 3
 Enable Direct Dial

Key	Action	Destination
0	Connect to Extension	Extension -- 300
1	Connect to Extension	Extension -- 301
2	No Action	
3	No Action	
4	No Action	
5	No Action	
6	No Action	
7	No Action	
8	No Action	
9	No Action	
#	No Action	
*	No Action	
Timeout	Connect to Extension	Extension -- 300
Invalid	Connect to Extension	Extension -- 300

Save Cancel

Figure 9-5 Create IVR

2. Add Inbound Routes

As we can see from the Inbound Route of "VOIP_IN", all incoming calls will be sent to the IVR.

Figure 9-6 Create Inbound Route for VoIP Trunk

APPENDIX A FAQ

Q1. How to Register SIP devices?

A1:

1) Register SIP softphone

Download the x-lite softphone from CounterPath website

www.counterpath.com

After installing the x-lite, right click the panel and select the SIP Account setting and then configure it.

Display Name: 500

User Name: 500

Password: 500

Authorization Name: 500

Domain: 192.168.5.150

2) Register IP Phone (for example, Yealink's T28 IP Phone)

a) Connect the T28's Internet port to the switch. And it can get the IP from your route.

b) Press the "OK" key on T28 to get the IP of T28.

c) Put the IP on web browser then you can enter the T28 configure page through this IP.

d) Put the SIP extensions info on the T28 IP phones.

Display Name: 501

User Name: 501

Register Name: 501

Password: 501

SIP Server: 192.168.5.150

Use the same method register another T28 to other extension.

Q2. How do I reset MyPBX back to the factory default settings?

A2: To perform a reset, please follow steps below:

Step 1: Press down the "Reset" button on the back of the unit for 5 seconds and watch the LEDs on the front of the MyPBX. When the status LED turns red, let go of the reset button.

Step2: When the RUN status LED starts blinking, MyPBX will be set back to factory defaults.

Step 3: To access the configuration page, navigate to **192.168.5.150** using a web browser. Make sure that you are on the 192.168.5.0 subnet before doing this.

Step 4: Login to the device with the username "**admin**" and the password "**password**", and reconfigure the device.

APPENDIX B MyPBX Security

Configuration Guide

VoIP attack, although not an everyday occurrence does exist. When using VoIP, system security is undoubtedly one of the issues we care about most. But with the appropriate configuration, and some basic safety habits, we can improve the security of the telephone system. Moreover, the powerful built-in firewall function in MyPBX is adequate to enable the system to run safely and stably.

This guide will introduce the highest defense level in MyPBX, and we strongly recommend that you configure firewall and other security options according to this guide, to prevent the attack fraud and the system failure or calls loss.

Note:

1. In this guide, the configuration options marked with "*" only exist in X.18.XX.XX and above versions.
2. We recommend upgrading the firmware to the latest edition for security purpose.
3. Don't map any port to MyPBX in router if not needed.
4. We recommend limiting the credit of VoIP trunks for international calls.

O. Security Center*

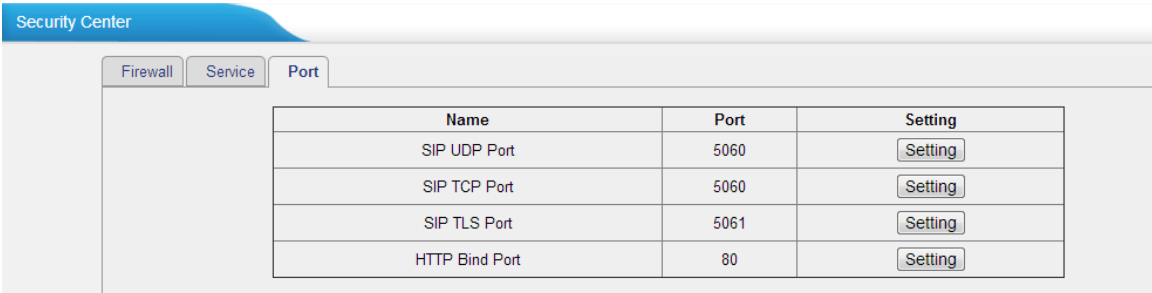
Security center is a new feature since x.18.0.xx, we can get an overview of basic settings like firewall, service security and port guard.

Click "System→ System Preferences→Security Center" to get the details. You can click the button to configure those one by one. You can follow the steps in this manual to configure and get the result in this page.

1. Port:

This page shows the SIP port and HTTP port, we can click "Setting" to change that.

It's recommend that the default port should be changed.



The screenshot shows the 'Security Center' interface with three tabs: 'Firewall', 'Service', and 'Port'. The 'Port' tab is active, displaying a table with the following data:

Name	Port	Setting
SIP UDP Port	5060	Setting
SIP TCP Port	5060	Setting
SIP TLS Port	5061	Setting
HTTP Bind Port	80	Setting

Figure 0-1

2. Service:

This page shows the general service like AMI, SSH and TFTP, we recommend disabling them if not used.

Note: TFTP is used for phone provisioning, it's enabled by default, you can disable it after all phones are well configured.

Name	Status	Note	Setting
AMI	Enabled		Setting
SSH	Enabled		Setting
TFTP	Enabled		Disable

Figure 0-2

3. Firewall:

In this page, the basic information of firewall rules are displayed. We recommend configuring it step by step following part 2 of this manual.

Function	Status	Note	Setting
Firewall Switch	Enabled	The number of firewall rule is:5,Please check if the rule is effective.	Setting
Drop All	Disabled		Setting
Blacklist Rules	Configured	The number of blacklist rules is:3	IP Blacklist
Alert Settings	Not Configured	It is recommended that you configure Alert Settings.	Alert Settings

Figure 0-3

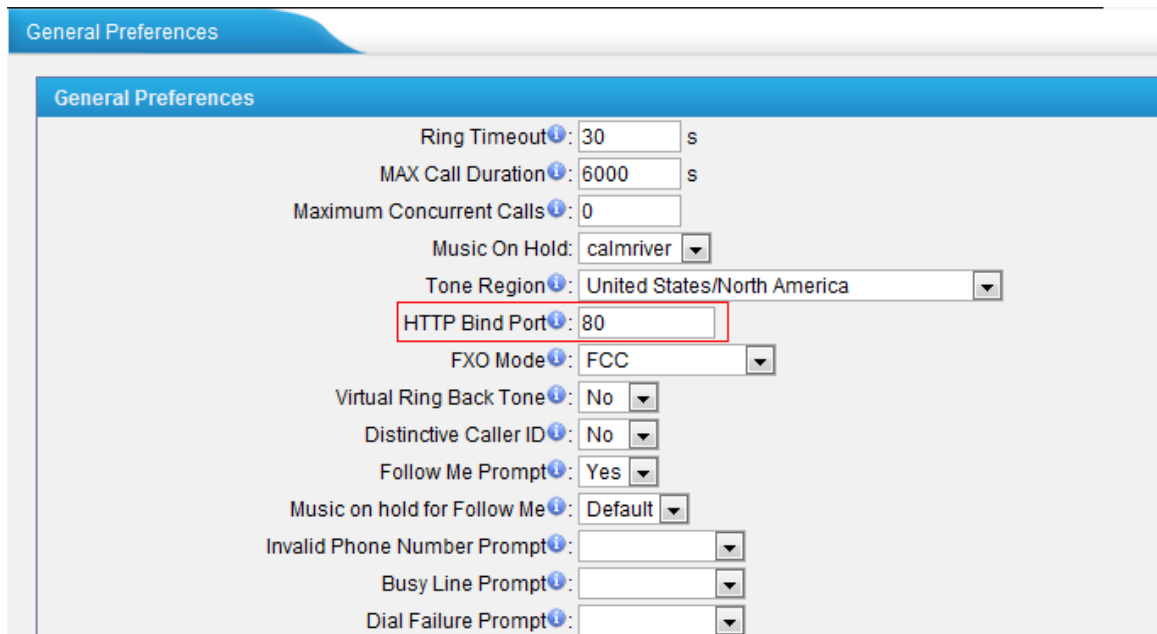
1. Ports and password enhancement

Ports and password are most important for security; we recommend changing the default ones to your own.

1.1 Web GUI (HTTP)

1.1.1 Change the default HTTP bind port.

PBX→Basic Settings→ General Preferences→HTTP Bind Port



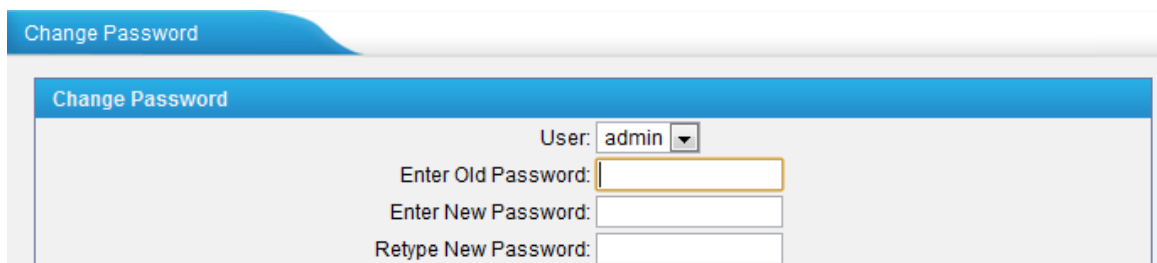
The screenshot shows the 'General Preferences' web interface. The 'HTTP Bind Port' field is highlighted with a red box and contains the value '80'. Other visible fields include Ring Timeout (30 s), MAX Call Duration (6000 s), Maximum Concurrent Calls (0), Music On Hold (calmriver), Tone Region (United States/North America), FXO Mode (FCC), Virtual Ring Back Tone (No), Distinctive Caller ID (No), Follow Me Prompt (Yes), Music on hold for Follow Me (Default), Invalid Phone Number Prompt, Busy Line Prompt, and Dial Failure Prompt.

Figure 1-1

We can change it to another one like 8080 for example.

1.1.2 Change the default password.

System→ System Preferences→Change Password



The screenshot shows the 'Change Password' web interface. The 'User' dropdown is set to 'admin'. There are three input fields: 'Enter Old Password:', 'Enter New Password:', and 'Retype New Password:'.

Figure1-2

A strong password needs to be configured here for all accounts. Especially account "admin" and "user".

1.2 Extension

Hackers are always sending packages to PBX to register extension before dialing out. Extension's security is very important for users.

1.2.1 Change the default SIP Port

PBX→Basic settings→SIP Settings→General→UDP Port

The screenshot shows the 'SIP Settings' configuration page with the 'General' tab selected. The 'UDP Port' field is highlighted with a red box and contains the value '5060'. Other visible fields include 'TCP Port' (5060), 'TLS Port' (5061), 'RTP Port Start' (10000), 'RTP Port End' (12000), 'DTMF Mode' (rfc283), 'Max Registration/Subscription Time' (3600), 'Min Registration/Subscription Time' (60), 'Default Incoming/Outgoing Registration Time' (120), 'Register Attempts' (8), 'Register Timeout' (20), 'Calling Channel Codec Priority' (Yes), 'Video Support' (Yes), 'Max Bit Rate' (384 kb/s), 'DNS SRV Look Up' (No), and 'User Agent'.

Figure 1-3

We recommend changing this to another available port, for example: 5080.

1.2.2 Change the default password

The password of the extensions is "pincode + extension number". A password with upper and lower letters and numbers is recommended. For example: AjK5Up1G.

The screenshot shows the 'Edit Extension - 6010' window with the 'General' tab selected. The 'Password' field is highlighted with a red box. The other fields are: Type: SIP, Extension: 6010, Name: 6010, and Caller ID: 6010.

Figure 1-4

Note: A strong password is a MUST for remote extensions.

1.2.3. IP restriction for extensions

You can find this setting in PBX→Extensions→FXS/VoIP Extensions→VoIP Extensions→General→Password. When it's configured, only the permitted IP can register this extension. All the other registry requests will be denied.

The format is "IP address/Subnet mask", e.g. 192.168.5.136/255.255.255.255. In this way, only 192.168.5.136 can register this extension 6010.

The screenshot shows the 'Edit Extension - 6010' window with the 'Other Settings' tab selected. The 'Enable IP Restriction' checkbox is checked and highlighted with a red box. Below it, the first 'Permitted IP address/Subnet mask' field is also highlighted with a red box and contains the value '192.168.5.136/255.255.255.255'. Other options include 'Call Waiting', 'DND', 'User Web Interface', 'Ring Out' (30), 'Follow me' (Always, No answer, When Busy), and 'Transfer to' (Voicemail, Number).

Figure 1-5

Note: If it's for remote extension, a static public IP address is needed to input instead.

1.2.4 Security Configuration for Remote Extensions

PBX→Extensions→FXS/VoIP Extensions→ VoIP Extensions→General
Enable "NAT" and "Register remotely" like the picture shown below.



Figure 1-6

Note:

1. If remote registration isn't required, please disable it.
2. If extensions register to MyPBX via WAN port, please only enable "register remotely".

1.2.5 TLS registry (Optional)

Introduction

Transport Layer Security (TLS) and its predecessor, Secure Sockets Layer (SSL), are cryptographic protocols that provide communication security over the Internet. They use asymmetric cryptography for authentication of key exchange, symmetric encryption for confidentiality and message authentication codes for message integrity. Several versions of the protocols are in widespread use in applications such as web browsing, electronic mail, Internet faxing, instant messaging and Voice-over-IP (VoIP).

TLS is supported in MyPBX for security SIP registry; you can also register SIP trunks to VoIP providers via TLS. We need to upload the certificate into MyPBX and the IP phones together for authorization.

Hackers send the register request to PBX for registry via UDP generally, if it's TLS enabled in MyPBX, hacker cannot register extension without the CA, the registry request will be refused directly.

Refer to [Appendix J](#) to get the detailed steps of how to use TLS in MyPBX.

Note: TLS is disabled in MyPBX by default; we need to enable it in "SIP settings" page in advance before using it.

2. Firewall configuration

Note: Please back up the configurations on Backup and Restore page before you go ahead. In the case that you lock the device, you can reset to factory default and restore the previous configurations. The example rules below work with MyPBX firmware version 2.15.xx.xx or higher versions.

The basic logic to configure firewall is "Allow all trusted IP addresses and then enable 'Drop All'".

Step1. Enable firewall on firewall page of MyPBX.

System→Firewall Settings → Firewall Rules→General Settings

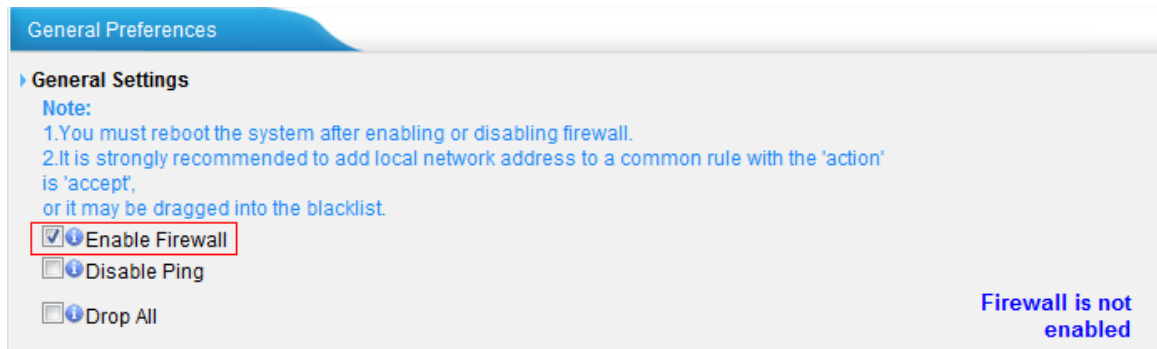


Figure 2-1

Step2. Add common rules to accept local network access.

Create a common rule to allow all the IP addresses of the local phones to access MyPBX server. For example, the local IP range is 192.168.5.1-192.168.5.254, the configuration could be as below:

Name: LocalNetwork

Protocol: BOTH

Port: 1:65535

IP: 192.168.5.0/255.255.255.0, the format must be "IP/net mask"

Action: Accept

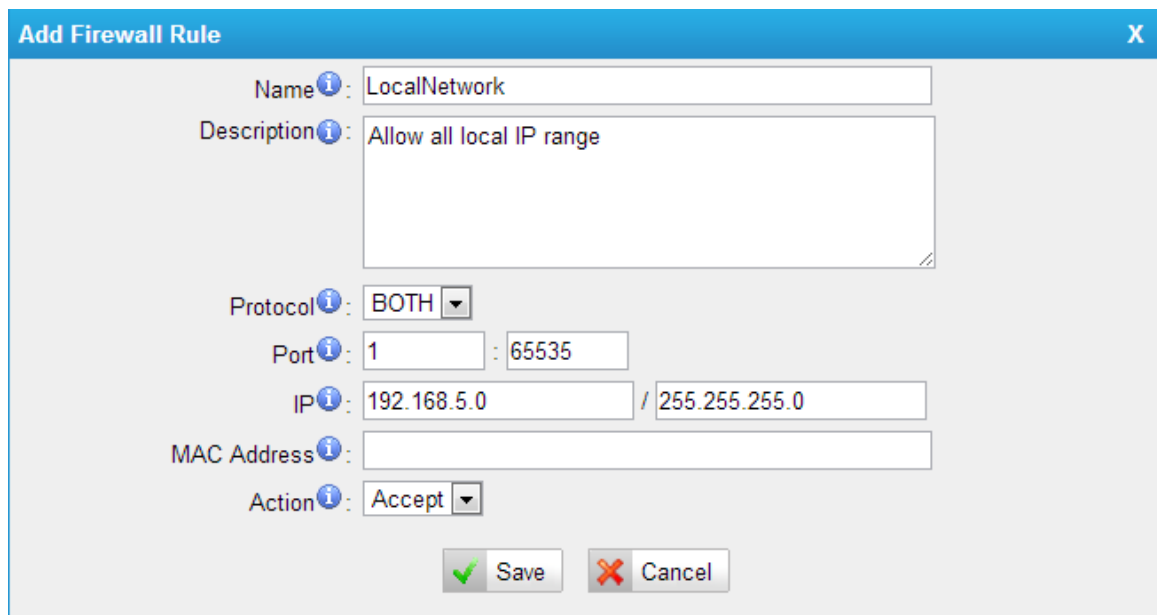


Figure 2-2

Step3. Add common rules to allow remote administrators, extensions or devices.

For example the public IP is 110.30.25.152; we can allow all ports for this trusted IP.

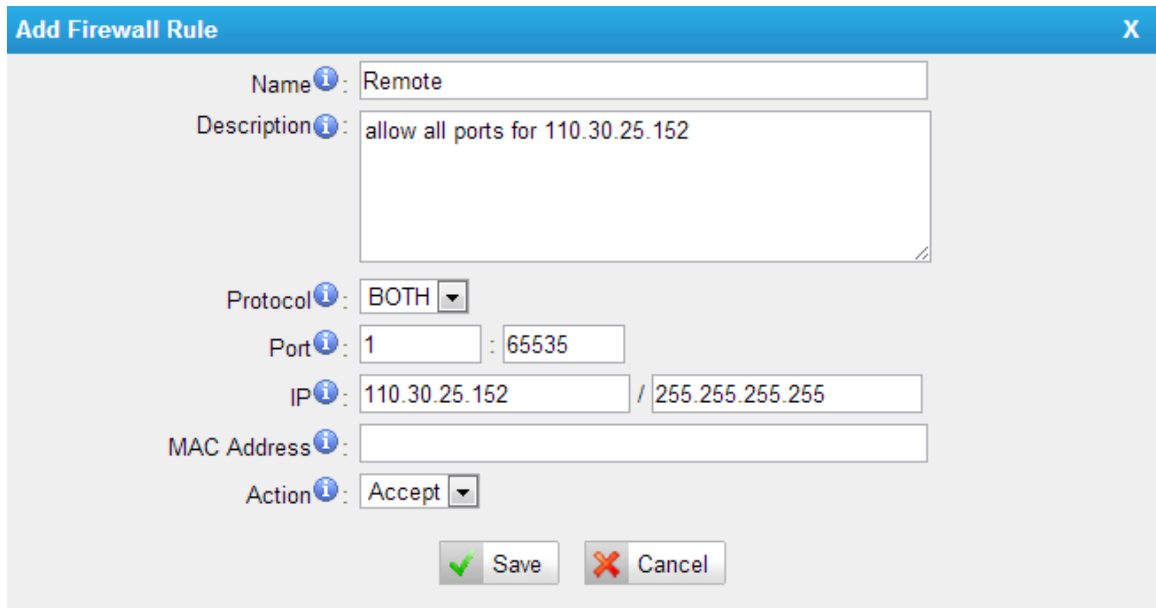
Name: Remote

Protocol: BOTH

Port: 1:65535

IP: 110.30.25.152/255.255.255.255

Action: Accept



The screenshot shows a window titled "Add Firewall Rule" with a close button "X" in the top right corner. The window contains the following fields and values:

- Name: Remote
- Description: allow all ports for 110.30.25.152
- Protocol: BOTH
- Port: 1 : 65535
- IP: 110.30.25.152 / 255.255.255.255
- MAC Address: (empty)
- Action: Accept

At the bottom of the window, there are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 2-3

Note: Static public IP range needs to be configured here, if it's dynamic IP address that doesn't belong to a range, there is no need to configure it, but the "Drop All" in the next step should not be ticked. The IP blacklist rules will help to protect MyPBX. We recommend getting public static IP for security purpose.

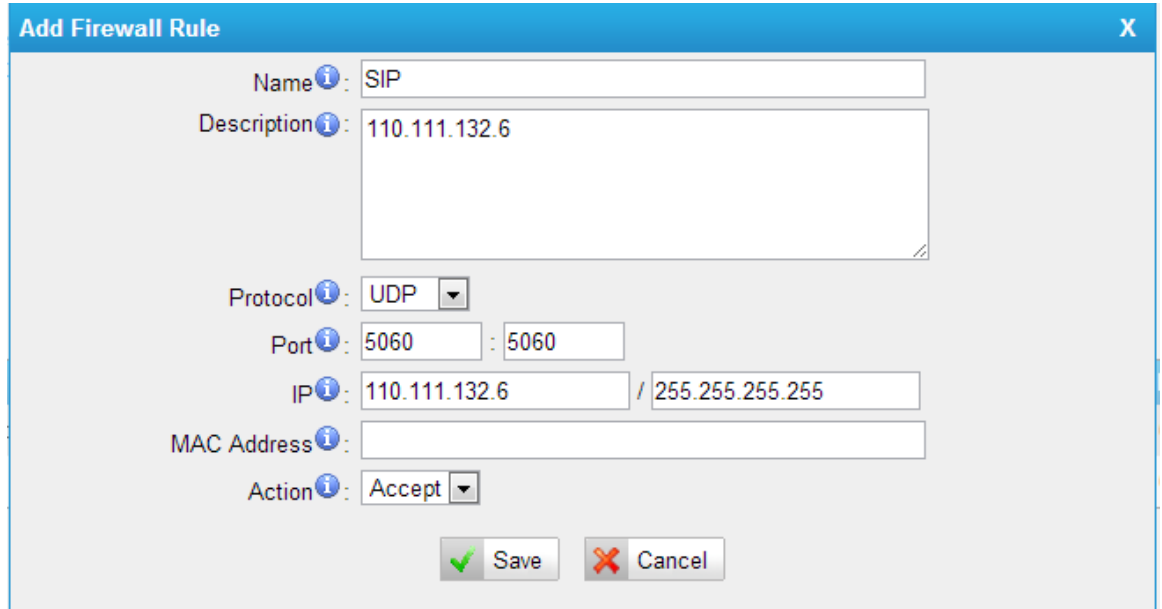
Step4. Add common rules to accept the static public IP range of VoIP provider.

The ports used to contact the SIP provider is 5060 and 10000-12000 by default, if you have changed this port range, you can input it here by yourself.

For example, the IP address is 110.111.132.6, the configurations should be two parts, one is for 5060, and the second is for RTP port: 10000-12000.

Allow registry port: 5060.

Name: SIP
Protocol: UDP
Port: 5060:5060
IP: 110.111.132.6/255.255.255.255
Action: Accept



The screenshot shows a dialog box titled "Add Firewall Rule" with a close button "X" in the top right corner. The dialog contains the following fields and values:

- Name: SIP
- Description: 110.111.132.6
- Protocol: UDP
- Port: 5060 : 5060
- IP: 110.111.132.6 / 255.255.255.255
- MAC Address: (empty)
- Action: Accept

At the bottom of the dialog are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 2-4

Allow RTP port range:

Name: RTP
Protocol: UDP
Port: 10000:12000
IP: 110.111.132.6/255.255.255.255
Action: Accept

Add Firewall Rule [X]

Name ⓘ: RTP

Description ⓘ: 110.111.132.6

Protocol ⓘ: UDP

Port ⓘ: 10000 : 12000

IP ⓘ: 110.111.132.6 / 255.255.255.255

MAC Address ⓘ:

Action ⓘ: Accept

[Save] [Cancel]

Figure 2-5

Note: If the media server of SIP provider is dynamic, and we cannot collect the IP range. We can allow the RTP range for the whole IP addresses like this:

Name: RTP_ALL
Protocol: UDP
Port: 10000:12000
IP: 0.0.0.0/0.0.0.0
Action: Accept

Add Firewall Rule [X]

Name ⓘ: RTP_ALL

Description ⓘ: allow all RTP packages

Protocol ⓘ: UDP

Port ⓘ: 10000 : 12000

IP ⓘ: 0.0.0.0 / 0.0.0.0

MAC Address ⓘ:

Action ⓘ: Accept

[Save] [Cancel]

Figure 2-6

In this case, MyPBX can get rid of one-way volume issue.

Step5. Add common rules to accept the static public IP range of NTP, SMTP, and POP server.

We recommend opening all ports for NTP, SMTP, and POP server in MyPBX's firewall, and the IP address should be a static one or it belongs to a range. If it's DynDNS, there is no need to configure this rule, but the IP blacklist should be kept, and "Drop All" should not be ticked.

For example, the SMTP server is 110.30.1.123.

Name: Allow_SMTTP

Protocol: BOTH

Port: 1:65535

IP: 110.30.1.123/255.255.255.255

Action: Accept

The screenshot shows a dialog box titled "Add Firewall Rule" with a close button (X) in the top right corner. The form contains the following fields and values:

- Name:** Allow_SMTTP
- Description:** all smtp packages
- Protocol:** BOTH (dropdown menu)
- Port:** 1 : 65535
- IP:** 110.30.1.123 / 255.255.255.255
- MAC Address:** (empty text box)
- Action:** Accept (dropdown menu)

At the bottom of the dialog, there are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 2-7

As for the rule of NTP and POP server, you can create it one by one.

Step6. Configure auto blacklist rules

Auto blacklist rules: the Server would add the IP address to the blacklist automatically if the number of the packets it sends exceeds the rule you configured.

Note: These 3 rules are created by MyPBX by default.

1) Add two auto blacklist rules for port: 5060.

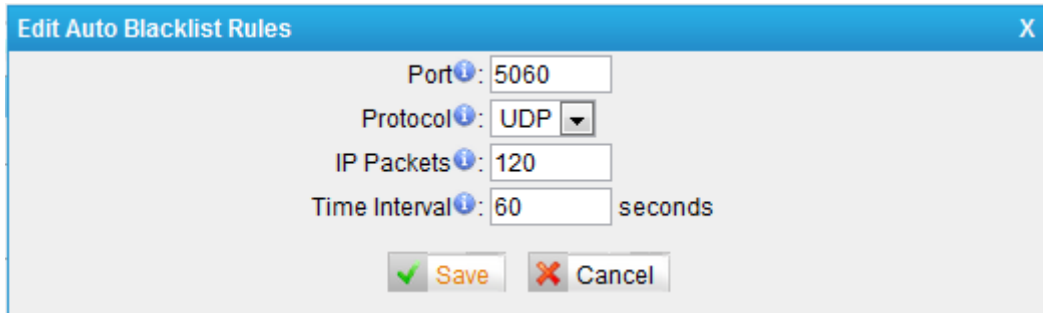
Rule No.1:

Port: 5060

Protocol: UDP

IP Packets: 120

Time Interval: 60 seconds



The screenshot shows a dialog box titled "Edit Auto Blacklist Rules" with a close button (X) in the top right corner. The dialog contains four input fields: "Port" with the value "5060", "Protocol" with a dropdown menu set to "UDP", "IP Packets" with the value "120", and "Time Interval" with the value "60" and the unit "seconds" to its right. At the bottom of the dialog are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 2-8

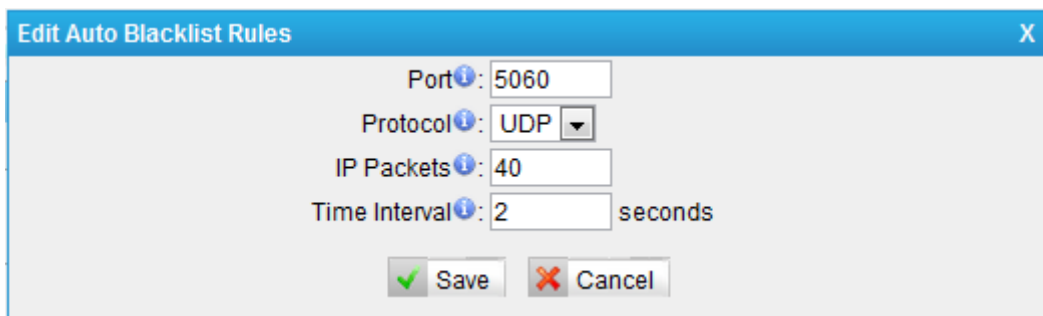
Rule No.2:

Port: 5060

Protocol: UDP

IP Packets: 40

Time Interval: 2 seconds



The screenshot shows a dialog box titled "Edit Auto Blacklist Rules" with a close button (X) in the top right corner. The dialog contains four input fields: "Port" with the value "5060", "Protocol" with a dropdown menu set to "UDP", "IP Packets" with the value "40", and "Time Interval" with the value "2" and the unit "seconds" to its right. At the bottom of the dialog are two buttons: "Save" (with a green checkmark icon) and "Cancel" (with a red X icon).

Figure 2-9

2) Add an auto blacklist rule for Port:8022

Rule No.3

Port: 8022

Protocol: TCP

IP Packets: 5

Time Interval: 60 seconds

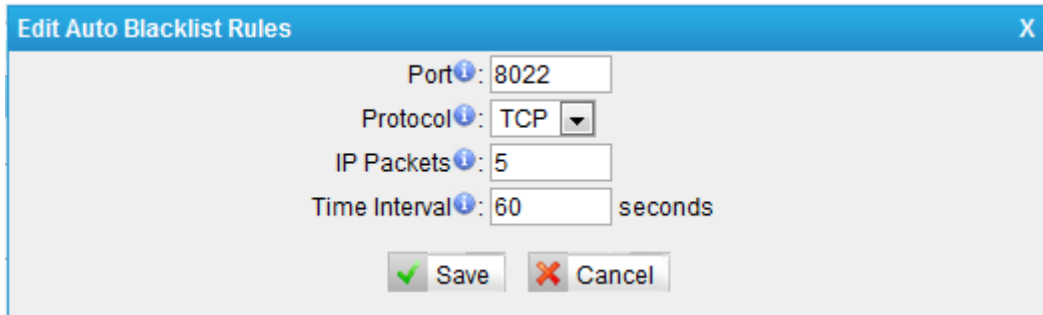


Figure 2-10

Step 7. Enable “Drop all” (If this feature is enabled, all the packets and connection that do not match the rules would be dropped.)

Warning: Before enabling this feature, please create a rule to accept the local network access, or the server might not be accessed.

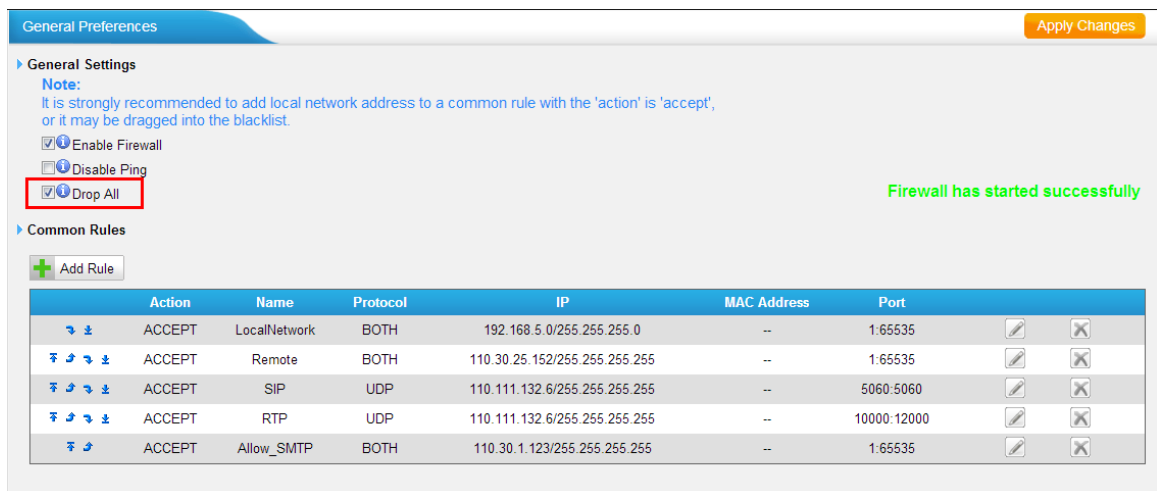


Figure 2-11

Note:

1. After enabling “Drop All”, the rules of auto defense and IP blacklist will not take effect. It means except the IPs and packets which are defined in the accept rules, the other connection or packets will be dropped.
2. If “Drop All” is not enabled, please don’t remove the IP blacklist rules in case

the system security hole exists.

Step 8. The configuration of firewall settings is completed. See the figure below.

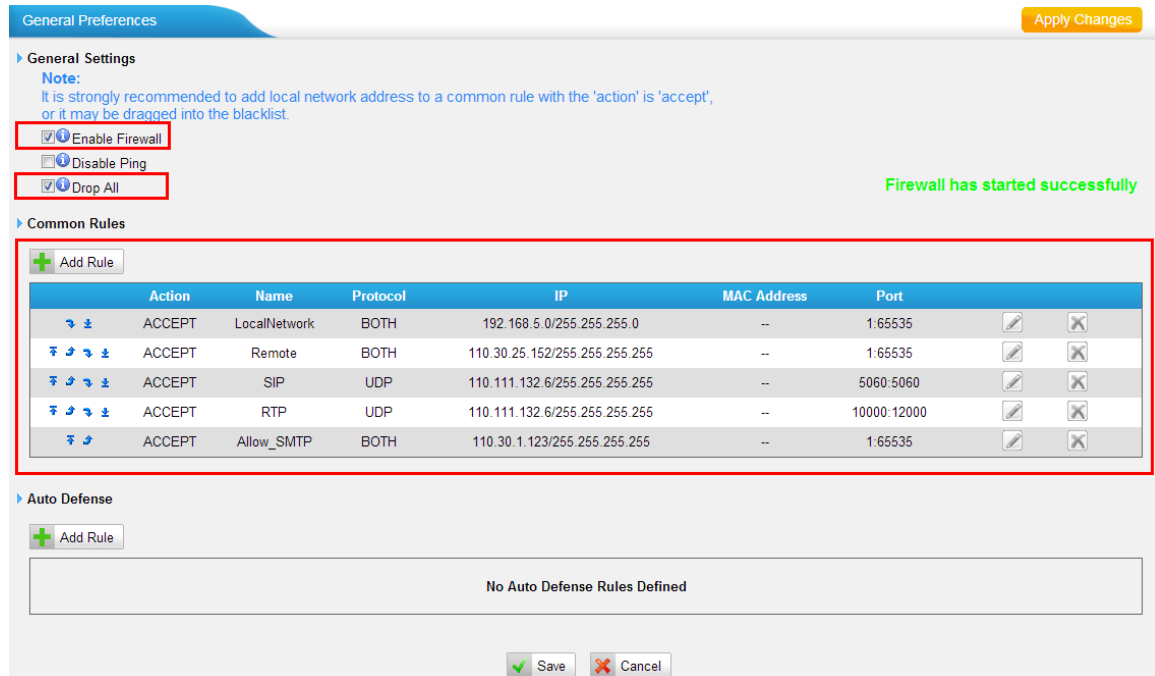


Figure 2-12

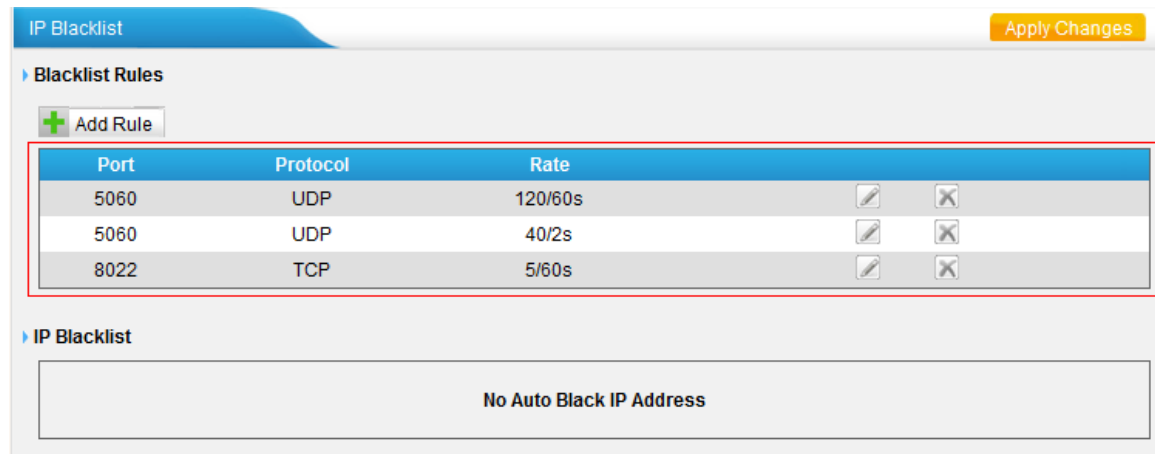


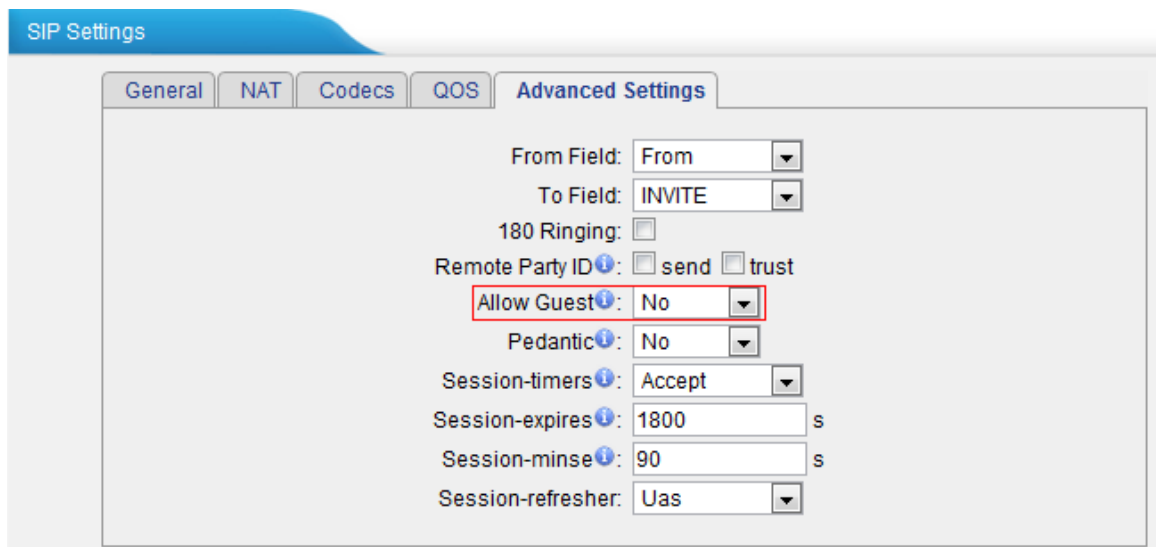
Figure 2-13

3. Service security

3.1 Disable Guest Call

3.2 Disable Guest calls

PBX→Basic Settings→SIP Settings→Advanced Settings→Allow Guest



The screenshot shows the 'SIP Settings' interface with the 'Advanced Settings' tab selected. The 'Allow Guest' dropdown menu is highlighted with a red box and is set to 'No'. Other settings visible include 'From Field' (From), 'To Field' (INVITE), '180 Ringing' (unchecked), 'Remote Party ID' (send and trust unchecked), 'Pedantic' (No), 'Session-timers' (Accept), 'Session-expires' (1800 s), 'Session-minse' (90 s), and 'Session-refresher' (Uas).

Figure 3-1

Note: Allow Guest is disabled by default; please keep it to “No” for general use.

3.2 SSH access enhancement

3.2.1 Disable SSH

Select LAN Settings→Enable SSH. If external debugging isn't required, please select “No”.

LAN Settings

DHCP: No

Enable SSH: No Port: 8022

Hostname: MyPBX

IP Address: 192.168.4.142

Subnet Mask: 255.255.254.0

Gateway: 192.168.5.1

Primary DNS: 192.168.5.1

Secondary DNS:

IP Address2:

Subnet Mask2:

Figure 3-2

Note: SSH access is disabled by default; please keep it to “No” if not needed.

3.2.2 Change the default password for SSH

We can use the Linux command `passwd` to change the root password of MyPBX.

1. Log in via putty.exe.

PuTTY Configuration

Category:

- Session
 - Logging
- Terminal
 - Keyboard
 - Bell
 - Features
- Window
 - Appearance
 - Behaviour
 - Translation
 - Selection
 - Colours
- Connection
 - Data
 - Proxy
 - Telnet
 - Rlogin
 - SSH
 - Serial

Basic options for your PuTTY session

Specify the destination you want to connect to

Host Name (or IP address)	Port
192.168.4.142	8022

Connection type:

Raw Telnet Rlogin SSH Serial

Load, save or delete a stored session

Saved Sessions

Default Settings

Load Save Delete

Close window on exit:

Always Never Only on clean exit

About Open Cancel

Figure 3-3

2. The default username is `root` and the default password is `ys123456`.

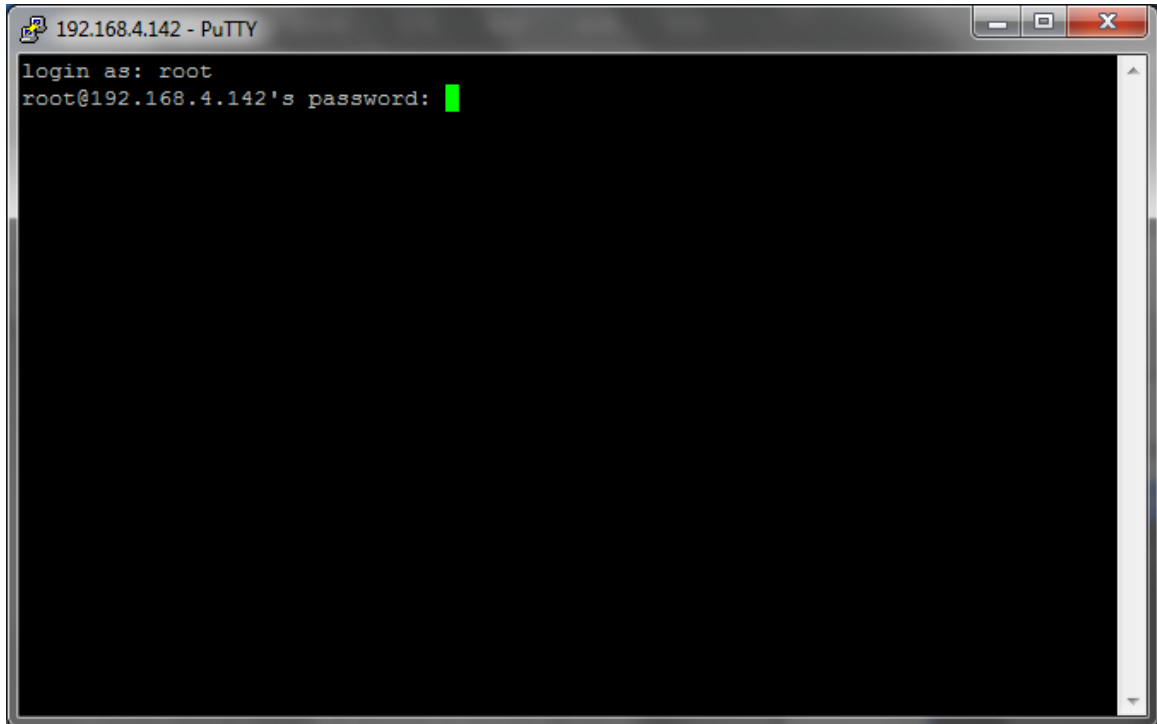


Figure 3-4

3. Use command `passwd` to change the root's password

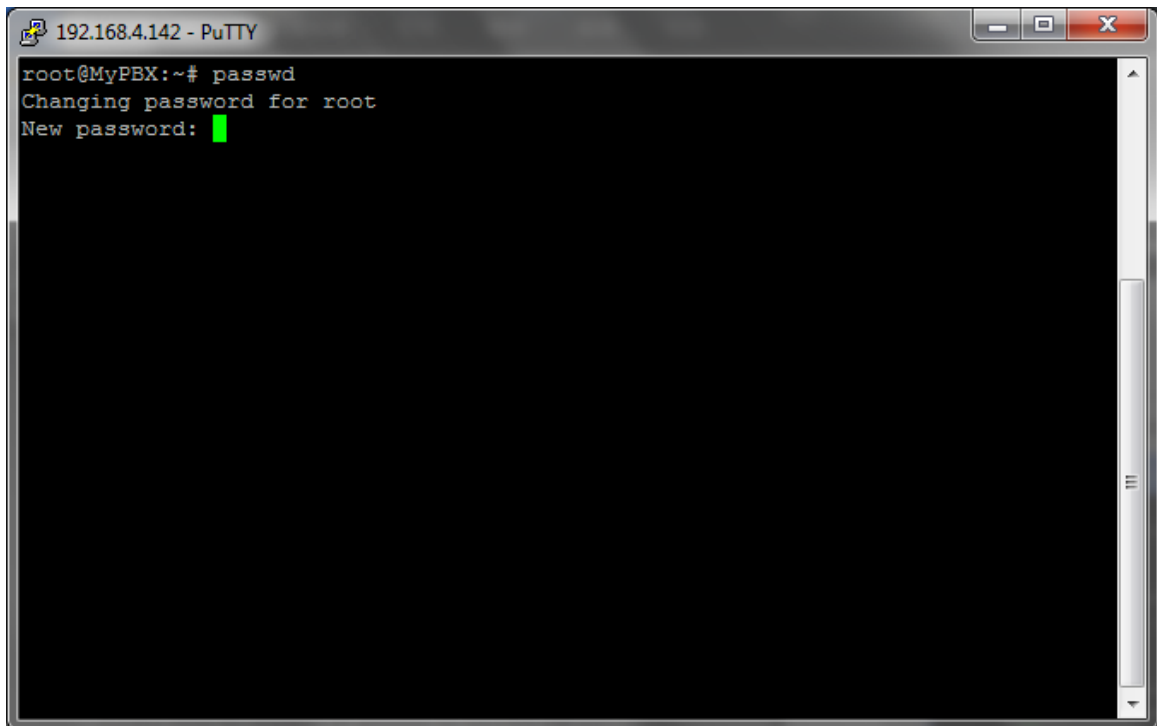


Figure 3-5

You need to input the new password twice to take effect.

3.3 AMI settings*

The Asterisk Manager Interface (AMI) allows a client program to connect to an Asterisk instance and issue commands or read events over a TCP/IP stream. Integrators will find this particularly useful when trying to track the state of a telephony client inside Asterisk, and directing that client based on custom (and possibly dynamic) rules.

For more information, you can refer to this page:

<http://www.voip-info.org/wiki/view/Asterisk+manager+API>

Note: this feature is disabled by default; there is no need to enable it for general use. If it's enabled, please change account and configure IP restriction.

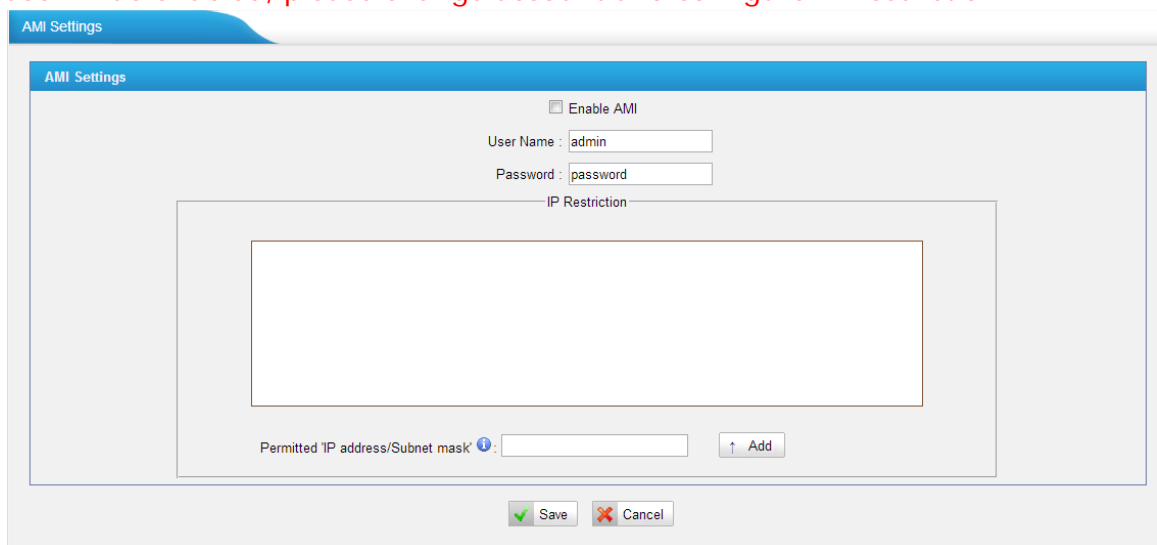


Figure 3-6

To manage the accounts to access AMI, we can configure it in AMI page directly. Click System→System Preferences→AMI Settings.

For example, the AMI account I want is:

User name: Developer

Password: Developer

The only IP address that's allowed to log in is 192.168.1.71.

We can configure it like this:

AMI Settings

Enable AMI

User Name :

Password :

IP Restriction

Permitted 'IP address/Subnet mask' : 192.168.1.71/255.255.255.255

Permitted 'IP address/Subnet mask' : 192.168.1.71/255.255.255.255

Figure 3-7

Save it and apply the changes.

To confirm more details, please try command "cat /etc/asterisk/manager.conf"

```

192.168.4.142 - PuTTY
root@MyPBX:~# passwd
Changing password for root
New password:
login as: root
root@192.168.4.142's password:
root@MyPBX:~# cat /etc/asterisk/manager.conf
[general]
enabled = yes
webenabled = no
port = 5038
bindaddr = 0.0.0.0

[Developer]
secret = Developer
read = system,call,log,verbose,command,agent,user,config,originate,cdr
write = system,call,log,verbose,command,agent,user,config,originate
deny = 0.0.0.0/0.0.0.0
permit = 127.0.0.1/255.255.255.255
permit = 192.168.1.71/255.255.255.255
root@MyPBX:~#

```

Figure 3-8

3.4 TFTP*

MyPBX can work as a TFTP server when using "phone provisioning", and this feature is enabled by default. If all the phones are well provisioned, you can disable this access to protect the configuration files of MyPBX.

Click "System→Security Center→Service" to disable it directly.

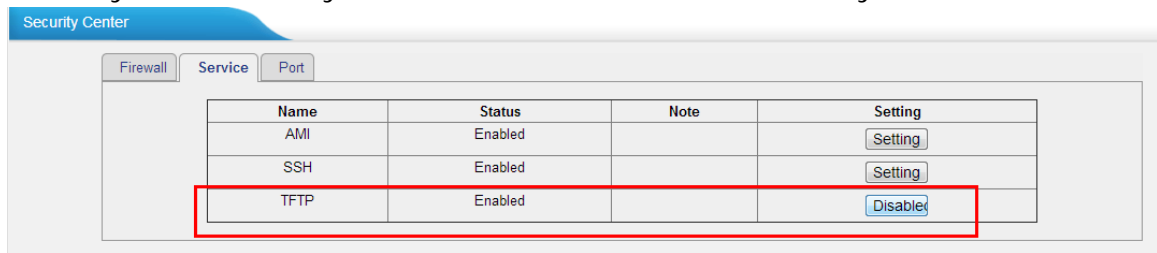


Figure 3-9

3.5 Database Grant*

MyPBX has integrated MySQL since x.18.0.xx, which provides convenience for users to manage the CDR and the Recording log. To protect the database access, we need to set up user name and password separately before login.

There is no account configured by default, if you need to connect the database using third party software, you need to set up this first.

For example, username: Harry, password: Harry123

Add [X]

User Name:

Password:

Database: CDR Record

Figure 3-10

Save it and apply the changes.

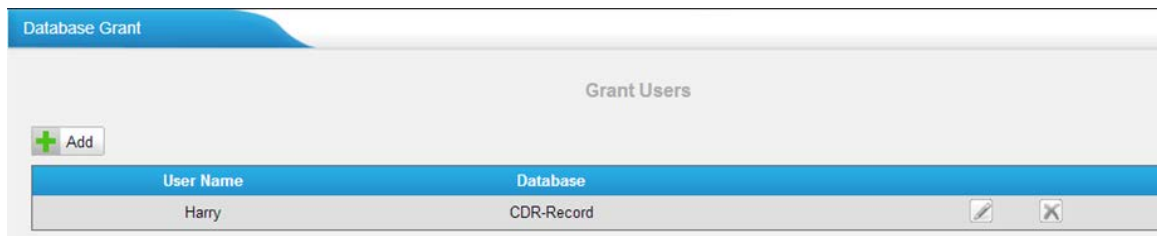


Figure 3-11

When logging in using other software, we can check the CDR.

AccId	datetime	clid	src	dst	dcontext	srctrunk	dsttrunk	lastapp
(NULL)	2013-08-28 22:23:16	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:24:28	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:24:40	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:26:38	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:26:45	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:28:01	"501" <501>	501	302	DD_inbound_trunk-sps-192.168.4.141	192.168.4.141		Dial
(NULL)	2013-08-28 22:28:24	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Hangup
(NULL)	2013-08-28 22:28:58	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Hangup
(NULL)	2013-08-28 22:29:56	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:30:05	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:31:31	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:36:56	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Playbac
(NULL)	2013-08-28 22:37:02	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Playbac
(NULL)	2013-08-28 22:38:06	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Playbac
(NULL)	2013-08-28 22:38:16	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Playbac
(NULL)	2013-08-28 22:38:31	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Playbac
(NULL)	2013-08-28 22:39:01	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Dial
(NULL)	2013-08-28 22:39:24	"302" <302>	302	9505	DLFN_DialPlan302		192.168.4.141	Playbac
(NULL)	2013-08-28 22:40:35	"302" <302>	302	9501	DLFN_DialPlan302		192.168.4.141	Dial

Figure 3-12

3.6 Alert settings

After enabling alert settings, if the device is attacked, the system will notify users the alert via call or e-mail. The attack modes include IP attack and Web Login.

3.6.1 IPATTACK

When the system is attacked by some IP addresses, the firewall will add the IP to auto IP Blacklist and notify the user if it match the protection rule.

Example: Configure to notify extension 500, outbound number 5503301 and E-mail alert@yeastar.com.

configuration could be as below.

Phone Notification Settings:

Phone Notification: Yes

Number: 500;5503301

Attempts: 1

Interval: 60s

Prompt: default

Note: If there's an outbound number to notify, the number should fit the dial pattern of the outbound route.

E-mail Notification Settings:

E-mail Notification: Yes

To: alert@yeastar.com

Subject: IPAttack

The screenshot shows a configuration window titled "IPATTACK" with two main sections: "Phone Notification Settings" and "E-mail Notification Settings".

Phone Notification Settings:

- Phone Notification: Yes (dropdown)
- Number: 500;5503301 (text input)
- Attempts: 1 (dropdown)
- Interval: 60 s (text input)
- Prompt: default (dropdown) with a link to "Custom Prompts"

E-mail Notification Settings:

- E-mail Notification: Yes (dropdown)
- To: alert@yeastar.com (text input)
- Subject: IPAttack (text input)
- Preview text area:


```
pbx hostname:$(HOSTNAME)
attack source ip address:$(SOURCEIP)
attack dest mac:$(DESTMAC)
attack source port:$(DESTPORT)
attack source protocol:$(PROTOCOL)
attack occurred:$(DATETIME)
```

At the bottom of the window are "Save" and "Cancel" buttons.

Figure 3-13

3.6.2 WEBLOGIN

Enter the password incorrectly five times when logging in MyPBX Web interface will be deemed as attack, the system will limit the IP login within 10 minutes and notify the user.

Example: Configure to notify extension 500, outbound number 5503301 and E-mail alert@yeastar.com.

configuration could be as below.

Phone Notification Settings:

Phone Notification: Yes

Number: 500;5503301

Attempts: 1

Interval: 60s

Prompt: default

Note: If there's an outbound number to notify, the number should fit the dial pattern of the outbound route.

E-mail Notification Settings:

E-mail Notification: Yes

To: alert@yeastar.com

Subject: WebLogin

The screenshot shows a window titled "WEBLOGIN" with two sections of settings. The "Phone Notification Settings" section includes: "Phone Notification" set to "Yes", "Number" set to "500;5503301", "Attempts" set to "1", "Interval" set to "60" with a unit of "s", and "Prompt" set to "default" with a link to "Custom Prompts". The "E-mail Notification Settings" section includes: "E-mail Notification" set to "Yes", "To" set to "alert@yeastar.com", and "Subject" set to "WebLogin". Below these settings is a text area containing the following variables: "pbx hostname:\${(HOSTNAME)", "login ip address:\${(SOURCEIP)", "login username:\${(USERNAME)", and "login occurred:\${(DATETIME)". At the bottom of the window are "Save" and "Cancel" buttons.

Figure 3-14

4. International call limit

4.1 Limit call credit at provider side

We can ask VoIP/PSTN/ISDN provider for help to limit the credit of international calls in advance, then the hacker cannot dial international calls. Each provider has its own policy. You can also ask provider to disable international call if not needed.

4.2 Set password for international call

MyPBX allows you to configure password for outbound routes. Click "PBX→Outbound Call Control→ Outbound Route".

For example, the password you need is 5503333

Dial pattern: 00. <Don't miss the dot here>

Password: 5503333

Choose the allowed extension and the trunk to the right side like this:

Add Outbound Route X

Route Name ⓘ: international

Dial Pattern ⓘ: 00.

Strip ⓘ: 0 digits from front

Prepend these digits ⓘ: before dialing

Password: 55033333

T.38 Support ⓘ: No

Rmemory Hunt ⓘ: No

Office Hours:

Member Extensions ⓘ

Available Extensions		Selected
302(SIP)	»»	300(SIP)
303(SIP)	→	301(SIP)
304(SIP)	←	
305(SIP)	««	
601(FXS)		
602(FXS)		
6010(SIP)		

Member Trunks ⓘ

Available Trunks		Selected
pstn9(FXO)	»»	International(SIP)
pstn10(FXO)	→	
192.168.4.141(SPS)	←	
Invalid_International(SPS)	««	

Save Cancel

Figure 4-1

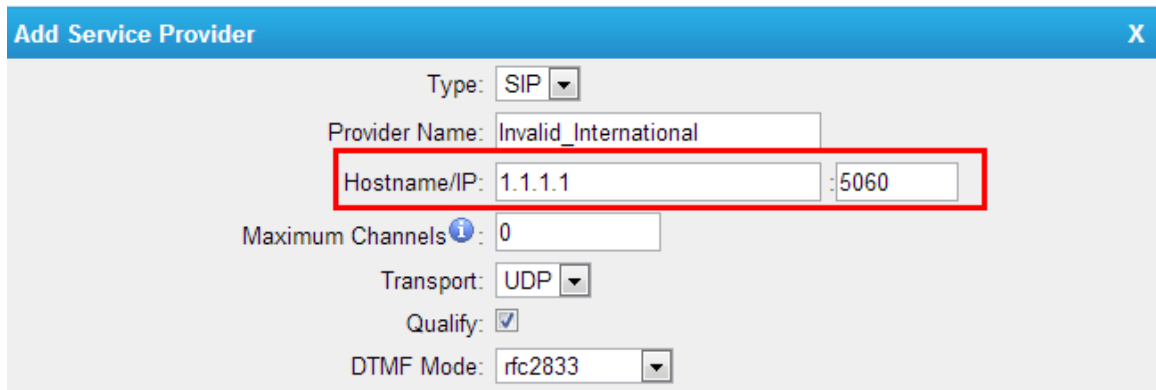
Save and apply the changes, when 300 and 301 pick up headsets and dial a international number, MyPBX will ask for the password, if passed, the call will be dialed out. If not, the call will be dropped.

4.3 Disable international call in MyPBX

We can ask the provider for help to disable international calls in advance, if it's not possible, we can configure the rules in MyPBX side to drop all the international calls. Here are the detailed steps.

Step1. Create an invalid SIP trunk

Create an invalid SIP trunk in "PBX→VoIP trunk→Service Provider". The IP address can be an invalid one, like 1.1.1.1.



The screenshot shows the 'Add Service Provider' configuration window. The 'Type' is set to 'SIP'. The 'Provider Name' is 'Invalid_International'. The 'Hostname/IP' is '1.1.1.1' and the port is ':5060'. The 'Maximum Channels' is '0'. The 'Transport' is 'UDP'. The 'Qualify' checkbox is checked. The 'DTMF Mode' is 'rfc2833'. A red box highlights the 'Hostname/IP' and port fields.

Figure 4-2

Save it and apply the changes. The status of this trunk is unreachable of course. That's what we want.

Step2. Create an outbound route for all extensions and this trunk to route international calls.

Click "PBX→Outbound Call Control→Outbound Route", create a new one:

Name: NoInternational

Dial pattern: 00. <Don't miss that dot here>

Strip: 0

Choose all extensions and that special trunk (Invalid_international) to the right side.

Add Outbound Route

Route Name: NoInternational

Dial Pattern: 00.

Strip: 0 digits from front

Prepend these digits: before dialing

Password:

T.38 Support: No

Rmemory Hunt: No

Office Hours:

Member Extensions

Available Extensions	Selected
	300(SIP)
	301(SIP)
	302(SIP)
	303(SIP)
	304(SIP)
	305(SIP)
	601(FXS)
	602(FXS)

Member Trunks

Available Trunks	Selected
pstn9(FXO)	Invalid_International(SPS)
pstn10(FXO)	
192.168.4.141(SPS)	

Save Cancel

Figure 4-3

Save it and apply the changes. Then click the arrow at the left side to set it to the top.

Route Name	Dial Pattern
NoInternational	00.
sip_out	8.
pstnout	9.

Figure 4-4

In this case, all international call requests will be routed to this invalid trunk. I.e. The call is dropped directly.

APPENDIX C How to Configure External

Storage

Before External storage can be properly configured, an SMB share folder accessible from MyPBX must be set up on a Windows based machine. Once that has been set up, please follow the steps below.

Step 1 Add a new folder, rename it, and set this new folder's share Properties according to Figure C-1.

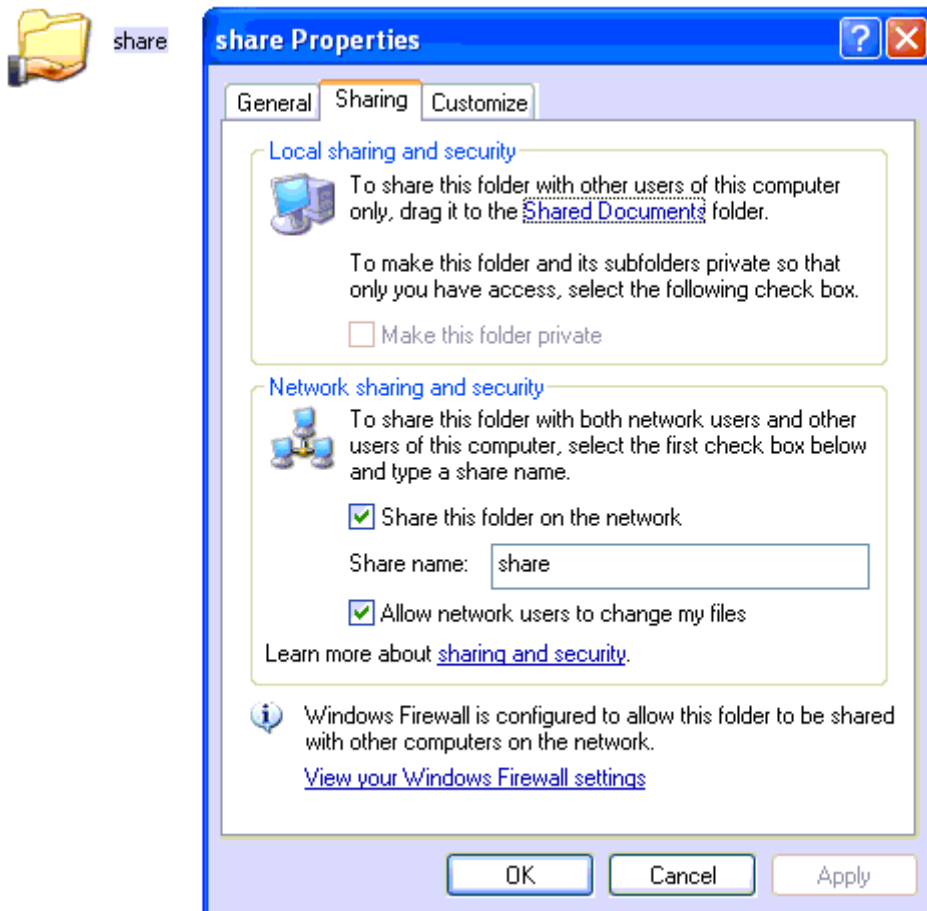


Figure C-1 Set up share Properties

Step 2 Enter the new folder and create a new text file, then rename this file to status.txt. This step is very important, DO NOT forget to create the status.txt file.

Step 3 Configure External storage settings on MyPBX to Figure C-2.

The External Storage feature is used to extend storage space. Once configured, the files (voicemail, call recording files) created before the configured days will be moved to the Net-Disk.

Step 1 Step 2 Step 3

Step 2: Input the Net-Disk properties

Net-Disk Host/IP:

Net-Disk Share Name:

Net-Disk Access User Name:

Net-Disk Access Password:

Move files created before: 5 days ago

Save Cancel

FigureC-2 External storage Setting

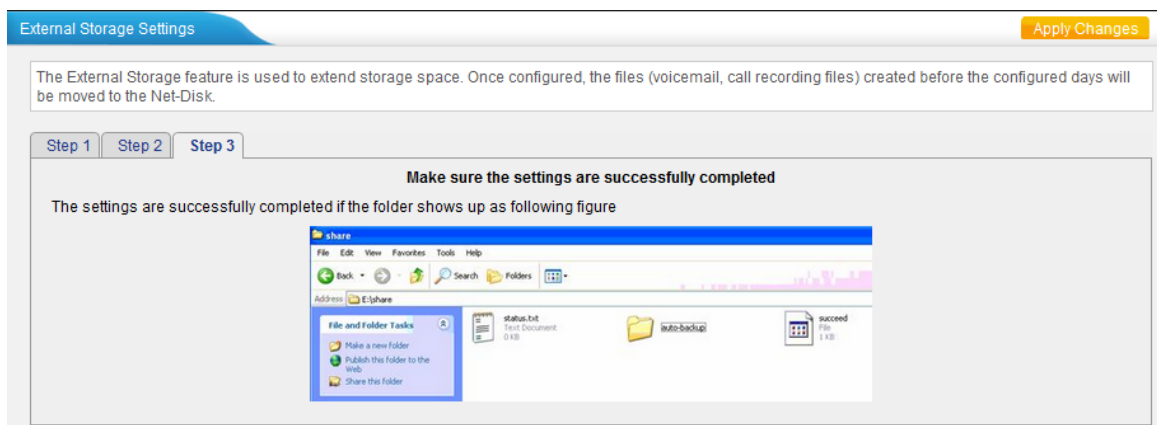
Net-Disk Host/IP: Change this to the IP address of the computer where backup files will be stored.

Net-Disk Share Name: Change this to the name of the shared folder where backups will be stored.

Net-Disk Share Username: The user name used to log into the network share. Leave this blank if it is not required

Net-Disk Share Password: The password used to log into the network share. Leave this blank if it is not required

Open your Windows share folder to see if the MyPBX backup files and folders has been created. If the contents of the backup folder look similar to Figure C-3, then you have successfully configured External storage on the MyPBX unit.



FigureC-3 External storage setting succeed

APPENDIX D How to Configure NAT

Setting

When MyPBX is behind a NAT (firewall), you need to configure NAT setting on MyPBX if you want to use a remote extension.

Please follow section 1 or 2 below depending on your network configuration.

1. If MyPBX is connected to a local network, you must set up port forwarding on your router. Specifically, you must map port 5060 (default SIP port) and port 10001-10200 (default RTP port range) as UDP ports.

Next, log in MyPBX Web GUI, go to "PBX"->"Advanced Settings" ->"SIP Settings"->"NAT"

External IP Address: your router's public IP address

External Host: your router's domain

External Refresh Interval: 20 seconds

Local Network Identification: 192.168.5.0/255.255.255.0 (change this according to your network configuration)

NAT mode: Yes

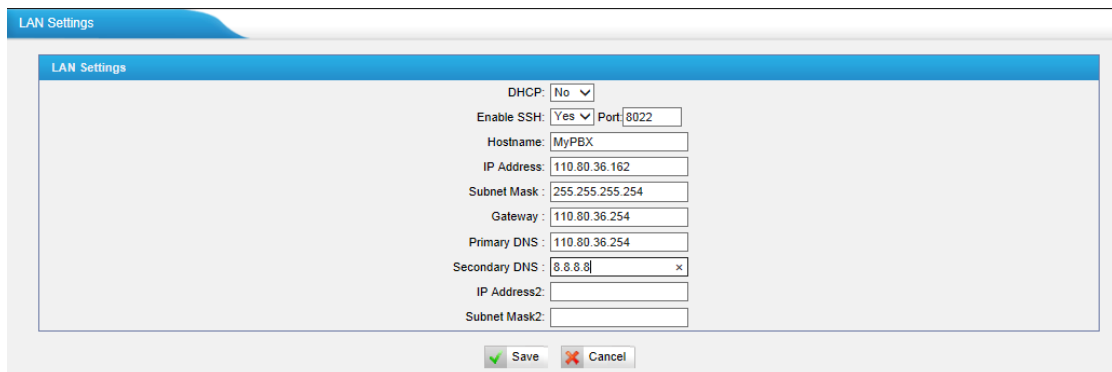
Allow RTP Reinvite: Yes

Figure D-1 NAT Setting

Assuming that your router's host address is yeastar.3322.org, your local network is from 192.168.5.1-192.168.5.254, and the subnet Mask is 255.255.255.0, the MyPBX network settings should be configured like Figure D-2.

Figure D-2 MyPBX Network setting-private IP

2. If MyPBX has a public IP (i.e. is connected directly to your Internet service provider), the network settings should be configured according to Figure D-3:



The screenshot shows the 'LAN Settings' configuration page. The settings are as follows:

Field	Value
DHCP	No
Enable SSH	Yes
Port	8022
Hostname	MyPBX
IP Address	110.80.36.162
Subnet Mask	255.255.255.254
Gateway	110.80.36.254
Primary DNS	110.80.36.254
Secondary DNS	8.8.8.8
IP Address2	
Subnet Mask2	

Buttons: Save, Cancel

Figure D-3 MyPBX Network setting-public IP

Now, MyPBX has been configured as a public IP, so there is no need to configure NAT again, just leave all settings in "NAT" blank.

APPENDIX E How to Use Auto Provision

Step1. Disable DHCP Server on your local network.

E.g. Disable DHCP Server on Linksys Router.

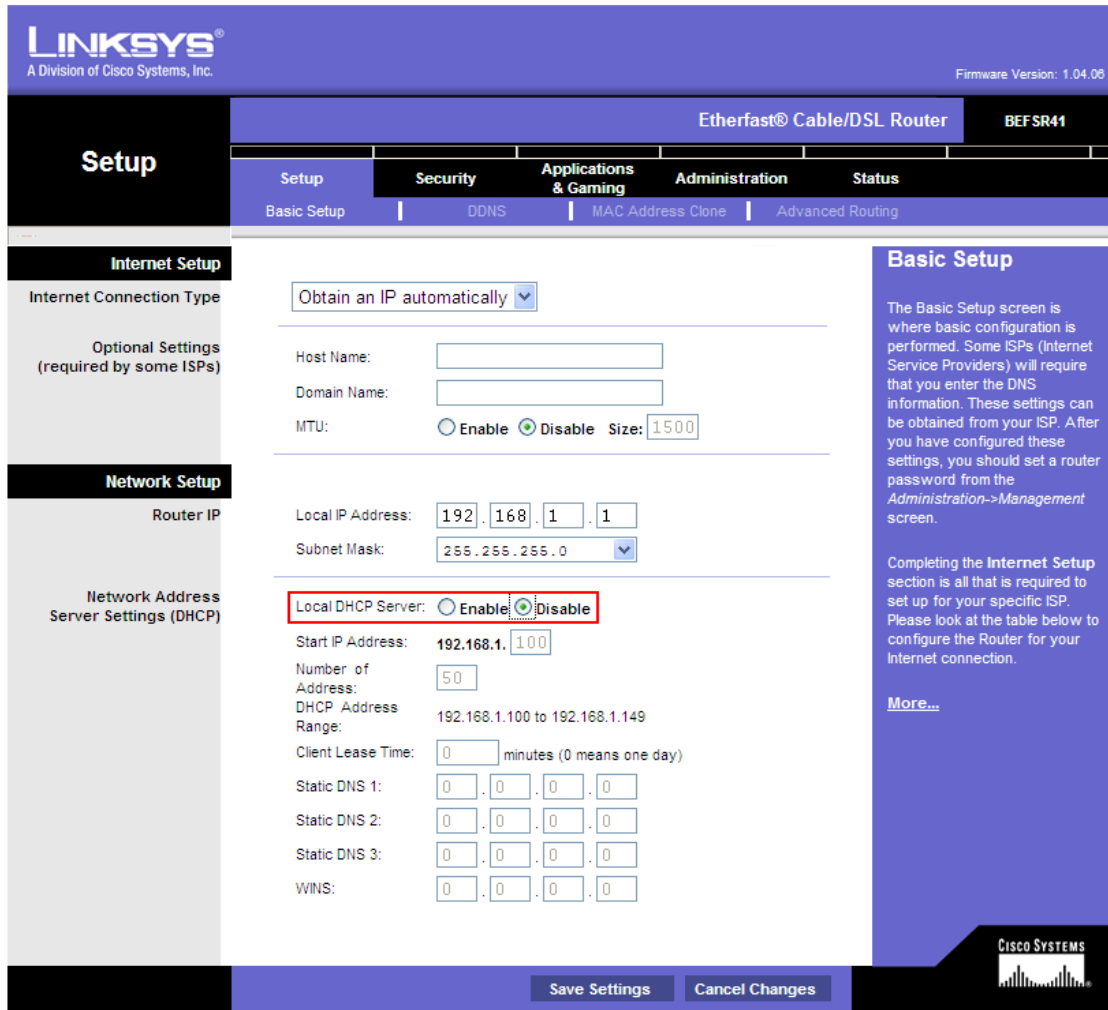


Figure E-1 Disable DHCP on router

Step2. Enable DHCP Server on MyPBX.

Login MyPBX web interface, "System"→"Network Preference" ->"DHCP Server"→"Enable DHCP Server".

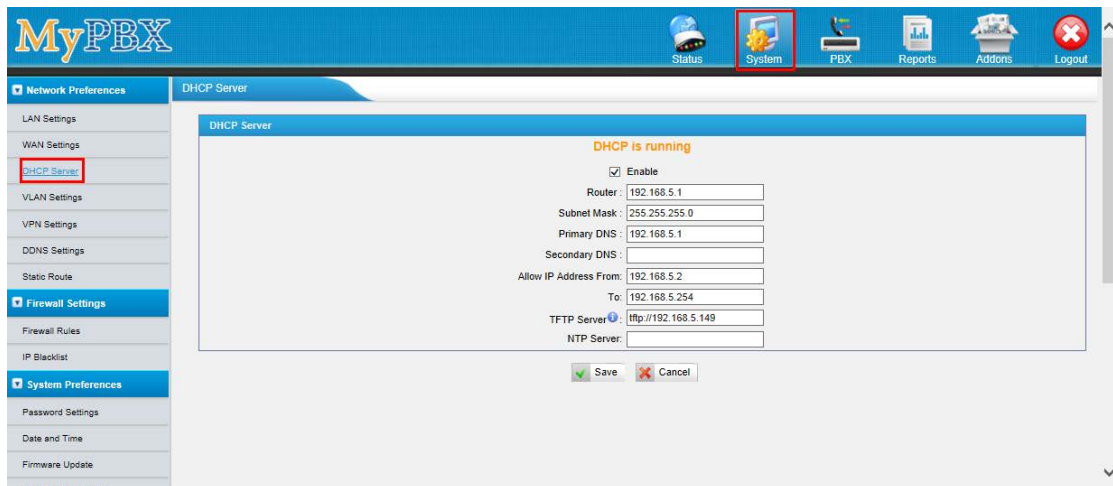


Figure E-2 Enable DHCP server on MyPBX

Step3. Configure phones on MyPBX auto-provision page.

1. Login MyPBX web interface, "PBX" ->"Extensions" ->"Phone Provisioning" ->"Add Phone".

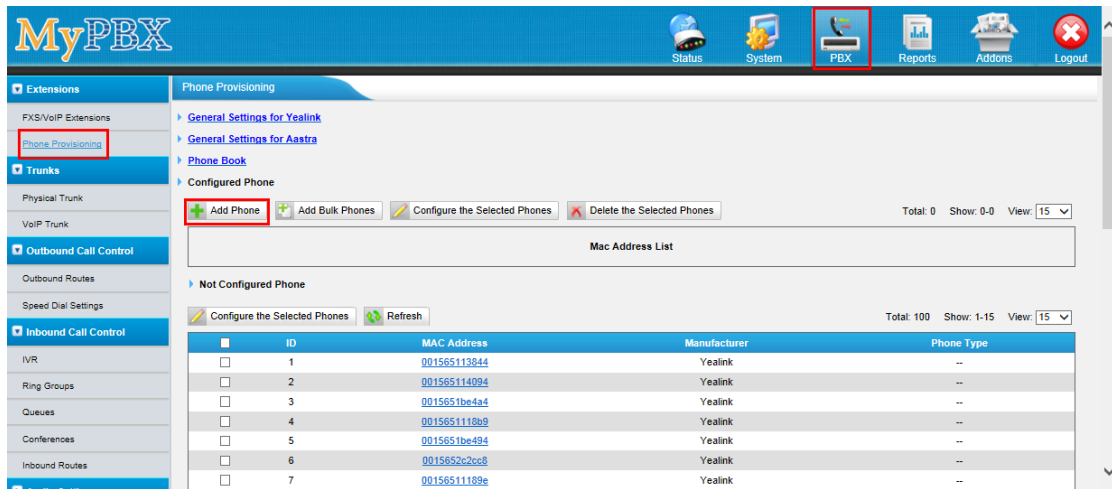


Figure E-3 Add a phone

2. Fill in the phone detail message on the pop-up windows.

Input IP Phone's MAC address; configure Name, Call waiting, Line, Extension, Label, Line active for the phone. And also you can configure other features on the phone, like codecs, memory keys etc.

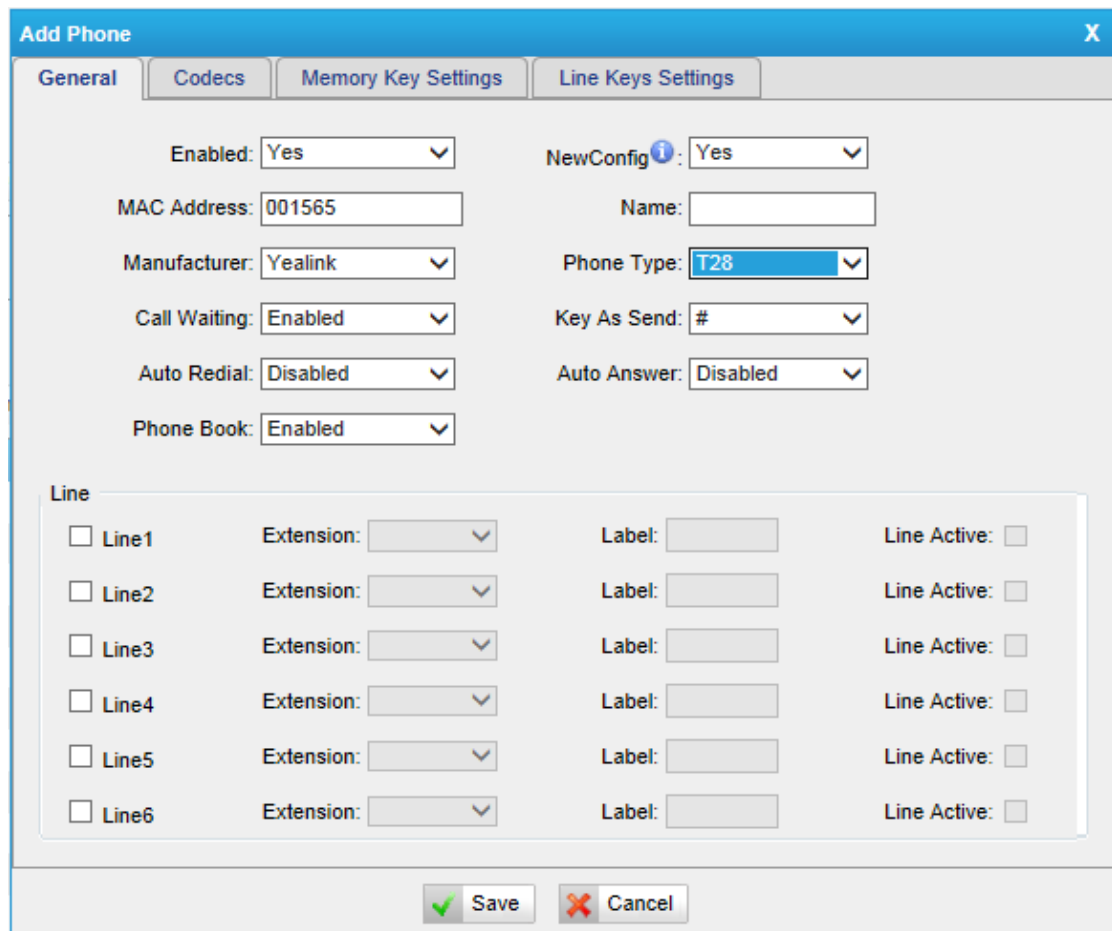


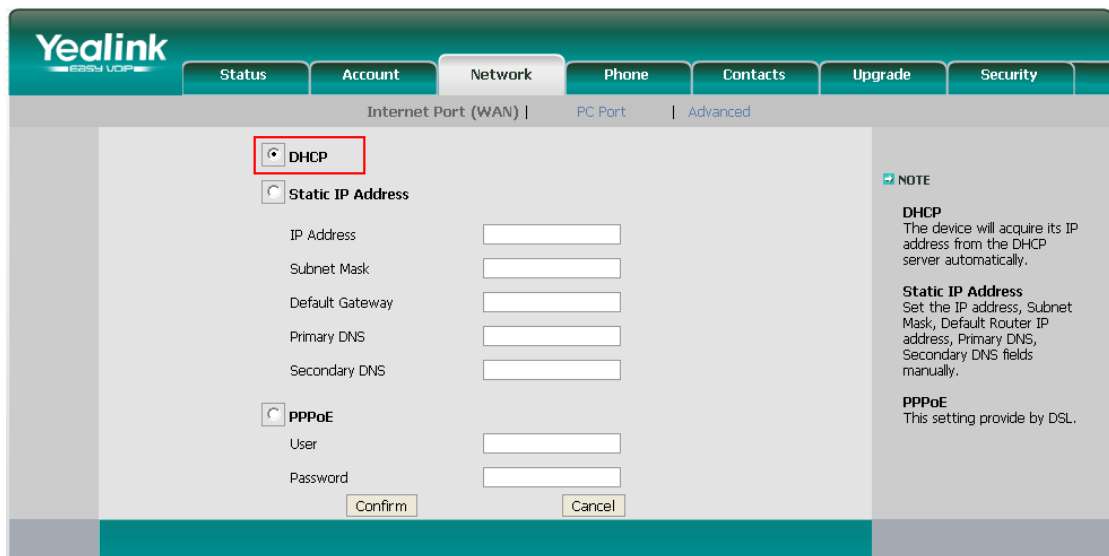
Figure E-4 Yealink T28 phone provisioning setting

Step4. Turn on the power and connect the network cable to IP Phone.

Remark: The factory default setting of DHCP for IP Phone is enabled, so you can skip this step to step 5.

If the DHCP is disabled, please follow the steps below to enable it (e.g. Yealink's IP Phone).

1. Log in IP phone's Web page.
2. Enable DHCP.



The screenshot shows the Yealink web interface with the 'Network' tab selected. The 'DHCP' option is checked and highlighted with a red box. Below it, the 'Static IP Address' section has fields for IP Address, Subnet Mask, Default Gateway, Primary DNS, and Secondary DNS. The 'PPPoE' section has fields for User and Password. A 'Confirm' button and a 'Cancel' button are at the bottom. On the right, a 'NOTE' section explains the DHCP, Static IP Address, and PPPoE settings.

Figure E-5 Enable DHCP on IP phone

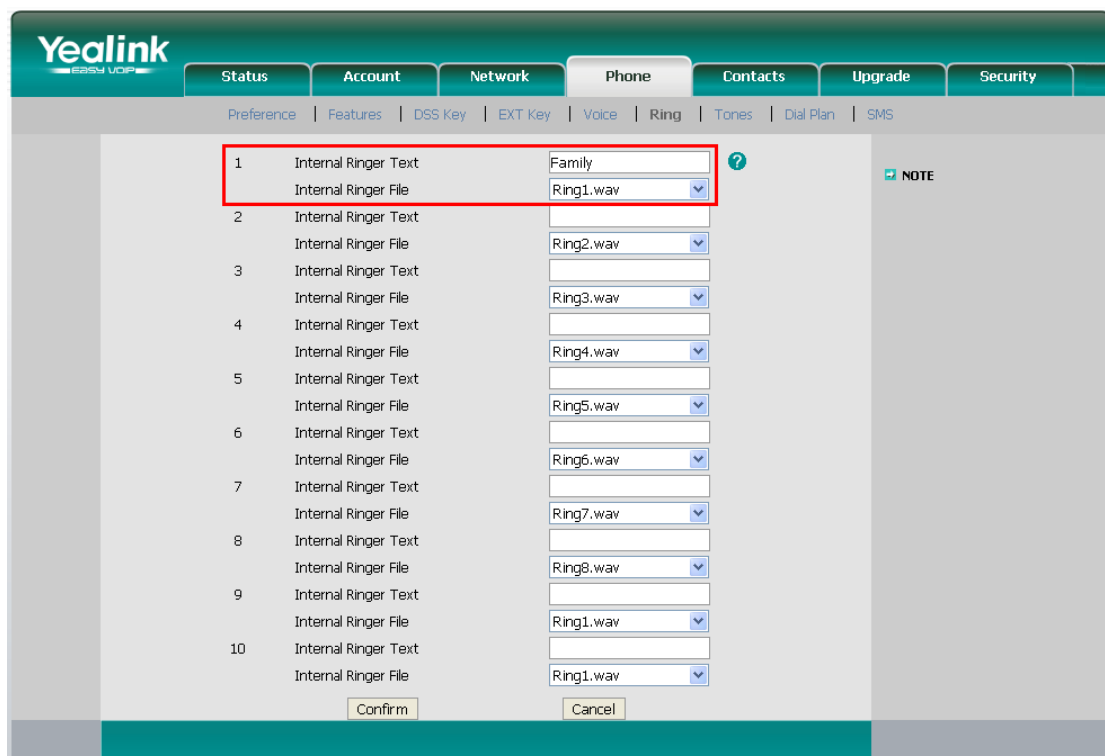
Step5. Finish.

APPENDIX F How Do I Configure Distinctive Ring Tones

Step1: On your IP phone, navigate to the Phone settings Web configuration page and find the Distinctive Ring Tone section.

For each custom ring tone, enter the Internal Ringer Text (can be digits or text) to trigger the ring tone. For example, you may enter "Family".

E.g. Yealink's IP phone.



Index	Internal Ringer Text	Internal Ringer File
1	Family	Ring1.wav
2		Ring2.wav
3		Ring3.wav
4		Ring4.wav
5		Ring5.wav
6		Ring6.wav
7		Ring7.wav
8		Ring8.wav
9		Ring1.wav
10		Ring1.wav

Buttons: Confirm, Cancel

NOTE

Figure F-1 Set ring name on IP phone

Step2. Configure the "Distinctive Ringtone" on MyPBX.

Log in MyPBX Web interface, "PBX" -> "Inbound Call Control" -> "Inbound Routes" -> Edit Inbound Route, fill in the Internal Ringer Text on "Distinctive Ringtone".

Edit Inbound Route: VOIP_IN

General

Route Name *i* : VOIP_IN

DID Number *i* :

Extension *i* :

Caller ID Number *i* :

Distinctive Ringtone *i* : family

Enable Callback : No [Callback Settings](#)

Member Trunks *i*

Available Trunks		Selected
E1Trunk1(E1) 192.168.4.147(SPS)	<input type="button" value="»»"/> <input type="button" value="→"/> <input type="button" value="←"/> <input type="button" value="««"/>	VOIP_Supplier(SIP)

Business Days

Office Hours : default

Office Hours Destination : IVR IVR -- welcome

Non-office Hours Destination : End Call

During Holidays

Holiday :

Destination : End Call

Fax Detection

Destination : No Detect

Figure F-2 Enable "Distinctive Ring" in inbound route

Step3. Finish.

APPENDIX G How to Use Email to SMS

How to use Email to SMS

You need to send an email to the specified email address (set in Email Settings. In this case, it is `lears@yeastar.com`). The content of this email will be sent to the number you want as a message. The subject (title) of the email will determine the number. Here are some examples of the formats to the subject of the email.

Example:

1. Send message with no PIN code and default GSM port.

Format: `phonenumber`

If the subject is "12345678", the text of this email ("Welcome to Yeastar!") will be sent to number "12345678" through the first available GSM trunk (No PIN code should be set by administrator).

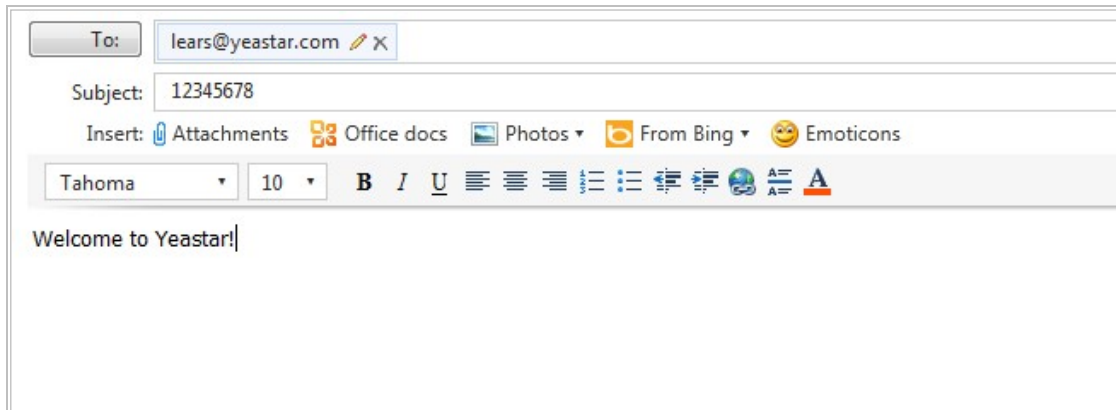


Figure G-1

2. Send message with no PIN code and specified GSM port.

Format: `port:portnumber-phonenumber`

If the subject is "port:9-12345678", the text of this email ("Welcome to Yeastar!") will be sent to the number "12345678" through GSM trunk 9 (No PIN code should be set by administrator).

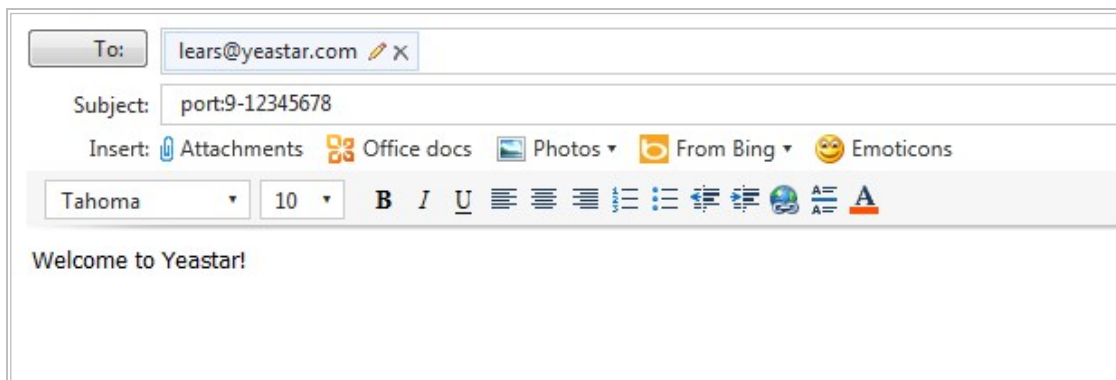


Figure G-2

3. Send message with PIN code and default GSM port.

Format: 500:pincode-number-phonenum

If the subject is "500:987-12345678", the text of this email ("Welcome to Yeastar!") will be sent to number "12345678" through the first available GSM trunk ("987" is the PIN code set by administrator).

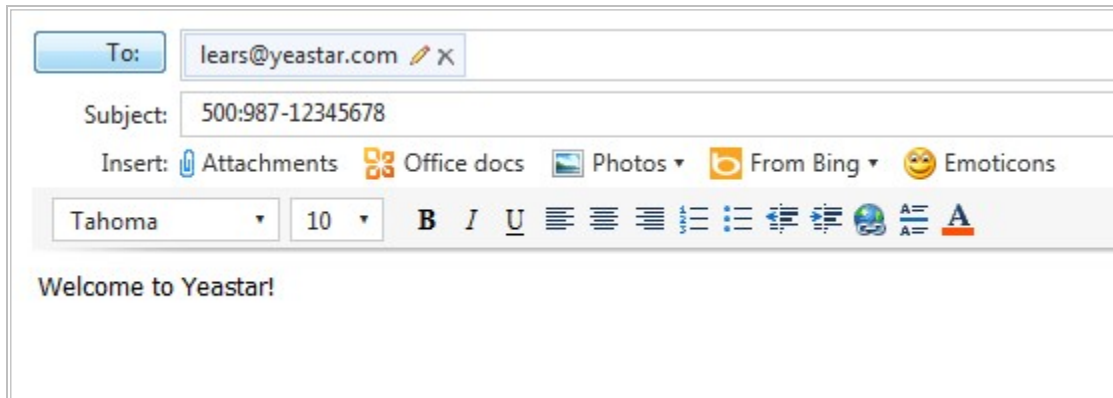


Figure G-3

4. Send message with PIN code and specified GSM port.

Format: 500:pincode-number-port:portnumber-phonenum

If the subject is "500:987-port:9-12345678", the text of this email ("Welcome to Yeastar!") will be sent to number "12345678" through GSM trunk 9 ("987" is the PIN code set by administrator).

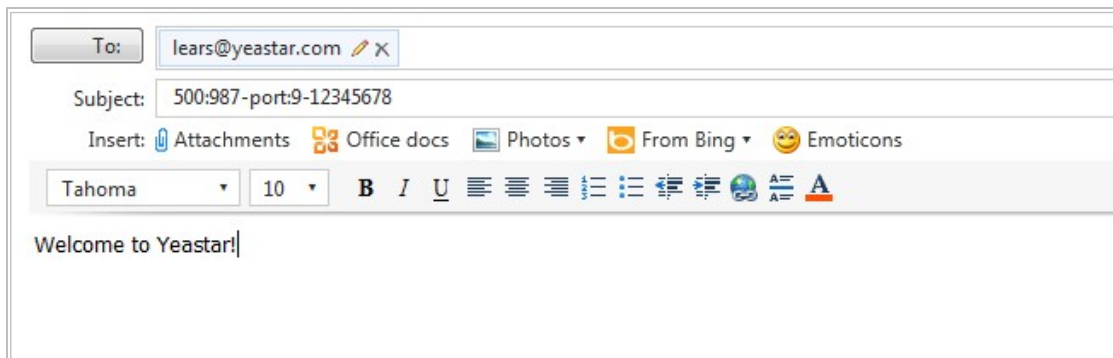


Figure G-4

APPENDIX H How to Use DID

Direct inward dialing (DID), also called direct dial-in (DDI) in Europe and Oceania, is a feature offered by telephone companies for use with their

customers' private branch exchange (PBX) systems. In DID service the telephone company provides one or more trunk lines to the customer for connection to the customer's PBX and allocates a range of telephone numbers to this line (or group of lines) and forwards all calls to such numbers via the trunk.

MyPBX support DID, you can configure DID in inbound route. Related settings: **DID Number, Extension, Destination.**

The screenshot shows the 'Edit Inbound Route: VOIP_IN' configuration window. The 'General' section includes the following fields:

- Route Name: VOIP_IN
- DID Number: (empty field, highlighted with a red box)
- Extension: (empty field, highlighted with a red box)
- Caller ID Number: (empty field)
- Distinctive Ringtone: (empty field)
- Enable Callback: No (dropdown menu) with a link to 'Callback Settings'

The 'Member Trunks' section is divided into two columns: 'Available Trunks' and 'Selected'. The 'Available Trunks' column contains 'E1Trunk1(E1) 192.168.4.147(SPS)'. The 'Selected' column contains 'VOIP_Supplier(SIP)'. Between the columns are four buttons: a double arrow pointing right, a single arrow pointing right, a single arrow pointing left, and a double arrow pointing left.

Figure H-1

•DID Number

Define the expected DID Number if this trunk passes DID on incoming calls. Leave this field blank to match calls with any or no DID info. Only service provider, E1 trunks, BRI trunks or SIP trunks need to be configured with this setting.

You can also use pattern matching to match a range of numbers. The following patterns may be used:

X: Any Digit from 0-9

Z: Any Digit from 1-9

N: Any Digit from 2-9

[12345-9]: Any digit in the brackets (in this example, 1, 2, 3, 4, 5, 6, 7, 8, 9)

The "." Character will match any remaining digits. For example, "9011." will match any phone number that starts with "9011", excluding "9011" itself.

The "!" will match none remaining digits, and causes the matching process to complete as soon as it can be determined that no other matches are possible.

•Extension

Define the extension for DID number, this field only valid when use E1 trunk for this inbound router. You can only input number and "-" in this field, and the format can be xxx or xxx-xxx. The count of the number must be only one or equal the count of the DID number.

•Destination

If you don't set the extension, you can set the destination of the call here.

Example 1:

Step1: You set the DID number (5503XXX in this example).

Step2: You choose the destination (IVR in this example).

The configuration of this example means when the incoming call with DID number 5503XXX (7-digit numbers starting with 5503) will go to the destination IVR.

If you choose the destination, please leave the Extension form blank.

Edit Inbound Route: pstnin

General

Route Name *i* : pstnin

DID Number *i* : 5503XXX

Extension *i* :

Caller ID Number *i* :

Distinctive Ringtone *i* :

Enable Callback : No [Callback Settings](#)

Member Trunks *i*

Available Trunks		Selected
VOIP_Supplier(SIP) 192.168.4.147(SPS)	»» → ← ««	E1Trunk1(E1)

Business Days

Office Hours : default

Office Hours Destination : IVR IVR -- welcome

Non-office Hours Destination : IVR IVR -- welcome

During Holidays

Holiday :

Destination : End Call

Fax Detection

Destination : No Detect

Figure H-2

Example 2:

Step1: You set the DID number (6001-6099 in this example).

Step2: You set the Extension (6001-6099 in this example).

The configuration of this example means when the incoming call with DID number 6001 to 6099 will go to the destination 6001 to 6099 (number 6001 to extension 6001, number 6002 to extension 6002).

The destination you set below will be disabled if you set the Extension.

Edit Inbound Route: VOIP_IN
X

General

Route Name ⓘ : VOIP_IN

DID Number ⓘ : 6001-6099

Extension ⓘ : 6001-6099

Caller ID Number ⓘ :

Distinctive Ringtone ⓘ :

Enable Callback : No [Callback Settings](#)

Member Trunks ⓘ

Available Trunks		Selected
E1Trunk1(E1) 192.168.4.147(SPS)	<input type="button" value="»"/> <input type="button" value="→"/> <input type="button" value="←"/> <input type="button" value="«»"/>	VOIP_Supplier(SIP)

Business Days

Office Hours : default

Office Hours Destination : IVR IVR -- welcome

Non-office Hours Destination : End Call

During Holidays

Holiday :

Destination : End Call

Fax Detection

Destination : No Detect

Figure H-3

APPENDIX I How to Use BLF Key to

Choose the PSTN line

MyPBX allows you to choose the specific PSTN line to make outbound call by pressing the BLF key on the IP Phone.

Follow the steps to do the configuration with your Yealink phone.

1. We want to choose pstn1 or pstn2 to call out.

Status	Signal	Trunk Name	Type	User Name	Port/Hostname/IP	Reachability
Disconnected		<u>pstn5</u>	FXO		Port 5	
Disconnected		<u>pstn6</u>	FXO		Port 6	
Disconnected		<u>pstn15</u>	FXO		Port 15	
Disconnected		<u>pstn16</u>	FXO		Port 16	

Figure I-1

2. Configure the IP Phone:

Key	Type	Value	Line	Extension
DSS Key 1	BLF	pstn1	Line 1	pstn1
DSS Key 2	BLF	pstn2	Line 1	pstn2

Figure I-2

Test

When you press DSS Key 1/2, the phone will connect to pstn1/pstn2 line. If pstn1/pstn2 is not busy, you will hear the dial tone. You can dial the number you want and use this line to call out then.

APPENDIX J How to Use TLS in MyPBX

J.1 How to register IP phones to MyPBX via TLS

MyPBX is working as a SIP server, IP phones register to MyPBX as extensions via TLS.

1. Enable TLS in MyPBX's web interface

Click "PBX→SIP settings→General" to get the settings about TLS, which is disabled by default. If you are using MyPBX standard, please find it in "Internal Settings→SIP Settings" page.

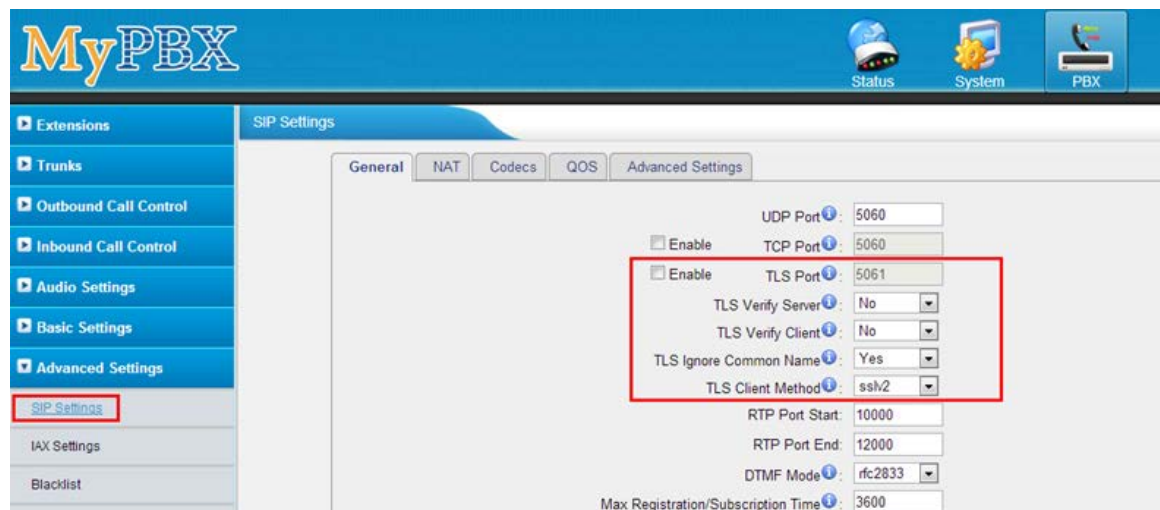


Figure J-1

• TLS Port

Port use for Sip registrations, Default is 5061.

• TLS Verify Server

When using MyPBX as a TLS client, whether or not to verify server's certificate. It is "No" by default.

• TLS Verify Client

When using MyPBX as a TLS server, whether or not to verify client's certificate. It is "No" by default.

• TLS Ignore Common Name

Set this parameter as "No", then common name must be the same with IP or domain name.

• TLS Client Method

When using MyPBX as a TLS client, specify the protocol for outbound TLS connections. You can select it as `tlsv1`, `sslv2` or `sslv3`.

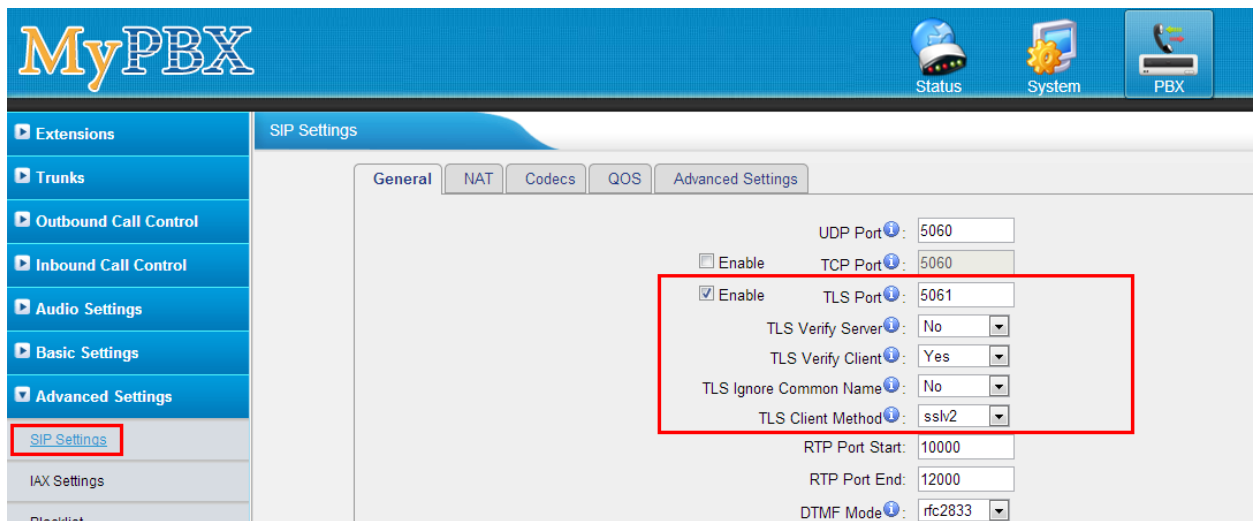


Figure J-2

Note:

1. For security reason, we recommend enabling "TLS Verify Client" and disabling "TLS Ignore Common Name", in which case, MyPBX will verify IP phone's Certificate, the common name inside CA should be the same as its IP or domain name.
2. TLS Client Method: it's the TLS method of IP phone; you can contact the manufacturer of the IP phone to get that.
3. You need to reboot MyPBX to take effect after enabling TLS.

2. Prepare the whole certificates for TLS

Here are the certificates of MyPBX and IP phones for TLS registry as the screen shot above:

MyPBX's CA: CA.crt.

MyPBX's server certificate: asterisk.pem.

IP phone's CA: CA.crt or CA.csr.

IP phone's server certificate: client.pem.

The certificate is generated via the toolkit OpenSSL, you can compile the source package from <http://www.openssl.org/>, or download the tool used here, download link:

www.yeastar.com/download/tools/TLS_CA_Tool.rar

You can find the files inside the package like these:

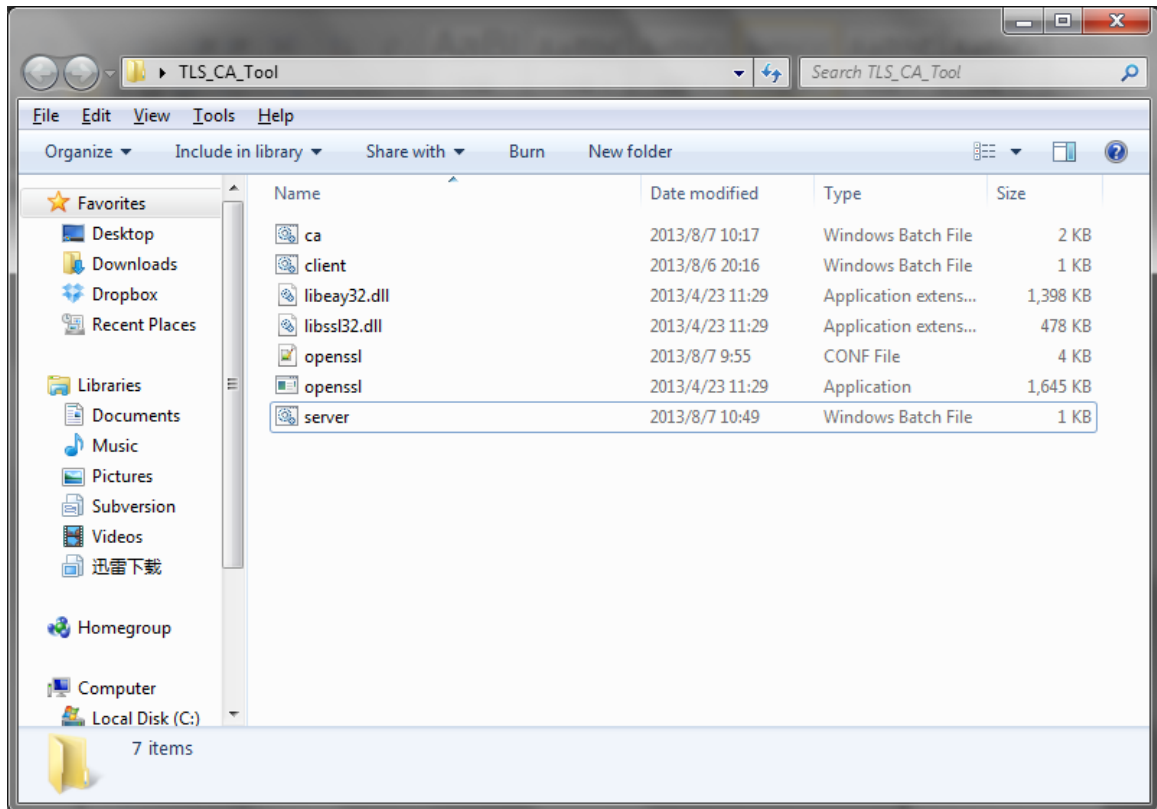


Figure J-3

Ca.bat: Make the CA.crt for IP phone and MyPBX

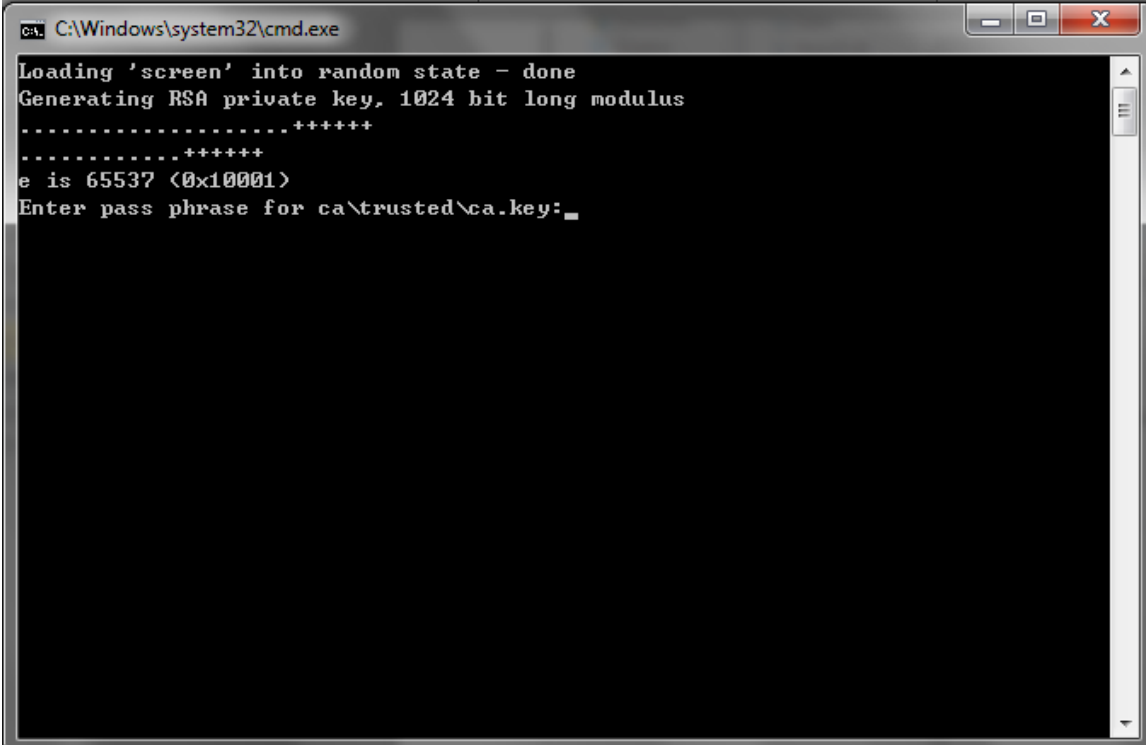
Client.bat: make the "client.pem", it's the "IP phone's server certificate".

Server.bat: make the "asterisk.pem", it's the "MyPBX's server certificate".

Here are the steps to make all the certificates.

Step1. Prepare MyPBX's CA: CA.crt

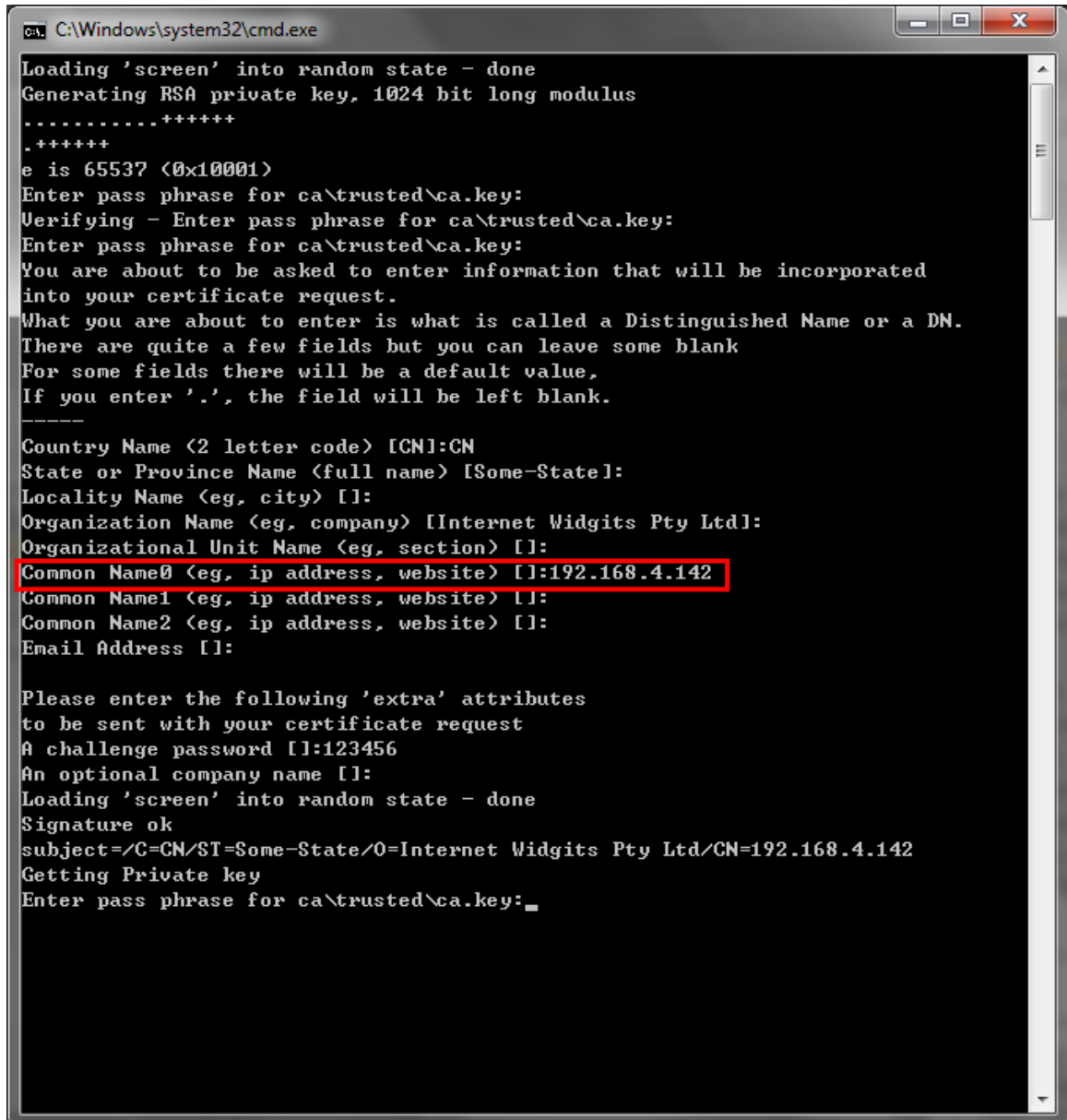
Double click ca.bat



```
C:\Windows\system32\cmd.exe
Loading 'screen' into random state - done
Generating RSA private key, 1024 bit long modulus
.....++++++
.....++++++
e is 65537 (0x10001)
Enter pass phrase for ca\trusted\ca.key: _
```

Figure J-4

Just follow the guide to input the information of MyPBX step by step.
In this example, MyPBX's IP address is 192.168.4.142.



```
C:\Windows\system32\cmd.exe
Loading 'screen' into random state - done
Generating RSA private key, 1024 bit long modulus
.....+++++
.+++++
e is 65537 (0x10001)
Enter pass phrase for ca\trusted\ca.key:
Verifying - Enter pass phrase for ca\trusted\ca.key:
Enter pass phrase for ca\trusted\ca.key:
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name <2 letter code> [CN]:CN
State or Province Name <full name> [Some-State]:
Locality Name <eg, city> []:
Organization Name <eg, company> [Internet Widgits Pty Ltd]:
Organizational Unit Name <eg, section> []:
Common Name0 <eg, ip address, website> []:192.168.4.142
Common Name1 <eg, ip address, website> []:
Common Name2 <eg, ip address, website> []:
Email Address []:

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:123456
An optional company name []:
Loading 'screen' into random state - done
Signature ok
subject=/C=CN/ST=Some-State/O=Internet Widgits Pty Ltd/CN=192.168.4.142
Getting Private key
Enter pass phrase for ca\trusted\ca.key: _
```

Figure J-5

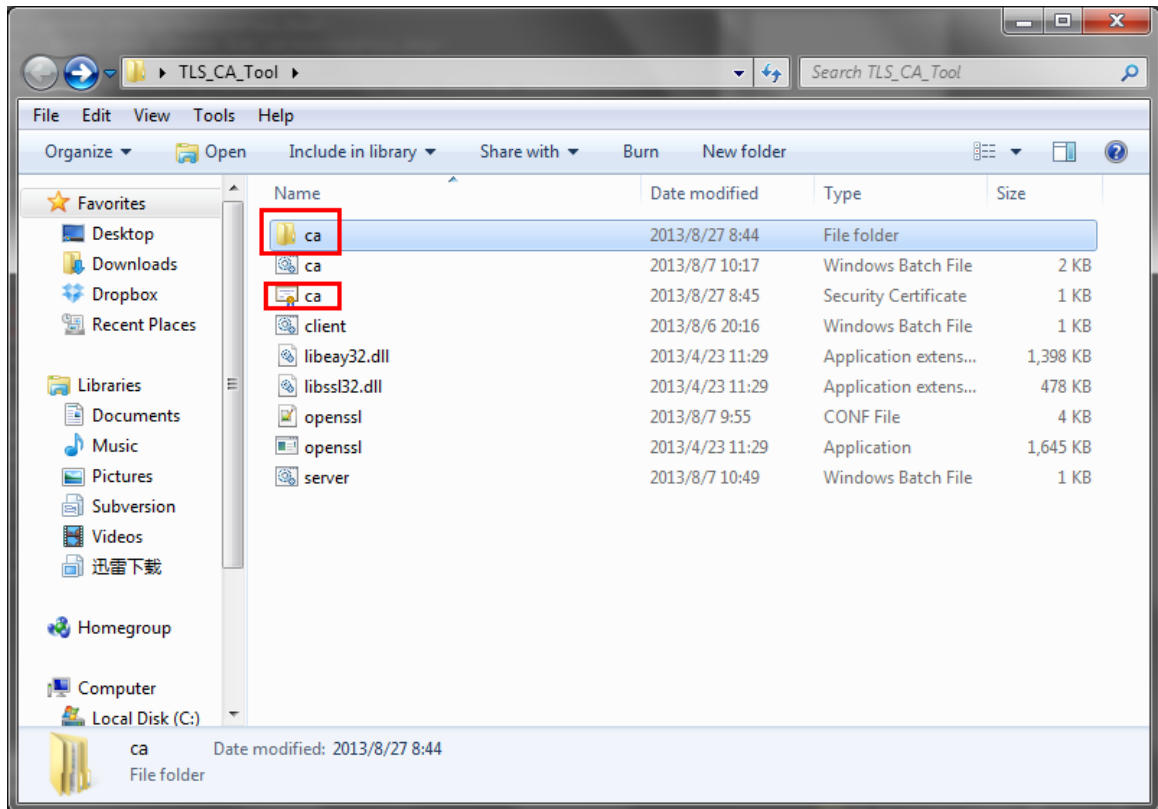


Figure J-6

This ca.crt is the same as the one in folder /TLS_CA_Tool/ca/trusted/.

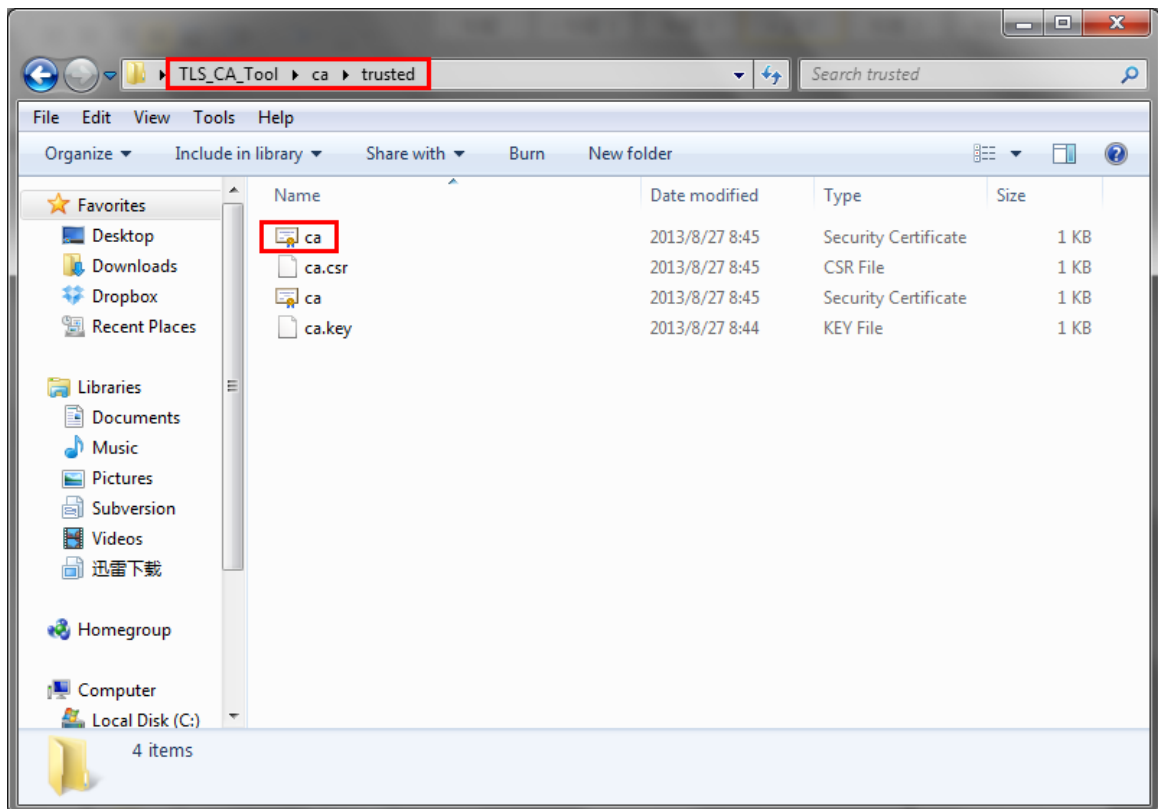


Figure J-7

MyPBX's CA: CA.crt is generated successfully.

Step2 Prepare "asterisk.pem", "MyPBX's server certificate"

We need the CA.crt and CA.key to make the server certificate.

Double click "server.bat".

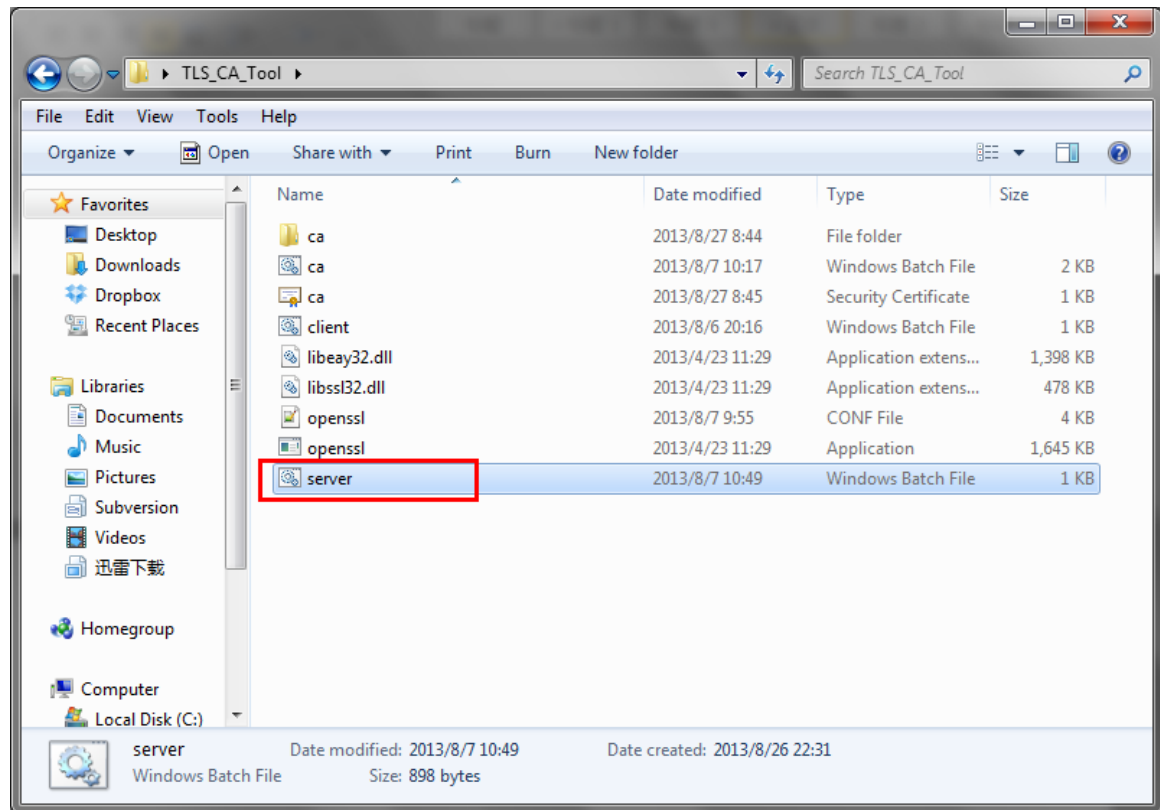


Figure J-8

Follow the guide to input information step by step, and make sure the information you have input matches the one you have input in Step1.

```

C:\Windows\system32\cmd.exe
Could Not Find C:\Users\Harry\Desktop\TLS_CA_Tool\ca\serial*
Could Not Find C:\Users\Harry\Desktop\TLS_CA_Tool\ca\index.txt*
Loading 'screen' into random state - done
Generating a 1024 bit RSA private key
.....+++++
.....+++++
writing new private key to 'ca\server\server.key'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name <2 letter code> [CN]:CN
State or Province Name <full name> [Some-State]:
Locality Name <eg, city> []:
Organization Name <eg, company> [Internet Widgits Pty Ltd]:
Organizational Unit Name <eg, section> []:
Common Name0 <eg, ip address, website> [1:192.168.4.142]
Common Name1 <eg, ip address, website> []:
Common Name2 <eg, ip address, website> []:
Email Address []:

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:123456
An optional company name []:
Using configuration from openssl.conf
Loading 'screen' into random state - done
Enter pass phrase for ca\trusted\ca.key:
Check that the request matches the signature
Signature ok
The Subject's Distinguished Name is as follows
countryName       :PRINTABLE:'CN'
stateOrProvinceName :PRINTABLE:'Some-State'
organizationName  :PRINTABLE:'Internet Widgits Pty Ltd'
commonName        :PRINTABLE:'192.168.4.142'
Certificate is to be certified until Aug 25 00:51:20 2023 GMT (3650 days)
Sign the certificate? [y/n]:y_

```

Figure J-9

Check the whole information then input “y” to continue. When done, you can find the asterisk.pem as the following picture shows.

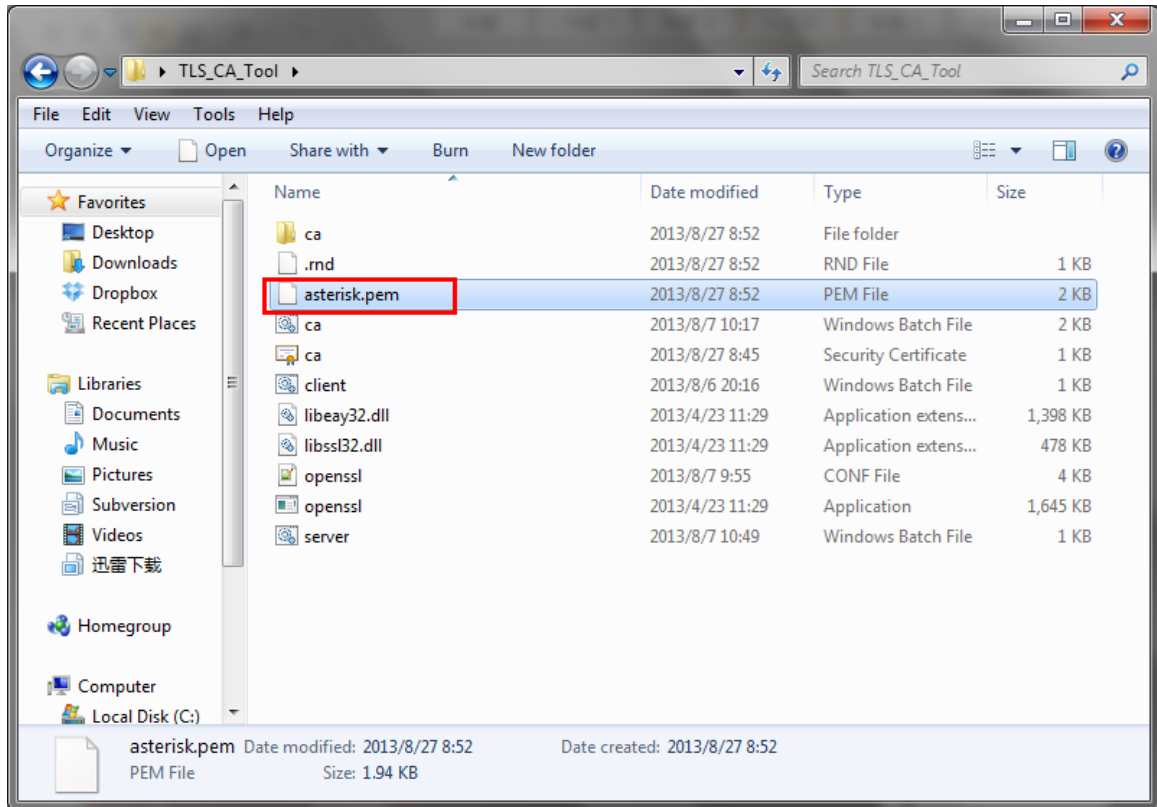


Figure J-10

asterisk.pem, the “MyPBX’s server certificate” is generated successfully.

Note: We can copy the asterisk.pem, ca.crt to another folder before making the IP phone’s certificate.

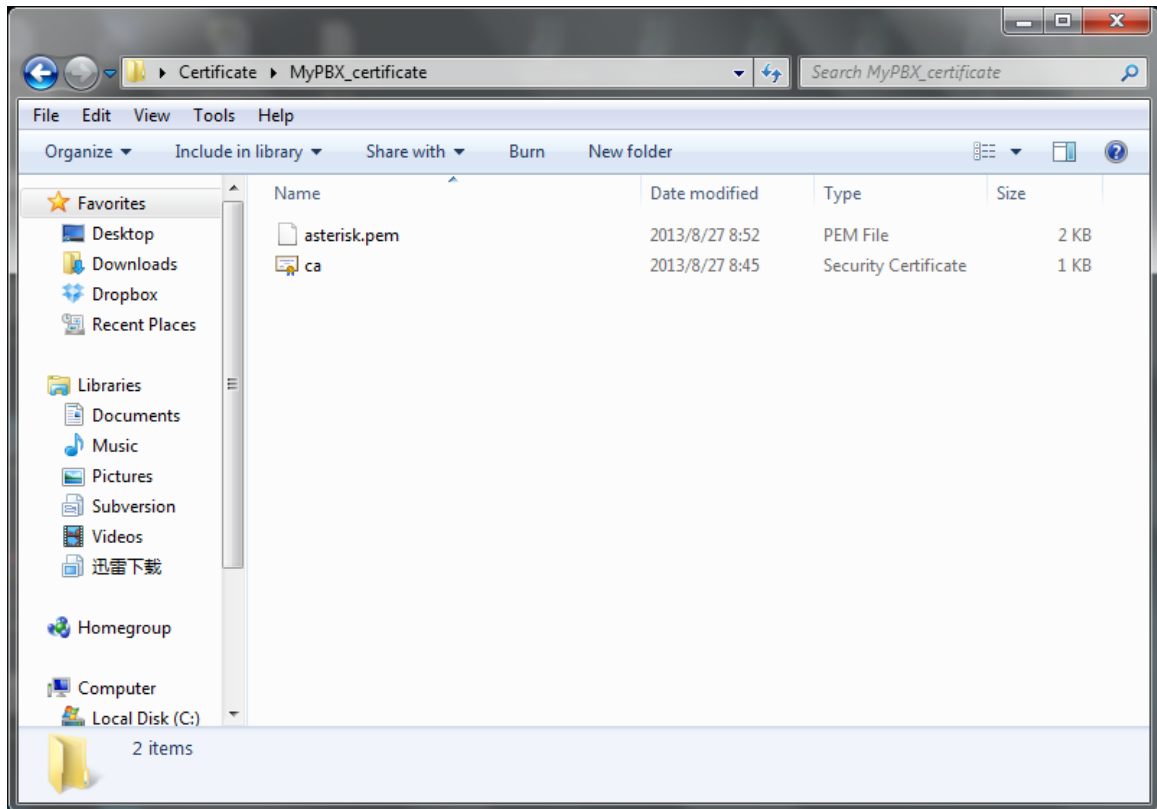


Figure J-11

Step3. Prepare the IP phone's certificate, ca.crt

Double click "ca.bat", input the information of IP phone step by step.

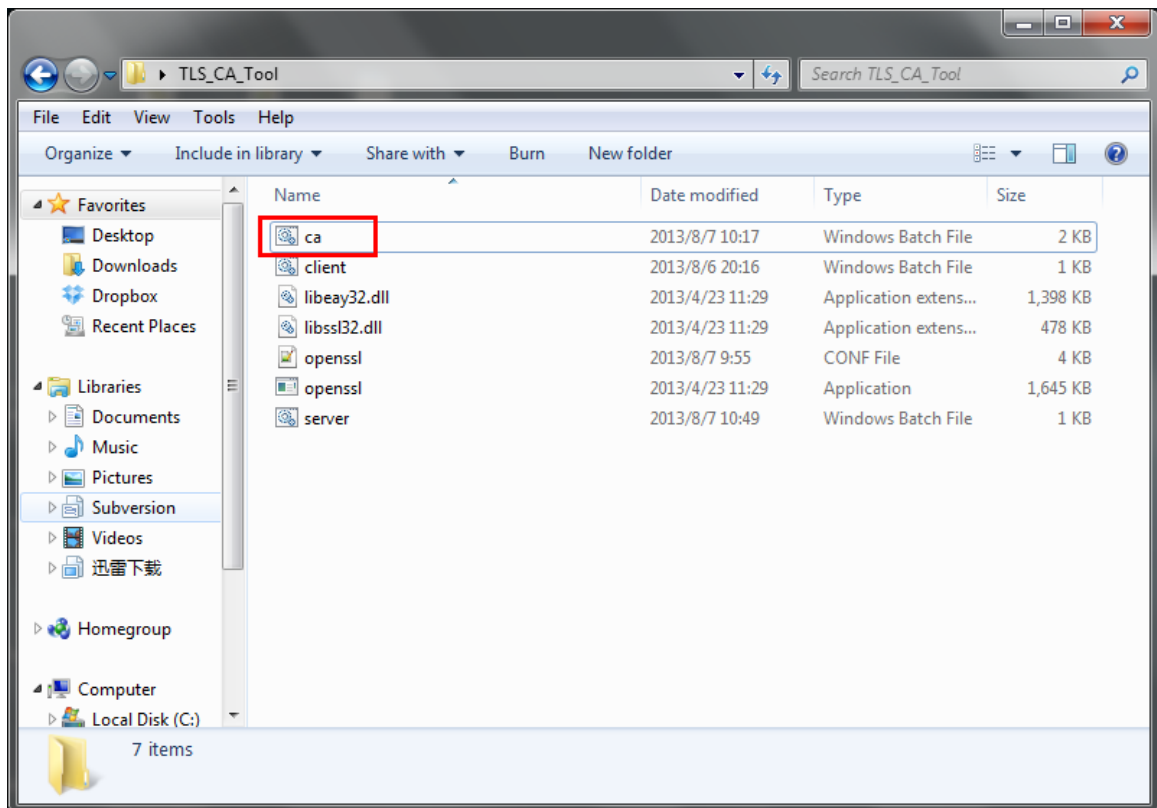
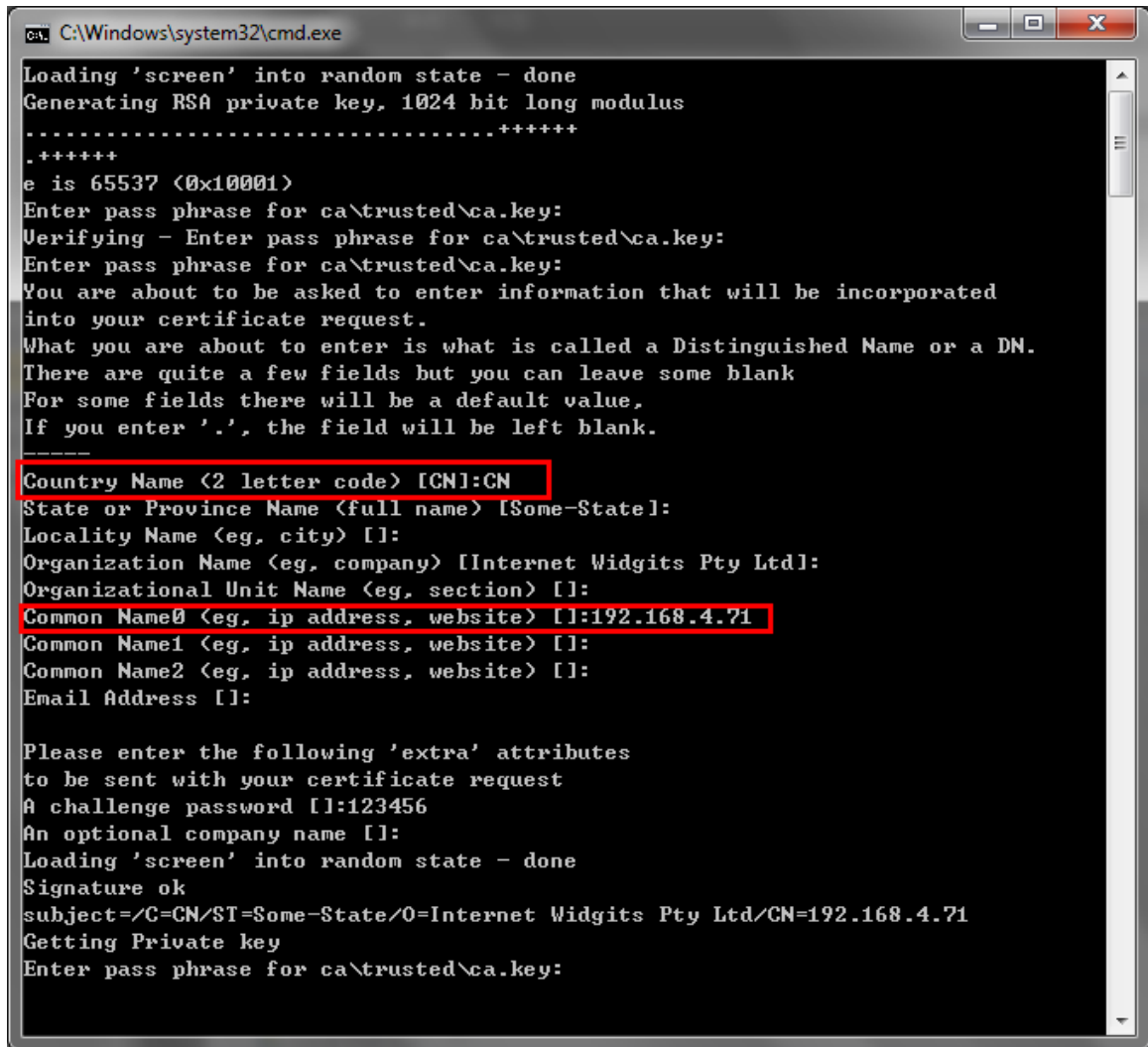


Figure J-12

In this example, the IP phone's IP address is 192.168.4.71.



```
C:\Windows\system32\cmd.exe
Loading 'screen' into random state - done
Generating RSA private key, 1024 bit long modulus
.....++++++
.+++++
e is 65537 (0x10001)
Enter pass phrase for ca\trusted\ca.key:
Verifying - Enter pass phrase for ca\trusted\ca.key:
Enter pass phrase for ca\trusted\ca.key:
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name <2 letter code> [CN]:CN
State or Province Name <full name> [Some-State]:
Locality Name <eg, city> []:
Organization Name <eg, company> [Internet Widgits Pty Ltd]:
Organizational Unit Name <eg, section> []:
Common Name0 <eg, ip address, website> []:192.168.4.71
Common Name1 <eg, ip address, website> []:
Common Name2 <eg, ip address, website> []:
Email Address []:

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:123456
An optional company name []:
Loading 'screen' into random state - done
Signature ok
subject=/C=CN/ST=Some-State/O=Internet Widgits Pty Ltd/CN=192.168.4.71
Getting Private key
Enter pass phrase for ca\trusted\ca.key:
```

Figure J-13

When done, we can find the ca.crt in this folder.

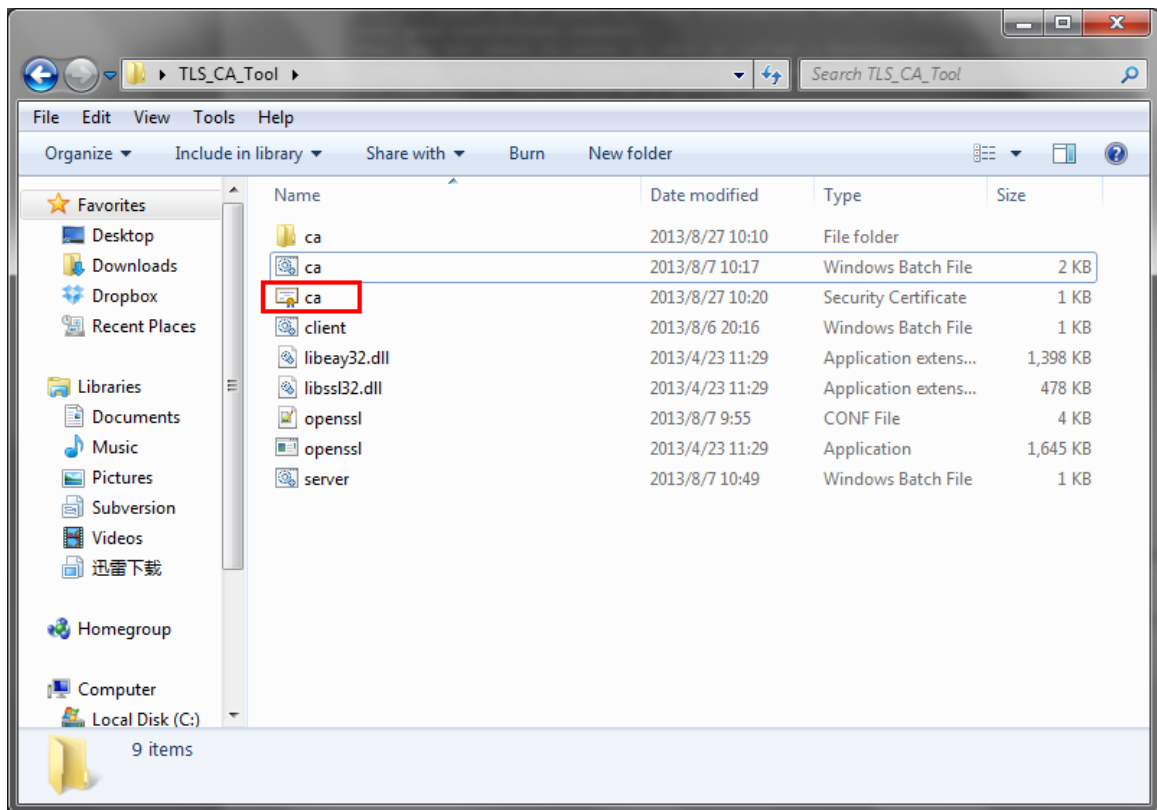


Figure J-14

The ca.crt in folder /TLS_CA_Tool/ca/trusted is the same as the above one.

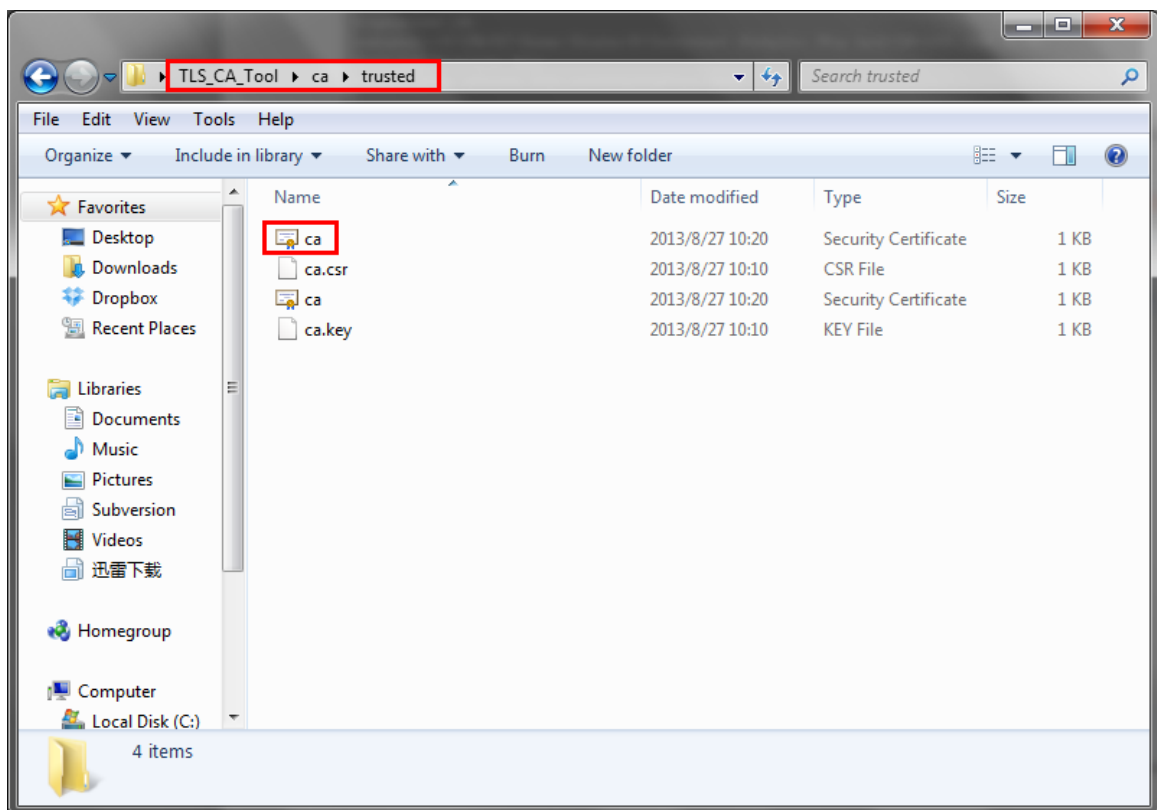


Figure J-15

The IP phone's certificate is finished.

Note: If you have got your own CA for IP phone, you can rename it to CA.crt and copy it to folder "/TLS_CA_Tool/ca/trusted" before making the "client.pem".

Step4. Prepare "client.pem", the "IP phone's server certificate".

Double click "client.bat".

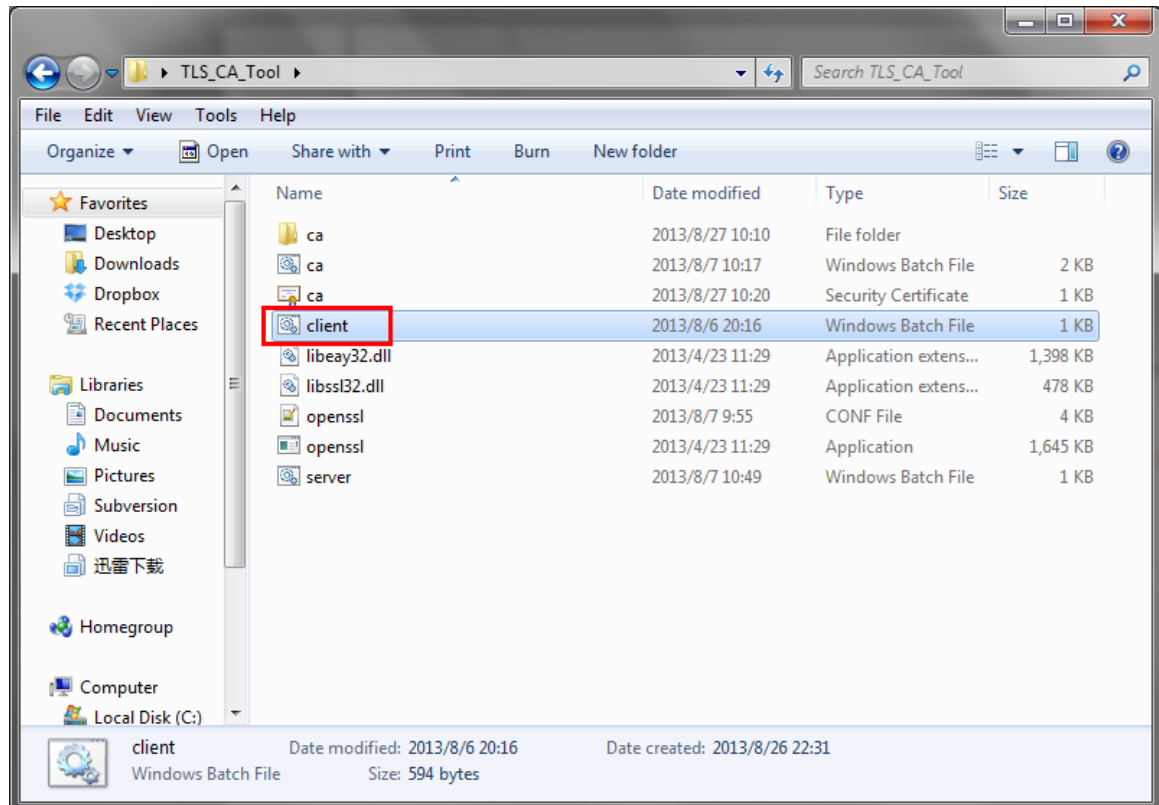


Figure J-16

Input the IP phone's information step by step in this script; make sure the content is the same as Step3.

```
C:\Windows\system32\cmd.exe
Loading 'screen' into random state - done
Generating a 1024 bit RSA private key
.....+++++
.....+++++
writing new private key to 'ca\client\client.key'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name <2 letter code> [CN]:CN
State or Province Name <full name> [Some-State]:
Locality Name <eg, city> []:
Organization Name <eg, company> [Internet Widgits Pty Ltd]:
Organizational Unit Name <eg, section> []:
Common Name<0> <eg, ip address, website> []:192.168.4.71
Common Name1 <eg, ip address, website> []:
Common Name2 <eg, ip address, website> []:
Email Address []:

Please enter the following 'extra' attributes
to be sent with your certificate request
A challenge password []:123456
An optional company name []:
Using configuration from openssl.conf
Loading 'screen' into random state - done
Enter pass phrase for ca\trusted\ca.key:
Check that the request matches the signature
Signature ok
The Subject's Distinguished Name is as follows
countryName             :PRINTABLE:'CN'
stateOrProvinceName     :PRINTABLE:'Some-State'
organizationName        :PRINTABLE:'Internet Widgits Pty Ltd'
commonName               :PRINTABLE:'192.168.4.71'
Certificate is to be certified until Aug 25 02:30:44 2023 GMT (3650 days)
sign the certificate? [y/n]:y

1 out of 1 certificate requests certified, commit? [y/n]y_
```

Figure J-17

Confirm all the information we input before clicking “y” to finish this guide.

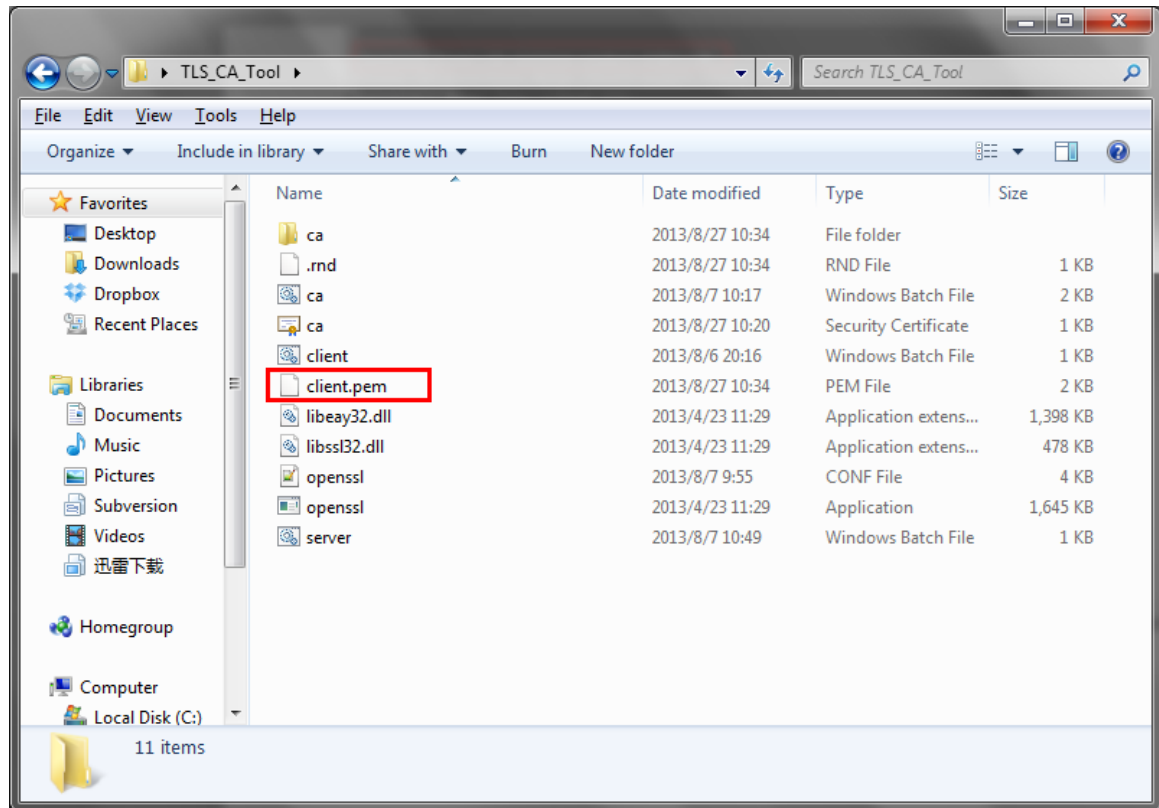


Figure J-18

The “IP phone’s server certificate” is ready.

Note: We can copy the client.pem, ca.crt to another folder before uploading.

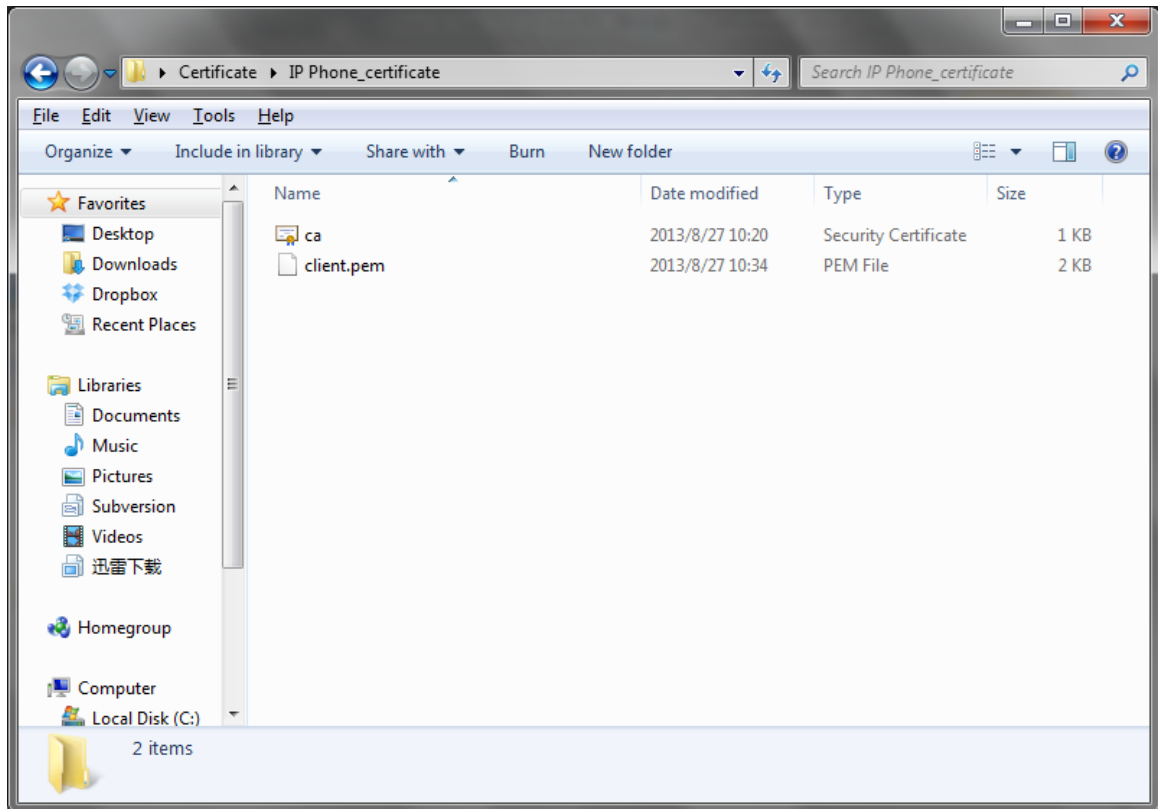


Figure J-19

All the certificates are prepared.

3. Upload certificates

3.1 Upload IP phone's certificates

In this example, IP phone's model is Yealink T28.

Step1. Upload "IP phone's server certificate" (client.pem).

Click "Security→Server Certificates" to upload client.pem

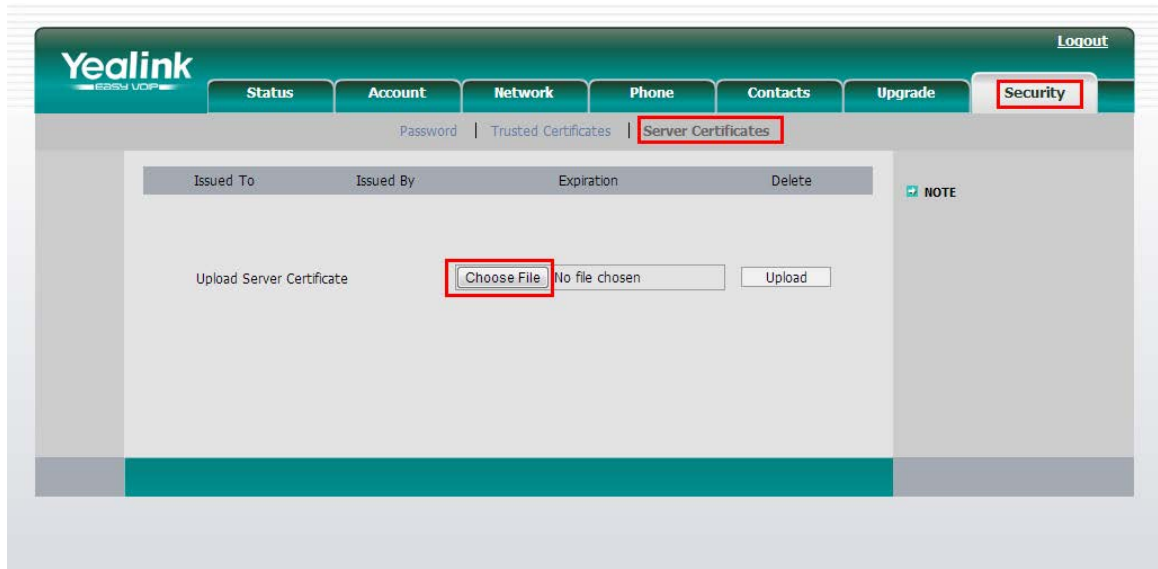


Figure J-20

Click "Choose File" and upload IP phone's server certificate. IP phone will reboot by itself when uploaded successfully to take effect.

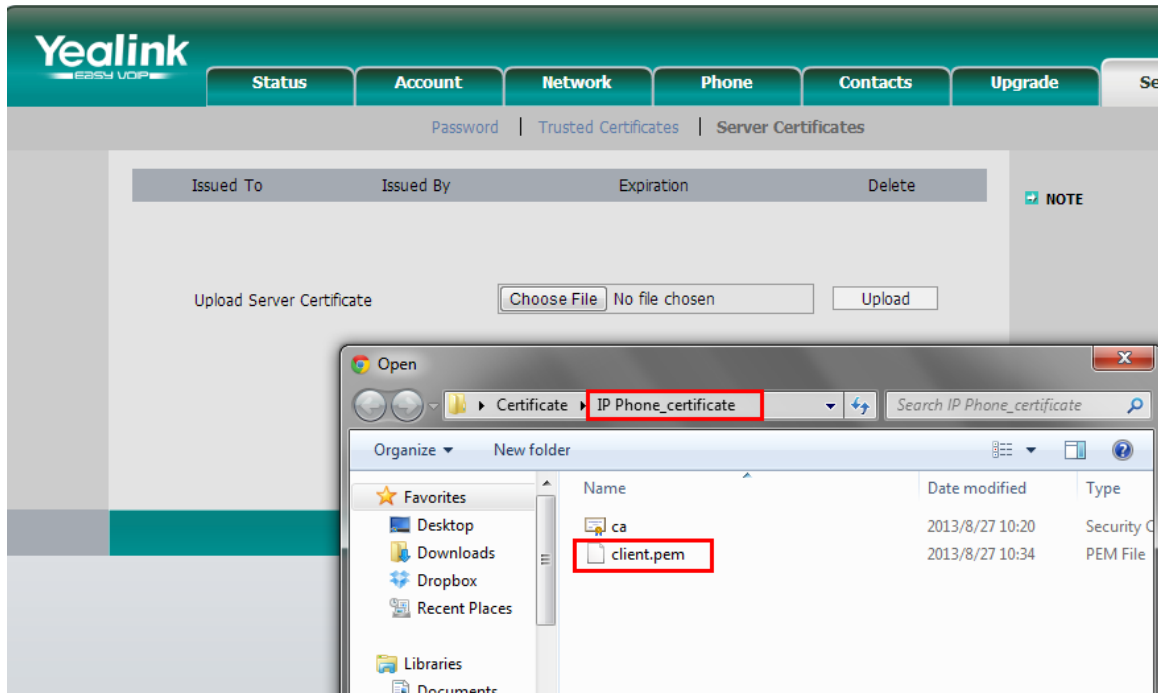


Figure J-21

When IP phone boots up again, we can check the certificate status.

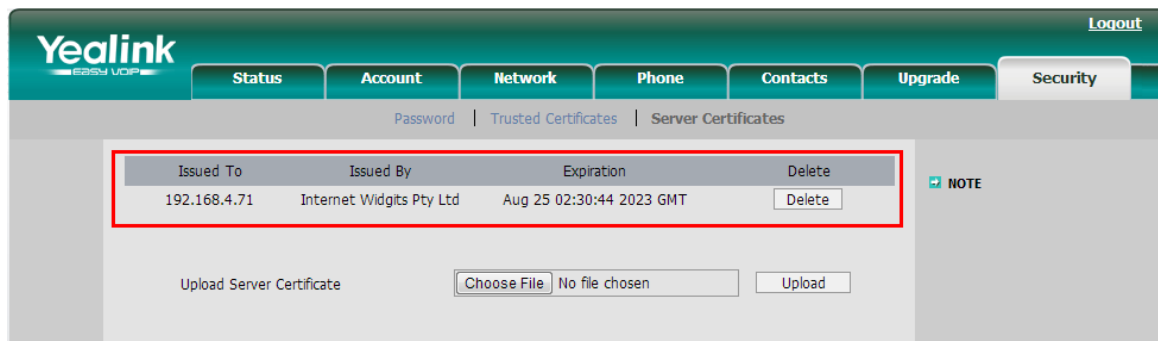


Figure J-22

Step2. Upload the trusted certificate.

The trusted certificate is the ca.crt of MyPBX. It will be sent to MyPBX during the registry process for authorization.

Click "Security→Trusted Certificates", upload MyPBX's ca.crt.

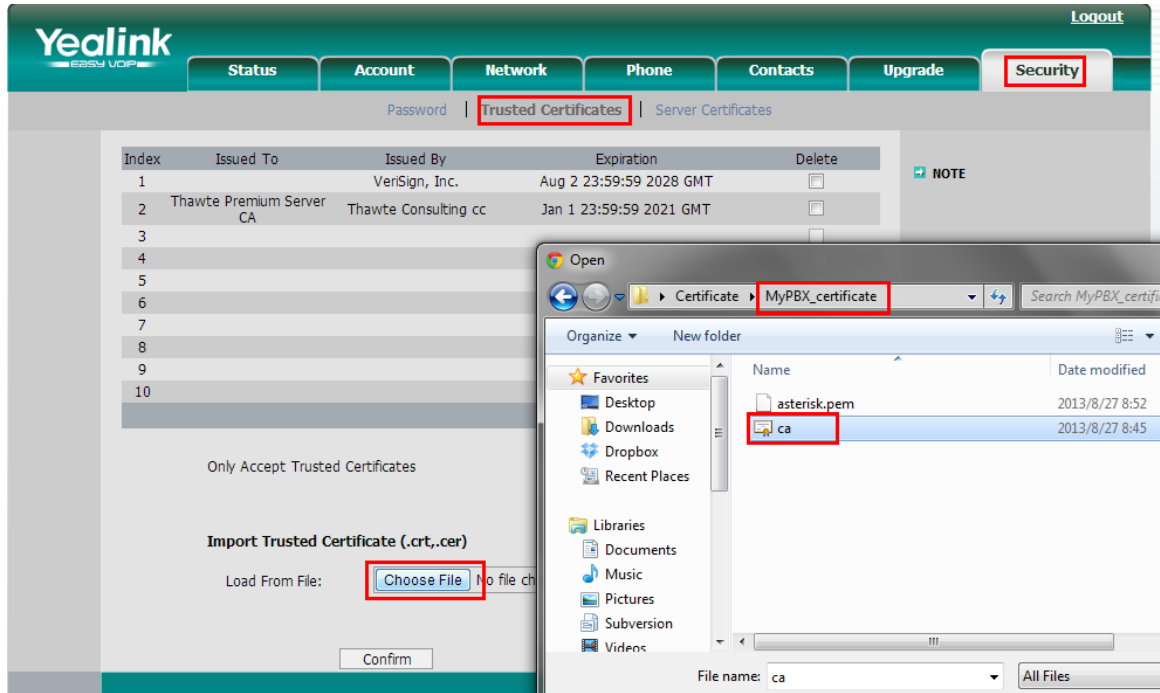


Figure J-23

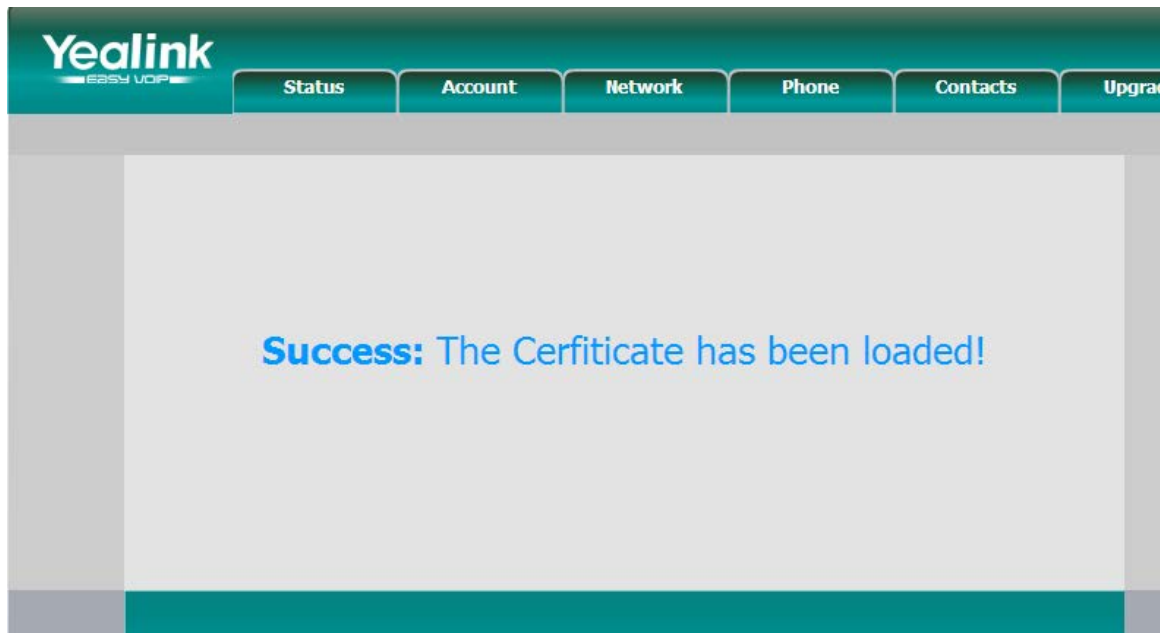


Figure J-24

When done, we can check the content of CA.crt like the picture shown below.

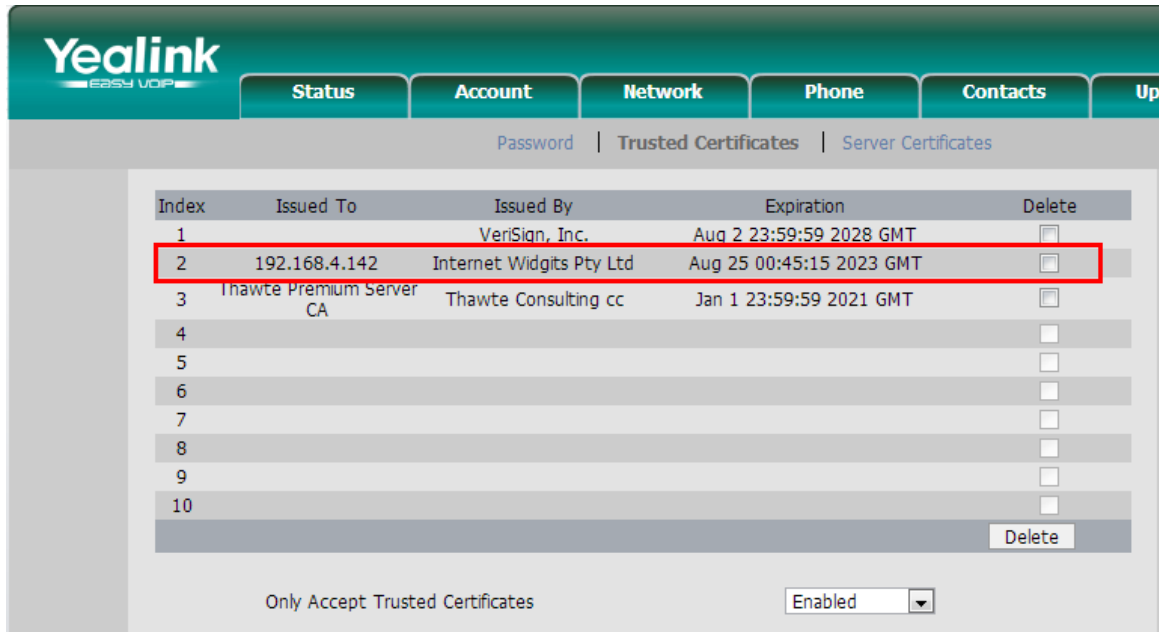


Figure J-25

The certificates in IP phone side are well uploaded.

3.2 Upload MyPBX’s certificates

In this example, the model of MyPBX is MyPBX U200 (firmware version: 15.18.0.22)

Step1. Upload MyPBX’s server certificate (asterisk.pem)

Click “PBX->Advanced Settings->Certificates”, then click “Upload Certificates”, choose “PBX Certificates” in Type windows, then upload the asterisk.pem.

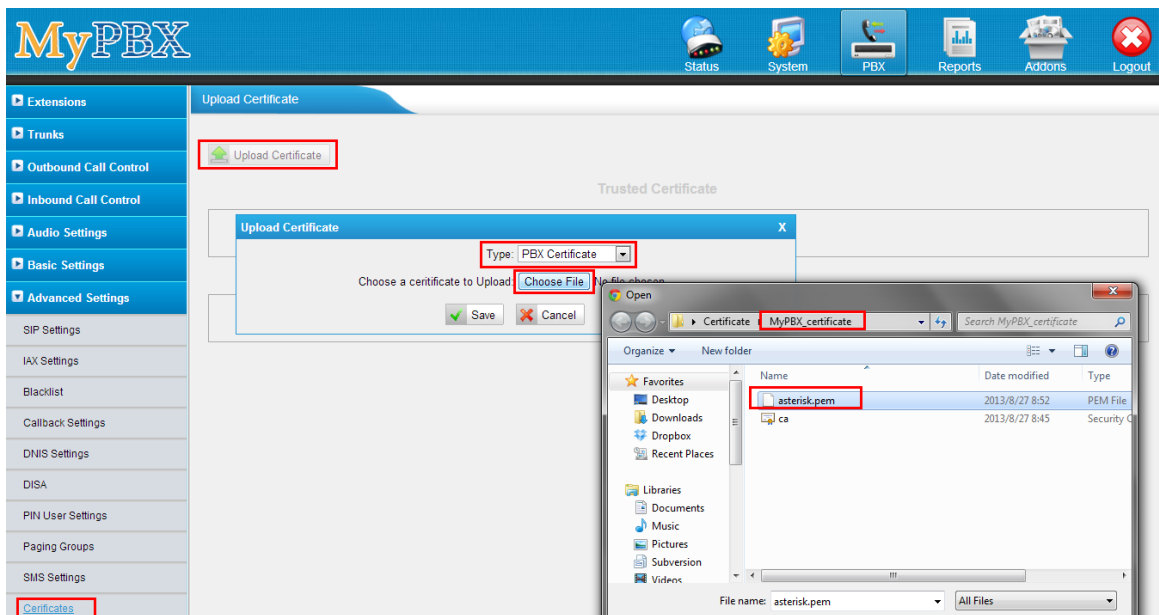


Figure J-26

Click Save to upload, you will need to reboot MyPBX to take effect.

Upload Certificate Apply Changes

Upload Certificate

Trusted Certificate

No Certificates Defined

PBX Certificate

#	Name	Issued To	Expiration
1	asterisk.pem	192.168.4.142	Aug 25 00:51:20 2023 GMT

Reboot

Warning: Rebooting the appliance will terminate all active calls!

Figure J-27

Click "Reboot Now" to reboot MyPBX. When done, we can move to Step 2.

Upload Certificate

Upload Certificate

Trusted Certificate

No Certificates Defined

PBX Certificate

#	Name	Issued To	Expiration
1	asterisk.pem	192.168.4.142	Aug 25 00:51:20 2023 GMT

Figure J-28

Step2. Upload the trusted certificate.

The trusted certificate in MyPBX should be the ca.crt of IP phone.
Click "Upload Certificates" and choose "Trusted Certificates" in Type windows, then upload the IP phone's ca.crt.

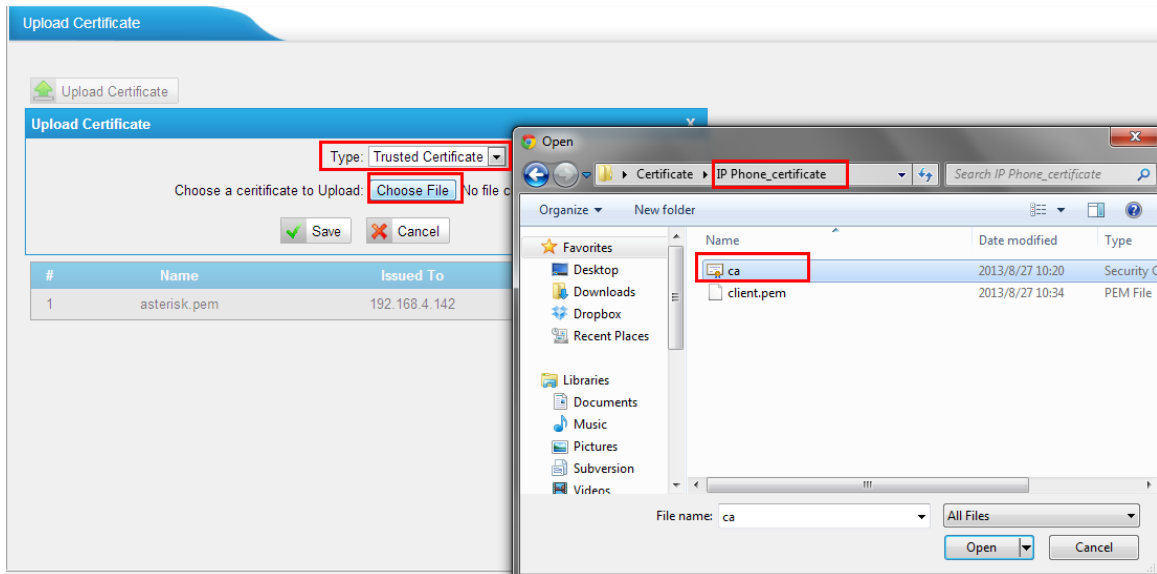


Figure J-29

Click "Save" to upload, then click "Apply Changes".

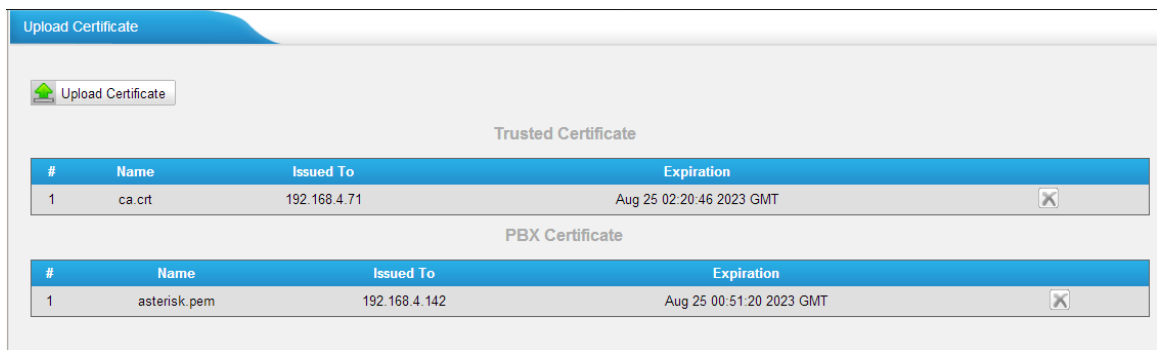


Figure J-30

The certificates in MyPBX side are well uploaded.

4 Register IP phone to MyPBX via TLS

Before registering IP phone to MyPBX, we need to create a SIP extension in MyPBX side in advance, or edit the existing one. In this example, extension number is 303.

We need to set TLS protocol in this page, click save and "Apply Changes" on Web.

Edit Extension - 303

General Other Settings

General

Type: SIP Extension: 303 Password: pincode303

Name: 303 Caller ID: 303

Voicemail

Enable Voicemail Voicemail Access PIN #: 303

Mail Setting

Enable Send Voicemail

Email Address:

Note: Please ensure that the section 'SMTP Settings for Voicemail'(in the 'Voicemail Settings') have been properly configured before using this feature.

Group

Pickup Group: ---

Call Duration Setting

Max Call Duration: s

VoIP Settings

NAT: Quality: Enable SRTP:

Transport: TLS DTMF Mode: RFC2833 Register Remotely:

Save Cancel

Figure J-31

Open IP phone's configuration page, input the registry information of extension 303.

The screenshot shows the 'Account' configuration page for 'Account 6'. The 'Basic' section is expanded, showing various configuration fields. The 'SIP Server' field is set to '192.168.4.142' and the 'Port' is '5061'. The 'Transport' field is set to 'TLS'. The 'Label' field is set to '303'. The 'Register Status' is 'Registered'. The 'Account Active' status is 'On'. The 'Display Name', 'Register Name', 'User Name', and 'Password' fields are all set to '303'. The 'Enable Outbound Proxy Server' is 'Disabled'. The 'Outbound Proxy Server' and 'Backup Outbound Proxy Server' fields are empty. The 'NAT Traversal' is 'Disabled'. The 'NOTE' section on the right provides definitions for 'Display Name', 'Register Name', 'User Name', 'NAT Traversal', 'Proxy Require', and 'Codex'.

Figure J-32

Click "Confirm" to apply the changes, then extension 303 is registered via TLS. We can also check the status in "Extension Status" page of MyPBX.

The screenshot shows the 'Extension Status' page. The page displays a grid of extension status icons. The extension 303(SIP) is highlighted with a red box, indicating it is registered via TLS. The other extensions shown are 300(SIP), 301(SIP), 302(SIP), 305(SIP), 601(FXS), and 602(FXS). The status icons are: Free (blue), Busy (red), Hold (blue), Unavailable (grey), and Ringing (red).

Figure J-33

If you have any problems about extension's registry, please run a packet trace in "Reports→System Logs→Packet Capture Tool", input IP phone's IP address, choose the eth port, then click "Start". You can register the IP phone again, then click "Stop" and download the package to analyze via Wireshark. You can also send it to us for analyzing.

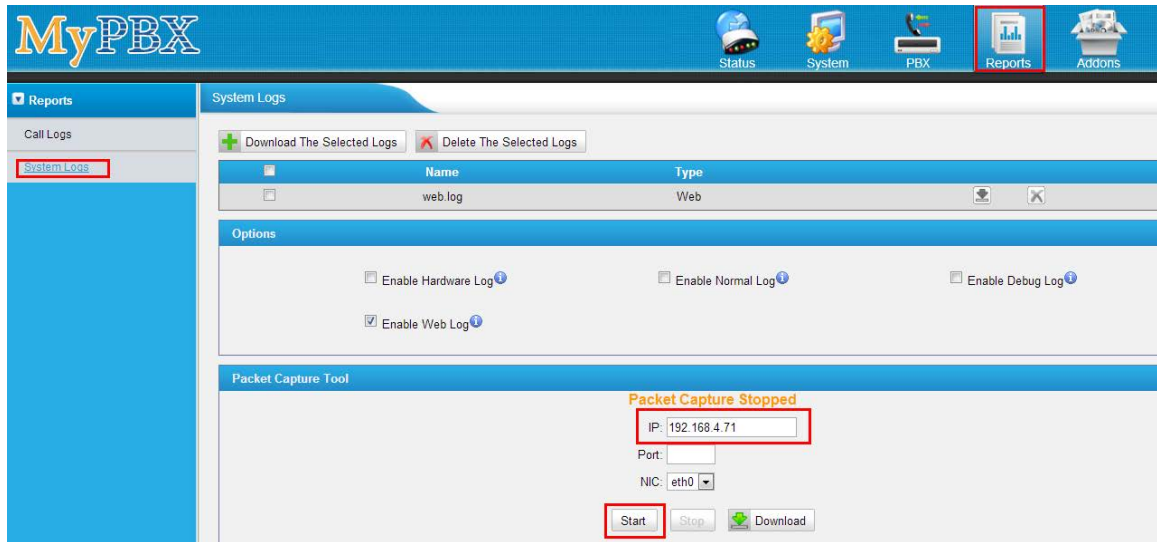


Figure J-34

J.2 How to register SIP trunk to VoIP provider via TLS

If you have got the SIP trunk from provider that is using TLS, we can configure it in MyPBX and choose TLS within the trunk, here are two examples for you.

VoIP trunk:

Type: SIP

Provider Name: Yeastar

Hostname/IP: 110.80.36.111 : 5060

Domain: 110.80.36.111

User Name: harry

Authorization Name: harry

Password:

From User:

Online Number:

Maximum Channels: 0

Caller ID: 1353478

Realm: yeastar

Enable Outbound Proxy Server

Transport: TLS Enable SRTP: Qualify:

DTMF Mode: rfc2833

Diversion:

DOD Settings

DOD:

Associated Extension: 601

↑Add DOD

Save Cancel

Figure J-35

Service provider trunk (P-P).

The screenshot shows the 'Add Service Provider' configuration window. The 'Transport' dropdown menu is highlighted with a red box and set to 'TLS'. Other fields include Type: SIP, Provider Name: Support, Hostname/IP: 110.80.35.122, Port: 5060, Maximum Channels: 0, Qualify: checked, and DTMF Mode: rfc2833. The DOD Settings section is empty.

Figure J-36

If you have got problem when registering to provider via TLS, you can also run a packet trace in "System Log" page using "Packet Capture Tool", then send it to provider or us to analyze.

APPENDIX K How to use LDAP

LDAP stands for Lightweight Directory Access Protocol which is a client-server protocol for accessing a directory service. Normally, it is used as a phone book on MyPBX so that you can search a key word from your IP phone.

Here we take Yealink T-28 IP phone as an example.

1. Configuration on MyPBX.

Tick the option of "Enable LDAP", and you use default configuration in the other fields.

Default configuration as below:

Root Node: dc=pbx,dc=com

PBX Node: ou=pbx,dc=pbx,dc=com

User Name: cn=admin,dc=pbx,dc=com

Password: (fill in as required)

Then you can add contact as required.

Figure K-1

2. Configuration on Yealink T-28 IP phone

The screenshot shows the Yealink administrator interface with the 'LDAP' configuration page selected. The interface includes a navigation bar with tabs for Status, Account, Network, Phone, Contacts, Upgrade, and Security. The LDAP configuration section contains the following fields and values:

Field	Value
LDAP Name Filter	((cn=%)(sn=%))
LDAP Number Filter	((telephoneNumber=%)(homePhone=%)(mobile=%))
Server Address	192.168.4.142
Port	389
Base	dc=pbx,dc=com
UserName	cn=admin,dc=pbx,dc=com
Password	*****
Max. Hits(1~32000)	50
LDAP Name Attributes	cn sn displayName
LDAP Number Attributes	telephoneNumber homePho
LDAP Display Name	%cn
Protocol	Version3
Search Delay(ms)(0~2000)	0
Match Incoming Calls	Enabled
LDAP Sorting Results	Enabled
LDAP Lookup For PreDial/Dial	Enabled

At the bottom of the form are 'Confirm' and 'Cancel' buttons. On the right side, there is a 'NOTE' section with the text 'LDAP settings'.

Figure K-2

First fill the fields as the configuration as below:

LDAP Name Filter: ((cn=%)(sn=%))
 LDAP Number Filter: ((telephoneNumber=%)(homePhone=%)(mobile=%))
 Server Address: 192.168.5.142 /the IP of MyPBX/
 Port: 389
 Base: dc= yeastar,dc=cn
 User Name: cn=admin,dc=yeastar,dc=com
 Password: ***** /the password you have set on MyPBX/
 Max.Hits: 50
 LDAP Name Attributes: cn sn displayName
 LDAP Number Attributes: telephoneNumber homePhone mobile mail
 departmentNumber
 LDAP Display Name: %cn
 Protocol: Version 3
 Search Delay(ms)(0~2000): 0
 LDAP Lookup for Incoming Call: Enabled
 LDAP Sorting Results: Enabled
 LDAP Lookup for PreDial/Dial: Enabled

Click the "confirm" button, and the LDAP will take effect.

Then configure the DSS Key for linking to the LDAP setting.

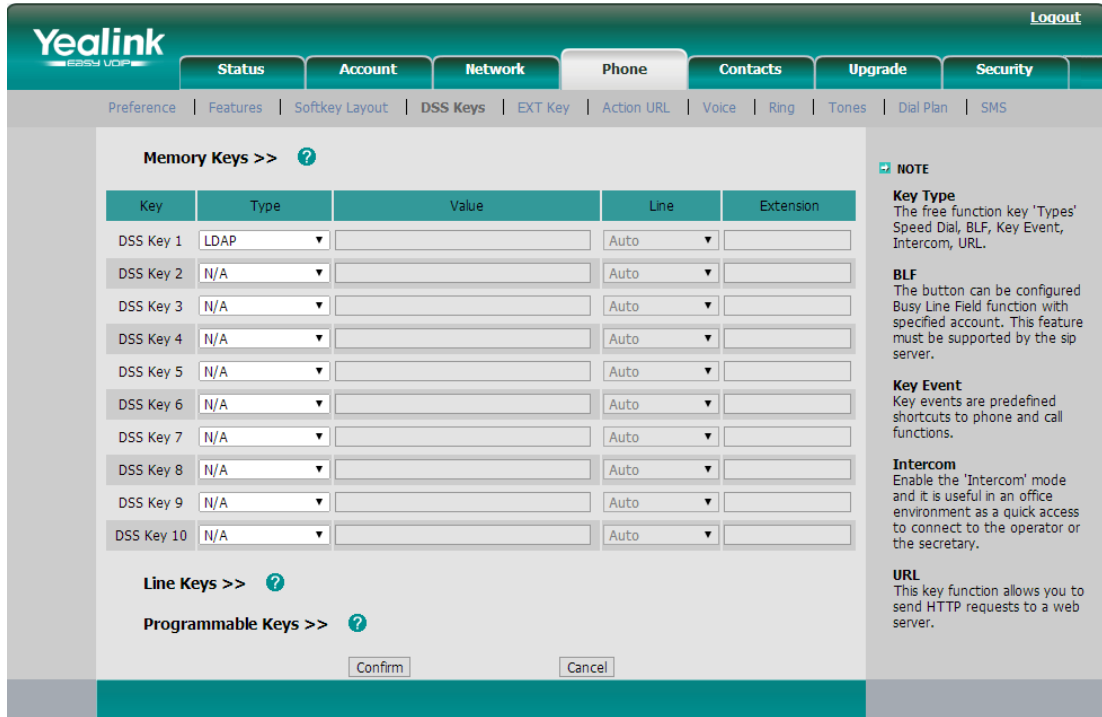


Figure K-3

If you enable the “LDAP Lookup for PreDial/Dial”, you can use LDAP feature either in PreDial/Dial page or by pressing DSS Key.

<Finish>

