4G Gateway User Guide

Application

1.1.1. Desktop Service Terminal



This application is mainly used for call center. As a desktop telephone terminal, it can realize outbound by IP line and inbound by GSM/CDMA mobile network, flexible calls and cheaper fees. It also can control and manage the call process and analyzed the statistical billing data, perform line recording monitoring.



1.1.2. Unified Communication IPPBX

Figure 1-2 Application of Unified Communication IPPBX

This application is mainly used for unified communication of micro and small enterprises. It can serve as the enterprise switchboard service, at the same time solve the company's internal IP extension, and manage the staff's calls, realizing the call recording, statistical analysis and other functions.

1.2. Product Appearance



Front Panel Interface

- MIC: 3.5mm microphone interface
- SPK: 3.5mm headphone interface
- RST: System restore factory setting and reset interface
- PICK: Local voice channel answering key
- VS: Local audio channel status indicator
- L2: Analog channel2 (FXO) status indicator
- L1: Analog channel1 (FXS) status indicator
- MN: Mobile network (GSM/CDMA) wireless channel status indicator
- N2: Ethernet port2 status indicator
- N1: Ethernet port1 status indicator
- P: Power supply and device operation status indicator

Figure1-4 Back Panel



Back Panel Interface

- RF: Mobile network antenna interface
- SIM: SIM card slot
- SD: SD card (TF card) slot
- LAN1: Ethernet port1, default as WAN port
- LAN2: Ethernet port2
- Line2: Analog channel2
- Line1: Analog channel1
- DC 12V: DC power supply port

1.3. Indicator Description

Indicator	Definition	Status	Description
		Shine	The device is powered on and the firmware is
	Power status indicator		starting.
Р		Blind	The device without electricity.
		Slow flash	The system is running.
		Blind	The network is not connected or the network
N1	LAN1 indicator		connection is abnormal.
		Fizzle	The network connection is normal.
		Blind	The network is not connected or the network
N2	LAN2 indicator		connection is abnormal.
		Fizzle	The network connection is normal.
		Slow flash	The channel is on the line.
MNI	Wireless channel	Quick flash	The telephone is ringing.
IVIIN	indicator	Shine	The channel is free.
		Blind	The channel is unavailable
		Slow flash	The channel is busy.
1.1	Line1 channel	Quick flash	The telephone is ringing out.
L1	indicator	Shine	The channel is free.
		Blind	The channel is unavailable.
		Slow flash	The channel is busy.
1.0	Line2 channel	Quick flash	The telephone is ringing out.
LZ	indicator	Shine	The channel is free.
		Blind	The channel is unavailable.
		Slow flash	The channel is busy.
VS	Audio channel	Quick flash	The telephone is ringing out.
v S	indicator	Shine	The channel is free.
		Blind	The channel is unavailable.

Performance and Features

1.3.1. Main Features

- Single device provides FXS/FXO/GSM access technology
- Initiate/Receive PSTN/PLMN Calls via FXO/GSM
- Flexible dial plan, based on time, number, source, IP and other routing strategies
- Support IVR, user can customize IVR
- Supports high-speed NAT routing and forwarding
- Built-in soft-switch (IP-PBX) function, support 30 SIP extensions, 15 SIP concurrency (G.711A/U) and 5 SIP concurrency (G.729)
- Friendly web user management interface provides multiple management methods

Physical Parameters

- FXS: 1, RJ11 interface
- FXO: 1, RJ11 interface
- SIM slot: 1
- Micro SD slot: 1
- 3.5 Audio interface: 2 (Headphone and microphone)
- Ethernet network interface:
 - (1) 1 WAN (LAN1) interface (10/100 Base-T RJ45), default as DHCP Client.
 - (2) 1 LAN (LAN2) interface (10/100 Base-T RJ45), default IP: 10.91.8.1

1.3.2. Voice Feature

- VoIP Protocols: SIP over UDP/TCP/TLS, SDP, RTP/SRTP PPTP VPN
- Supported Codecs: G.711a/µ law, G.723.1, G.729A/B, GSM, G.726, G.722, SPEEX, ADPCM, iLBC
- Silence Suppression
- Comfort Noise Generator (CNG)
- Voice Activity Detection (VAD)
- Echo canceller (G.168), Maximum 128ms
- Adaptive Dynamic Buffering
- Adjustable Gain Control
- Automatic Gain Control
- Call Proceeding Tone: Dial Tone, Ring-back Tone, Busy Tone
- Support NAT Traversal
- DTMF Mode: RFC2833/Signal/Inband

1.3.3. FXS

- Interface Type: RJ11
- Caller ID Signaling: BELL, V23, V23_JP, DTMF
- Hang Up Detection: Off-hook, On-hook, Busy Tone
- Polarity Reverse
- Hooking Detection

1.3.4. FXO

- Interface Type: RJ11
- Caller ID Detection: FSK, DTMF
- Reversed-Polarity Detection
- Delayed Response Off-hook
- Busy Tone Detection
- No Current Hang-up Detection

1.3.5. Software Feature

- Interface Type: RJ11
- Ring Group
- Routes Group
- Calling/Called Number Transform
- Time Condition
- Based on Destination Routing
- Based on Source Routing
- Dial Plan
- Failover Routing
- FXO Impedance Matching
- Customizable Multi-language IVR
- Auto Attendant Function
- Local CDR Storage

1.3.6. Additional Service

- Call Forwarding (Unconditional/No Reply/Busy/Not Reachable)
- Call Waiting/Holding
- Call Transfer
- Intra-group Pickup
- Hotline
- Do Not Disturb (DND)
- Tripartite Meeting

1.3.7. Physical Specification

- Power supply: $12VDC, \ge 1.5A$
- Max power consumption: 10W
- Operation temperature: $0 \,^{\circ}\text{C} \sim 45 \,^{\circ}\text{C}$
- Storage temperature: $-20 \text{ }^{\circ}\text{C} \sim 80 \text{ }^{\circ}\text{C}$
- Operation Humdity: 10%-90% (Non-condensing)
- Dimension: 160 x 105 x 24 mm (W/D/H)
- Weight: 0.5kg

1.3.8. Management & Maintenance

- Simple and convenient configuration via Web GUI
- CLI Management Config

- Support configuration files backup and upload
- Support Chinese and English page
- Firmware Update by HTTP/TFTP
- Auto Provision Update
- Modify Password via Web
- CDR Query & Export
- Syslog Query & Export
- Ping and Tracer Test
- Traffic Statistics: TCP, UDP, RTP
- Network Capture/Network Quality Test
- Automatic Time synchronization

1.4. Install

1.4.1. Install Caution

- 4G Gateway is equipped with a power adapter and adopts DC 12V input. Please ensure stable and safe power supply.
- When the telephone is wired, please separate from the strong cable to reduce the interference to the telephone.
- To ensure stable operation of the device, make sure the network has sufficient bandwidth.
- Please place the equipment on the horizontal surface. Do not stack the equipment to avoid heat dissipation.

1.4.2. Installation Steps

1. Insert SIM card into the SIM card slot on the back panel of the device. First make sure that the mobile network supported by the device matches with the SIM card

2. Install GSM antenna (external suction dish antenna) at the antenna interface (RF interface) in the back panel of the equipment. (Skip steps 1 and 2 if the device does not have a GSM wireless channel).

3. WAN (LAN1) is connected to the network line and the other end of the network line is connected to the customer specified network.

4. FXS port connects to the phone. (Skip step 4 if the device is not configured with an FXS channel).

5. FXO port connects to PSTN line. (Skip step 5 if the device is not configured with an FXS channel).

6. The power adapter is connected to the power interface (DC 12V) and the adapter is connected to the 220VAC power socket.

7. The internal system of the device has been started normally when it is observed that the device buzzer makes a long sound or the running indicator light begins to flicker regularly and slowly.

8. Refer to the subsequent sections of this document to configure and use this device. (Please refer to section 1.3 of the document for the device interface picture).

1.5. Network Connection

4G Gateway supports two network working modes: route mode and bridge mode. Under route mode, WAN port address and LAN port address are located in different network segments. Under bridge mode, the WAN port shares an IP address with the LAN port.

1.5.1. Route Mode

Under route mode, WAN port acquires IP address by DHCP default, while the default IP address of LAN port is 10.91.8.1. The default mode is route mode.



Figure 1-5 Network Connection of Route Mode

1.5.2. Bridge Mode

Under bridge mode, the WAN port shares an IP address with the LAN port. According to the actual situation, when the equipment is under bridge mode, the IP address of the device has been modified in general. In the following network connection diagram, it is assumed that the IP address of the device has been modified to 192.168.0.2, and the IP address of the PC has been modified to 192.168.0.3.



1.5.3. Connect Device to Network

The above network connection diagram shows that 4G Gateway devices are connected to the network through the network port and users can choose one of them according to the actual situation. When 4G Gateway is under default routing mode, it can also connect to the network by bridge mode. In this case, users should pay attention to the IP address of 4G Gateway service. There are some kinds of confirm ways:

- Through the fixed IP address of LAN2 port: 10.91.8.1, log in the web interface to check WAN (LAN1) and obtain the IP address through DHCP.
- Access the phone through FXS port and query the IP of the device using the feature function code (follow the section 3.6).
- Query the device's IP through the upper router

1.5.4. Connect 4G Gateway to Network by Ethernet Port

Connect 4G Gateway to the network according to the network connection diagram and modify the IP address of the PC to make sure the PC and the device are in the same network segment

1.5.5. Preparation

The default IP address of device LAN port is 10.91.8.1. First, modify the IP address of the local computer to ensure that the computer and the device are in the same network segment. Take Windows 7 as an example

Figure 1-7 Modify the Local Computer Address

~~~ 如果网络支持此功能,则可以 您需要从网络系统管理员处获	获取自动指派的 IP 设置。否则, 得适当的 IP 设置。
◎ 白动梦得 ™ 地址の)	
● 使用下面的 IP 地址(S):	
IP 地址(I):	10 . 91 . 8 . 3
子网掩码(V):	255 .255 .255 .0
默认网关 (0):	10 . 91 . 8 . 1
● 自动获得 DMS 服务器地址	£ (B)
◉ 使用下面的 DNS 服务器址	b址(E):
首选 DNS 服务器(P):	10 . 91 . 8 . 1
备用 DNS 服务器(A):	
🔲 退出时验证设置 (L)	高级(∀)

Check the connectivity between the computer and the device, Click Start, point to Run, type CMD, and execute: ping 10.91.8.1 to check whether the device's IP address is normal.

Figure 1-8 Check the Connectivity

管理员: C:\Windows\system32\cmd.exe		-
Microsoft Windows [版本 6.1.7601] 版权所有 <c> 2009 Microsoft Corporation。保留所有权利。</c>	-	2
C:\Users\Administrator>ping 10.91.8.1		
正在 Ping 10.91.8.1 具有 32 字节的数据: 来自 10.91.8.1 的回复: 字节=32 时间<1ms TTL=64 来自 10.91.8.1 的回复: 字节=32 时间<1ms TTL=64 来自 10.91.8.1 的回复: 字节=32 时间<1ms TTL=64 来自 10.91.8.1 的回复: 字节=32 时间<1ms TTL=64		
10.91.8.1 的 Ping 统计信息: 数据包: 已发送 = 4, 已接收 = 4, 丢失 = 0 <0% 丢失>, 往返行程的估计时间<以毫秒为单位>: 最短 = Oms, 最长 = Oms, 平均 = Oms		
C:\Users\Administrator>		

### 1.5.6. Log in the Web

Open the browser, enter the equipment LAN IP address "10.91.8.1" (you can also enter the IP address of the WAN port, but the IP address of the WAN port must be in the same network segment with the local PC IP address), the default user name and password are "admin/admin". Click "login" button.

SMT		
	Authorization Required	
	Username Admin Password •••••	
	LOGIN	

#### Figure 1-9 4G Gateway Login Interface

## 1.5.7. Web Management Interface

The web management interface of 4G Gateway is divided into a system button area, a menu bar and a configuration area.

Figure 1-10 Web Management Interface

SMT	4111111111	Auto Refresh on
Status	Status	
Overview	System	
Routes	Hostname	SMT
Realtime Graphs	Model	SMT-X1
Custom	Туре	161015
System	Sequence Number	XR10101140000100
Network	Firmware Version	20180716174451
SmartDBV	Hardware Version	102
Smaripba	Local Time	Mon Jul 16 17:55:46 2018
Logout	Uptime	Oh 11m 3s
	Load Average	0.38, 0.45, 0.33
	Memory	
	Total Available	107448 kB / 126164 kB (85%)
	Free	76656 kB / 126164 kB (60%)
	Cached	23768 kB / 126164 kB (18%)
	Buffered	7024 kB / 126164 kB (5%)
	Network	
	IPv4 WAN Status	Type:         dhcp           Address.         192.168.2.172           Image:         Image:         192.168.2.172           Image:         <
	IPv4 LAN Status	Type: static Address: 10.918.1 Velmask: 255.255.255.0 Caleway: 00.0.0 Connected: 0h.10m.46s

Table 1-3	Web	Interface	Description
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Name	Description
System button	Support Auto Refresh Switch button.
Menu Bar	Click the module to expand the lower function menu. The results of your selection are displayed
	in the configuration area.
Configuration	Used to modify and view configuration.

# 2. Web Configuration

After logging into the device, the Web interface is shown below.

Figure 2-1 Web Interface				
SMT	11/1/////	Auto Refresh on		
Status	Status			
Overview				
Routes	System			
	Hostname	SMT		
Realtime Graphs	Model	SMT-XI		
System	Туре	161015		
	Sequence Number			
Network	Firmware Version	20180716174451		
SmartPBX	Hardware Version			
Logout		01 JUL 10 1/303/40 2018		
Logodi		0.00 0./5 0.00		
	Load Average	0.30, 0.43, 0.33		
	Memory			
	Total Available	107448 kB / 126164 kB (85%)		
	Free	76656 kB / 126164 kB (60%)		
	Cached	23768 kB / 126164 kB (18%)		
	Buffered	7024 kB / 128164 kB (5%)		
	Network			
	IPv4 WAN Status	Type:         thcp           Address:         192.158.2.172           P         Netmask:         255.255.0           LANI         Gateway:         192.182.2.1           DNS 1:         192.168.2.1         Connected:           Connected:         0h:         109.42s		
	IPv6 LAN Status	Type: static Address: 10.918.1 Netmask: 255.255.0 Gateway: 0.0.0 Connected: 0h 10m 46s		

## 2.1. Status

The status menu includes overview, routes and real-time information, mainly displays device-related information.

### 2.1.1. Overview

Enter the Web interface, you could see "state - > overview" interface. This page mainly shows the host model, firmware version, device running time, Mac address, IP address and other information.

Figure 2-2 Status

SMT	a a a a a a a a a a a a a a a a a a a	///////////////////////////////////////	Auto Refresh on
Status	Status		
Overview	System		
Routes	Hostname	SMT	
Realtime Graphs	Model	SMT-X1	
	Туре	161015	
System	Sequence Number	XR10101140000100	
Network	Firmware Version	20180716174451	
C	Hardware Version	10.2	
Smaripba	Local Time	Mon Jul 16 17:55:46 2018	
Logout	Uptime	Oh 11m 3s	
	Load Average	0.38, 0.45, 0.33	
	Memory		
	Total Available	107448 kB / 126164 kB (85%)	
	Free	76656 kB / 126164 kB (60%)	
	Cached	23768 kB / 126164 kB (18%)	
	Buffered	7024 kB / 126164 kB (5%)	
	Network		
	IPv4 WAN Sfatus	Type: dhcp Address: 192 168.2.172 Pretmask: 255.255 255.0 LAN: 6 detway: 192.168.2.1 DNS 1: 192.168.2.1 Connected: 0h 10m 42s	
	IPv4 LAN Status	Type: static           Address: 10.918.1           Netmask: 255.255.0           Gateway: 0.0.0           Connected: 0h 10m 46s	

### 2.1.2. Routes

The route information of device connection is shown on the "Status -> Routes"

page. Figure 2-3 Routes

SMT				
Status	Routes			
Overview	The following rules are currently	y active on this system.		
Routes				_
Realtime Graphs	ARP		MAC-Address	Interface
System	192.168.2.102		c8:3a:35:28:43:05	eth0.2
Network	192.168.2.168		94:0c:6d:59:d5:8f	eth0.2
SmartPBX	192.168.2.1		f8.e9.03.9e.f4.11	eth0.2
Logout	Active IPv4-Routes			
	Network	Target	IPv4-Gateway	Metric
	wan	0.0.0/0	192.168.2.1	
	lan	10.91.8.0/24	0.0.0.0	
	wan	192.168.2.0/24	0.0.0.0	0
	Active IPv6-Routes			
	Network	Target	IPv6-Gateway	Metric
	lan	FD34:203A:88A6:0:0:0:0.0/64	0:0:0:0:0:0:0/0	00000400
	loopback	FD34:203A:88A6:0.0:0.0.0/48	0:0:0:0:0:0:0/0	7FFFFFF
	loopback	0.0.0.0.0.0.0.0/0	0.0.0.0.0.0.0.0/0	FFFFFFF

## 2.1.3. Realtime Graphs

The "Status -> Realtime Graphs" page shows the load information of CPU, the statistics information of network traffic and the connection information of network.

SMT		Auto Refresh on
Status	Load Traffic Connections	
Overview	Realtime Load	
Routes	2m 1m	<i></i>
Realtime Graphs		
System	0.35	
Network	0.23	
SmartPBX		
Logout	0.12	
	2 minute window	3 second interval)
	1 Minute Load: 0.42 Average: 0.39 Peak. 0.42	
	5 Minute Load: 0.37 Average: 0.36 Peak 0.37	
	15 Minute Load: 0.33 Average: 0.32 Peak 0.33	

Figure 2-5 Load Information of CPU

**Figure 2-6 Statistics Information** 

SMT			Auto Refresh on
Status	Load Traffic Connections		
Overview	Realtime Traffic		
Routes	hr-lan eth0 eth0.1 eth0.2		
Realtime Graphs	2m		1111111111
System	111 6646 (014 69/6)		
Network	1.11 KDI(/S (0.14 KD/S)		
SmartPBX	0.74 kbit/s (0.09 kB/s)		
Logout			
	0.37 kbit/s (0.05 kB/s)		
			(2 minute window, 3 second interval)
	Inbound: 0 kbit/s(0 kB/s)	Average: 0 kbit/s(0 kB/s)	Peak: 0 kbit/s(0 kB/s)
	Outbound: 0 kbit/s(0 kB/s)	Average: 0.01 kbit/s(0 kB/s)	Peak: 1.34 kbit/s(0.17 kB/s)

SMT	1111							1111111			Auto Refresh on
Status	Load Traffic	Connecti	ons								
Overview Routes	Realtin	ne Cor	nnect	ions	network conn	ections.					
Realfime Graphs	Antine Co										_
System	Active Co	nnechor	15	2m				1m			0.000
Network											6666
SmartPBX	18										
Logout	12 6										
								(2	2 minute v	vindow	. 3 second interval)
		UDP:	23			Average:	22		Peak	23	
		TCP				Average:			Peak		
		Other:	1			Average:	1		Peak	1	
	Network	Protocol		102 100	2 100 EE017			Destination			Transfer
	IPV4	UDP		192.168	2 219-64261			255 255 255 255 255 22313			190 KB (54 Pkts.)
	IPV4	UDP		192.168.	2.219 58532			255.255.255.255.255.22313			1.86 KB (53 Pkts.)
	IPV4	UDP		192.168	2.219-49851			255.255.255.255.22313			1.86 KB (53 Pkts.)
	IPV4	TCP		192.168.	2.168-56663			192.168.2.172.80			1.86 KB (8 Pkts.)

#### Figure 2-7 Connection Information

## 2.2. System

Users could set local time, user name/password and reverse tunneling. You also could check operation log, synchronize time, upgrade system, backup/recover/upgrade data and reboot device.

### 2.2.1. System

Users could modify the name of device and set time zone, synchronize local time, set log, language and interface style on the "System -> System" page.

SMT			Auto Refresh on
Status	System		
System	Here you can configure the basic aspects of y	your device like its hostname or the timezone	
System			
Administration	System Properties		
N2N VPN(V2)	General Settings Logging Language		
Reverse Tunneling	Local Time	2018-07-16 18:15 Mon SYNC WITH BROWSER	
Backup / Flash Firmware	Hostname	SMT	
Reboot	Timezone	Asia/Shanghai •	
Network	Time Synchronization		
SmartPBX			
Logout	Enable NTP client	ø	
	Provide NTP server		
	NTP server candidates	s1a.time.end.cn	
		s1b.time.end.cn	<u>×</u>
		s1c.time.end.cn	<u>×</u>
		s1d.time.end.cn	×
		s1e.time.end.cn	

Figure 2-8 System Settings

### 2.2.2. Administration

Users could set user name and password, the default is admin/admin. We suggest you to change them for safety.

#### Figure 2-9 Modify User Name and Password

SMT	1111111111	111111111111	mmm
Status	Router Password		
System	Changes the administrator password for acce	ssing the device	
System			
Administration	Uld Password		
N2N VPN(V2)	New Password		
Reverse Tunneling	Confirm Password	-	0
Backup / Flash Firmware		///////////////////////////////////////	SAVE & APPLY SAVE RESET
Reboot			
Network			
SmartPBX			
Logout			

### 2.2.3. N2N VPN

Users could enable N2N VPN function that used to remote debugging on the "System -> N2N VPN(V2)" page.

```
Figure 2-10 N2N VPN Settings
```

SMT		
Status	N2N VPN(V2)	
System	n2n is a layer-two peer-to-peer virtual p	private network (VPN) which allows users to exploit features typical of P2P applications at network instead
System		
Administration	N2N Edge Settings	
N2N VPN(V2)	Enable	•
Reverse Tunneling	TUN desvice name	n2n_edge
Backup / Flash Firmware	Interface mode	static •
Reboot	Interface IP address	10.0.0.100
Network	Interface netmask	255.255.255.0
SmartPBX	Supernode IP address	1.2.3.4
Logout	Supernode Port	1234
	N2N Community name	example
	Encryption key	password
	Enable packet forwarding	•

### 2.2.4. Reverse Tunneling

Users could enable reverse tunneling function that used to remote debugging on the "System -> Reverse Tnneling" page.

Figure 2-11	Reverse	Tunneling	Settings
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SMT				
Status	Reverse Tunnelii	ng		
System System	Reverse Tunneling Con	figure		
Administration	Enable			
N2N VPN(V2)	Remote IP	115.58.75.52		
Reverse Tunneling	Remote Port	22		
Backup / Flash Firmware	Reverse Port	12345		
Reboot	Poll	600		
Network				
SmartPBX			SAVE & APPLY SAVE	SET
Logout				

## 2.2.5. Backup/Restore/Upgrade

On the "system-> backup/upgrade" page, users can backup, restore configuration data and upgrade device versions. The data recovery and update version will not take effect until the device is restarted.

SMT	
Status	Flash operations
System	
System	Backup / Restore
Administration	Click "Generate archive" to download a tar archive of the current configuration files. To reset the firmware to its initial state, click "Perform reset" (only possible with squashfs images).
N2N VPN(V2)	Download backup: GENERATE ARCHIVE
Reverse Tunneling	Reset to defaults: PERFORM RESET
Backup / Flash Firmware	To restore configuration files, you can upload a previously generated backup archive here.
Reboot Network	Restore backup: 选择文件 未选择任何文件 UPLOAD ARCHIVE
SmartPBX	Elseb new firmwara image
Logout	Upload a sysupgrade-compatible image here to replace the running firmware. Check "Keep settings" to retain the current configuration
	(requires an Openwrt compatible tirmware image).
	Keep settings:
	Image: 选择文件 未选择任何文件 FLASH IMAGE

Figure 2-12 Backup/Restore/Upgrade Page

Note: The files used for system upgrade and the uploaded configuration files are all local files

Name	Description
Backup	Backup system configuration parameters to a compressed file and download over the web.
Restore	Restore configuration data to the factory default of the device
Upload backup	Import the system configuration data.
	Note: Only 4G Gateway backup data can be imported.
Flash firmware	Upgrade equipment version. The upgrade file provided by the manufacturer.

#### Table 2-1 Backup/Restore/Upgrade Description

### 2.2.6. Reboot

Users could reboot the system on the "System -> Reboot" page.

SMT	
Status	System
System	
System	Reboot
Administration	Reboots the operating system of your device
N2N VPN(V2)	PERFORM REBOOT
Reverse Tunneling	
Backup / Flash Firmware	
Reboot	
Network	
SmartPBX	
Logout	

#### Figure 2-13 Reboot

## 2.3. Network

4G Gateway gateway supports two network modes, route mode and bridge mode. Under route mode, the IP address of WAN port should be different from that of LAN port. Under bridge mode, the IP address of WAN port is the same as that of LAN port

### 2.3.1. Interfaces

Users could set the IP address of WAN/LAN port on the "System -> Interfaces" page. Under route mode, the default ways to get IP address of WAN port is DHCP and the default IP address of LAN is 10.91.8.1.

There are some ways to set the IP address of WAN port: Static address, DHCP.

#### **Figure 2-14 WAN Port Settings**

SMT		Auto Refresh on
Status	WAN(LAN1) LAN(LAN2)	
System	Interfaces - WAN	
Network	On this page you can configure the network i	nterfaces. You can bridge several interfaces by ticking the "bridge interfaces" field and enter the names
Interfaces	of several network interfaces separated by s	paces. You can also use VLAN notation INTERFACE. VLANNR (e.g.: eth0. 1).
DHCP and DNS	Common Configuration	
Hostnames	General Setup Advanced Settings Fir	ewall Settings
Static Routes	Status	Uptime: 1h 30m 28s ggar MAC-Address: 80.7F.85.1F.F1.14 Provide Control Britshill
Diagnostics		eth0.2 TX. 170.0 MB (52203 FWS.) 170.7 29 MB (500377 FWS.) 1946; 192.169.2 172/24
SmartPBX	Protocol	DHCP client •
Logout	Hostname to send when requesting	Static address
	DHCP	
		SAVE & APPLY SAVE RESET
		a a a a a a a a a a a a a a a a a a a

**DHCP:**4G Gateway working as a DHCP client, makes a broadcast request and seek a response from the DHCP server. Then DHCP server automatically assigns an IP address to 4G Gateway within the defined IP address range.

Note: When configured as "DHCP" to get the IP address, it is necessary to ensure that DHCP server exists in the network and works properly.

Static address: Also called fixed IP address. The IP address is assigned to a computer or network device for a long time. If choose the static address as the IP address of 4G Gateway WAN port, you need to enter the following

1) IP address: Static address that assigned to 4G Gateway WAN port. Subnet mask: The subnet mask of the router that connected to 4G Gateway.

- 2) Default gateway: The IP address of the router that connected to 4G Gateway.
- 3) User-defined DNS server: The IP address of DNS server.

SMT	41111111	Unsaved Changes: 3 Auto Refresh on
Status	names or several network line naces separa	y spaces for car also dee vican holanon infinitizatives, vicanni (e.g.: valo, Tr.
System	Common Configuration	
Network	General Setup Advanced Settings Fir	rewall Settings
Interfaces	Status	Uptime: 0h 0m 53s gaza MAC-Address; 80.7F.85.1F.F1.14 RX: 2.94 MB (10402 Pkts.)
DHCP and DNS		TX: 2.60 MB (9764 Pkts.) IPv4, 192.168.2.172/24
Hostnames	Protocol	Static address •
Static Routes	IPv4 address	
Diagnostics	IPv4 netmask	•
SmartPBX	IPv4 gateway	
Logout	IPv4 broadcast	
	Use custom DNS servers	
	IPv6 assignment length	disabled •
		C Assign a part of given length of every public IPv6-prefix to this interface
	IPv6 address	
	IPv6 gateway	
	IPv6 routed prefix	
		Public prefix routed to this device for distribution to clients.
	Internet and the second se	
	DHCP Server	
	General Setup IPv6 Settings	
	Ignore interface	Disable DHCP for this interface.

Figure 2-15 Static Address of WAN Port

### 2.3.2. DHCP/DNS

Users could set DHCP server and DNS retransmission on the "Network -> DHCP/DNS" page. The changes take effect after saving.

#### SMT Unsaved Changes: 3 Auto Refresh on Status DHCP and DNS System Dnsmasq is a combined DHCP-Server and DNS-Forwarder for NAT firewalls Network Server Settings Interfaces General Settings Resolv and Hosts Files TFTP Settings Advanced Settings DHCP and DNS Domain required ø -Don't forward DNS-Requests without DNS-Name Authoritative ø This is the only DHCP in the local network /lan/ Diagnostics Local server Local domain specification. Names matching this do resolved from DHCP or hosts files only d and are SmartPBX lan Logout Local domain Local domain suffix appended to DHCP names and hosts file entries Log queries Write received DNS requests to syslog 1 DNS forwardings List of DNS servers to forward requests to Rebind protection V Discard upstream RFC1918 response Allow localhost Ø Allow upstream responses in the 127.0.0.0/8 range, e.g. for RBL services

#### Figure 2-16 DHCP/DNS Settings

### 2.3.3. Static Routes

Users could configure the reachable path of the network packet on the "Network -> Static Routes" page. Figure 2-16 Static Routes Settings

SMT	Unsaved Changes: 3
Status	Routes
System	Routes specify over which interface and gateway a certain host or network can be reached.
Network	Statis ID-/ Deutee
Interfaces	Static IPv4-Routes
DHCP and DNS	Host-IP or Network If target is a network
Hostnames	This section contains no values yet
Static Routes	ADD
Diagnostics	Static IPv6 Routes
SmartPBX	Interface Target IPv6-Gateway Metric MTU
Logout	IPv6-Address or Network (CIDR)
	This section contains no values yet
	SAVE & APPLY SAVE RESET

Name	Description
Target	Set the destination IP address of static routes.
Netmask	Set the netmask of static routes, default: 255.255.255.0.
Gateway	Set the gateway IP address for the static routes.
Interface	Set the exit of the static routes, WAN or LAN ports

#### **Tbale 2-2 Static Routs Description**

## 2.4. Diagnostics

Users could diagnose the network by "Ping/Traceroute/Nslookup" function in the "Network -> Diagnostics" page.

Figure	2-17	Network	Diagr	ostics
riguit	4-1/	TICLIOIN	Diagi	iustics

SMT	Unsaved Changes: 3
Status	Diagnostics
System	Network Utilities
Network	
Interfaces	
DHCP and DNS	
Hostnames	
Static Routes	
Diagnostics	
SmartPBX	
Logout	

- 1. [Ping]
- Detailed Explain: Ping tests the network by sending a test packet to a URL to see if it is responsive, and counting the response time.
- Application format: Ping + IP address. It is a command to check whether the network is connected normally
  or check the connection speed. Ping sends an ICMP echo request message to the destination and reports
  whether it has received an ICMP echo reply.
- Ping Command Use Description:
  - a) Enter "ping + IP address or domain name" in the input box and click ping to begin connectivity detection.

b) Receiving the message indicates that the network connection is normal, otherwise the network connection is faulty.

- 2. 【Traceroute】
- Detailed Explain: Traceroute is a route-tracking program that determines the path taken by an IP datagram to access the target. The Tracert command uses the IP Time-to-Live (TTL) field and ICMP error messages to determine the route from one host to another on the network. By sending an Internet Control Message Protocol (ICMP) response packet with a different IP Time-to-Live (TTL) value to the target, the Traceroute Diagnostics determines the route taken to the destination, requiring each router on the path to decrement the TTL on the packet by at least 1 before forwarding the packet. When the TTL on the packet is reduced to 0, the router should send a message "ICMP has timed out" back to the source system.

• Traceroute Command Use Description:

a) Enter the IP address or domain name in the traceroute input box and click traceroute to start routing tracking.

b) View routing trace information based on the results

- 3. [Nslookup]
- Detailed Explain: Nslookup (name server lookup) can specify the type of the query, check the life time of the DNS records, and specify which DNS server to use for interpretation. This command can be used on computers that have TCP/IP protocol installed. Nslookup is mainly used to diagnose information of the Domain Name System (DNS) infrastructure. It is a tool for querying Internet domain name information or diagnosing DNS server problems.
- Traceroute Command Use Description:
  - c) Enter the domain name in the nslookup input box and click nslookup to start the domain name query.
  - d) View the domain name server information based on the results.

## 2.5. SmartPBX

The SmartPBX menu contains configuration items such as channel status, extension configuration, trunk configuration, queue management, IVR, dial plan, recording management, advanced configuration, call log, protocol capture, and restart service. On the SmartPBX page, users could see the channel status as follows.

Figure 2-18 SmartPBX Channels Status

	8021	n/a		No	n/a	Unavailab
S	8022	n/a		No	n/a	Unavailat
em	8023	n/a		No	n/a	Unavailat
	8024	n/a		No	n/a	Idle
ork	8025	n/a		No	n/a	Idle
1PBX	8026	n/a		No	n/a	Unavailat
nview	8027	n/a		No	n/a	Unavailat
i view	8028	n/a		No	n/a	Unavailat
ension	8029	n/a		No	n/a	Unavailat
nk	8030	n/a		No	n/a	Unavailat
	8031	n/a		No	n/a	Unavailat
eue	SID Trunk					
	Trunk Name	Regis	tered Address	Online	Delay	Status
iterence	Wireless					
lplan	ID COPS	PIN Sig	nal(0-31)	CCID	IMEI	Statue
						Sidius
cord	1 CHINA_MOBILE	n/a		898602D5111751054688	865794034781320	Idle
ord S	1 CHINA_MOBILE	n/a		898602D5111751054688	865794034781320	Idle
s S	1 CHINA_MOBILE FXS Extension Edension Number	n/a F	31 Yort	898602D5111751054688	865794034781320 Bain Output Gain	Idle
sord S	1 CHINA_MOBILE FXS Extension Extension Number 2000	n/a F	31 Nort	898602D5111751054688 Input ( Odi	865794034781320 Bain Output Gain 3 OdB	Idle Status InUse
sord S Neral RS	1 CHINA_MOBILE FXS Extension Extension Number 2000	n/a F	31 Vort	898602D5111751054688 Input Odi	865794034781320 Sain Output Gain 3 OdB	Idle Status InUse
xord S Neral RS Ne Profiles	1 CHINA_MOBILE FXS Extension Extension Number 2000 FX0 Trunk	n/a F	31 Fort	898602D5111751054688 Input Odi	865794034781320 Bain Output Gain 8 OdB	Idle Status InUse
oord S Neral RS Ne Profiles	1 CHINA_MOBILE FXS Extension Extension Number 2000 FXO Trunk Trunk Name	n/a F	31 Forf	898602D5111751054668 Input Odi	865794034781320 Sain Output Gain 3 OdB Sain Output Gain	Idle Status InUse Status
oord S Neral RS Ne Profiles ubleshooting	1 CHINA_MOBILE FXS Extension Extension Number 2000 FXO Trunk Trunk Name FX0_2		31 vrt ine1 vrt vrt ne2	898602D5111751054668 Input t Odf	865794034781320           Sain         Output Gain           3         0dB           Bain         Output Gain           3         0dB           3         0dB	Idle Status InUse Status Idle
ord S Heral RS He Profiles Lubleshooting	1 CHINA_MOBILE FXS Extension Extension Number 2000 FX0 Trunk Trunk Name FX0_2 Headphone	n/a Contraction P L Contraction P L	31 orf ine1 orf ne2	896802D5111751054688	865794034781320       Sain     Output Gain       3     OdB       Sain     Output Gain       3     OdB	Idle Status InUse Status Idle
cord S Meral RS Ne Profiles ubleshooting cklist Manager	1 CHINA_MOBILE  FXS Extension Extension Number 2000  FXO Trunk Trunk Name FX0_2  Headphone Extension Number		31 orf ine1 orf ne2 Answer Mode	896602D 511175 1054668 Input : Odd Odd Odd	Bein Output Gein Bein Output Gein Bein Output Gein Bein Output Gein Bein Output Gein Bein Output Gein	Status Idie Status InUse Status Idie Status

The channel state records all channels available and the configuration information and working status of each channel.

- SIP Extension: Used to display channel configuration information and state of the SIP terminal that allowed register to this device.
- SIP Trunk: Used to display channel configuration information and status of the SIP terminal that register to external SIP server.
- Headphone: Used to display the configuration information and status of the audio channels on the device.
- FXS Extension: Used to display configuration information and status of the FXS port channel on the device.
- FXO Trunk: Used to display configuration information and status of the FXO port channel on the device.

#### 2.5.1. SIP Extension

On the "SmartPBX -> SIP Extension" page, users could see SIP Extension, FXS Extension and Headphone. SIP Extension: Used to add, configure, or delete SIP account that can be registered to the device

SMT							111111		Ur	isaved Changes: 3
Status	SIP Extension FXS	Headphone								
System	SIP Extensi	on								
Network	Oversiew									
SmartPBX	Overview	_	_	_	_	_			_	
Overview	Extension Number	Account	Secret	Group	SRTP	Codecs	Unconditional Transfer	Busy Transfer		
Extension	8000	8000	8000		Off	all	Off	Off	EDIT	
Trunk	8001	8001	8001		Off	all	Off	Off	EDIT	
Queue	8002	8002	8002		Off	all	Off	Off	EDIT	
IVR	8003	8003	8003		Off	all	Off	Off	EDIT	
Conference	8004	8004	8004		Off	all	Off	Off	EDIT	
Dialplan	8005	8005	8005		Off	all	Off	Off	EDIT	
Record	8006	8006	8006		Off	all	Off	Off	EDIT	
SMS	8007	8007	8007		Off	all	Off	Off	EDIT	
General					2000					
CDRS	8008	8008	8008	_	Off	all	Off	Off	EDIT	
Time Profiles	8009	8009	8009		Off	all	Off	Off	EDIT	

#### **Figure 2-19 SIP Extension Status**

#### Figure 2-20 SIP Extension Configue

SMT		Unsaved Changes: 3
Status	SIP Extension FXS Headphone	
System	SIP Extension Configur	re
Network	General Settings Features Settings	A Aranad Sattione
SmartPBX	Extension Number	8000
Overview	Display Number	8000
Extension	Secret	8000
Trunk	Group	1
Queue		·
IVR	F	
Conference	Back to Overview	SAVE
Dialplan		

**Other terminal devices registered to 4G Gateway:** Take 4G Gateway as SIP Server, add SIP accounts in the "Extension ->SIP" page, configure the listening port of SIP server ("Configuration -> SIP" interface), and then configure the server and registrate accounts on the terminal device (IAD)

**FXS Extension:** When the device has an FXS port, the extension number of the port can be configured under this interface.

SMT								Uns	aved Changes: 3
Status â	SIP Extension FXS	Headphone							
System	FXS Exten	sion							
Network	Overview								_
SmartPBX									
Overview	Extension Number	Port Group	Input Gain	Output Gain	Send Polarity Reversal	Unconditional Transfe	r Busy Transfer		
Extension	2000		0dB	0dB	No	Close	Close	EDIT	DELETE
Trunk	ADD								
Queue	•								•
IVR	1111				///////////////////////////////////////		SAVE & APPLY	SAVE	RESET
Conference									

Figure 2-21 FXS Extension Config

Headphone: Configure the extension number corresponding to the audio channel and the answer mode.

rigure 2-22 neauphone Conn	gure 2-2	2 Headphon	e Config
----------------------------	----------	------------	----------

SMT				Insaved Changes: 3
Status	SIP Extension FXS Headphone			
System	Hendphone Configu	re		
Network	Extension Number	1000		
SmartPBX		Manual		
Overview	Volume Level	5		
Extension				
Trunk				
Queue		<u> </u>	SAVE & APPLY SAVE	RESET
IVR				

## 2.5.2. Trunk

In the "SmartPBX -> Trunk" page, include three kinds of trunk models: SIP Trunk, FXO Trunk and Wireless. **SIP Trunk:** Used to add, modify and delete the SIP accounts that register to external server.

SMT	
Status	SIP Trunk FX0 Wireless
System	SIP Trunk
Network	Overview
SmartPBX	
Overview	Trunk Name SIP Address Trunk Type NAT SRTP Codecs Keepalive
Extension	This section contains no values yet
Trunk	ADD
Queue	
IVR	SAVE & APPLY SAVE RESET
Conference	

Figure 2-23 SIP Trunk Status

### Figure 2-24 SIP Trunk Config

SMT	///////////////////////////////////////	Unsaved Changes: 5
Status	SIP Trunk FX0 Wireless	
System	SIP Trunk Configure	
Network	General Settings Advanced Settings	
SmartPBX	Trunk Name	
Overview	Trunk Type	Peer Trunk •
Extension	SIP Address	Register Trunk Peer Trunk Account Trunk
Trunk Queue	SIP Port	5060
IVR	Domain	() VoID provider's server domain name. If the provider has no domain name fill in the ID
Conference		address instead.
Dialplan	Aufhuser	Oused for SIP authentication. In most cases, it is the same with the username.
Record	Secret	
SMS		The password to register to the trunk from the VoIP provider.
General	Realm	VoIP provider's server realm name. If the provider has no realm name, leave the field
CDRS		blank.
Time Profiles	Oufbound Proxy Enabled	A proxy that receives requests from a client. Even though it may not be the server resolved by the Request-URI.
Troubleshooting	Force From User	
Blacklist	NAT	Caller ID number for this trunk. This teature requires support from the service provider.
API Manager		
PBX Log		
Restart Service 👻	Back to Overview	SAVE

The following describes the three common configurations of SIP trunks.

- 1) Register to SIP Sever as Client
- 2) IP Identification
- 3) Voip gateway register as Sever

**FXO Trunk:** When the device has an FXO port, user can configure the outside line number of the port under this interface.

SMT							111111		111111
Status	SIP Trunk FX	) Wireless							
System	FX0 Tru	ınk							
Network	Overview								_
SmartPBX	overview		_	_	_	_			
Overview	Trunk Name	FXO Number	Port	Input Gain	Output Gain	CID Mode	Occasion to Receive CallerID	Secondary Dialing	Polarity Reversal Detection
Extension	FX0_2	057188970001		OdB	0dB	FSK	After the first ring	No	No
Trunk	ADD								
Queue	4								•
IVR	CITIT.	11/1/			1111	11/	1111111	SAVE & APPLY	SAVE RESET
Conference									And a second

Figure 2-25 FXO Trunk Config

Wireless: When the device has GSM/CDMA communication module, the wireless channel number can be configured under the interface.

	0	
SMT		
Status	SIP Trunk FX0 Wireless	
System	Wireless Configure	2
Network	Wireless Channel	
SmartPBX		
Overview	Trunk Name	GSM
Extension	DID Number	1360000000
Trunk		If you wish the inbound call through this trunk to be redirected via outbound route, please fill in the destination number to be called.
Queue	Call Waiting	· ·
IVR	Call Forwarding	Cancel All
Conference		
Conterence	1111111111	SAVE & APPLY SAVE DESET
Dialplan	0.0.0.0.0.0.0.0.0	SAVE CAPTER SAVE

#### Figure 2-26 GSM/CDMA Wireless

### 2.5.3. Queue

Under "Smartpbx -> Queue" interface, users can add, modify and delete queues and specify the queue's extension number and ringing policy.

Figure 2-27 Queue Overview

SMT	
Status	Queue Configure
System	Queue Overiew
Network	
SmartPBX	Queue Number Ring Strategy Members
Overview	This section contains no values yet
Extension	ADD
Trunk	
Queue	SAVE & APPLY SAVE RESET
IVR	

Figure 2-28 Queue Configuration

SMT				Unsaved Changes: 1
Status	Queue Configurati	on		
System		-		
Network	Queue Number			
SmartPBX	Ring Strategy	ringall	<b>_</b>	
Quantiaut	Members		· · · · · · · · · · · · · · · · · · ·	
Extension		headset:1000 fxs:2000		
Trunk	Back to Overview	sip:8000 sip:8001 sip:8002	SA	RESET
Queue		sip:8003 sip:8004		
IVR		sip:8005 sip:8006		
Conference		sip:8007 sip:8008		
Dialplan		sip:8009 sip:8010		
Record		sip:8011 sip:8012		
SMS		sip:8013 sip:8014		
General		sip:8015 sip:8016		

### 2.5.4. IVR

Under "SmartPBX -> IVR" interface, users configure IVR switchboard number, IVR disable/enable Settings, IVR broadcast timeout Settings, and also can upload users customized IVR voice files and configure button rules for IVR voice navigation.

Figure 2-29 IVR Configuration

SMT	444444	///////////////////////////////////////	///////////////////////////////////////	Unsaved Changes: 1
Status	IVR Edit IVR Sounds Manager			
System	IVR			
Network	D/P Number	7000		_
SmartPBX	TVR Number	1000		
Overview	Enable	NO		
Extension				
Trunk			Desimation	
Queue		This section contains	no values yet	
IVR	ADD			
Conference				
Dialplan			SAVE & APPLY	SAVE RESET

### 2.5.5. Conference

On the "Smartpbx -> Conference" page, users could configure the conference.

Figure 2-30 Conference Configure

SMT	
Status	Conference Configure
System	Conference Overiew
Network	
SmartPBX	Conference Number Pin Code
Overview	This section contains no values yet
Extension	
Trunk	
Queue	SAVE & APPLY SAVE RESET
IVR	

## 2.5.6. Dialplan

On the "Smartpbx-> Dialplan" page, users could configure the dialplan rules between channels on the device.

#### Figure 2-31 Dialplan Overview

SMT				/////	11/1/1	11/1/1				11/1
Status	Dialp	lan								
System	Caller N	umber Pattern a	and Called Numb	er Pattern use to m	alch the rules					
Network	Leave th pattern i	e field blank to ather than a lite	match any. you c ral.	an also use pattern	is malch to map a range	of numbers. The numbe	r is prefixed by a	"_" charad	ter, it is int	erpreted as a
SmartPBX	X match	es the numbers	0-9: 1-9:	e special meanings						
Overview	N match (12345-9 Wildcard Wildcard	es the numbers matches the n "matches any "causes the r	2-9; umbers the brac /thing remaining	kels (in this examp ). E.g. "_9011." atche s to complete as so	le, 1. 2, 3, 4, 5, 6, 7, 8, 9); s anything starting with !	9011 (excluding 9011 itself	); per malches are (	nossihla		
Extension	Interior	- couses men	nationing proces	s to complete do so	on as in can another bygood	sty determine marine on	ier malenes are	possible.		
Trunk	Dialpl	an Overview	/							
Queue	Priority	Time Strategy	Caller Source	Route Destination	Caller Number Pattern	Called Number Pattern	Number Profile	Billing		
IVR	low	n/a	extension:Any	trunk:GSM	Any		Yes	No	EDIT	
Conference	low	n/a	frunk:Any	extension:1000	Any	Any	No	No	EDIT	DELETE
Dialplan	low	n/a	extension:Any	trunk:FX0_2	Any		Yes	No	EDIT	
Record	ADD									
SMS										
General		1118		/////		11/11/1	SAVE &	APPLY	SAVE	RESET
CDRS										Personal Astronomy of the second

Figure 2-32 Dialplan Edit

SMT			
Status	Dialplan Edit		
System	Caller Number Pattern and Called Numbe	r Pattern use to match the rules	
Network	Leave the field blank to match any, you ca In patterns, the following characters have X matches the numbers 0- 9.	n also use patterns match to map a range of numbers. special meanings.	
SmartPBX	Z matches the numbers 1-9; N matches the numbers 2- 9;		
Overview	Wildcard T causes the matching process	Lets (in this example, 1, 2, 3, 4, 5, 6, 7, 8, 9); E.g. '9011," atches anything starting with 9011 (excluding 9011 its to complete as soon as it can unambiguously determine that n	self): o other matches are possible.
Extension	Priority	low •	
Trunk	Time Strategy	Any	
Queue	Route Source Type	extension	
IVR	Coller Seurce	Δην	
Conference			
Dialplan	Caller Number Pattern	any	
Record	Called Number Pattern	9	
	Number Profile	Yes	
SMS	Caller Replace		
General	Called Prefix Del Bit	1	
CDRS	Called Prefix Add		
Time Profiles	Called Replace		
Troubleshooting	Route Destination Type	trunk	
Blacklist	Route Destination	wireless:GSM	
API Manager	Billion		
PBX Log	Brang		

- Priority: Low, medium, and high, prior choice the high-level dialplan rules
- Time Strategy: Select the configured time policy (SmartPBX->Time Rule).
- **Route Source Type:** There are two types of extension routes and trunk routes. The extension route refers to the call behavior initiated by the extension channel side, and the trunk route refers to the incoming call behavior initiated from the relay channel side.
- Caller Source: Select specific extension or trunk sources.
- **Caller Number Prefix:** Used to match the rules for caller number.
- **Called Number Prefix:** Used to match the rules for callee number.
- Route Destination Type: It is divided into three types: rejection, local and outside line. The rejection is the call that meets the above rules will be refuse. The local indicates the call that meets the above rules will be connected to the extension channel of the device; the outside line indicates if the above rules are met, the call will be connected to the trunk channel of the device.
- Number Profile: Whether the caller and called number used for both parties of the call needs to be changed during transmission. If the choice is "Yes", there will be Caller Repalce, Called Prefix Del Bit, Called Prefix Add and Called Replace. If selected no, go directly to the route destination selection.
  - 1) Caller Replace: Used to fill in the replacement caller number.

2) Called Prefix Del Bit: It is used to indicate how many digits in the number that the caller has dialed does not need to be sent to the remote end.

3) Called Prefix Add: When the caller dialed a number, the actual called number transmitted on the line needs to be prefixed with the prefix added.

4) Called Replace: Used to fill in the replacement called number

Note:

1. When the FXS/FXO port is registered and the route is added, call priority selete the outbound/inbound route.

2. Generally, the priority of call selection ranges from high to low: local extension number, DID (direct dial-in number), routing, and registration.

### 2.5.7. Record

On the "Smartpbx -> Recording" page, users configure the recording rules for the channel. Figure 2-33 Record Configure

SMT	11////////////////////////////////////	(11/1/1/1	11111111111111111111111111111111111111	1///////
Status	Configure Local Record Files			
System	Record Configure			
Network	Eashia Pacarding	-		
SmartPBX	Lindle Recording			
	Storage Mode	FTP storage		
Overview	FTP IP			
Extension				
Transla	FTP Port	21		
IFUNK	FTP Account	anonymous		
Queue				
IVP	FTP Password			
IVA	FTP Path	7		
Conference			_ *	
Dialplan	Record Franks	All Irunks		
	Enable Recording of Interanl Calls			
Record		Check this option, and all interr	nal calls made by the selected extensions will be	recorded automatically.
SMS				
	941444444			
General			SAVE & APPLY	SAVE
CDRS				

- **Record Type :** Including the calling recording and the called recording. The calling recording refers to recording the call initiated by the recording member; and the called recording is recording the call incoming to the recording member.
- Storage Mode: Including Local and FTP. When selecting local, the device needs to insert the SD card (FAT format), and the local recording will be saved to the SD card. When selecting FTP, you need to configure the FTP server address and file save path so that the recording file will be uploaded to the specified FTP path.

#### 2.5.8. SMS

On the "Smartpbx -> SMS" page, users can send and receive short messages.

SMT	Auto Refresh on
Status	Receive Box Send Box
System	SMS Manager
Network	Message Send
SmartPBX	
Overview	
Extension	
Trunk	Message:
Queue	
IVR	
Conference	Recipient:
Dialplan	Send
Record	
SMS	Send List Export
General	Confact Time Message Operation Filter
CDRS	

Figure 2-34 SMS Interface

## 2.5.9. General

On the "Smartpbx -> General" page, users can configure SIP general params.

SMT	111111111111	A A A A A A A A A A A A A A A A A A A
Status	SIP	
System	General Settings NAT Settings	
Network	SIP Port	5060
SmartPBX	RTP Start Port	10000
Overview	RTP End Port	20000
Extension	Max Registration Time	3600
Trunk		C Maximum duration (in seconds) of incoming registrations. The default is 3600 seconds.
IT GITK	Min Registration Time	60
Queue		Minimum duration (in seconds) of incoming registrations. The default is 60 seconds.
IVR	Qualify Frequency	60
Conference		O How often to send SIP OPTIONS packet to SIP device to check if the device is up. The default is 60 seconds.
Dialplan	Registration Attempts	0
Record		O The number of registration attempts before giving up ("O" for no limit).
SMS		
General		SAVE & APPLY SAVE RESET

### 2.5.10. CDRS

On the "SmartPBX -> CDRS" page, Users could configure and query CDRs. You can configure whether to turn on the call recording function in the "Configuration" page. Only when the call recording function is enabled, the call record can be searched in the query interface.On the "Query" page, users could query up to 1000 recent call records.

SMT					
Status	Configure CDRs				
System					
Network	CDRs has disabled You can enable it in	   CDRs / Configure			
SmartPBX	selfa la GDR config	prelien			
Overview	CDRs				
Extension	CDRs Query Parar				
Trunk		0040 7 4		2010	10
Queue	Start Date		End Date	2018 • 7 •	19 •
IVR	Caller	L	Called		
Conference		<u> </u>	<u> </u>		Query Reset
Dialplan	CDRs List				Empty Export
Record	Inday Collar	Source Called	Destination Start Time	End Time Duration H	Japaun Caura Elliter
SMS	nuex cauer	Jource Called	No CDRs yet !		angup cause Pluer
General					
CDRS					

Figure 2-36 CDRs Query

### 2.5.11. Time Profiles

On the "Smartpbx -> Time Profiles" page, configure the time policy. We provide a time policy option in a dial plan that allows the dial plan to select routing based on time.

SMT	1111111111	Unsaved Changes: 1
Status	Time Edit	
System	Name	
Network	Data Pariad	
SmartPBX		
Overview	weekday	■ Mon ■ Tue
Extension		Wed
Trunk		■ Fri
Queue		Sat
IVR	Time Period	
Conference		
Dialplan	Back to Overview	SAVE RESET
Record		
SMS		

Figure 2-37	Time	Profiles
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## 2.5.12. Troubleshooting

On the "SmartPBX -> Troubleshooting" page, users configure the port of network packet capture or select anlalog line need to recording, set the amount of time or number, and set up the filtering requirements. The captured network packet file can be downloaded under the interface.

SMT	4444444	111111111111	Unsaved Changes: 1	Auto Refresh on
Status	Ethernet Captrue Tool Port Monitor Tool AT	Debug Tool		
System	Network Captrue			
Network	Interface	seconds.packets	Filter	Actions
SmartPBX	Any •	100 seconds •	SIP •	Start
Overview	Output			
Extension	No capture in progress			
Trunk				
Queue	File Linker			
IVR	File	Time Size	Action	
Conference		There are no captures available yet.		
Dialplan				
Record				

Figure 2-38 Network Capture

The analog line recording function is mainly used to capture the recording file for analysis when the calling number of the FXO cannot be displayed.

Figure 2-39	Analog	Line	Monitor
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SMT	///////	11/1/1		1111111	Unsaved Changes: 1	Auto Refresh on
Status	Ethernet Captrue Tool Por	t Monitor Tool AT Deb	ug Tool			
System	Analog Line Monite	pr				
Network	Line	se	conds	Filter		Actions
SmartPBX	1 •	60	seconds •	all	•	Start
Overview	Output					
Extension	No Monitor in progres:					
Trunk						
Queue	File Linker					
IVR	File		Time	Size	Action	
Conference			There are no captures a	available yet.		
Dialplan						

### 2.5.13. Restart Service

Users could restart the SmartPBX service on this page.

#### Figure 2-40 Reboot Service

SMT	Unsaved Changes: 1
Status	Reboot Service
System	Warning: There are unsaved changes that will not in force while rebooting!
Network	
SmartPBX	
Overview	

### 2.5.14. Layout

Click the menu bar, execute the layout function, and return to the web login interface.

# 3. Basic Opreration

# 3.1. Phones

#### 3.1.1. Call the Phone Number or Extension Number

- 1. Wait 4 seconds after dialing the called number (wait for system dialing timeout).
- 2. Dial the called number and end with a "#".

## 3.2. Call Holding

By pressing the "flash" button on the phone (if there is one on the phone) to keep the current call, press the "flash"

button again to restore the retained call. If you don't have a "flash" button on your phone, you can use "hook flash" instead.

## 3.3. Call Waiting

When call waiting is enabled, if you hear call waiting voice (three beeps) during the call, that means a new call is inbound. You can switch between incoming calls and current calls using "flash" or "hook flash"

### 3.4. Call Forwarding

#### 3.4.1. Blind

Blind transfer is used to transfer incoming calls to a third party without notifying the transferee that there is a call. If A calls B, B wants to transfer the call A to C, the operation process is as follows:

1) A calls B.

2) B rings, then picks up the phone, and A spoke to B.

3) B presses "*1" to trigger the blind transfer process (when A can hear the waiting sound), and B calls C phone number (ending with "#" or waiting for 4 seconds).

4) C rings, B hangs up, C picks up, C and A talk.

Note:

- The "Feature Code Service" option in the "Call Control -> Feature Code Configuration" page must be set to "on".
- A can be an extension or trunk, B and C can only be an extension (FXS port extension, sip extension).
- B dials C phone number, if you hear a continuous busy tone, the call has timed out

### 3.4.2. Attend

The Attend function allows the user to transfer incoming calls to a third party after confirming a third party's response and deciding whether to answer them. Suppose A calls the phone number of B and B wants to transfer the call to C. The operation process is as follows:

- 1) A dials the phone number of B.
- 2) B hears the ringing, then picks up the phone, and A speaks to B.

3) B presses "*2" to trigger the inquiry process (at which point A can hear the waiting tone), then B calls C phone number.

And then one of the three things happens

1) If the number of C is wrong or C cannot be connected (such as dialing timeout, refusal, call timeout, unregistered and busy user, etc.), B will automatically switch back to the call with A.

2) C has ringed (B can hear the waiting ringback tone), and then B hangs up and A will continue to wait. If A hangs up, C will continue to ring, not stop. If C picks up the phone, the call will hang up directly.

3) C rings, C picks it up, and B talks to C. A continues to wait during the call. At this time either B or C hangs up and the other party calls A.

### 3.5. Flash

A is talking with B, A flashes and calls C. A is talking with C, while A keeps talking to B (B hears the waiting sound). At this point, A can switch to the call with B by pressing flash and pressing the "1" button. By flashing and pressing the "2" button, A can switch to the call with C. Enter a three-way conversation by flashing and pressing the "3" button.

## 3.6. Feature Code List

FXS supports all traditional and advanced telephone functions. The following is the feature codes. It can provide convenient telephone functions for users after picking up the phone.

Code	Description	Comment
*79	WAN	LAN1 port
*78	LAN2	LAN2 Port
*77	Channel Number	
*76	IVR	
*1	Blind	
*2	Attend	
*8	Pickup exten	

Fable	3-1	Feature	Code	List
abic	3-1	reature	Cout	LISU

## 3.7. RST Function

Hold the device RST key for a different duration, the device runs differently.

- When the device is running normally, press the device RST key for 0 to 3 seconds, the device system does nothing.
- 2) When the device is running normally, press the device RST key for 3 to 10 seconds to restore the device login password as the factory default password, and the network configuration of the device is restored to the factory state.
- When the device is running normally, press the device RST key for more than 10 seconds to restore all configuration as factory default data.

### 3.8. Find the IP Address and Restore the Default Settings

LAN port IP address can be found by dial the feature code "*78", WAN port IP address can be found by dial "*79". Press and hold the device more than 6 seconds to restore the default configuration data. Users can also log in to the device through the Web and enter the System-Backup/Restore/Upgrade interface. In the Restore Default Settings option, select the data module to be restored. Set, then restart the device, the corresponding module will restore the factory default data.

Figure 3-1 Restore the Default Settings

SMT	
Status	Flash operations
System	
System	Backup / Restore
Administration	Click "Generate archive" to download a tar archive of the current configuration files. To reset the firmware to its initial state, click "Perform reset" (only possible with squashts images).
N2N VPN(V2)	Download backup: GENERATE ARCHIVE
Reverse Tunneling	Reset to defaults: PERFORM RESET
Backup / Flash Firmware	To restore configuration files, you can upload a previously generated backup archive here.
Reboot	Restore backup: 选择文件 未选择任何文件 UPLOAD ARCHIVE.
Network	
SmartPBX	Flash new firmware image
Logout	Upload a sysupgrade-compatible image here to replace the running firmware. Check "Keep settings" to retain the current configuration (requires an OpenWrt compatible firmware image).
	Keep settings:
	Image: 选择文件 未选择任何文件 FLASH IMAGE