



**OpenVox Communication Co Ltd**



# MAG1100 Analog Gateway User Manual

Version 1.0



## OpenVox Communication Co Ltd

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## Revise History

Version	Release Date	Description
1.0	06/09/2023	First Version

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# 1. Overview

## 1.1 What is MAG1100 Analog Gateway?

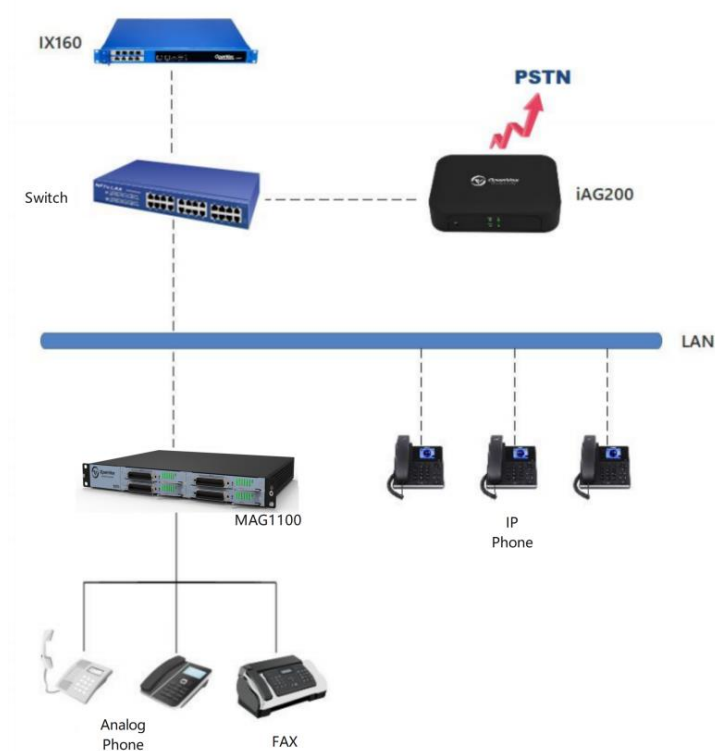
The MAG1100 Analog Gateway is the latest addition to the MAG series of analog gateways and has established itself as a leading VoIP analog gateway solution in the industry. Users can easily set up their own analog gateway system through a user-friendly web interface.

With support for 48/72/96 FXS ports, the MAG1100 Analog Gateway features a modular design that allows for flexible expansion or reduction of module boards as needed.

The MAG1100 Analog Gateway supports various codecs such as G.711A, G.711U, G.729A, G.722, and ILBC. In terms of software integration, the iAG series analog gateways utilize standard SIP protocol, making them compatible with popular IPPBXs and SIP servers. They are also compatible with most VoIP operating systems platforms including Asterisk, Issabel, 3CX, FreeSWITCH, BroadSoft, VOS, and more.

## 1.2 Sample Application

Figure 1-2-1 Topological Graph



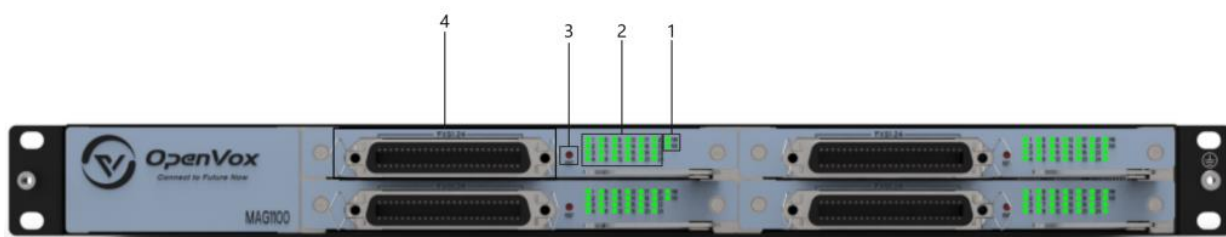
## 1.3 Product Appearance

The picture below is appearance of MAG1100 Analog Gateway.

**Figure 1-3-1 Product Appearance**

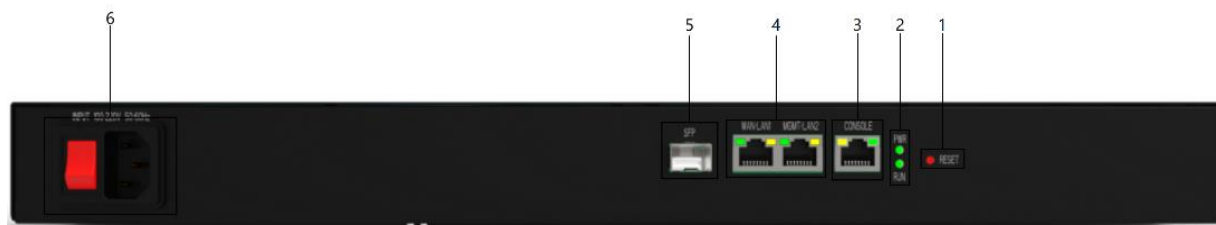


**Figure 1-3-2 Front Panel**



- 1: Module board power and operational status indicator lights
- 2: Analog channel status indicator light
- 3: Module board reset button
- 4: RJ21 Port

**Figure 1-3-3 Back Panel**



- 1: Device reset button
- 2 : Device power and operational status indicator lights
- 3 : Console



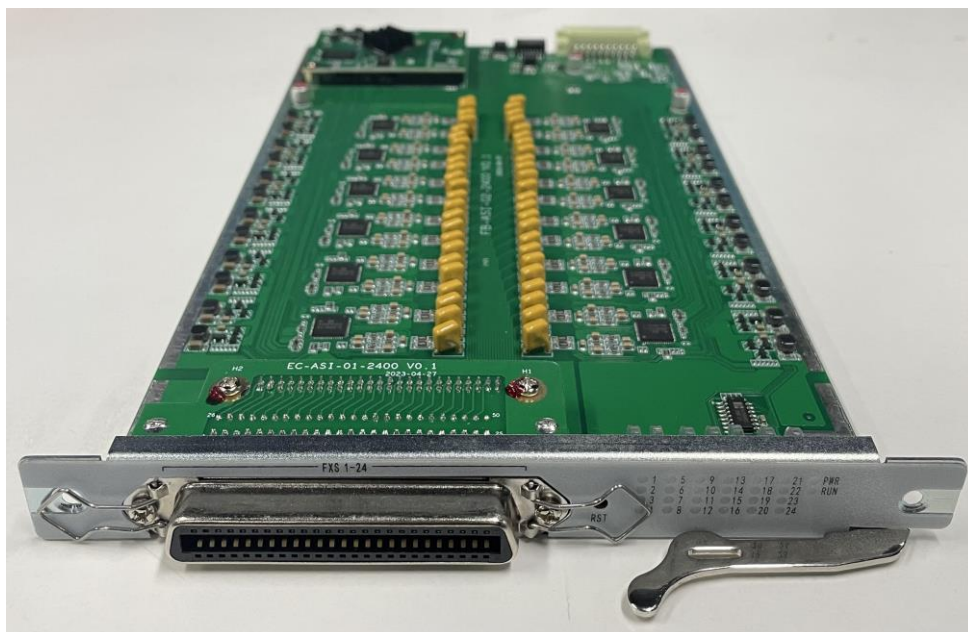
4 : Network

5 : SFP

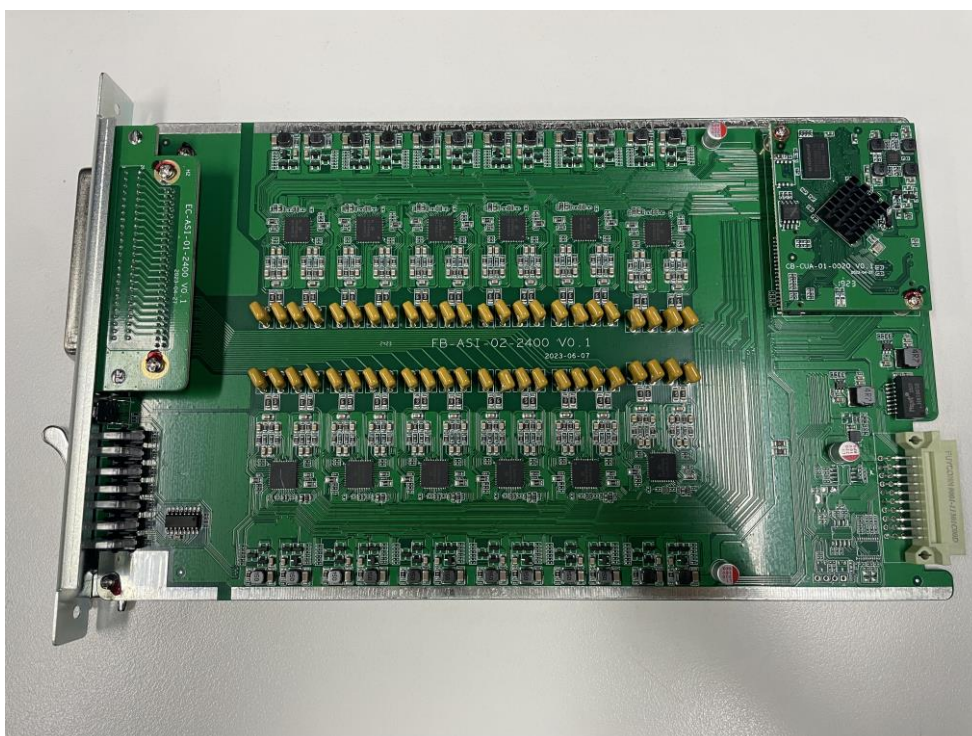
6 : Device power and switch

The MAG1100 utilizes modular boards that are hot-swappable, allowing for flexible expansion or reduction of module boards based on specific needs. This enables support for 48/72/96 FXS ports and SIP account registrations.

**Figure 1-3-4 Module board**



**Figure 1-3-5 Module board**



## 1.4 Software features

	<b>iAG200-S &amp; 400-S</b>
Analog Port	2/4 FXS Ports
SIP account&Template	2/4 SIP account,4 Templates
Voice compression	G.711A, G.711U, G.729A, G.722, G.726, iLBC
Fax	T.38 is a fax relay protocol that adheres to Class 3 fax with a maximum speed of 14.4 kbps and automatically switches to G.711 for transmitting faxes. T.38 fax relay utilizes fax data pumps such as V.17, V.21, V27ter, and V29 to facilitate fax transmission.
QoS	Diffserve, ToS, 802.1 P/Q VLAN tagging
Phone features	Caller ID display or block, call waiting, blind transfer and attended transfer, call forwarding, do not disturb, callback, paging, message waiting indicator light and intermittent tone, automatic dialing, flexible dialing rules
DTMF	Signal/ RFC2833/ Inband/ SIP Info
SIP signal	SIP (RFC 3261) over UDP/TCP/TLS
Security	SRTP/TLS/SIPS, HTTPS, 802.1x
Update and Auto Provision	TFTP, HTTP, HTTPS
Network protocols	TCP/UDP, RTP/RTCP, HTTP/HTTPS, ARP, ICMP, DNS, DHCP, NTP, TFTP, PPPoE, IpoE, STUN

## 1.5 Physical Information

**Table 1-5-1 Description of Physical Information**

	<b>IAG200-S &amp; 400-S</b>
Weight	160g (iAG200-S) 176g (iAG400-S)
Size	125mm*85mm*28.7mm(iAG200-S) 150mm*100mm*28.7mm(iAG400-S)
Power source	12V DC/1A(iAG200-S) 12V DC/2A (iAG400-S)
Max power	6W (iAG200-S) 8W (iAG400-S)
Operating temperature range	0° C ~ 50° C
Storage humidity range	10% ~ 90% non-condensing
Storage temperature range	-20° C ~ 70° C
certification	CE

## 1.6 Software

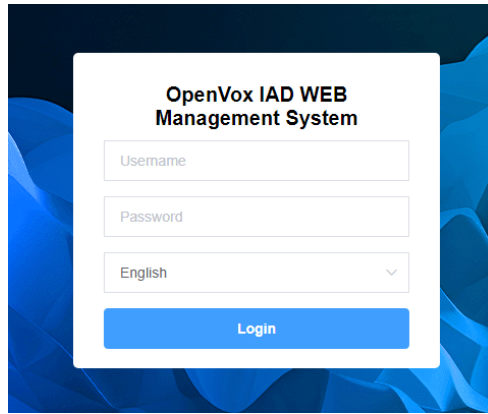
**Default IP:** 192.168.6.65

**Username:** admin

**Password:** admin

Connect the Ethernet cable to LAN1/LAN2 or SFP port, and enter the default IP address in the browser to access the gateway for configuration.

**Figure 1-6-1 Login Interface**



## 2. Status

### 2.1 System Information

On the "System Status" page, you will find displayed product information, firmware information, system time, and resource usage.

**Figure 2-1-1 System Status**

System Information	
<b>Product Information</b>	
<b>Product Name:</b>	OpenVox IAD Series
<b>Product Model:</b>	MAG1100
<b>Serial Number:</b>	64b64d7baa5f1
<b>Manufacturer:</b>	OpenVox Melon Team
<b>Manufacturer Website:</b>	<a href="http://www.openvox.cn">www.openvox.cn</a>
<b>Firmware Information</b>	
<b>Firmware Model:</b>	icvp-v1
<b>Firmware Version:</b>	2.2.1
<b>Build Number:</b>	r0-52b61a8f
<b>MAC Address:</b>	FA:0F:01:1B:88:70
<b>System Time</b>	
<b>Uptime:</b>	0Days 19Hours 36Minutes 57Seconds
<b>System Time:</b>	7/19/2023, 4:04:22 AM
<b>Resource Usage</b>	
<b>CPU Usage Rate:</b>	6%

## 2.2 Network Status

On the "Network Status" page, you will find displayed the network status and VPN connection status.

**Figure 2-2-1 Network Status**

Network Status	
<b>WAN</b>	
Network Type:	Static IP
IP Address:	172.16.6.172
Subnet Mask:	255.255.255.0
Gateway:	172.16.6.1
DNS:	
MAC Address:	fa:0f:01:1b:88:71
<b>VPN</b>	
Connection State:	unconnected

## 2.3 Interface Board Status

On the "Interface Board Status" page, you will find displayed the interface board model, version, type, running time, and status.

**Figure 2-3-1 Interface Board Status**

### Interface Board Status

Slot Number	Firmware Model	Firmware Version	Interface Type	Uptime	Status
1	iau-v1	r0-52b61a8f	Simulation	19:41:48	● Normal
2	iau-v1	r0-52b61a8f	Simulation	19:41:47	● Normal
3	iau-v1	r0-52b61a8f	Simulation	19:41:44	● Normal
4	iau-v1	r0-52b61a8f	Simulation	19:41:45	● Normal

## 2.4 Port Status

On the "Port Status" page, you will find displayed the port type, enable status, registration status, and on-hook/off-hook status. By clicking the dropdown menu of the slot number, you can switch to different interface boards.

**Figure 2-4-1 Port Status**

### Port Status

Slot Number:

Port Number	Port Type	Enable	Register	Off-hook
1	FXS	Yes	Unregistered	on hook
2	FXS	Yes	Unregistered	on hook
3	FXS	Yes	Unregistered	on hook
4	FXS	Yes	Unregistered	on hook
5	FXS	Yes	Unregistered	on hook
6	FXS	Yes	Unregistered	on hook
7	FXS	Yes	Unregistered	on hook
8	FXS	Yes	Unregistered	on hook
9	FXS	Yes	Unregistered	on hook
10	FXS	Yes	Unregistered	on hook

## 2.5 CDR

On the CDR (Call Detail Record) page, users can configure CDR settings and perform CDR queries.

**Figure 2-5-1 CDR**

**CDR**

**CDR Settings**

---

Enabling CDR:  No  Yes

Call Status:

Save Quantity:

**CDR Query**

---

Slot Number:

Quantity:

Ports:

Caller:

Callee:

**Notice:**CDR is only stored in memory and will be cleared upon restart.

**Table 2-5-1 CDR Description**

Options	Description
Enabling CDR	This option determines whether CDR (Call Detail Record) is enabled or not.
Call Status	Select the call states to be saved in CDR.
Save Quantity	Configure the CDR retention settings.
Slot Number	Select the slot number for CDR queries.
Quantity	Select the number of CDR entries for query.
Ports	Select the port for CDR queries.
Caller	Filter CDR query items by the calling number.
Callee	Filter CDR query items by the called number.



## 2.6 Call Features Status

On the "Call Feature Status" page, you will find displayed the enabled status of "Do Not Disturb," "Unconditional Transfer," and "Busy Transfer." By clicking the dropdown menu of the slot number, you can switch to different interface boards.

**Figure 2-6-1 Call Features Status**

**Call Features Status**

Slot Number:

Ports	Do Not Disturb	Unconditional Transfer	Busy Transfer	Unresponsive Transfer
FXS 1	Close			
FXS 2	Close			
FXS 3	Close			
FXS 4	Close			
FXS 5	Close			
FXS 6	Close			
FXS 7	Close			
FXS 8	Close			
FXS 9	Close			
FXS 10	Close			

## 3. Network Settings

### 3.1 WAN Settings

Figure 3-1-1 WAN Settings

**WAN Settings**

<b>Network Type:</b>	Static IP
<b>IP Address:</b>	172.16.6.172
<b>Subnet Mask:</b>	255.255.255.0
<b>Default Gateway:</b>	172.16.6.1
<b>Primary DNS:</b>	
<b>Secondary DNS:</b>	
<b>Set OPT 60:</b>	iad

Table 2-5-1 CDR Description

Options	Description
Network Type	Select the network type: DHCP, static IP, PPPoE
IP Address	Set the device's IP address
Subnet Mask	Set the device's Subnet Mask
Default Gateway	Set the device's Default Gateway
Primary DNS	Set the device's Primary DNS
Secondary DNS	Set the device's Secondary DNS
Set OPT 60	Set the device's OPT 60

## 3.2 Firewall

On the "Firewall" page, you will find displayed the names of firewall rules, protocols, source network domain, source IP, source port, destination network domain, destination IP, destination port, and rule action. You can add firewall rules here to ensure device security. Clicking the delete button allows you to remove firewall rules, while clicking the add button allows you to add firewall rules.

**Figure 3-2-1 Firewall**

Name	Protocol	Source Network Domain	Source IP	Source Port	Destination Network Domain	Destination IP	Destination Port	Rule Action	Action
No data available									

**Figure 3-2-2 Firewall add rules**

**Firewall**

**Name:**

**Protocol:** tcp

**Source Network Domain:** none

**Source IP:**

**Source Port:** 1-65536

**Destination Network Domain:** none

**Destination IP:**

**Destination Port:** 1-65536

**Rule Action:** ACCEPT

**Table 3-2-1 Firewall Description**

Options	Description
Name	Name of the firewall rule

---

<b>Options</b>	<b>Description</b>
Protocol	Protocol restricted by the firewall rule
Source Network Domain	Source network domain of the firewall rule
Source IP	Source IP of the firewall rule
Source Port	Source Port of the firewall rule,The range is 1-65535
Destination Network Domain	Destination Network Domain of the firewall rule
Destination IP	Destination IP of the firewall rule
Destination Port	Destination Port of the firewall rule, The range is 1-65535
Rule Action	Define the rule action, options include ACCEPT, REJECT, DROP

### 3.3 IP Alias

The MAG1100 supports setting multiple IP addresses, which can be configured in the IP Alias interface.

**Figure 3-3-1 IP Alias**

**IP Alias**

---

**IP Alias 1**

---

IP Address:

Subnet Mask:

**IP Alias 2**

---

IP Address:

Subnet Mask:

## 3.4 VPN Settings

On this interface, you can enable VPN and perform configuration. The MAG1100 currently supports OpenVPN only.

**Figure 3-4-1 VPN Settings**

**VPN Settings**

Settings Log

**VPN type:**

**Account authentication name:**

**Account authentication password:**

**Certification authentication password:**

**OpenVPN configuration content:**

**Connection State:** unconnected

**Table 3-4-1 Firewall Description**

Options	Description
VPN Type	You can choose to disable VPN or use OpenVPN.
Account authentication name	The authentication name used by OpenVPN
Account authentication password	The authentication password used by OpenVPN
Certification authentication password	The Certification authentication password used by OpenVPN
OpenVPN configuration content	Upload the OpenVPN configuration file.
Connection State	Display the VPN connection status.

In the "Log" page, you can select the number of lines to display in the log and then click the "Query" button. The log will be displayed in the "Log Results" box.

**Figure 3-4-2 VPN Log**

Settings   Log

**Number Of Log Lines:**

**Log Results:**

## 4. Template

The MAG1100 provides a convenient SIP registration method where users can apply pre-configured templates to FXS ports. There are four templates available for configuration.

### 4.1 SIP Settings

**Figure 4-1-1 SIP Settings**

#### Basic Settings

SIP Primary Server:	<input type="text"/>
SIP Primary Server Port:	<input type="text" value="5060"/>
SIP Backup Server:	<input type="text"/>
SIP Backup Server Port:	<input type="text" value="5060"/>
SIP Address Selection:	<input type="text" value="wan"/> ▾
DNS Mode:	<input type="text" value="Auto identification"/> ▾
Outgoing Proxy Server:	<input type="text"/>
From Domain:	<input type="text"/>
Stun:	<input type="text" value="Disabled"/> ▾

**Table 4-1-1 SIP Setting Description**

Options	Description
SIP Primary Server	Set the SIP primary server .
SIP Primary Server Port	Set the SIP primary server port.
SIP Backup Server	Set the SIP Backup Server.



Options	Description
SIP Backup Server Port	Set the SIP Backup Server port.
SIP Address Selection	Select which network interface the SIP service will register with.
DNS Mode	Set the DNS mode, which can be either automatic or using DNSSRV.
Outgoing Proxy Server	Set the outbound proxy server. The gateway will send signaling to this external proxy instead of directly sending it to the destination.
From Domain	Set the domain name used to authenticate the remote party.
Stun	Select whether to enable STUN (Session Traversal Utilities for NAT) service.

Figure 4-1-1 SIP Settings

**Registration Settings**

---

SIP Transmission Mode:

Authentication Domain:

Registration Validity Period (s):

Registration Failure Retry Interval (s):

Registration Failure Retry Times:

**Heartbeat Settings**

---

Qualify Verification:

SIP Heartbeat Sending Frequency (s):

SIP Heartbeat Timeout (s):

**RTP Encryption**

---

RTP Encryption Mode:

Table 4-1-2 SIP Setting Description

Options	Description
SIP Transmission Mode	Set the SIP transport mode, which can be UDP, TCP, or TLS.
Authentication Domain	Set the SIP registration authentication domain.
Registration Validity Period	Set the registration expiration period with a default value of 3600 seconds.
Registration Failure Retry Interval	Set the retry interval for registration failures with a default value of 30 seconds.
Registration Failure Retry Times	Set the number of retry attempts for registration failures with a default value of 10 attempts.
Qualify Verification	Select whether to enable qualify verification.
SIP Heartbeat Sending Frequency	Set the SIP heartbeat packet sending frequency.
SIP Heartbeat Timeout	Set the SIP heartbeat packet timeout duration.
RTP Encryption Mode	Select whether to enable RTP encryption.

Figure 4-1-3 SIP Setting

### Certificate Settings

Version:	Select
URI Pattern:	SIP
Select The PEM Certificate:	None
Select The CA Certificate Chain:	Disabled
UAC Verifies Certificate:	No
UAS Verifies Certificate:	No

Table 4-1-3 SIP Setting Description

Options	Description
Version	Select the version of the certificate. The device supports different versions of TLS, SSL, and SS certificates.
URI Pattern	Select the URI mode, which supports SIP and SIPS.
Select The PEM Certificate	Select the device's PEM certificate.
Select The CA Certificate Chain	Select whether to enable the CA certificate chain.
UAC Verifies Certificate	As the calling party, select UAC (User Agent Client) to use the telephone as the refresh initiator. Alternatively, select UAS (User Agent Server) with the callee or proxy server as the refresh initiator.
UAS Verifies Certificate	As the called party, select UAC (User Agent Client) to use the callee or proxy server as the refresh initiator. Alternatively, select UAS (User Agent Server) to use the telephone as the refresh initiator.

## 4.2 Digitmap Settings

On this page, you can configure dialing rules and settings related to function keys..

**Figure 4-2-1 Digitmap Settings**

**Digitmap Settings**

---

Digitmap Model:

Fuzzy Match:

Use # As The Send Key:

Dialing Rules:

**Table 4-2-1 Digitmap Settings Description**

Options	Description
Digitmap Model	Select whether to use local dial plan or remote dial plan. If you are using Openvox IPPBX, you can choose remote dial plan to prioritize the use of IPPBX's dialing rules.
Fuzzy Match	Select whether to enable fuzzy matching.
Use # As The Send Key	When enabled, dialing followed by "#" will initiate the call.
Dialing Rules	<ol style="list-style-type: none"> <li>1. If no numerical plan is configured, the numerical plan of the soft switch server will be used.</li> <li>2. The valid characters that can be included are: 0-9, x, .</li> <li>3. X represents any digit from 0 to 9.</li> <li>4. '.' represents any number of the previous digit (the total number does not exceed 32 bits).</li> <li>5. '.' can only appear once and only at the end.</li> <li>6. Configuring an indefinite numerical plan can also achieve quick dialing by dialing the '#' key.</li> <li>7. Multiple dialing rules can be configured, separated by commas.</li> </ol>

**Figure 4-2-2 Digitmap Settings**

**Function Key Settings**

Query IP Address:

Querying Channel Number:

Querying Local Number:

---

All Function Key:  Enable  Disabled

Do Not Disturb:  Enable  Disabled

Enable Do Not Disturb:

Disable Do Not Disturb:

Unconditional Call Transfer:  Enable  Disabled

Enable Unconditional Call Transfer:

Cancel Unconditional Call Transfer:

Transfer A Call On Busy:  Enable  Disabled

Enable Call Transfer On Busy:

Cancel Call Transfer On Busy:

Call Transfer On No Reply:  Enable  Disabled

Enable Call Transfer On No Reply:

Cancel The Call Transfer On No Reply:

**Table 4-2-2 SIP Setting Description**

Options	Description
Query IP Address	Configure a function key for querying the IP address. After dialing the function key on the phone, it will play back the device's IP address
Querying Channel Number	Set up a function key for querying the channel number. After dialing the function key on the phone, it will announce the

	channel number.
Querying Local Number	Configure a function key for querying the local phone number. After dialing the function key on the phone, it will play back the local phone number.
All Function Key	Select whether to enable or disable the function key.
Do Not Disturb	Select whether to enable or disable the Do Not Disturb (DND) feature.
Enable Do Not Disturb	Configure a function key to enable the Do Not Disturb (DND) feature. After dialing the function key on the phone, it will activate the Do Not Disturb mode for that extension.
Disable Do Not Disturb	Configure a function key to disable the Do Not Disturb (DND) feature. After dialing the function key on the phone, it will deactivate the Do Not Disturb mode for that extension.
Unconditional Call Transfer	Select whether to enable or disable the unconditional call forwarding feature.
Enable Unconditional Call Transfer	Configure a function key to enable the unconditional call forwarding feature. After dialing the function key on the phone, followed by the extension number for call forwarding, it will activate the unconditional call forwarding for that extension.
Cancel Unconditional Call Transfer	Configure a function key to disable the unconditional call forwarding feature. After dialing the function key on the phone, it will deactivate the unconditional call forwarding for that extension.
Transfer A Call On Busy	Select whether to enable or disable the busy call forwarding feature.
Enable Call Transfer On Busy	Configure a function key to enable the busy call forwarding

	feature. After dialing the function key on the phone, followed by the extension number for call forwarding, it will activate the busy call forwarding for that extension.
Cancel Call Transfer On Busy	Configure a function key to disable the busy call forwarding feature. After dialing the function key on the phone, it will deactivate the busy call forwarding for that extension.
Call Transfer On No Reply	Select whether to enable or disable the no answer call forwarding feature.
Enable Call Transfer On No Reply	Configure a function key to enable the no answer call forwarding feature. After dialing the function key on the phone, followed by the extension number for call forwarding, it will activate the no answer call forwarding for that extension.
Cancel The Call Transfer On No Reply	Configure a function key to disable the no answer call forwarding feature. After dialing the function key on the phone, it will deactivate the no answer call forwarding for that extension.

## 4.3 VoIP Setting

On this interface, users can configure VOIP-related parameters.

**Figure 4-3-1 VoIP Settings**

### Call Settings

---

**Allow Call Forwarding:**

**RTP Keepalive Transmission Interval**

**Call RTP Timeout Duration (s):**

**Call Hold RTP Timeout (s):**

### DTMF Settings

---

**DTMF Mode:**

Table 4-3-1 VoIP Setting Description

Options	Description
Allow Call Forwarding	Select whether to enable call forwarding.
RTP Keepalive Transmission Interval	Specify the interval for sending RTP keep-alive packets.
Call RTP Timeout Duration	Set the timeout duration for RTP during a call.
Call Hold RTP Timeout	Set the timeout duration for RTP during call hold.
DTMF Mode	Configure the DTMF mode. The available options are RFC4733, inband, info, auto, and auto_info.

Figure 4-3-1 VoIP Settings



### Encoding Settings

**Duration When Using Encoding:**

**Encoding Priority:**

<input type="text" value="ulaw"/>	<input type="text" value="Default duration"/>
<input type="text" value="alaw"/>	<input type="text" value="Default duration"/>
<input type="text" value="g729"/>	<input type="text" value="Default duration"/>
<input type="text" value="g722"/>	<input type="text" value="Default duration"/>

### T38 Settings

**Turn On UDPTL:**

**UDPTL Error Correction:**

**Table 4-3-1 VoIP Setting Description**

Options	Description
Duration When Using Encoding	Select whether to use packetization to optimize bandwidth and resource utilization during transmission, storage, and processing.
Encoding Priority	Set the priority of the encoding.
Turn On UDPTL	Select whether to enable UDPTL (UDP-based Real-time Transport Protocol for Telephony) functionality.
UDPTL Error Correction	Select the error correction method for UDPTL

## 4.4 Analog Settings

**Figure 4-4-1 Analog Settings**

**Template 1**

SIP Settings    Digitmap Settings    VOIP Settings    Analog Settings

TX Gain (dB):	<input type="text" value="0.0"/>
RX Gain (dB):	<input type="text" value="-2.5"/>
Echo Cancellation:	<input type="text" value="no"/> ▼
Polarity Reversal For Answer:	<input type="text" value="No"/> ▼
Polarity Reversal For Hangup:	<input type="text" value="No"/> ▼
Caller ID Sending Method:	<input type="text" value="After First Ringing"/> ▼
MWI Subscription And Local Number:	<input type="text" value="No"/> ▼
Display Mode Of The Local Number:	<input type="text" value="fsk"/> ▼
Turn On The MWI:	<input type="text" value="Close"/> ▼

**Table 4-4-1 Analog Settings Description**

Options	Description
TX Gain	Specify the audio gain for transmission.
RX Gain	Specify the audio gain for received sound.
Echo Cancellation	Select whether to enable echo cancellation functionality.
Polarity Reversal For Answer	Select whether to enable polarity reversal to indicate answer.
Polarity Reversal For Hangup	Select whether to enable polarity reversal to indicate hang-up.

---

Caller ID Sending Method	Select the method of sending the caller ID.
MWI Subscription And Local Number	Configure whether to enable MWI (Message Waiting Indicator) subscription and local number display. When enabled, the local phone number will be displayed on the phone screen in the idle state.
Display Mode Of The Local Number	Select the method of displaying the local phone number.
Turn On The MWI	Select the method of illuminating the voicemail indicator light.

## 5. FXS Port settings

On this page, you can configure settings for the FXS (Foreign Exchange Station) port.

Slot Number:

Users can use the slot number menu to switch between different module boards for configuration.

### 5.1 Basic Setting

**Figure 5-1-1 Basic Setting**

<input type="checkbox"/>	Ports	SIP User ID	Authentication ID	Password	Username	Templates	Enable Port	Enable Registration
<input type="checkbox"/>	FXS 1	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 2	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 3	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 4	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 5	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 6	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 7	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 8	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 9	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes
<input type="checkbox"/>	FXS 10	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	1	Yes	Yes

**Table 5-1-1 Basic Setting Description**

Options	Description
SIP User ID	Configure the SIP user associated with the FXS port.
Authentication ID	Set the authentication ID corresponding to the SIP user ID.
Password	Set the password corresponding to the authentication ID.
Username	Set the caller display name.
Templates	Select the template to be used.
Enable Port	Select whether to enable the port.
Enable Registration	Select whether to enable registration.

## 5.2 Call Setting

**Figure 5-2-1 Call Setting**

<input type="checkbox"/>	Ports	Hotline Number	Hotline Delay	Call Waiting	Call Forwarding	Call Hold	Three-Way Calling	Do Not Disturb	Unconditional Transfer	Busy Transfer	Unresponsive Transfer
<input type="checkbox"/>	FXS 1	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 2	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 3	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 4	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 5	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 6	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 7	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 8	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="checkbox"/>	FXS 9	<input type="text"/>	1	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Yes <input type="checkbox"/>	Close <input type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**Table 5-2-1 Call Setting Description**

Options	Description
Hotline Number	Configure the hotline number for the port. If no number is dialed within the hotline delay time after lifting the handset, the hotline number will be automatically dialed.
Hotline Delay	Set the hotline delay time.
Call Waiting	Select whether to enable call waiting.
Call Forwarding	Select whether to enable Call Forwarding.
Call Hold	Select whether to enable Call Hold.
Three-way Calling	Select whether to enable Three-way Calling.
Do Not Disturb	Select whether to enable Do Not Disturb.
Unconditional Transfer	Set the unconditional call forwarding number.
Busy Transfer	Set the Busy Transfer number.
Unresponsive Transfer	Set the Unresponsive Transfer number.

## 5.3 Advanced Setting

**Figure 5-3-1 Advanced Setting**

<input type="checkbox"/>	Ports	FORCE FROM Account	Use P-Asserted-Identity Header Field	Use Remote Party ID Header Field	Use User=Phone Header Field	Use P-Access-Network-Info Header Field	Use P-Emergency-Info Header Field
<input type="checkbox"/>	FXS 1	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 2	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 3	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 4	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 5	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 6	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 7	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 8	<input type="text"/>	No	No	No	No	No
<input type="checkbox"/>	FXS 9	<input type="text"/>	No	No	No	No	No

**Table 5-2-1 Advanced Setting Description**

Options	Description
FORCE FROM Account	Set the FROM forced user.
Use P-Asserted-Identity Header Field	Include "P-Preferred-Identity" in the INVITE message header to indicate the user identity in anonymous calls.
Use Remote Party ID Header Field	Use the Remote-Party-ID header field to obtain the Caller ID (CID).
Use User=Phone Header Field	Include "user=phone" in the URI to indicate that the called number is extracted from the username when making outgoing calls to the PSTN network.
Use P-Access-Network-Info Header Field	Use the P-Access-Network-Info header field to obtain the Caller ID (CID).
Use P-Emergency-Info Header Field	The P-Emergency-Info header field is not typically used to obtain Caller ID (CID) information.

## 6. Advanced Configuration

### 6.1 Fax Parameters

On this page, you can configure parameters related to fax.

**Figure 6-1-1 Fax Parameters**

**Fax Parameters**

Modem Type:  v17  v27  v29

Maximum Rate:

Minimum Rate:

Error Correction:

Bidirectional Negotiation:

Fax Tone Detection Duration:

**Table 6-1-1 Fax Parameters Description**

Options	Description
Modem Type	Set the supported modem types.
Maximum Rate	Select the maximum supported fax rate.
Minimum Rate	Select the minimum supported fax rate.
Error Correction	Select whether to enable error checking.
Bidirectional Negotiation	Select whether to enable bidirectional negotiation.
Fax Tone Detection Duration	Set the duration for fax tone detection.

## 6.2 Qos Settings

On this interface, you can configure the TOS (Type of Service) for RTP voice packets and SIP signaling packets.

**Figure 6-2-1 Qos Setting**

**QoS Settings**

RTP Voice Packet TOS:	<input type="text" value="0"/>
SIP Signaling Packet TOS:	<input type="text" value="p"/>



## 6.3 Analog Settings

On this interface, you can configure parameters related to analog lines, such as echo cancellation and jitter buffer.

**Figure 6-3-1 Analog Settings**

**General**

---

Force Alaw:

Line Impedance:

FXS Impedance Mode:

High Voltage Ringing:

Ringing Frequency:

Line Area:

Language:

**Echo Cancellation**

---

Echo Cancellation:

Adaptive Echo Cancellation:

NLP Non-Linear Processing:

Comfort Noise:

**Table 6-3-1 Analog Settings Description**

Options	Description
Force Alaw	Select whether to enable the option. When enabled, it will enforce the use of a-law encoding.
Line Impedance	Select the line impedance.
FXS Impedance Mode	Select the FXS impedance mode.
High Voltage Ringing	Select whether to enable high voltage ringing.
Ringing Frequency	Select the ringing frequency.
Line Area	Select the region where the line is located.

Options	Description
Language	Select the language for voice prompts.
Echo Cancellation	Select whether to enable echo cancellation functionality.
Adaptive Echo Cancellation	Select whether to enable adaptive echo cancellation.
NLP Non-Linear Processing	Select whether to enable NLP (Non-Linear Processing) for echo cancellation.
Comfort Noise	Select whether to enable comfort noise.

**Figure 6-3-2 Analog Settings**

**JitterBuffer**

---

Jitter Buffer:

Jitter Buffer Mode:

Jitter Sync Timestamp (ms):

Jitter Max Buffer (ms):

**FXS Settings**

---

Min Flash Hook Duration (ms):

Max Flash Hook Duration (ms):

Dial Tone Timeout (ms):

Interdigit Dial Timeout (ms):

Dial Match Timeout (ms):

**Table 6-3-2 Analog Settings Description**

Options	Description
Jitter Buffer	Select whether to enable jitter buffer.
Jitter Buffer Mode	Select the jitter buffer mode.
Jitter Sync Timestamp	Set the jitter sync timestamp.

Options	Description
Jitter Max Buffer	Set the maximum jitter buffer size.
Min Flash Hook Duration	Set the minimum inter-digit interval duration.
Max Flash Hook Duration	Set the maximum inter-digit interval duration.
Dial Tone Timeout	Set the timeout duration for first-digit dialing.
Interdigit Dial Timeout	Set the timeout duration for inter-digit dialing.
Dial Match Timeout	Set the timeout duration for dialing matching.

Figure 6-3-3 Analog Settings

### Port Indicator Lights

Registration Success (constant on):	No <input type="button" value="v"/>	
Idle Time (ms):	0 <input type="button" value="v"/>	2000 <input type="button" value="v"/>
No Line Connected Time (ms):	1000	1000
Off-hook Time (ms):	500	500
Ring Time (ms):	100	100
Talking Time (ms):	500	500
Call End Time (ms):	500	500

## 6.4 VOIP Settings

On this page, you can perform VoIP-related settings such as call settings and session settings.

**Figure 6-4-1 VoIP Setting**

### Basic Settings

<b>Listening Mode:</b>	Multiport
<b>Sip Start Port:</b>	30000
<b>Rtp Start Port:</b>	10000
<b>Deregister Upon Restart:</b>	Disabled
<b>Stun:</b>	Disabled
<b>Stun Server Address:</b>	

**Figure 6-4-1 VoIP Setting Description**

Options	Description
Listening Mode	Select the monitoring mode. You have the option to choose between multi-port and single-port.
Sip Start Port	Set the starting port for SIP.
Rtp Start Port	Set the starting port for RTP.
Deregister Upon Restart	Select whether to log out of registration when restarting.
Stun	Select whether to enable STUN.
Stun Server Address	Set the STUN server address.

**Figure 6-4-2 VoIP Setting****Call Settings**

<b>User Agent:</b>	<input type="text" value="OIAD"/>
<b>Anonymous Call:</b>	<input type="text" value="Disabled"/> ▾
<b>Outgoing Caller ID Priority:</b>	<input type="text" value="FROM"/> ▾
<b>Incoming Call Wait Timeout (s):</b>	<input type="text" value="65"/>
<b>Outgoing Call Wait Timeout (s):</b>	<input type="text" value="65"/>
<b>Maximum Call Time Limit (ms):</b>	<input type="text" value="43200000"/>
<b>T1 Timeout (ms):</b>	<input type="text" value="500"/>
<b>Network Outage Recovery:</b>	<input type="text" value="Enabled"/> ▾

**Figure 6-4-2 VoIP Setting Description**

<b>Options</b>	<b>Description</b>
User Agent	Set the User Agent.
Anonymous Call	Select whether to allow anonymous incoming calls.
Outgoing Caller ID Priority	Select whether the caller ID should be prioritized to display from the FROM field or the P-Asserted-Identity field.
Incoming Call Wait Timeout	Set the timeout duration for call waiting.
Outgoing Call Wait Timeout	Set the timeout duration for call waiting
Maximum Call Time Limit	Set the maximum call duration limit. If the call exceeds this limit, it will be disconnected.
T1 Timeout	Set the T1 timeout duration.
Network Outage Recovery	Select whether to enable network escape.

Figure 6-4-3 VoIP Setting

**Session Settings**

---

Session Timer Mode:

Min-SE (ms):

Session Timeout (ms):

**Distinctive Ring**

---

Ring Tone1:

Ring Tone2:

Ring Tone3:

Ring Tone4:

Ring Tone5:

Ring Tone6:

Ring Tone7:

Ring Tone8:

Ring Tone9:

Ring Tone10:

Table 6-4-3 VoIP Setting Description

Options	Description
Session Timer Mode	Select the session timer mode.
Min-SE	Set the minimum session timeout duration.
Session Timeout	Set the session timeout duration.
Distinctive Ring	Set different ring tones for different scenarios.

## 6.5 Security Settings

On this page, you can upload certificates.

**Figure 6-5-1 Security Settings**

### Security Settings

The screenshot displays a web interface for security settings. It features five vertically stacked input fields, each preceded by a label in blue text. The labels are 'Certificate 1:', 'Certificate 2:', 'Certificate 3:', 'Certificate 4:', and 'CA Certificate Chain:'. Each input field is a rectangular box with a light gray border and a small double-slash icon in the bottom right corner, indicating a file upload function. The entire form is contained within a light blue header bar and a white content area.

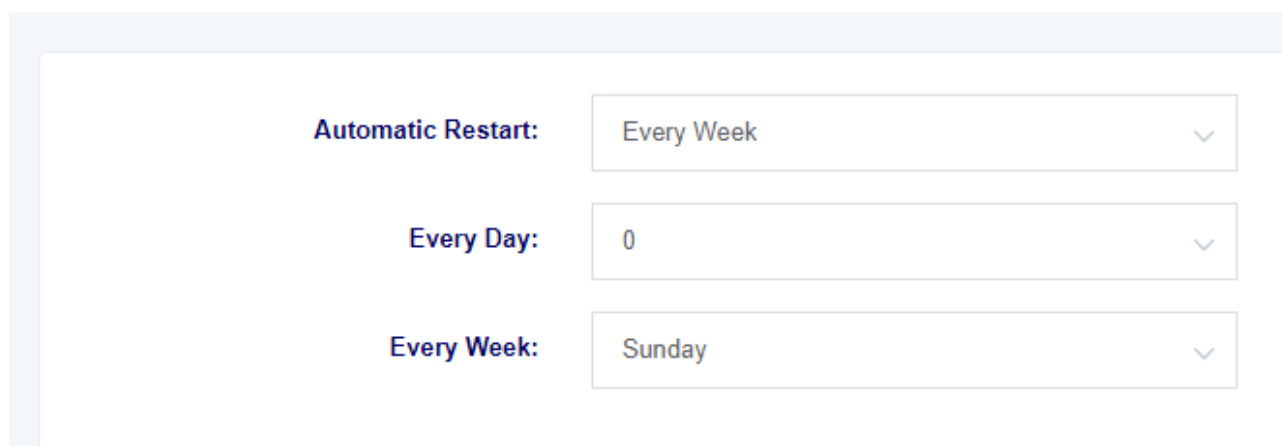
## 7 Maintenance

### 7.1 Automatic Restart

In this page, you can configure the automatic reboot function. The device can be scheduled to restart based on the set time.

**Figure 7-1-1 Automatic Restart**

#### Automatic Restart



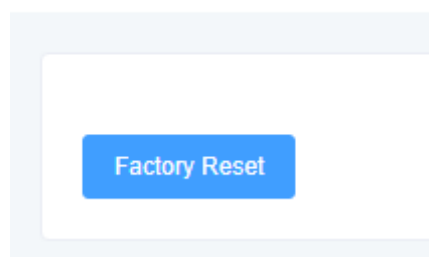
The screenshot displays the 'Automatic Restart' configuration interface. It consists of three vertically stacked dropdown menus. The first menu is labeled 'Automatic Restart:' and is set to 'Every Week'. The second menu is labeled 'Every Day:' and is set to '0'. The third menu is labeled 'Every Week:' and is set to 'Sunday'. Each menu has a downward-pointing arrow on its right side.

### 7.2 Factory Reset

After clicking the "Factory Reset" button, the device will automatically restart and restore to its factory settings.

**Figure 7-2-1 Factory Reset**

#### Factory Reset





## 7.3 Auto Provision

MAG1100 supports automatic deployment of configuration files and upgrade files. You can configure these settings on this page for the device to automatically download and apply configuration files as well as perform firmware upgrades.

**Figure 7-3-1 Auto Provision**

**Auto Provision**

Auto Provision:

Auto Provision Scope:

Upgrade Method:

Enable DHCP Option66:

Firmware Upgrade Address:

Firmware File Prefix:

Firmware File Suffix:

Configuration Upgrade Address:

Configuration File Prefix:

Configuration File Suffix:

**Uploading A Configuration File**

Upload Configuration:

**Download The Configuration File**

Download Configuration:

**Table 7-3-1 Auto Provision Description**

Option	Description
Auto Provision	Set the mechanism for automatic deployment, where you can choose between deploying automatically every time the device powers on or deploying based on a set time interval.
Auto Provision Scope	Select the scope of automatic deployment, which includes the option to deploy configuration files and firmware upgrades.
Upgrade Method	Select the automatic deployment upgrade method, which supports

	TFTP, HTTP, and HTTPS.
Enable DHCP Option66	Select whether to enable DHCP option 66 for file retrieval.
Firmware Upgrade Address	Set the path for firmware upgrades.
Firmware File Prefix	Set the prefix for firmware files.
Firmware File Suffix	Set the suffix for firmware files.
Configuration Upgrade Address	Set the path for configuration file upgrades.
Configuration File Prefix	Set the prefix for configuration files.
Configuration File Suffix	Set the suffix for configuration files.
Upload Configuration	Upload Configuration
Download Configuration	Download Configuration

The file names should be modified according to the following rules:

For main control firmware files: (pre)(firmware model).img(post)

For interface board firmware files: (pre)ixu(mac).img(post)

For configuration files: (pre)cfg(mac)(post)

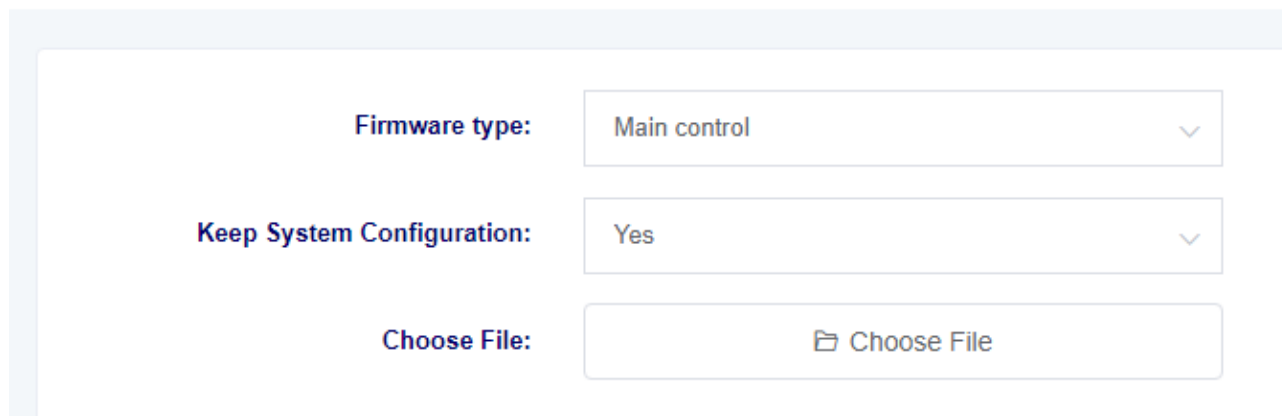
"pre" refers to the prefix, and "post" refers to the suffix. Both the prefix and suffix can be left empty if desired.

## 7.4 Firmware Upgrade

On this page, you can perform firmware upgrades. Select the appropriate firmware type, then upload the corresponding file to initiate the upgrade process. You can choose whether to preserve the system configuration. If you choose not to preserve the system configuration, it will be cleared after the upgrade.

**Figure 7-4-1 Firmware Upgrade**

### Firmware Upgrade



The screenshot shows a web form titled "Firmware Upgrade" with three input fields:

- Firmware type:** A dropdown menu with "Main control" selected.
- Keep System Configuration:** A dropdown menu with "Yes" selected.
- Choose File:** A button with a folder icon and the text "Choose File".

## 7.5 Time Settings

On this page, you can configure the device's time settings. Users can set the time zone and specify the NTP server address for automatic time synchronization.

**Figure 7-5-1 Time Settings**

### Time Settings

**Time Zone:** UTC (Monrovia) ▼

**System Time:** 7/19/2023, 10:35:01 AM

**Enable NTP Time Synchronization:**  Enabled  Disabled

**NTP Server Address:**

pool.ntp.org

time.nist.gov

**Table 7-5-1 Time Settings Description**

Option	Description
Time Zone	Set the time zone for the device.
System Time	Display the system time
Enable NTP Time Synchronization	Select whether to enable NTP time synchronization.
NTP Server Address	Set the NTP server address.

## 7.6 User Management

MAG1100 supports different user roles for login, each with different permissions. On the User Management page, you can modify passwords, enable/disable SSH functionality, and configure HTTP settings for different user roles.

**Figure 7-6-1 User Management**

The figure displays two screenshots of the 'User Management' web interface. Both screenshots show a navigation bar with four tabs: 'WEB Account', 'CLI Account', 'SSH Settings', and 'HTTP Settings'. The top screenshot has 'WEB Account' selected and shows three sections: 'Viewer', 'User', and 'Admin'. Each section contains two input fields: 'New Password:' and 'Confirm New Password:'. The bottom screenshot has 'CLI Account' selected and shows two input fields: 'New Password:' and 'Confirm New Password:'.

## User Management

WEB Account   CLI Account   **SSH Settings**   HTTP Settings

**Enable SSH Service:**    Disabled    Enabled

**SSH Service Port:**  

## User Management

WEB Account   CLI Account   SSH Settings   **HTTP Settings**

**HTTP Web Port:**  

**HTTPS Web Port:**  

**Web Page Access Mode:**    HTTP    HTTPS    Close

**HTTPS Service Certificate:**    ▾

## 7.7 Network Capture

MAG1100 supports network packet capture functionality for easier troubleshooting of network issues. Users can define the capture interface, select the protocol type, address, and port in this interface.

**Figure 7-7-1 Network Capture**

### Network Capture

<b>Interface Name:</b>	wan
<b>Filter Protocol Type:</b>	All
<b>Filter Address:</b>	
<b>Filter Port:</b>	0
<b>Number Of Packets Captured:</b>	100

## 7.8 Log Management

In the log management interface, you can configure the address and port of the log server, as well as select the kernel log level for easy viewing and technical analysis of device logs.

**Figure 7-8-1 Log Management**

**Log Management**

<b>Log Server Address:</b>	<input type="text"/>
<b>Log Server Port:</b>	<input type="text" value="0"/>
<b>Kernel Log Level:</b>	<input type="text" value="Close"/> ▼

Syslog, also known as system log or system record, is a standard used to transmit log messages in the Internet Protocol Suite (TCP/IP) network. The term "syslog" is commonly used to refer to the actual syslog protocol or applications and databases that send syslog messages. The syslog protocol operates in a client-server model, where the syslog sender sends a small text message (less than 1024 bytes) to a syslog receiver. The receiver is typically called "syslogd," "syslog daemon," or syslog server. System log messages can be sent over UDP, TCP, or both protocols.

Here is an overview of syslog levels:

EMERG: Critical system failure

ALERT: Immediate action required

CRIT: Critical condition that needs to be addressed promptly

ERROR: Error conditions that prevent tools or subsystems from functioning correctly

WARNING: Warning messages indicating potential issues

NOTICE: Important but normal conditions

INFO: Informational messages

DEBUG: Additional information not related to errors or problems with functions



## 7.9 SNMP

In this page, you can configure the SNMP service-related information. MAG1100 supports SNMPv1 and v2c.

**Figure 7-9-1 SNMP**

**SNMP**

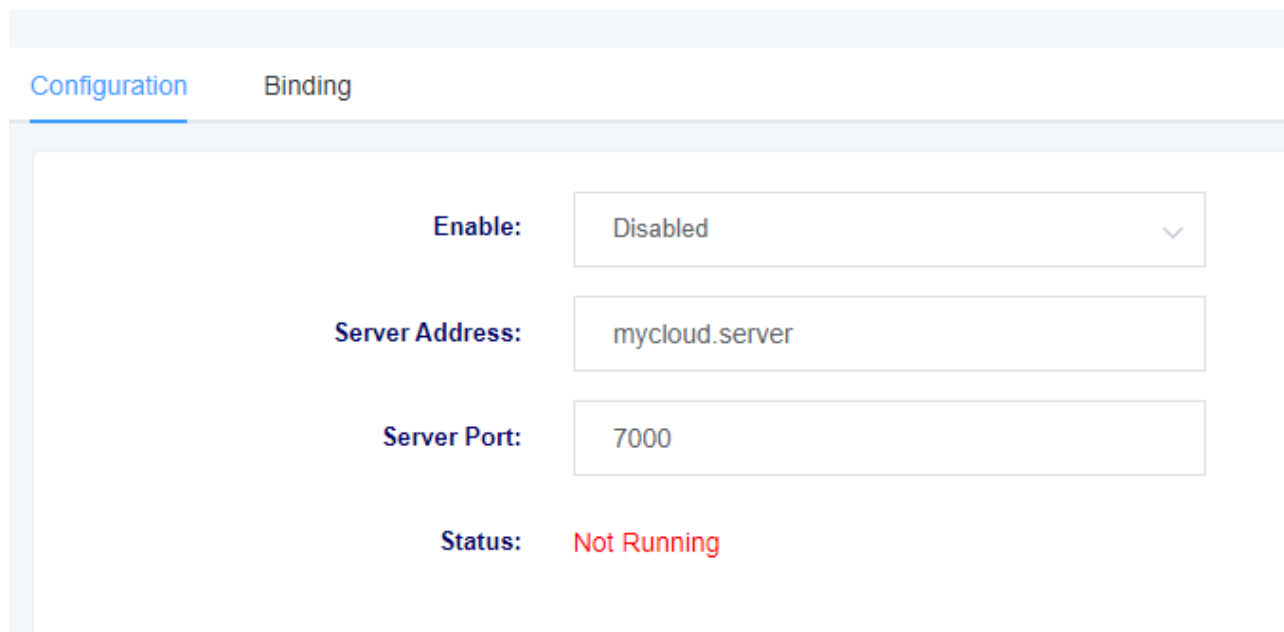
<b>Enable SNMP:</b>	Disabled
<b>SNMP Version:</b>	v2c
<b>IP Address:</b>	
<b>Ports:</b>	161

## 7.10 Cloud Management

On this page, you can configure the relevant information for cloud management. MAG1100 supports OpenVox's cloud management functionality. By entering the server address, port, and binding code, you can manage the device through the cloud management platform.

**Figure 7-10-1 Cloud Management**

### Cloud Management

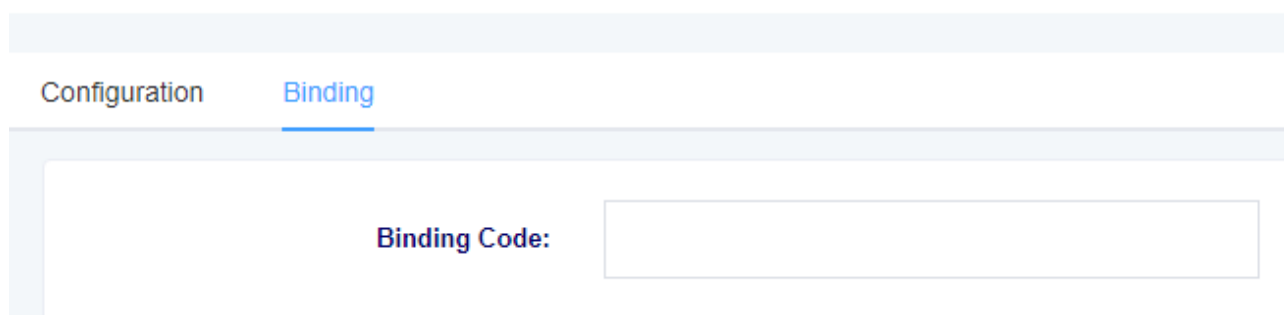


The screenshot shows the 'Cloud Management' configuration page. At the top, there are two tabs: 'Configuration' (selected) and 'Binding'. Below the tabs, the configuration is as follows:

Enable:	<input type="text" value="Disabled"/>
Server Address:	<input type="text" value="mycloud.server"/>
Server Port:	<input type="text" value="7000"/>
Status:	Not Running

**Figure 7-10-2 Binding**

### Cloud Management



The screenshot shows the 'Cloud Management' configuration page with the 'Binding' tab selected. The configuration is as follows:

Binding Code:	<input type="text"/>
---------------	----------------------

## 7.11 Whitelist

On this page, you can configure the relevant information for the whitelist. After setting it up, only the IP addresses listed in the whitelist will be able to access the device.

**Figure 7-11-1 Whitelist**

Whitelist

Start Address	End Address	Action
No data available		

## 7.12 Ping Test

On this page, you can use the ping command to test network connectivity.

**Figure 7-12-1 Ping Test**

### Ping Test

Destination Address:	<input type="text"/>
Number Of Tests:	<input type="text" value="4"/>
Packet Length:	<input type="text" value="56"/>
Result:	<div style="border: 1px solid #ccc; height: 150px;"></div>

## 7.13 Tracert Test

On this page, you can use the tracert command to test network connectivity.

**Figure 7-13-1 tracert**

### Tracert Test

<b>Destination Address:</b>	<input type="text"/>
<b>Time To Wait For Response Message:</b>	<input type="text" value="3"/>
<b>Maximum Hops:</b>	<input type="text" value="30"/>
<b>Result:</b>	<div style="border: 1px solid #ccc; height: 150px;"></div>

## 7.14 DNS test

On this page, you can perform DNS testing for specified DNS servers.

**Figure 7-14-1 DNS Test**

### DNS Test

The screenshot shows a web interface for performing a DNS test. It features three main input areas:

- Destination Address:** A text input field for specifying the target domain or IP address.
- DNS Server:** A text input field for specifying the DNS server to be used for the test.
- Result:** A large, empty text area intended to display the output of the DNS test.

## 7.15 Port Recording

On this page, you can select specific ports for recording purposes to troubleshoot issues.

**Figure 7-15-1 Port Recording**

### Port Recording

Slot Number:	<input type="text" value="1"/>
Ports:	<input type="text" value="1"/>
Recording Duration (s):	<input type="text" value="60"/>

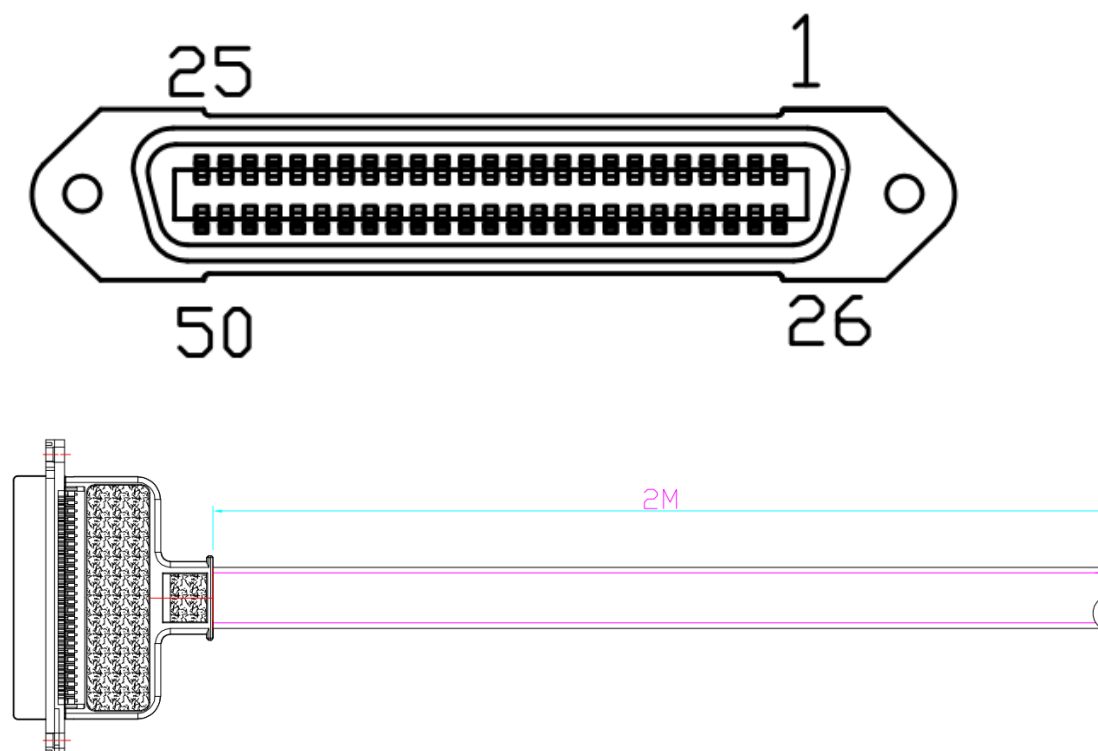
# Terminology

- **DNS: Domain Name System**
- **SIP: Session Initiation Protocol**
- **TCP: Transmission Control Protocol**
- **UDP: User Datagram Protocol**
- **RTP: Real-Time Transport Protocol**
- **PPPOE: Point-to-Point Protocol over Ethernet**
- **VLAN: Virtual Local Area Network**
- **ARP: Address Resolution Protocol**
- **CID: Caller Identity**
- **DND: Do Not Disturb**
- **DTMF: Dual Tone Multi-Frequency**
- **NTP: Network Time Protocol**
- **STUN: Simple Traversal of UDP over NAT**
- **PSTN: Public Switched Telephone Network**



# Appendix

## RJ21 Cable instruction



Color	Tip	Ring	Color	Channel
Blue	49	1	White	Port 1
Orange	48	2	White	Port 2
Green	47	3	White	Port 3
Brown	46	4	White	Port 4
Gray	45	5	White	Port 5
Blue	43	6	Red	Port 6
Orange	42	7	Red	Port 7
Green	41	8	Red	Port 8
Brown	40	9	Red	Port 9
Gray	39	10	Red	Port 10
Blue	38	11	Black	Port 11

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<b>Color</b>	<b>Tip</b>	<b>Ring</b>	<b>Color</b>	<b>Channel</b>
Orange	37	12	Black	Port 12
Green	36	13	Black	Port 13
Brown	35	14	Black	Port 14
Gray	34	15	Black	Port 15
Blue	33	16	Yellow	Port 16
Orange	32	17	Yellow	Port 17
Green	31	18	Yellow	Port 18
Brown	30	19	Yellow	Port 19
Gray	29	20	Yellow	Port 20
Blue	28	21	Purple	Port 21
Orange	27	22	Purple	Port 22
Green	26	23	Purple	Port 23
Brown	25	24	Purple	Port 24