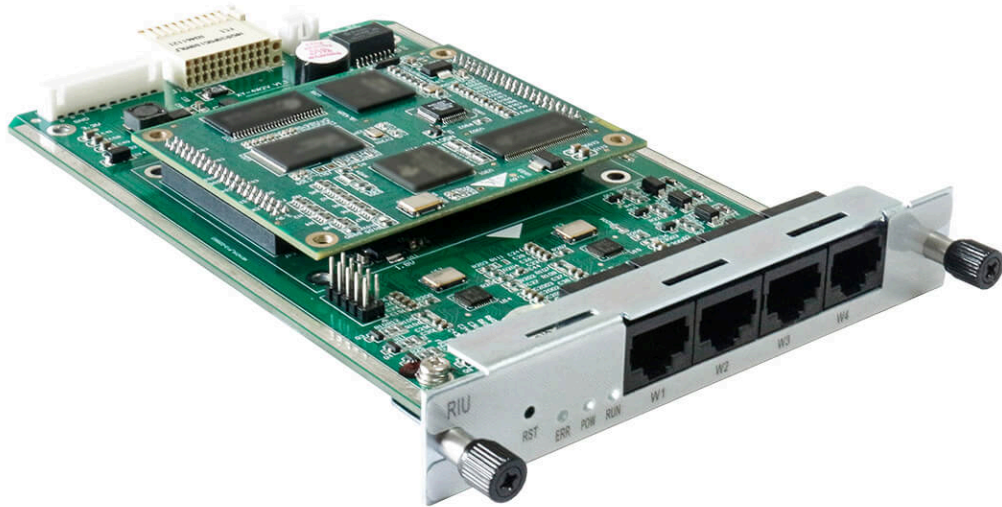


RIU Wireless Trunking Gateway Module User Manual



Version 2.0

Address: Room 624, 6/F, Tsinghua Information Port, Shukan Building, Qingxiang Road, Longhua Street, Longhua District, Shenzhen 518109

Tel: +86-755-66630978, 82535461, 82535362

Sales: sales@openvoxtech.com

Technical Support: support@openvoxtech.com

Business Hours: Monday to Friday, 09:00-18:00 (GMT+8), excluding holidays

Thank you for choosing OpenVox products.

Statement

The copyright of this document belongs to Shenzhen OpenVox Communication Co., Ltd. (OpenVox). Without permission, images and text in this document may not be copied or reproduced for commercial use. Shenzhen OpenVox Communication Co., Ltd. reserves all rights of interpretation. For details, contact OpenVox sales or technical support.

Revision History

Version	Release Date	Description
2.0	25/5/2026	Full update

Document Information

- Product: RIU Wireless Trunking Gateway Module
- Document Type: User Manual
- Applicable Chassis: UCP1202/UCP1600 / UCP2120 / UCP4131
- Channel Capacity: 4 channels
- Default IP: 172.16.80.12
- Default Username: admin
- Default Password: 1

Product Overview

The RIU Wireless Trunking Gateway Module is designed for the UCP1600, UCP2120, and UCP4131 chassis series. It provides four channels for connecting wireless trunking users with IPPBX platforms and supports SIP registration, media configuration, COR settings, callback handling, dialing rules, status monitoring, function keys, and system maintenance.

Declaration

This manual is intended only as an operating guide for users. No unit or individual may reproduce or excerpt part or all of the contents of this manual without the written permission of the company, and may not distribute it in any form.

Formatting Conventions

Command Line Formatting Conventions

Format	Meaning
/	Multi-level command paths are separated by /.
[]	Content inside [] is optional in command configuration.
//	A line beginning with // is a comment line.
#	In Linux, # identifies command input or indicates a comment in scripts.
mysql>	Indicates database operations; commands after > are entered by the user.

GUI Formatting Conventions

Format	Meaning
< >	< > indicates a button name, for example <code>click <OK></code> .
[]	[] indicates a window name, menu name, data table, or field.
/	Multi-level menus or fields of the same type are separated by /, for example <code>[File/New/Folder]</code> .

1. Device Panel Introduction

1.1 Chassis Overview

The RIU module is used with the UCP1600, UCP2120, and UCP4131 chassis series.

Figure 1-1-1 Front View of the Module



1.2 Module Overview

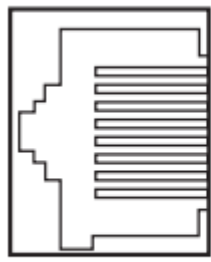
Figure 1-2-1 RIU Module Layout



As shown in Figure 1-2-1, the labels on the module indicate the following:

1. Indicator lights: From left to right, the three indicators are fault light **F**, power light **P**, and run light **R**. During normal operation, the power light stays green, the run light flashes green, and the fault light remains off.
2. Reset key: Short press resets the module. Press and hold for more than 5 seconds to disable the watchdog and turn on the **F** light. Press and hold for more than 10 seconds to restore the temporary IP address `10.20.30.1`. After power loss and reboot, the original IP address is restored.
3. The **W** interface is defined as follows.

Figure 1-2-2 W Interface Definition



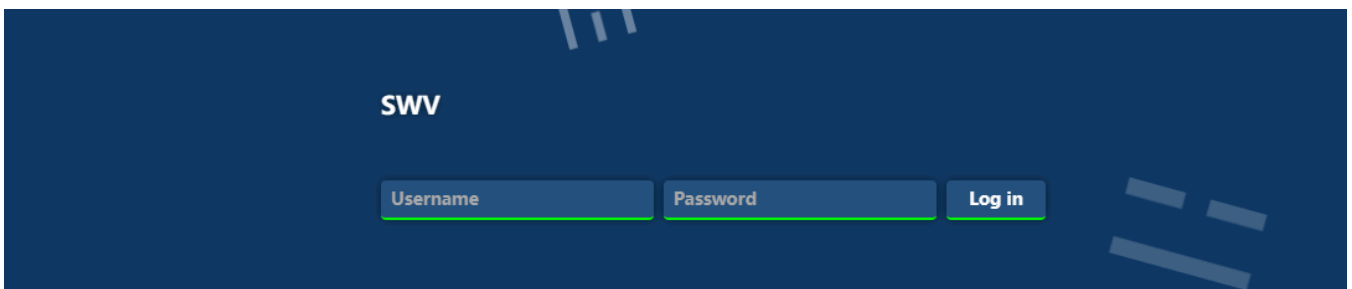
- 1: PTT
- 2: GND
- 3: PTT_GND
- 4: COR
- 5: SPK
- 6: MIC
- 7: GND
- 8: PWR

2. Login

To log in to the wireless trunking gateway module web interface, open a browser and enter `http://IP`, where `IP` is the gateway address. The default IP address is `10.20.40.40`.

The initial username is `admin`, and the initial password is `1`.

Figure 2-1-1 Wireless Trunking Gateway Module Login Interface

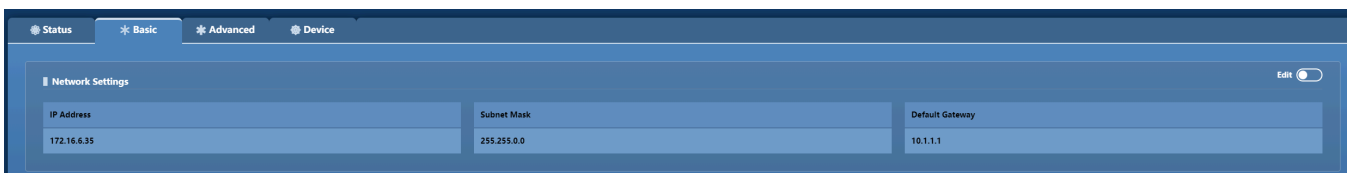


3. Network Information Configuration

3.1 Modify Static IP

The static network address of the wireless trunking gateway can be modified in `Basic / Network Configuration`.

Figure 3-1-1 Network Configuration

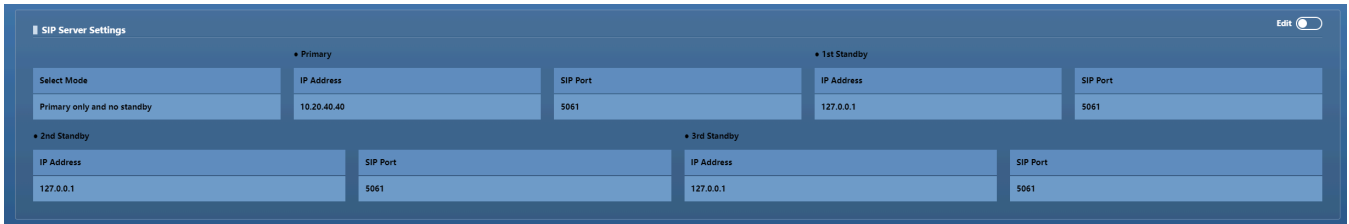


Note: The wireless trunking gateway currently supports only static IP acquisition. After modifying the network address information, you must reboot the device for the changes to take effect.

3.2 Registration Server Configuration

In `Basic / SIP Server Settings`, you can configure the IP addresses of the primary and backup registration servers, as well as the registration switchover mode.

Figure 3-2-1 SIP Server Settings



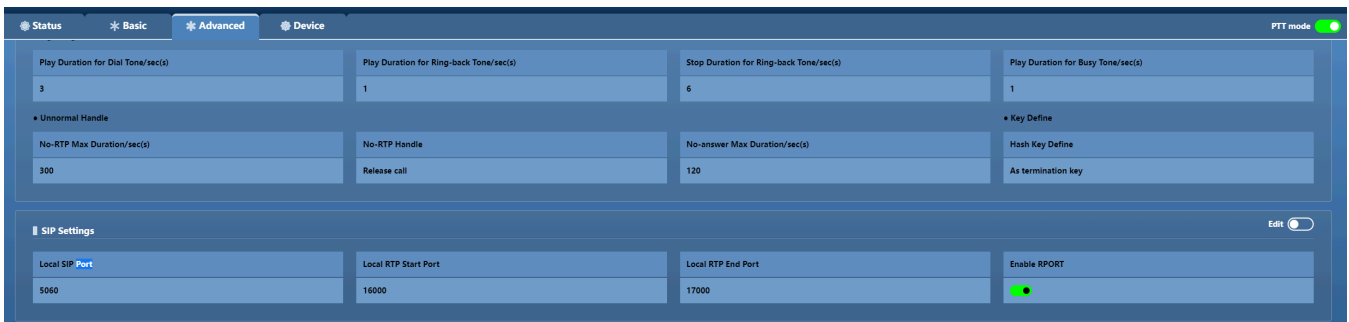
The registration modes are divided into three types. The registration order is: primary softswitch, standby 1 softswitch, standby 2 softswitch, and standby 3 softswitch.

- No primary/backup switching: Register only to the primary softswitch.
- Primary softswitch priority: If registration to the primary softswitch fails, the device registers to the backup softswitch. When the primary softswitch recovers, the next registration cycle switches back to the primary softswitch.
- Current softswitch priority: If registration to the primary softswitch fails, the device registers to the backup softswitch. When the primary softswitch recovers, the device continues to register with the current softswitch instead of switching back automatically.

3.3 Communication Port Configuration

In `Advanced / SIP Settings`, you can configure the communication port and RTP port range.

Figure 3-3-1 Communication Port Configuration



- Softswitch Communication Port: Port used for SIP communication between the wireless trunking gateway and the IPPBX.
- RTP Port Minimum: Lower limit of the port range used for sending and receiving RTP packets.
- RTP Port Maximum: Upper limit of the port range used for sending and receiving RTP packets.

Note: This configuration is not recommended to be changed casually.

4. User Configuration

4.1 Add User Numbers

User numbers can be added in `Basic / Channel Settings`.

Figure 4-1-1 Channel Settings

Ch ID	Enable	Username	Auth ID	Password	Expiration/sec(s)	Enable Hotline	Hotline
0	<input checked="" type="checkbox"/>	8001	8001	1	60	<input type="checkbox"/>	
1	<input checked="" type="checkbox"/>	8002	8002	1	60	<input type="checkbox"/>	
2	<input checked="" type="checkbox"/>	8003	8003	1	60	<input type="checkbox"/>	
3	<input checked="" type="checkbox"/>	8004	8004	1	60	<input type="checkbox"/>	

Click **Add** to open the dialog box for entering user number information.

Figure 4-1-2 Add User Number

Ch ID	Enable	Username	Auth ID	Password	Expiration/sec(s)	Enable Hotline	Hotline
0	<input checked="" type="checkbox"/>	8001	8001	1	60	<input type="checkbox"/>	
1	<input checked="" type="checkbox"/>	8002	8002	1	60	<input type="checkbox"/>	
2	<input checked="" type="checkbox"/>	8003	8003	1	60	<input type="checkbox"/>	
3	<input checked="" type="checkbox"/>	8004	8004	1	60	<input type="checkbox"/>	

Configuration items:

- Channel Number: **0**, **1**, **2**, or **3**
- User Number: Phone number corresponding to the line
- Registration Username / Registration Password / Registration Period: Account, password, and interval used when registering to the platform
- Hotline Number: Called number corresponding to the hotline function key

Notes:

1. Registration start time = Registration period * **0.85**.
2. The wireless gateway uses only four channels, so only four users can be added.

When adding numbers, you can also configure function keys, media, gain, chase call, PSTN, and RET settings. Batch add and batch delete are also supported.

4.2 Media Configuration

After adding a wireless trunking gateway user, open **Advanced / Media Configuration** and click the modify icon in the corresponding user operation column to change the user's media parameters.

Figure 4-2-1 Media Configuration



Figure 4-2-2 Media Parameter Settings

Ch ID	Username	1st Codec	2nd Codec	DTMF Type	DTMF Payload	RTP Sending Interval
0	8001	G711A	G711U	RFC2833	101	20msec(s)
1	8002	G711A	G711U	RFC2833	101	20msec(s)
2	8003	G711A	G711U	RFC2833	101	20msec(s)
3	8004	G711A	G711U	RFC2833	101	20msec(s)

- Speech Encoding Format: **G711a**, **G711u**
- DTMF Type: **RFC2833**, **SIPINFO**, **INBAND**
- RTP Send Interval: Time interval for sending voice packets; default **20 ms**

- DTMF Payload: Payload type; default 101

4.3 PSTN_COR Configuration

In **Advanced / PSTN_COR**, you can configure PSTN_COR information for each user.

Figure 4-3-1 PSTN_COR Configuration

Ch ID	Username	Analog Side Detection First	COR Level	Detection Inhibition Duration/msec(s)	Sampling Duration/msec(s)
0	8001	<input type="checkbox"/>	High	100	250
1	8002	<input type="checkbox"/>	High	100	250
2	8003	<input type="checkbox"/>	High	100	250
3	8004	<input type="checkbox"/>	High	100	250

- COR Polarity: **vertex2100** and **vertex2200** use high-level active; **Moto GM3688** uses low-level active.
- COR Detection Suppression Time: Interval between two COR captures.
- Voice COR Priority: When four lines and IP phones speak at the same time, this option ensures the four-line users have priority.

4.4 NET_COR Configuration

In **Advanced / NET_COR**, you can configure NET_COR information for each user.

Figure 4-4-1 NET_COR Configuration

Ch ID	Username	Analog Side Detection First	COR Level	Detection Inhibition Duration/msec(s)	Sampling Duration/msec(s)
0	8001	<input type="checkbox"/>	High	100	250
1	8002	<input type="checkbox"/>	High	100	250
2	8003	<input type="checkbox"/>	High	100	250
3	8004	<input type="checkbox"/>	High	100	250

- COR Type: Select voice detection (**VOX**) or voice duplex pass-through for talking with IP phones. Select **off** for half-duplex calls with POC users.
- Voice Detection Threshold: Detects voice packets on the network side. The higher the threshold, the louder the voice required to activate the COR signal.

4.5 Gain Configuration

In **Advanced / Gain Configuration**, you can configure the user's gain parameters.

Figure 4-5-1 Gain Configuration

Ch ID	Username	DSP D->A	DSP A->D	CODEC D->A	CODEC A->D
0	8001	0dB	0dB	-1dB	0dB
1	8002	0dB	0dB	-1dB	0dB
2	8003	0dB	0dB	-1dB	0dB
3	8004	0dB	0dB	-1dB	0dB

- **A->D** Gain: Gain from the analog side to the digital side
- **D->A** Gain: Gain from the digital side to the analog side

4.6 Callback Configuration

In **Advanced / Chase Call Configuration**, you can configure chase call type, interval time, and how new calls are handled during a chase call.

Figure 4-6-1 Chase Call Configuration



Ch ID	Username	Re-call Interval/sec(s)	Re-calls on 4XX	Re-calls on BYE	Re-calls on New Call
0	8001	5	Disable	Disable	Answer new call and then re-call
1	8002	5	Disable	Disable	Answer new call and then re-call
2	8003	5	Disable	Disable	Answer new call and then re-call
3	8004	5	Disable	Disable	Answer new call and then re-call

- **4XX Chase Call:** Triggered when the softswitch replies with a **4XX** message indicating that the call failed.
- **BYE Chase Call:** Triggered when the softswitch replies with a **BYE** message indicating that the call has ended.
- **New Call in Chase:** Processing mode used when a new call arrives while chase call is active.
- **Calling Interval:** Time interval for initiating a call to the user.

5. Advanced Configuration

5.1 System Configuration

In **System Configuration**, features such as echo cancellation, silent compression, time synchronization, long-time no-voice packet handling, and prompt voice are generally configured here.

Note: System compatibility mode uses **4W** mode.

5.1.1 Echo Cancellation

In **Advanced / Call Settings**, you can enable or disable echo cancellation.

Figure 5-1-1 Echo Cancellation



Call Settings					
• Call Tone Handle					
Echo Cancellation	Silence Suppression	Auto Gain Control	Comfort Noise	Comfort Noise Payload	Comfort Noise Expiration/sec(s)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	13	10
• Signaling Tone Handle					
Play Duration for Dial Tone/sec(s)	Play Duration for Ring-back Tone/sec(s)	Stop Duration for Ring-back Tone/sec(s)	Play Duration for Busy Tone/sec(s)		
3	1	6	1		

When this feature is disabled, calls with wireless trunking gateway users may generate echo and affect call quality. It is disabled by default.

5.1.3 Time Synchronization

In **Advanced / System Configuration**, you can select the time synchronization method.

Figure 5-1-3 Time Synchronization



System Settings				
• Clock Sync				
Clock Sync Mode	NTP Server Address	Clock Sync Timer/sec(s)	System Reboot	System Reboot Timer/day(s)
SIP 200 OK Sync	10.20.4.90	66400	<input type="checkbox"/>	7

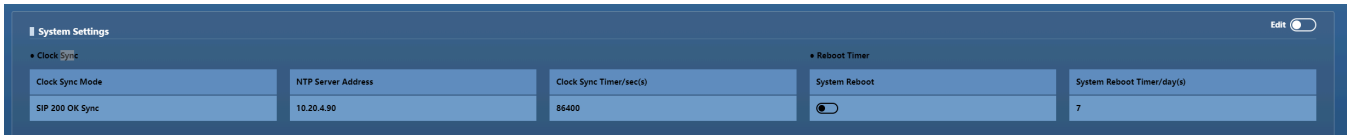
5.1.3.1 SIP200OK Synchronization

When `SIP200OK synchronization` is selected in `Advanced / System Configuration`, the time of the `200 OK` message received from the softswitch after user registration is used for synchronization during the registration cycle.

5.1.3.2 NTP Server Synchronization

When `NTP Server synchronization` is selected in `Advanced / System Settings`, an `NTP Server` input field appears at the bottom.

Figure 5-1-4 NTP Server Synchronization



After entering the NTP server IP address, the wireless trunking gateway synchronizes with this NTP server once in each cycle.

5.1.4 Long-Time No-Voice Packet Processing

In `Advanced / System Configuration`, you can select how the device handles long periods without voice packets.

Figure 5-1-5 Long-Time No-Voice Packet Processing

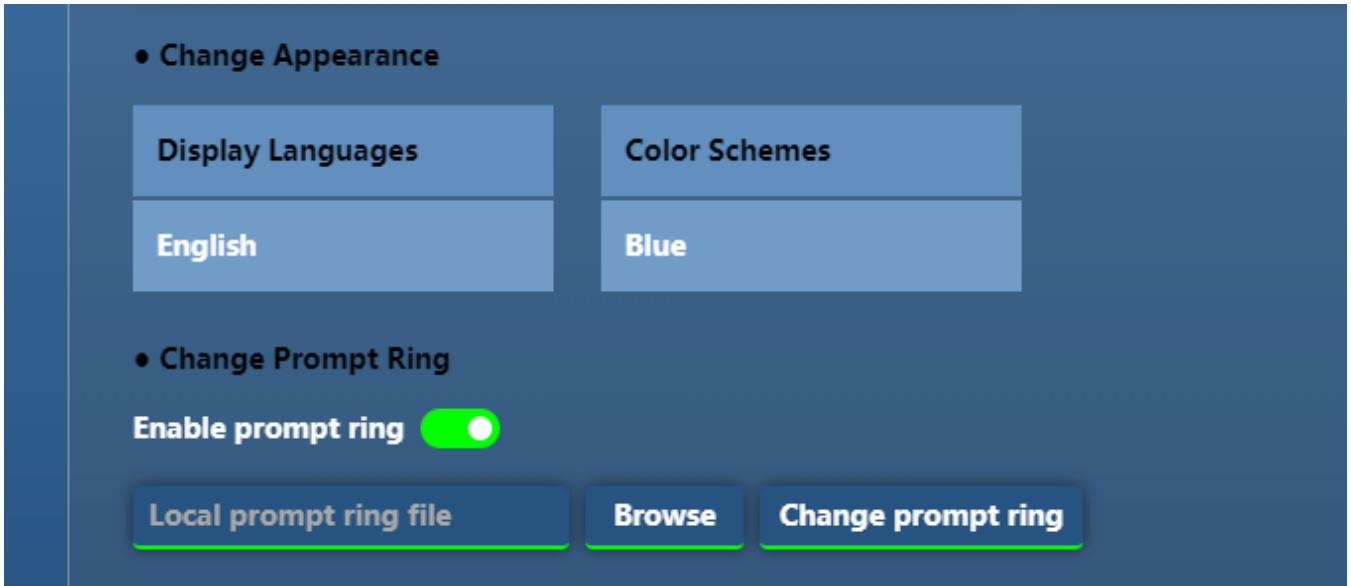
Ch ID	Username	Voice Detection	Detection Threshold	Begin-talk Timer/msec(s)	End-talk Timer/msec(s)	PTT Max Duration/sec(s)
0	8001	<input checked="" type="checkbox"/>	-5	500	800	30
1	8002	<input checked="" type="checkbox"/>	-5	500	800	30
2	8003	<input checked="" type="checkbox"/>	-5	500	800	30
3	8004	<input checked="" type="checkbox"/>	-5	500	800	30

- Mode 1: No processing. After a long no-voice timeout is detected, no action is taken and the call remains active.
- Mode 2: Release the call. After a long no-voice timeout is detected, the call is released and ends.
- Mode 3: Rebuild the call. After a long no-voice timeout is detected, the device initiates a `re-INVITE` to continue the call.

5.1.5 Reminder Voice Function

In `Device / Prompt`, you can enable or disable the reminder voice function.

Figure 5-1-6 Reminder Voice Function



Function description: After this switch is enabled, the wireless gateway plays a prompt tone when users establish a call. Users can upload their preferred voice file. Only `.au` format is supported, and the uploaded file must be named `ring.au`. Only one voice file is supported, and new uploads replace the previous file.

5.3 Dialing Rules

Dialing rules can be configured in `Advanced Configuration / Dialing Rules`. The rules use number-map mode and are equivalent to the `#` key.

The number map rules are as follows:

1. Dialing rules support numbers, `x`, and `[]`.
2. `x` stands for any digit, and `[]` stands for a range of digit values. For example, `1[3,4][2,3-7]xx` means the first digit is `1`, the second digit is `3` or `4`, and the third digit is `2` or a number between `3` and `7`, with at least five digits in total.
3. Longest match is used. When multiple dialing rules all match exactly, the longer rule is selected.

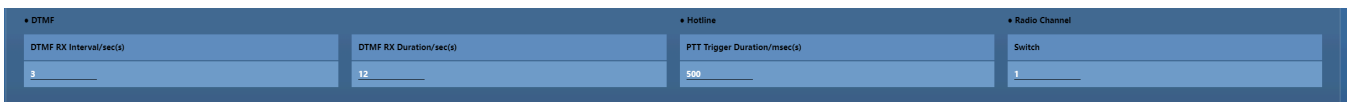
For example, if you configure `7x` and `75x`, entering `75` matches `75x`.

Note: Dialed numbers ending with `#` are not matched against dialing rules.

5.4 Channel Switching

In `Advanced / Channel Switching`, the channel of channel `0` can be selected.

Figure 5-4-1 Channel Switching

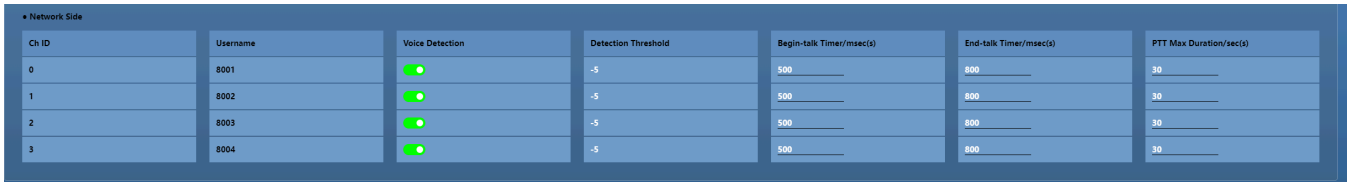


Note: At present, channel switching applies only to channel `0`. When using channel selection, choose only supported channels.

5.5 Time Setting

In **Advanced / Time Settings**, you can configure time-related parameters of the wireless trunking gateway system.

Figure 5-5-1 Time Settings



Ch ID	Username	Voice Detection	Detection Threshold	Begin-talk Timer/msec(s)	End-talk Timer/msec(s)	PTT Max Duration/sec(s)
0	8001	<input checked="" type="checkbox"/>	-5	500	800	30
1	8002	<input checked="" type="checkbox"/>	-5	500	800	30
2	8003	<input checked="" type="checkbox"/>	-5	500	800	30
3	8004	<input checked="" type="checkbox"/>	-5	500	800	30

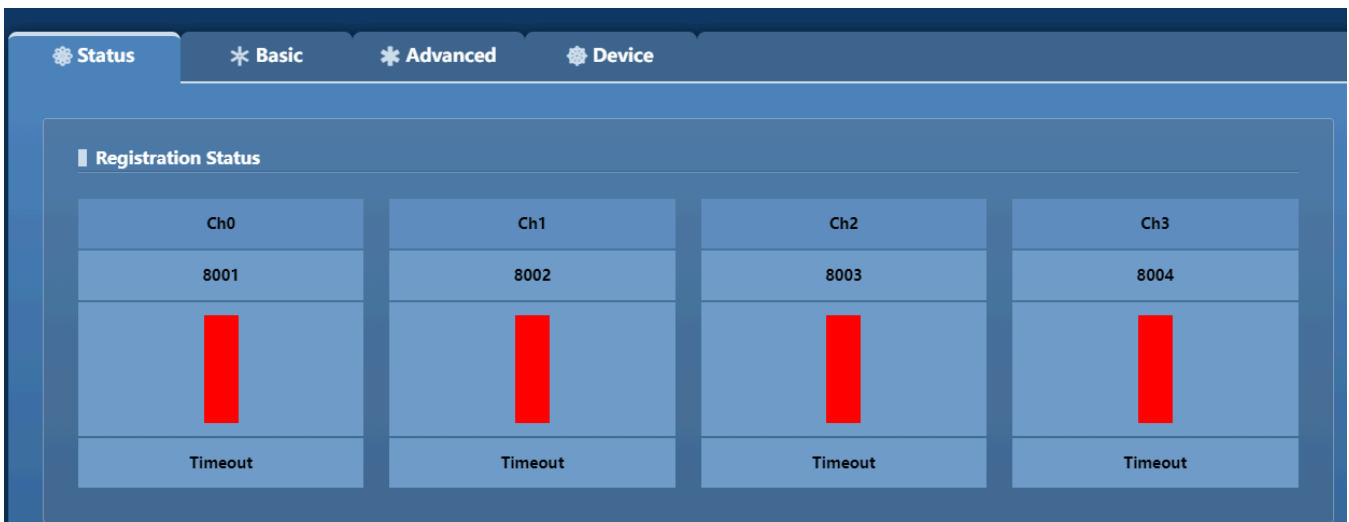
- Receive User Number Duration: Duration of DTMF reception when the handset is off-hook and the intercom key is allowed. Default: **12 s**
- Key Interval: Maximum time interval between two adjacent key presses. Default: **3 s**
- No Voice Packet Max Length: Maximum time a call can continue without voice. Default: **300 s**
- Long Call Duration: Timeout duration for no calling. Default: **120 s**
- Dial Tone Length: Length of time the dial tone is played to the intercom when the handset is off-hook. Default: **3 s**
- Ringing Duration: Duration of ringing when the handset listens to ringback tone. DTMF is not received during ringing. Default: **1 s**
- Stop Ringing Duration: Duration of silence between rings when listening to ringback tone. DTMF can be received during this interval. Default: **6 s**
- Intercom Listen Busy Tone Length: Length of the busy tone played to the intercom when the handset hangs up or the remote end hangs up. Default: **3 s**





6. Status Queries

6.1 Registration Status

In **Status / Registration Status**, you can view user registration status information.

Figure 6-1-1 Registration Status

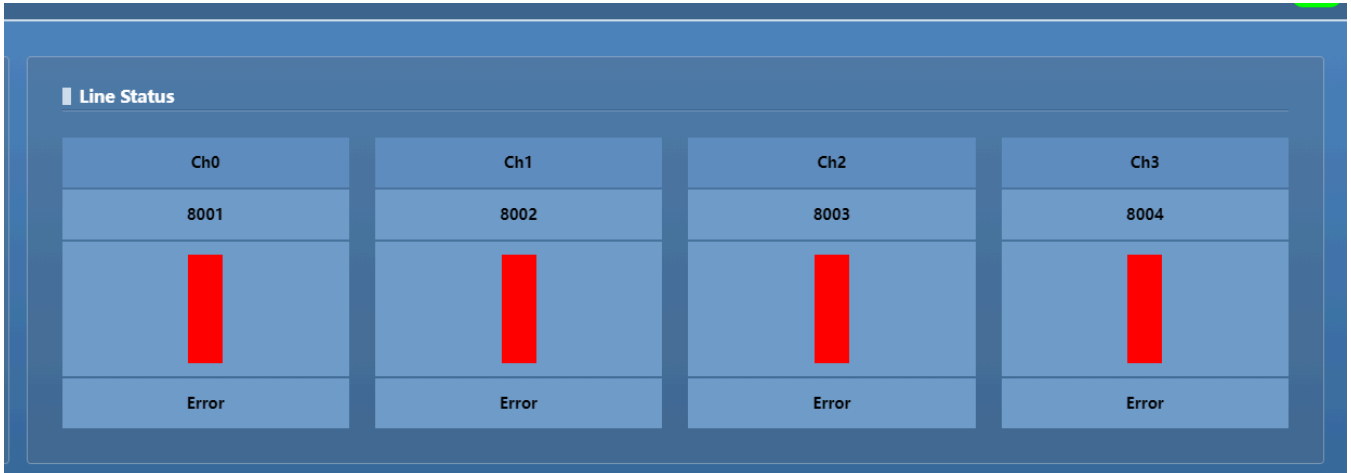


Ch0	Ch1	Ch2	Ch3
8001	8002	8003	8004
			
Timeout	Timeout	Timeout	Timeout

6.2 Line Status

In `Status / Line Status`, you can view line status information.

Figure 6-2-1 Line Status



7. Function Key Usage Instructions

In `Advanced / Code Settings`, you can configure function keys when adding wireless gateway users.

Figure 7-1-1 Code Settings



7.1 Dialing Function Code

The default dialing code is `*9#`. To make a dialing call from the handheld, enter `*9# + phone number` such as `*9#8888`, press `OK`, and then press `PTT` to place the call.

7.2 Picker Function Code

The default picker function code is `*7#`. To make a dialing call from the handheld, enter `*7#`, press `PTT`, clear the `*7#` function code after hearing the dial tone, enter the phone number, press `OK`, and then press `PTT` to place the call.

7.3 Hang-Up Function Code

The default hang-up function code is `*0#`. During a call between the handheld and the phone, enter `*0#`, press `OK`, and then press `PTT`. The handheld hears the busy tone, and the call ends.

7.4 Hot Line Function Code

1. When the function key is enabled, the default hotline function code is `*8#`. The wireless trunk gateway user configures a hotline number, the handheld enters `*8#`, presses `OK`, and then presses `PTT`. The phone corresponding to the hotline number rings.
2. When `PTT` hotline is enabled, press `PTT` directly and the hotline number rings immediately.

7.5 Turn Off Chase Function Code

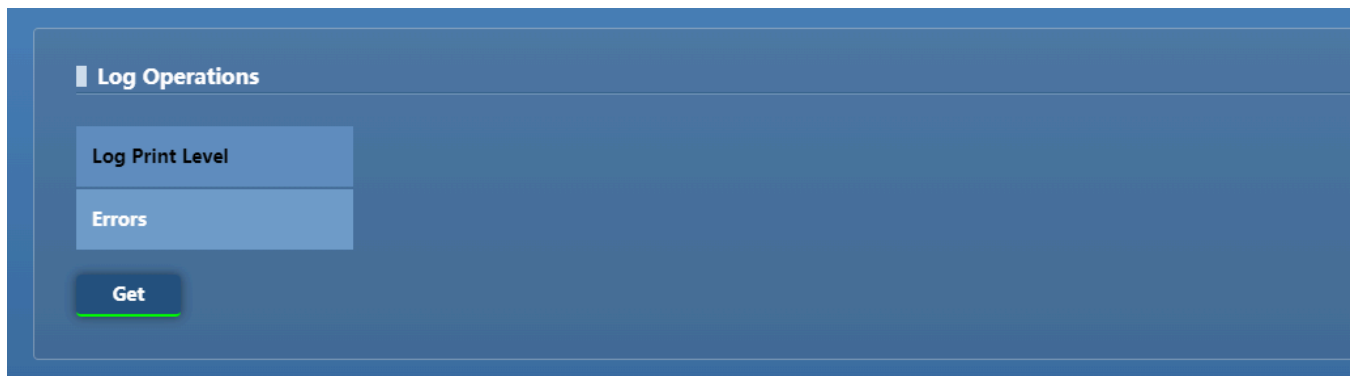
The default code for turning off the chase function is `*1#`. If the wireless trunk gateway user has enabled chase call and it is triggered after a call failure, the handheld can enter `*1#`, press `OK`, and then press `PTT` during the next chase interval to stop further chase calls.

8. System Administration

8.1 Log Management

In `Device / Log Management`, you can configure log servers, log levels, and related parameters.

Figure 8-1-1 Log Management

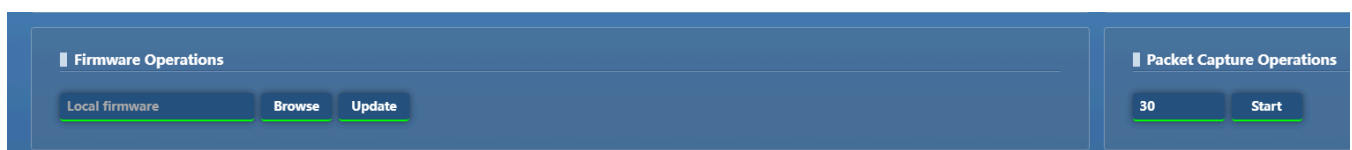


- Log Level: Includes `error`, `alarm`, `simple`, `process`, `debug`, and `detailed`, corresponding to `1v.0` through `1v.6`. The higher the level, the more detailed the log.
- Log Server Address: IP address of the log server.
- Log Server Receive Port: Port used by the log server to receive logs.
- Send Log Port: Port used by the wireless gateway to send logs.
- `490` Chip Debug Port: Port used for debugging the `490` chip.

8.2 Software Upgrade

The wireless trunking gateway system can be upgraded in `Device / Software Upgrade`.

Figure 8-2-1 Software Upgrade

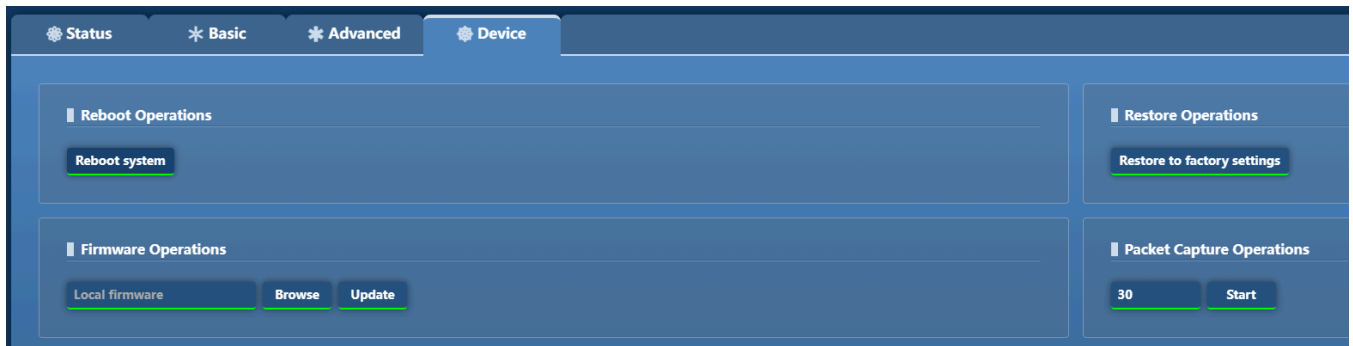


Click **<Browse>**, select the **eaagos** upgrade package in the pop-up window, click **<Open>**, and then click **<Upgrade>** on the web page. The system automatically loads the upgrade package and reboots after the upgrade is completed.

8.3 Equipment Operation

In **Device / Device Operation**, you can perform recovery, reboot, system backup and rollback, and data import or export.

Figure 8-3-1 Device Operation



- Restore Factory Settings: Click **<Restore>** to restore the wireless trunking gateway configuration to factory settings. This does not affect system IP-related information.
- Reboot Device: Click **<Reboot>** to restart the wireless trunking gateway.
- System Backup: Click **<Backup>** to back up **DriverTest**, **Driver_Load**, **KeepWatchDog**, **VGW.ko**, **voiceGw**, and **voiceGw.db** to **/var/cgi_backup/backup**.
- System Rollback: Click **<Rollback>** to restore files from the most recent system backup. The system restarts automatically after rollback.
- Data Export: Click **<Export>** to package **voiceGw.db**. A download window appears so the file can be saved to the local PC through the web page.
- Data Import: Click **<Browse>**, select the **.zip** file exported previously, click **<Open>**, and then click **<Import>** on the web page. The system restarts automatically after a successful import.

Note: The wireless gateway system keeps only one backup. Only the most recent backup program and data are available for rollback.

8.4 Version Information

The version numbers of programs and library files related to the wireless trunking gateway can be viewed in **Status / Version Information**.

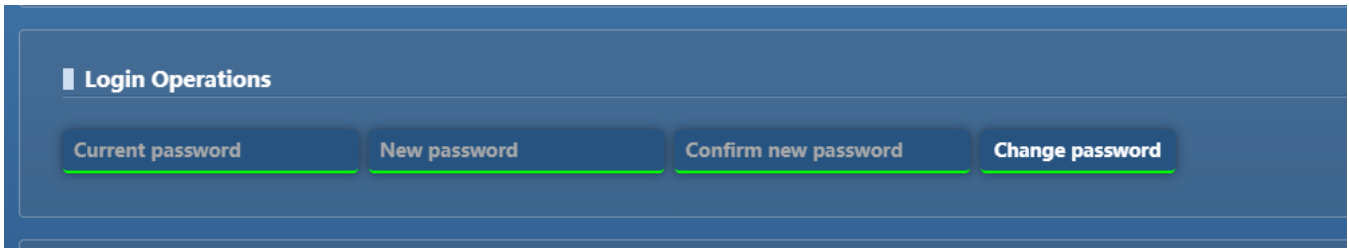
Figure 8-4-1 Version Information



8.5 Account Management

The password for web login can be changed in `Device / Login Operations`.

Figure 8-5-1 Login Operations



The screenshot shows a web interface titled "Login Operations" with a dark blue header. Below the header, there are four input fields arranged horizontally, each with a green underline. The fields are labeled "Current password", "New password", "Confirm new password", and "Change password".

- Change Password: Enter the current password in the old password field, enter the new password, confirm it, and click `<Modify Password>` to complete the change.
- Default Password: Click `<Default Password>` to restore the web login password to the default value.

The default login name is `admin`, and the default password is `1`.

9. Appendix I: Function Key Usage Instructions

9.1 Continuous Dialing Function Code

The default dialing code is `*9#`. To make a dialing call from the handheld, enter `*9# + phone number` such as `*9#8888`, press `OK`, and then press `PTT` to place the call.

9.2 Picker Function Code

The default picker function code is `*7#`. To make a dialing call from the handheld, enter `*7#`, press `PTT`, clear the `*7#` function code after hearing the dial tone, enter the phone number, press `OK`, and then press `PTT` to place the call.

9.3 Hang-Up Function Code

The default hang-up function code is `*0#`. During a call between the handheld and the phone, enter `*0#`, press `OK`, and then press `PTT`. The handheld hears the busy tone, and the call ends.

9.4 Hot Line Function Code

1. When the function key is enabled, the default hotline function code is `*8#`. The wireless trunk gateway user configures a hotline number, the handheld enters `*8#`, presses `OK`, and then presses `PTT`. The phone corresponding to the hotline number rings.
2. When `PTT` hotline is enabled, press `PTT` directly and the hotline number rings immediately.

9.5 Turn Off Chase Function Code

The default code for turning off the chase function is `*1#`. If the wireless trunk gateway user has enabled chase call and it is triggered after a call failure, the handheld can enter `*1#`, press `OK`, and then press `PTT` during the next chase interval to stop further chase calls.