# ePBX-100 User's Manual

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## 1. Overview

The Welltech ePBX-100 is the next generation all-in-one IP PBX system for small to medium enterprise. It is also designed to operate on a variety of VoIP applications, such as auto-attendant, voice conference, call transfer, call pick up and IP-based communications. With the tiny box, small to medium enterprise or homes can use it to access the Internet and to make VoIP phone calls.

Customers can select different suite and optional products to meet their request. To Integrate with WellGate 3804A can provide PSTN access function, LAN Phone 388 and WellGate 3504A can provide extensions. With flexible and full functionality, Welltech ePBX-100 can give a complete transition from traditional PABX to the new generation IP-PBX.

## 1.1 Specifications

- Protocol
  - SIP (Session Initiation Protocol)
- Call Features
  - Authentication
  - Automated Attendant
  - Call Transfer
  - Blind Transfer
  - Call Forward on Busy
  - Call Forward on No Answer
  - Call Forward Unconditional
  - Call Hold/Retrieval
  - Call Routing (DID)
  - Call Waiting
  - Caller ID
  - Do Not Disturb
  - Flexible Extension Logic
  - Music On Hold
  - Music On Transfer
  - Call Pickup
  - Three-way Conference
  - Time and Date
  - **■** Trunking (3804A)
  - VoIP Gateways (3804A)
  - Voice Mail to e-mail
  - Call Detail Records

Call Monitoring

## > Codecs

- G.711 (A-Law & µ-Law)
- G.729

#### > Technical Features

- Subscriber NAT transversal
- Phone set record Greeting
- Management: Web Browser Management
- HTTP upgrade firmware and ring back tone file
- Export/Import configuration
- Network Interface: 1WAN 1LAN
- DTMF: in-band, RFC2833, SIP-Info
- Network: Support Fixed IP and DHCP mode

#### 1.2 Hardware Overview

#### 1.2.1 Front Panel and LED Indication



- **Power:** Light on when ePBX-100 is powered on.
- Status: Light on when system is ready.
- Alarm: Light on when system has problems.
- **SIP Trunk**: Light on when ePBX-100 successfully registered to enabled SIP Trunk; Light off when ePBX-100 failed to register to enabled SIP Trunk or no SIP Trunk has enabled.
- CDR: ePBX-100 can output Call Detail Records to external computer. User has to execute CDR program on computer, when ePBX-100 is ready to connect with CDR server and output data, this indication will light on.
- **NET:** Display Network status. If WAN port of ePBX-100 is under Fixed IP mode, LCD will light on. If WAN port is under DHCP mode, and ePBX-100 succeeds in getting IP, LED will be flashing. If WAN port is under DHCP mode, and ePBX-100 fails to get IP, LED will light off.

#### ■ WAN

- LINK/ACT: Light on when WAN port is connected to network. Flash when data is transmitting or receiving.
- **10/100:** Light on when network rate is 10 Mb/s, and light off when network rate is 100 Mb/s.

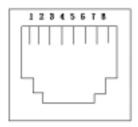
#### ■ LAN

- **LINK/ACT**: Light on when LAN port is connected to network. Flash when data is transmitting or receiving.
- **10/100:** Light on when network rate is 10 Mb/s, and light off when network rate is 100 Mb/s.

#### 1.2.2 Back Panel



- Reset: Network and Login information will return to default values.
- LAN/WAN: RJ-45 socket, complied with ETHERNET 10/100base-T. The pin-out is as following:



PIN 1, 2: Transmit PIN 3, 6: Receive

■ **12V DC:** Input AC 100V~240V;output DC12V

# 2. Start to Configure ePBX-100

# 2.1 Step 1

Connect **LAN** port of ePBX-100 with network.

## 2.2 Step 2

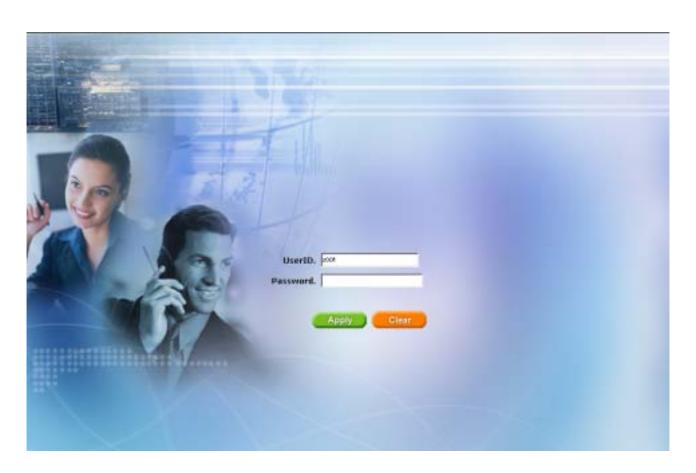
Prepare one computer, and change the IP address to be 192.168.123.12x.

# 2.3 Step 3

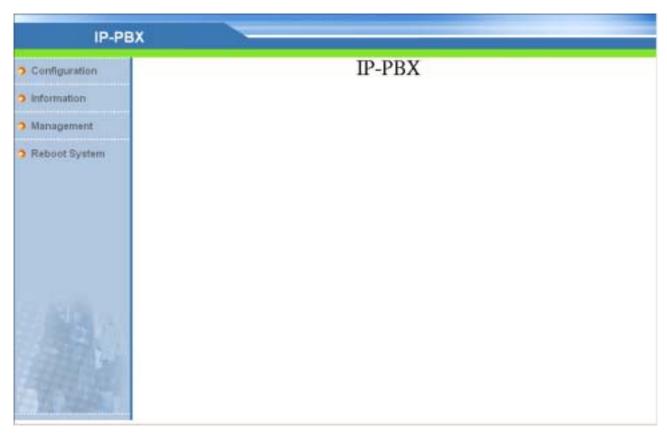
Open browser and link to default LAN IP address of ePBX-100 "192.168.123.123".

## 2.4 Step 4

Login ePBX-100 with default userID: "**root**", and no password. After login ePBX-100, user can start to configure basic and essential configurations.



After Login ePBX-100 will see screen as below, and there are four main categories, user can click on each category to extend detail items.



- Configuration: Include all telephony configuration of ePBX-100.
  - IP PBX
  - Extension
  - Trunk
  - SIP Trunk
  - Routing Table
- Information: To show related information.
  - Subscriber
  - System
- Management: Include all system management of ePBX-100.
  - Network
  - TimeZone
  - User Account
  - Firmware Upload
  - Music Upload
  - Export Setting
  - Import Setting
- Reboot System: To reboot system of ePBX-100.

## 2.5 Step 5: To configure basic and essential configurations

To make ePBX-100 work have to make some basic and essential configurations, which include Network, Extension (FXS and IP Phone devices), and Trunk (FXO devices).

### 2.5.1 Network Configuration

Enter Management-Network to configure WAN and LAN IP.



#### **WAN**

Mode: Select ePBX-100 WAN port network mode to be Fixed IP or DHCP.

**IP Address/NETMASK/GATEWAY:** If user has set ePBX-100 to be fixed IP mode. User need to input IP address/Subnet Mask/ Default Gateway.

**DNS:** Input DNS address.

Mac: Mac address of ePBX-100 WAN port. The Mac address cannot be modified.

LAN

**IP Address:** Input IP address for LAN port of ePBX-100. **NETMASK:** Input Subnet Mask for LAN port of ePBX-100.

**Mac:** Mac address of ePBX-100 LAN port. The Mac address cannot be modified.

## 2.5.2 Extension Configuration

User has to set Extension account for other device to register on ePBX-100. Enter **Configuration-Extension** to configure Extension data. On screen will show 100 sets Extension. User can press **Modify** to add new Extension or modify configured Extension data. Press **Delete** will delete the specified Extension.

Extens	sion					
Configuration	Index	Extension Number	Dimfmode	Transversal	Sett	ing
Extension	1 1	-bone-	-bone-	Disable	Moddy	Dáre
Touck	2	-time-	-6094-	Disable	Modely	Delen
SP Tourk Routing Lable	3.	-boxe-	-bose-	Disable	Modely	Deire
KAMPINE LADIE	4	-boxe-	-0000-	Désable	Modely	Debrie
> Information	5	-bose-	-0000-	Disable	Modify	Delete
Management	6	-boxe-	-B008+	Disable	Modely	Deine
	7	-tome-	-6054-	Disable	Molth	Dide
Reboot System	8	-008e-	-bose-	Disable	Modily	Delete
	9	4038-	-0000-	Disable	Modely	Drive
	10	oose-	done-	Disable	Modely	Dire
	11	-boxe-	-8095-	Disable	Mokey	Date
	12	-bose-	-pope-	Disable	Modely	Dece
	13	-bole-	-bose-	Disable	Moddy	Dán
	14	-bose-	-0.094-	Disable	Mobby	Drive
	1.5	-boxe-	done-	Disable	Mokly	Delete
	16	-0000	-0000-	Disable	Molthy	Dán
	17	done-	-5036-	Disable	Modely	Didee

After press Modify can input detail setting for Extension.



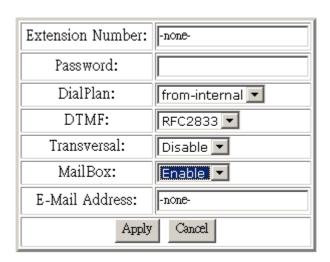
**Extension Number:** Assign the number of Extension. This number is also the register name for device.

Password: Assign the register password for device to register on ePBX-100.

**DTMF:** User can select DTMF type to be RFC2833, In-band, or SIP-Info.

**Transversal:** If the Extension device is behind NAT and need to register to ePBX-100 on public network, then user has to enable this function.

**Mail Box:** User can select to disable or enable mail box function. If this function is enabled, user has to input e-mail address for the Extension. When having voice mail of incoming call, system will send this voice mail to the specified e-mail address.



## 2.5.3 Trunk Configuration

User has to set Trunk account for Trunk (FXO device, e.g. 3804A) to register to ePBX-100. Please note that only Trunk account can connect with automated attendant.

On screen will show 10 sets Trunks. User can press **Modify** to add new Trunk or modify configured Trunk data. Press **Delete** will delete the specified Trunk.



After press Modify can input detail setting for Trunk.



**Trunk Number:** Assign the number of Trunk. This number is also the register name for Trunk device.

**Password:** Assign the register password for device to register on ePBX-100. **DTMF:** User can select DTMF type to be RFC2833, In-band, or SIP-Info. **Transversal:** If the Trunk device is behind NAT and need to register to ePBX-100 on public network, then user has to enable this function.

# 3. Application Setting

#### 3.1 Customize Automated Attendant

## 3.1.1 Record Greeting

Use any Extension phone set to dial in \*\*111 will hear beep, then user can start to record, after recording press # then hang up phone set. Greeting will renew immediately after recording.

#### 3.1.2 Enable Automated Attendant

User has to Enable Trunk (e.g. 3804A) hotline function and point to destination number \*\*999 (Number of Automated Attendant for ePBX-100). Once system has incoming call from PSTN, it will automatically connect to Automated Attendant.

## **3.2 Customize Ring Back Tone (Transferring Tone)**

User can customize Ring Back Tone by upload new wave file on ePBX-100. Please record wave file format as **PCM**, **Channel Mode: Mono, Frequency: 8K, Bit Rate: 16 bit**. Enter **Management-Music Upload-**Press
Browse...-select wave file-Press **Apply** to upload special Ring Back Tone.
After Upload is finished, press Reboot to reboot system to renew Ring Back Tone.



## 3.3 Forget Login password or IP address

If user forgets the login password or IP address to enter web management of ePBX-100, please press **Reset** button, the ePBX-100 will reboot, login and network setting will return to default values. User can enter web management of default LAN IP address: **192.168.123123**, and login with UserID: **root**, no password.



## 3.4 Export / Import Configuration and wave files

User can export configuration and voice wave files. If there is more than one ePBX-100 need to be configured, user can export configuration of one ePBX-100, and then import this setting file for the other ePBX-100s, so that user doesn't need to re-configure all parameters for each ePBX-100.

## 3.4.1 Export Setting

Enter Management-Export Setting-Press Download, wait for system to collect setting-select directory to save setting file.



## 3.4.2 Import Setting

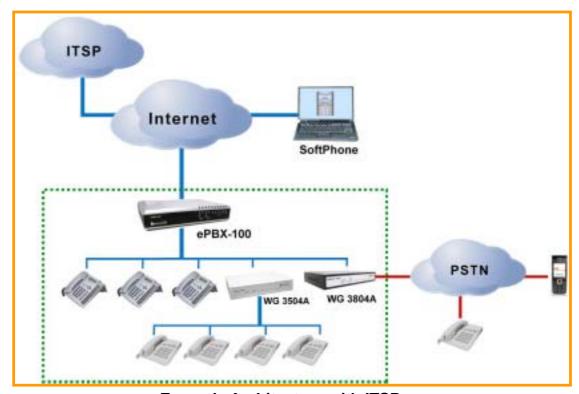
If there is ePBX-100 setting file exported from ePBX-100, user can import this file and doesn't need to re-configure all parameters for ePBX-100. Enter Management-Import Setting-Press Browse and select setting file-Press Apply to Import Setting file.

After Import finished, on screen will show related information. **Please** reboot system to renew system configuration.



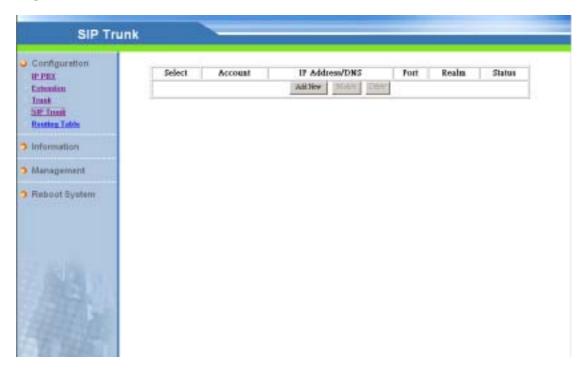
## 3.5 Connect ePBX-100 with ITSP

If user's environment is to connect with ITSP for cost-effective solution, please configure **SIP Trunk**.

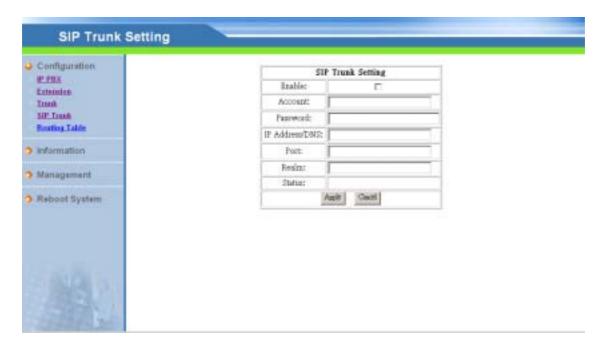


**Example Architecture with ITSP** 

Enter **Configuration-SIP Trunk-Add New** to configure ePBX-100 register to ITSP.



ITSP will provide related account information for ePBX-100 to register. Please enter the data here.



Enable: Check to enable this SIP Trunk.

Account: Account Name for registering to ITSP.

Password: Account Password for registering to ITSP.

**IP Address/DNS:** Enter IP or domain name of ITSP server.

Port: Port number of ITSP server for registering.

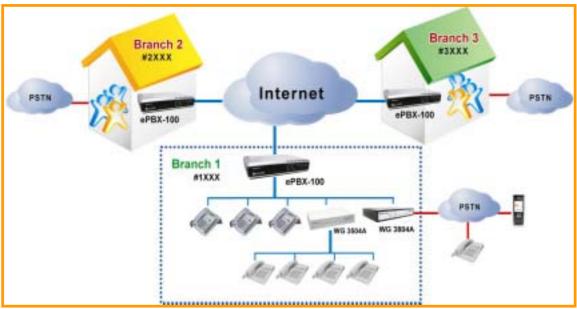
Realm: Realm of ITSP.

Status: Once SIP Trunk is configured and enabled, here will show the

registration status.

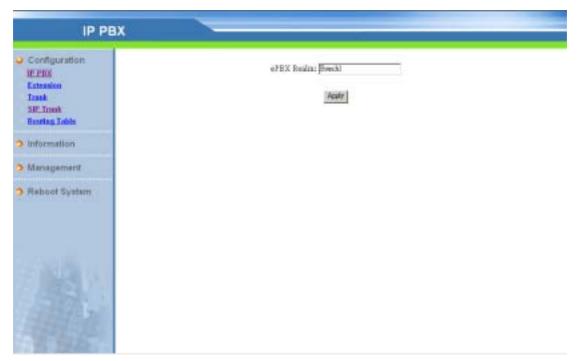
## 3.6 Multi-branch Enterprise

If there is more than one ePBX-100, user can integrate multi ePBX-100s and have free inter-calls.



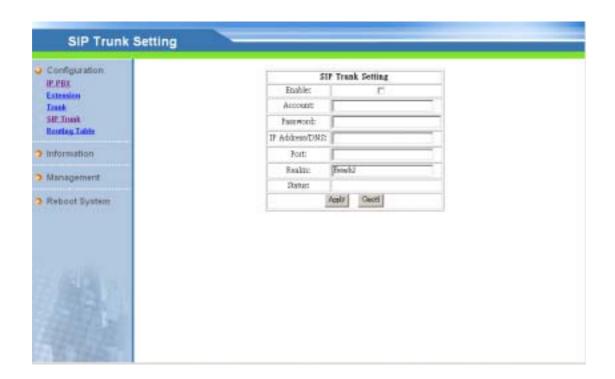
Example Architecture of Multi-branch Enterprise

# 3.4.1 Enter **Configuration-IP PBX** to configure Realm.



3.4.2 Enter Configuration-SIP Trunk-Add New to configure ePBX-100 of the other branches.

Note: The Realm parameter is to set realm of other branches but not realm of it's own. For example, Enterprise has two branches, Branch 1's realm is A, and Branch 2's realm is B. For Branch 1 SIP Trunk Setting is to set the account to register to Branch 2's ePBX-100. The Realm needs to be input as B.



# 4. Full Web Configurations

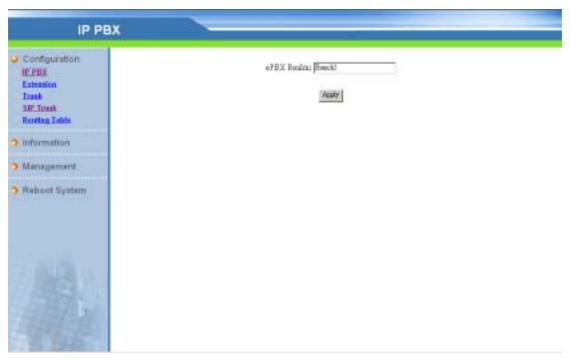
# 4.1 Configuration

User can set ePBX-100 telephony configuration under Configuration category.



### 4.1.1 IP PBX

Configure Realm of ePBX-100. This parameter is essential when there is more than one ePBX-100, and user wants to have inter-calls between ePBX-100s. Please refer to SIP Trunk configuration.

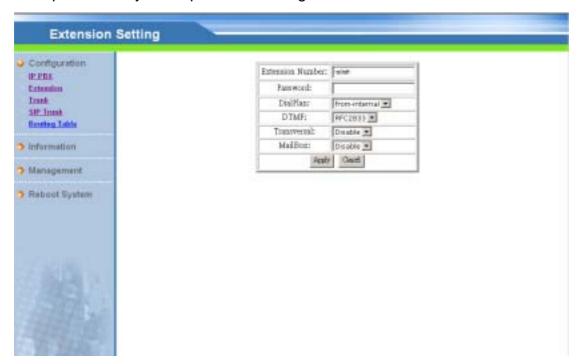


#### 4.1.2 Extension

User has to set Extension account for other device to register on ePBX-100. Enter **Configuration-Extension** to configure Extension data. On screen will show 100 sets Extension. User can press **Modify** to add new Extension or modify configured Extension data. Press **Delete** will delete the specified Extension.

Configuration  IF PEX Extension	Index	Index Extension Number		Transversal	Setting	
	1	-boke-	-bose-	Disable	Modify	Ddre
Touck	2	-pone-	-6094-	Disable	Modify	Drice
SP Took Rooting Lable	3.	-boxe-	-bose-	Disable	Modely	Dere
	4	-boxe-	-0000-	Désable	Modely	Debres
Information	5	dote-	-0008-	Disable	Modely	Drice
> Management	6	-boxe-	-000t-	Disable	Modely	Drine
	7	-0.034-	-6054-	Disable	Molely	Dide
> Reboot System	8	-008e-	-bose-	Disable	Modely	Ddet
	9	-0.034-	-0.030-	Disable	Modely	Drive
	10	cone-	-bose-	Disable	Modely	Dire
	11	-008e-	-6000-	Disable	Modify	Dáre
	12	-bose-	-pose-	Disable	Modely	Déce
	13	-bone-	-bose-	Disable	Modely	Ddet
	14	-bose-	-0.094-	Disable	Makly	Drive
	1.5	0086-	done-	Disable	Modely	Delete
	16	-0000-	-0000-	Disable	Molthy	Dán
	17	-pone-	-pose-	Disable	Modely	Dice

After press Modify can input detail setting for Extension.



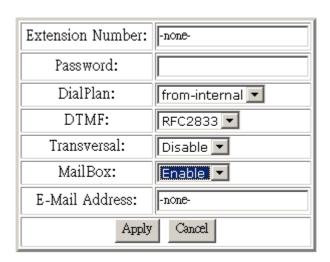
**Extension Number:** Assign the number of Extension. This number is also the register name for device.

Password: Assign the register password for device to register on ePBX-100.

**DTMF:** User can select DTMF type to be RFC2833, In-band, or SIP-Info.

**Transversal:** If the Extension device is behind NAT and need to register to ePBX-100 on public network, then user has to enable this function.

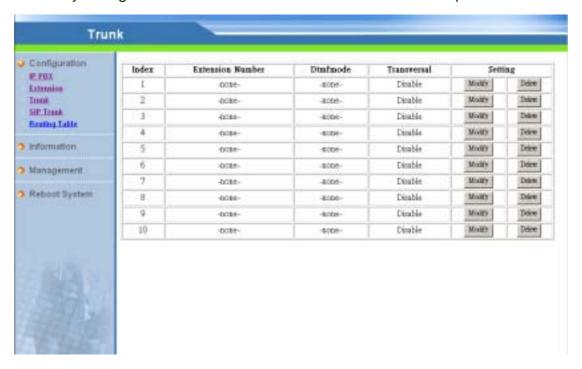
**Mail Box:** User can select to disable or enable mail box function. If this function is enabled, user has to input e-mail address for the Extension. When having voice mail of incoming call, system will send this voice mail to the specified e-mail address.



#### 4.1.3 Trunk

User has to set Trunk account for Trunk (FXO device, e.g. 3804A) to register to ePBX-100. Please note that only Trunk account can connect with automated attendant.

On screen will show 10 sets Trunks. User can press **Modify** to add new Trunk or modify configured Trunk data. Press **Delete** will delete the specified Trunk.



After press Modify can input detail setting for Trunk.



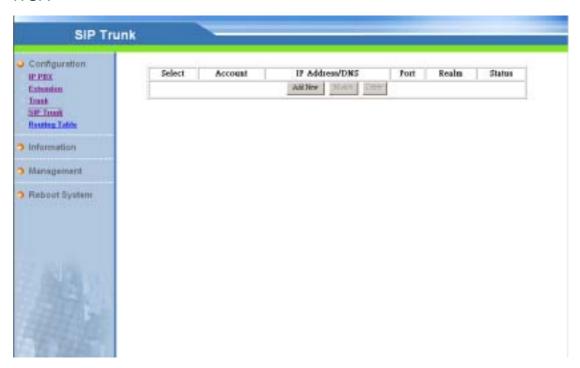
**Trunk Number:** Assign the number of Trunk. This number is also the register name for Trunk device.

**Password:** Assign the register password for device to register on ePBX-100. **DTMF:** User can select DTMF type to be RFC2833, In-band, or SIP-Info. **Transversal:** If the Trunk device is behind NAT and need to register to ePBX-100 on public network, then user has to enable this function.

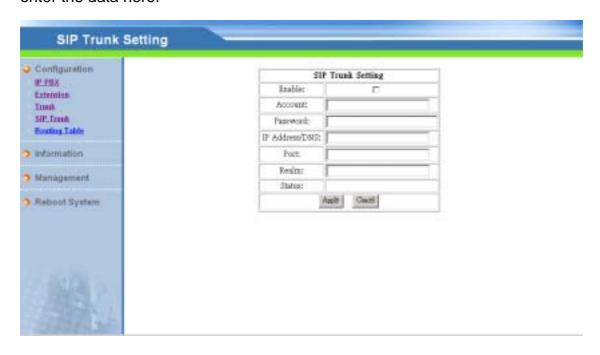
## 4.1.4 SIP Trunk

SIP Trunk is for ePBX-100 to register to other systems, such as ITSP or another ePBX-100.

Enter **Configuration-SIP Trunk-Add New** to configure ePBX-100 register to ITSP.



ITSP will provide related account information for ePBX-100 to register. Please enter the data here.



Enable: Check to enable this SIP Trunk.

Account: Account Name for registering to ITSP.

Password: Account Password for registering to ITSP.

**IP Address/DNS:** Enter IP or domain name of ITSP server.

**Port:** Port number of ITSP server for registering.

Realm: Realm of ITSP or another ePBX-100.

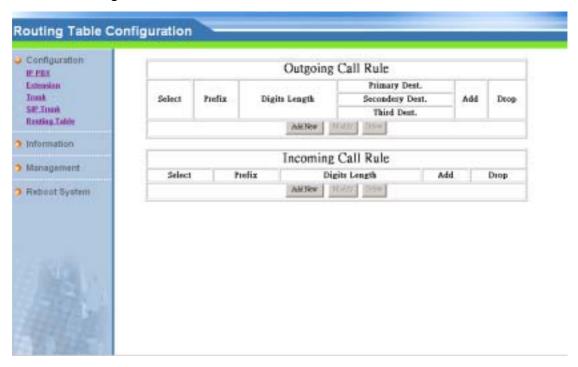
Status: Once SIP Trunk is configured and enabled, here will show the

registration status.

## 4.1.5 Routing Table

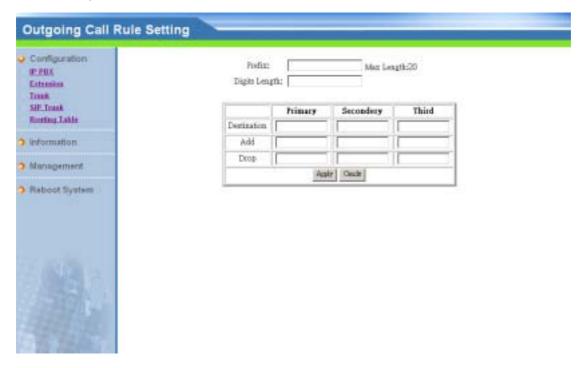
Routing Table is to set routing rule of ePBX-100. There are two directions to set rules: Outgoing Call Rule means from subscriber (Extension or Trunk registered on ePBX-100) to call out. Incoming Call Rule means call from other non-subscriber device to ePBX-100.

Enter Configuration-Routing Table-select direction and press Add New to set routing table.



#### 4.1.5.1 Outgoing Call Rule

Outgoing Call Rule means from subscriber (Extension or Trunk registered on ePBX-100) to call out.



**Prefix:** Set prefix number for routing rule.

**Digits Length:** Set the length of dialed number, if user doesn't want to limit the length, please set this parameter as 0. The maximum length is 20.

**Primary/Secondary/Third:** User can set three priorities for each routing rule, if ePBX-100 fail to route to primary destination three times, it will try to route to secondary or third destination.

**Destination:** User can set number or IP address as destination. If user set subscriber's number as destination, and the subscriber doesn't register on ePBX-100, ePBX-100 will skip this priority and route call to next priority immediately without trying.

**Drop:** To drop specified length of number.

**Add:** To add assigned number.

Press Apply to save configuration, or press Cancel to quit configuration.

#### Example:

If user set prefix as 002, digits length as 12, Primary destination as 123.123.123.123, Drop as 3, and Add as 0.

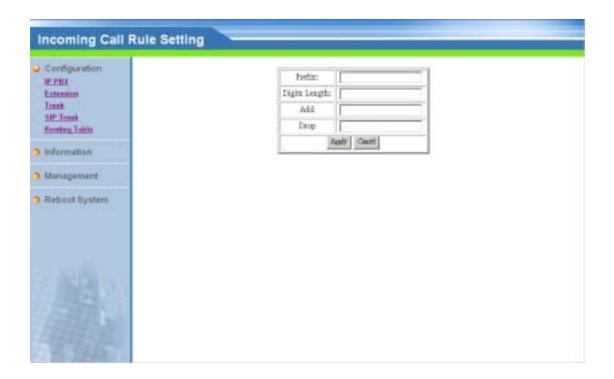
When caller called 002912345678, the prefix is 002, length is 12, so this call match the routing rule.

002912345678 912345678(Drop 3 digits) 0912345678

Finally, ePBX-100 will send 0912345678 to IP 123.123.123.123.

### 4.1.5.2 Outgoing Call Rule

Incoming Call Rule means call from other non-subscriber device to ePBX-100.



**Prefix:** Set prefix number for routing rule.

Digits Length: Set the length of dialed number, if user doesn't want to limit the

length, please set this parameter as 0. The maximum length is 20.

**Drop:** To drop specified length of number.

Add: To add assigned number.

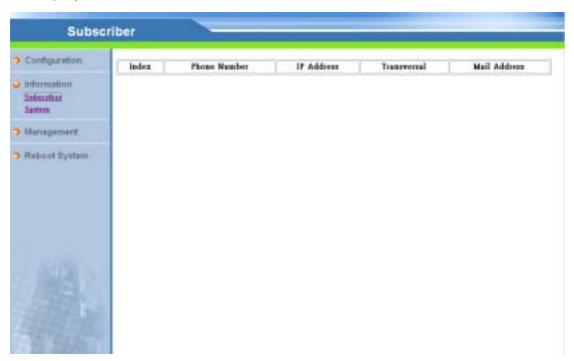
#### 4.2 Information

User can check some information of ePBX-100 here.



#### 4.2.1 Subscriber

Enter Information-Subscriber to check information of Subscriber. User check Phone Number, IP Address, Transversal and Mail Address here. If subscriber registered on ePBX-100, the IP Address will show up, on the other hand, if the subscriber doesn't register successfully on ePBX-100, the IP Address will not be displayed.



## **4.2.2 System**

Enter Information-System to check information of system.

# 4.3 Management

User can execute ePBX-100 system configuration and management under this category.



#### 4.3.1 Network

Enter Management-Network to configure WAN and LAN IP.



#### WAN

**Mode:** Select ePBX-100 WAN port network mode to be Fixed IP or DHCP. **IP Address/NETMASK/GATEWAY:** If user has set ePBX-100 to be fixed IP mode. User need to input IP address/Subnet Mask/ Default Gateway.

**DNS:** Input DNS address.

**Mac:** Mac address of ePBX-100 WAN port. The Mac address cannot be modified.

#### LAN

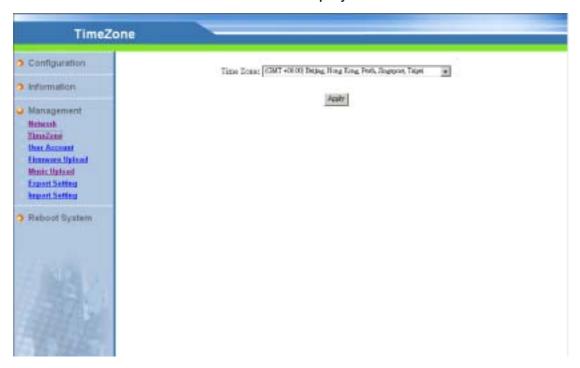
**IP Address:** Input IP address for LAN port of ePBX-100. **NETMASK:** Input Subnet Mask for LAN port of ePBX-100.

Mac: Mac address of ePBX-100 LAN port. The Mac address cannot be

modified.

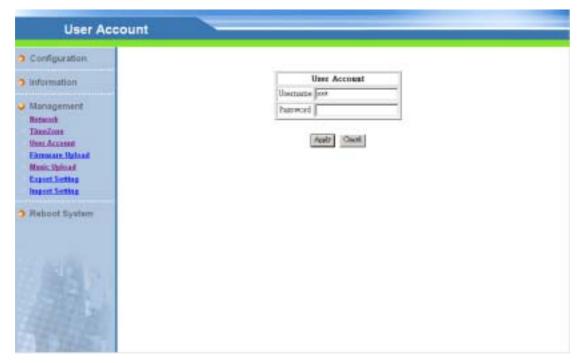
#### 4.3.2 TimeZone

Enter Management-TimeZone to select correct Time Zone for ePBX-100, this time will affect CDR and voice mail time display.



#### 4.3.3 User Account

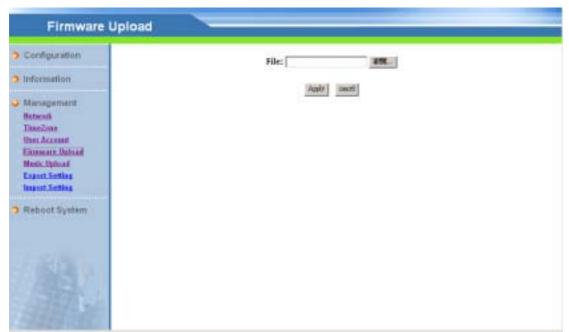
Enter Management-User Account User can set login User name and Password here. System only one set of user.



## 4.3.4 Firmware Upload

Enter Management-Firmware Upload to update firmware. Press browse to select firmware, and then press Apply to upload data or press Cancel to quit input.

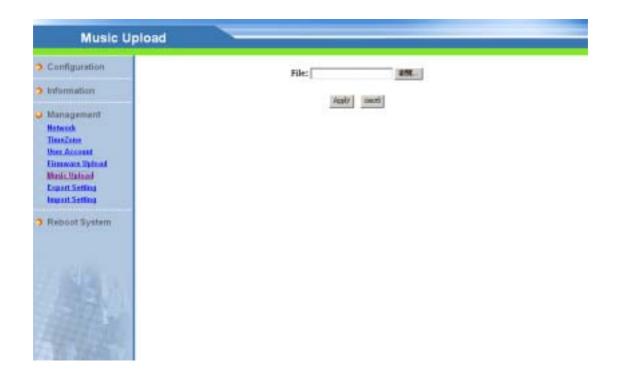
After upload succeed, on screen will show related information. **Please reboot** system to renew system firmware.



## 4.3.5 Music Upload

User can customize Ring Back Tone (Transferring Tone) by upload new wave file on ePBX-100. Please record wave file format as **PCM**, **Channel Mode: Mono, Frequency: 8K**, **Bit Rate: 16 bit**.

Enter Management-Music Upload-Press Browse...-select wave file-Press Apply to upload special Ring Back Tone. After Upload is finished, press Reboot to reboot system to renew Ring Back Tone.



## 4.3.6 Export Setting

User can export configuration and voice wave files. If there is more than one ePBX-100 need to be configured, user can export configuration of one ePBX-100, and then import this setting file for the other ePBX-100s, so that user doesn't need to re-configure all parameters for each ePBX-100.

Enter Management-Export Setting-Press Download, wait for system to collect setting-select directory to save setting file.

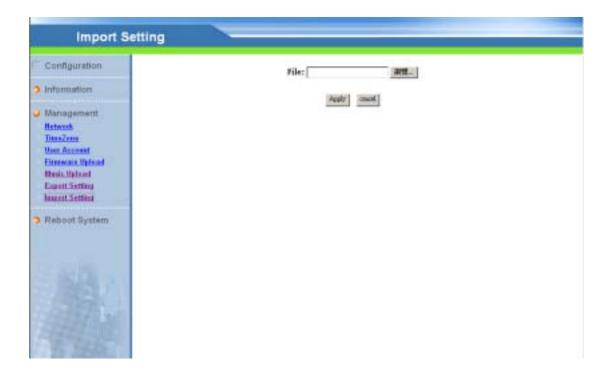


## 4.3.7 Import Setting

file-Press Apply to Import Setting file.

If there is ePBX-100 setting file exported from ePBX-100, user can import this file and doesn't need to re-configure all parameters for ePBX-100. Enter Management-Import Setting-Press Browse and select setting

After Import finished, on screen will show related information. **Please** reboot system to renew system configuration.



# 4.4 Reboot System

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

