GRANDSTREAM
CONNECTING THE WORLD

Grandstream Networks, Inc.

Grandstream Wave for Android^{TM}

User Guide

Grandstream Wave User Guide

Index

Table of Tables
Grandstream Wave User Guide

CHANGE LOG

This section documents significant changes from previous versions of Grandstream Wave user manuals. Only major new features or major document updates are listed here. Minor updates for corrections or editing are not documented here.

FIRMWARE VERSION 1.0.1.21

- This is the initial version.

WELCOME

Thank you for purchasing Grandstream Wave. To meet the requirements of our customers, Grandstream Wave emerged on the basis of our existing multimedia VoIP Phones. Grandstream Wave supports Android 4.0 and higher, and it is compatible with most of Android mobile phones and tablets. By combining powerful phone functions and integration of Grandstream UCM applications, businesses throughout the world can use Grandstream Wave for all communication and productivity requirements with unprecedented high quality experience.

FEATURE HIGHTLIGHTS

- Support Android™ 4.0 and higher
- Standard SIP-based softphone with exceptional voice quality
- Strong security features including SIP over TLS and 128 or 256-bit SRTP
- Support 6 SIP accounts, up to 6-way audio conferences
- Support CID, voicemail and call encryption
- Support synchronize with local Contacts and call history on the phone
- Enterprise features including UCM integration, BLF, call transfer/pickup, LDAP
- Powerful NAT traversal options including automatic NAT discovery, STUN and UPnP
- Automatic call forward based on time and location rules
- Support G.711, G.726, G.722, iLBC, Opus, and G.729 (Premium Edition)
- Automatic provision including XML provision and QR code scan
- Fully customizable skins and themes for optional branding needs

GRANDSTREAM WAVE TECHNICAL SPECIFICATIONS

Table 1: GrandStream Wave Technical Specifications

Lines	6 lines with up to 6 independent SIP accounts
Protocols and Standards	SIP RFC3261,TCP/IP/UDP, RTP/RTCP, HTTP/HTTPS, DNS(A record, SRV, NAPTR), STUN/ICE, SIMPLE, LDAP, TLS, DTLS, IPv6 (TBD)
Network	Support 2G/3G/4G and WiFi
Graphic Display	800 x 480 resolution or higher
Bluetooth	Support making calls with Bluetooth
Voice Codec and Capabilities	Support G.711μ/a, G.722(wide-band), G.726-32, iLBC, GSM, Opus, HD Audio
Telephony Features	Hold, mute, transfer, forward (unconditional/no-answer/busy/time-based) , call park, paging/intercom, DND (Do Not Disturb) , busy lamp field (BLF) , downloadable phone book (XML, LDAP) , call waiting, call history, flexible dial plan, custom ringtones, server redundancy & fail-over, B LF

UCM Integration	Supports many functions like QR code scan
Feature Functions	LDAP, MWI (Message Waiting Indicator) , display instant online status, call history and messages
QoS	Layer 3 (ToS, DiffServ, MPLS) QoS
Security	Support AES configuration file, TLS encryption, SRTP encryption (128-bit and 256-bit) , HTTPS
Multi-language	English, Simplified Chinese, Polish, Germany, Russian, Italian, Arabic, Spanish, Portuguese, French, etc.

This document is subject to change without notice. The latest electronic version of this user manual is available for download here: http://www.grandstream.com

INSTALLATION AND SETUP
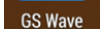
GETTING READY

The device must run on Android 4.0 or higher. Grandstream Wave is compatible with most of Android mobile phones and tablets with Android 4.0 operating system and higher, supports 2G/3G/4G and WiFi. Users could download Grandstream Wave via QR code scan, or download it from Google Play.

Follow the following prompts in the installation wizard after downloading Grandstream Wave. Users could see the icon if downloaded and installed Grandstream Wave successfully. Tap on the icon to open it.
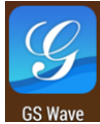
1. Click "Next" to check the privacy policies to continue.

2. Click "Install" to initiate the installation.

3. Installing.

4. When installed, click "Done" to exit or click "Open" to access the app.
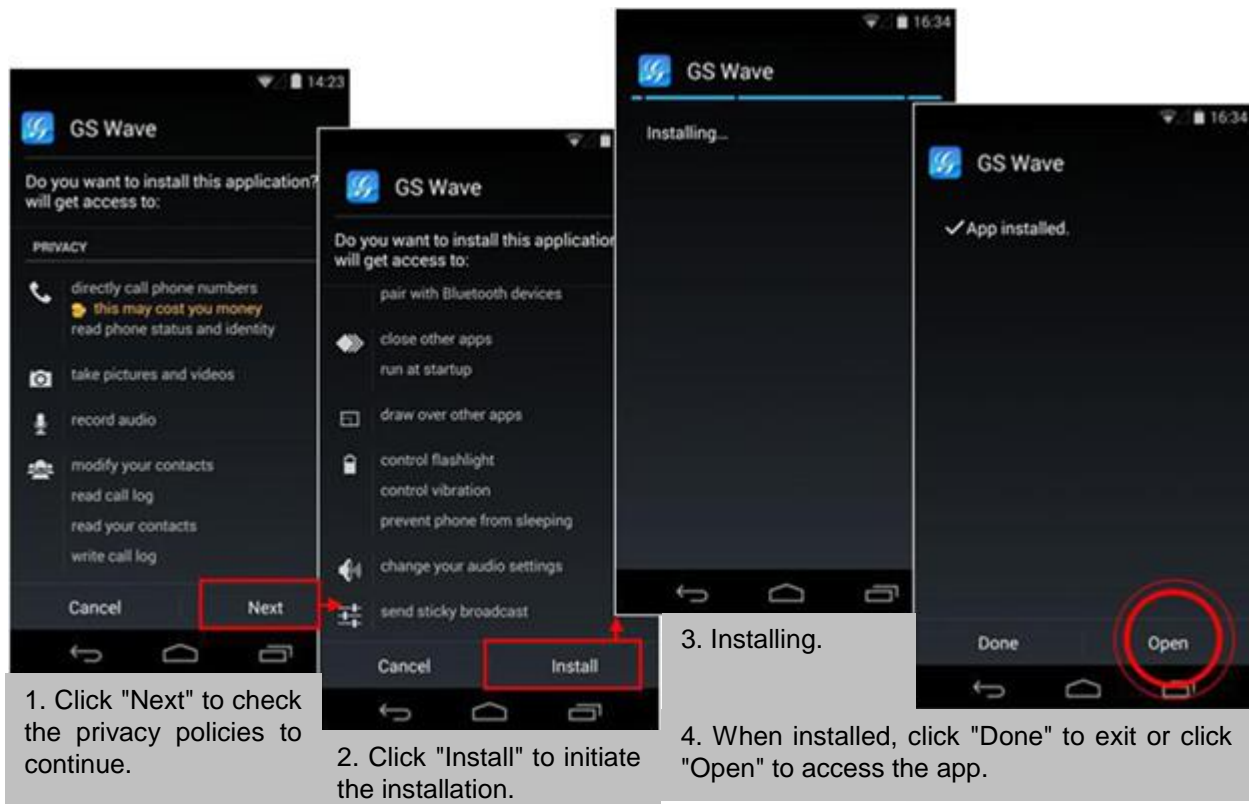
Figure 1: Grandstream Wave Installation

⚠ **Note**:

- For first-time users, users have to confirm whether allow Grandstream Wave to read local call histories and import contacts from the phone. If it allows, users could view local call histories and contacts on the corresponding Grandstream Wave screen.

To fully manipulate the Grandstream Wave capacitive touch screen, use fingers to operate following the introductions below on the Grandstream Wave icons, buttons, menu items, onscreen keyboard, etc.
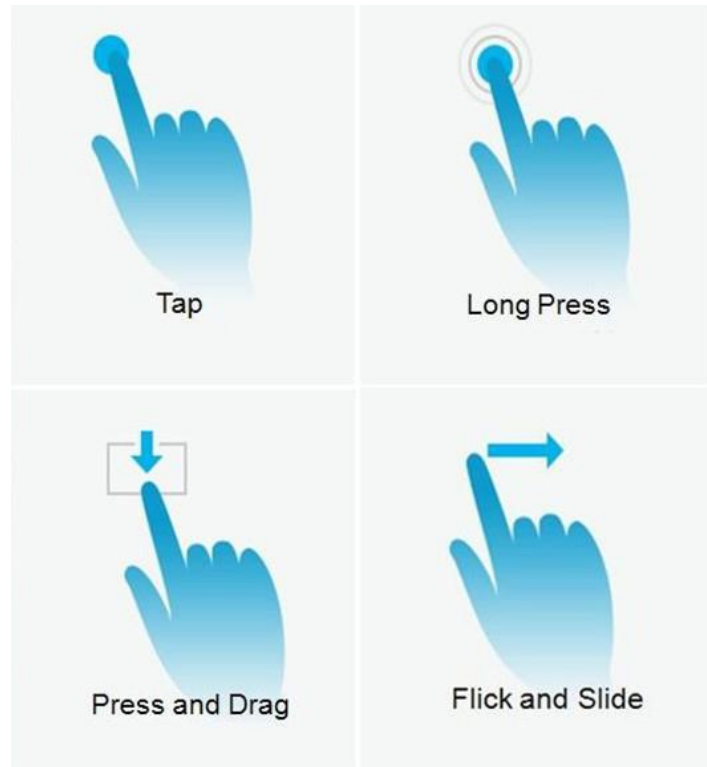
Figure 2: Grandstream Wave Finger Gestures on the Touchscreen

- **Tap**

  Slightly touch the screen with fingertip once to initiate menu, options or applications. For example, to select items on the screen (e.g., setting options, apps); to press onscreen buttons (e.g., "End" or "Options" soft key during the call); to type letters and symbols using the onscreen keyboard.

- **Long Press**

  Touch the screen with fingertip for about 2 seconds without lifting finger from the screen to bring up the context menu for more operations.

- **Press and Drag**

  Press the item and move it by dragging the finger up, down, left or right, without lifting finger from the screen.

- **Flick and Slide**

  Touch the screen with fingertip and slide over the screen. For example, users could slide up to scroll up the page, slide down to open dropdown menu, slide left/right to delete an item from the list. If the finger stays on the screen for too long, the item may be selected and sliding will not occur.

USING GS WAVE

DIAL SCREEN

Tap on the keypad button ⊞ at the bottom of screen to open dial screen, as shown in figure 3.
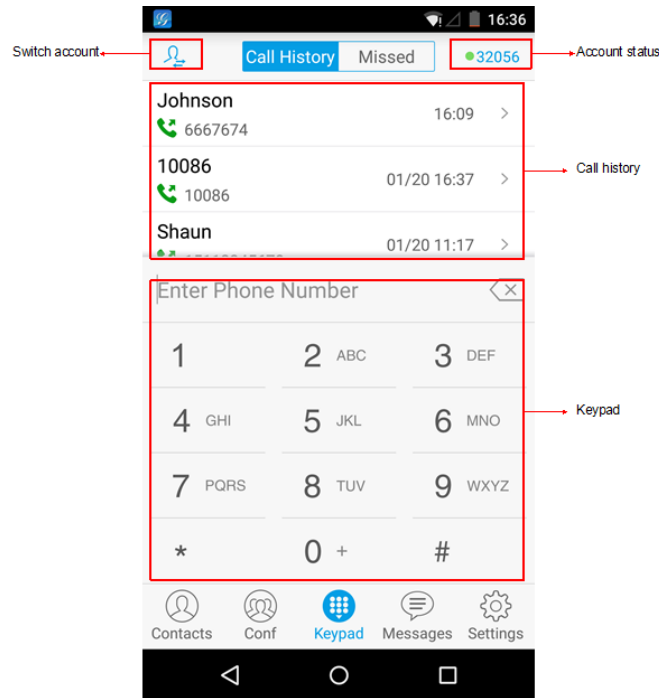
Figure 3: Keypad Screen

DIALING A NUMBER DIRECTLY

1. Access the dial screen;

2. Put one finger on left screen edge, and slide to right or tap [icon] on the upper left corner, select the account as shown in figure 4;
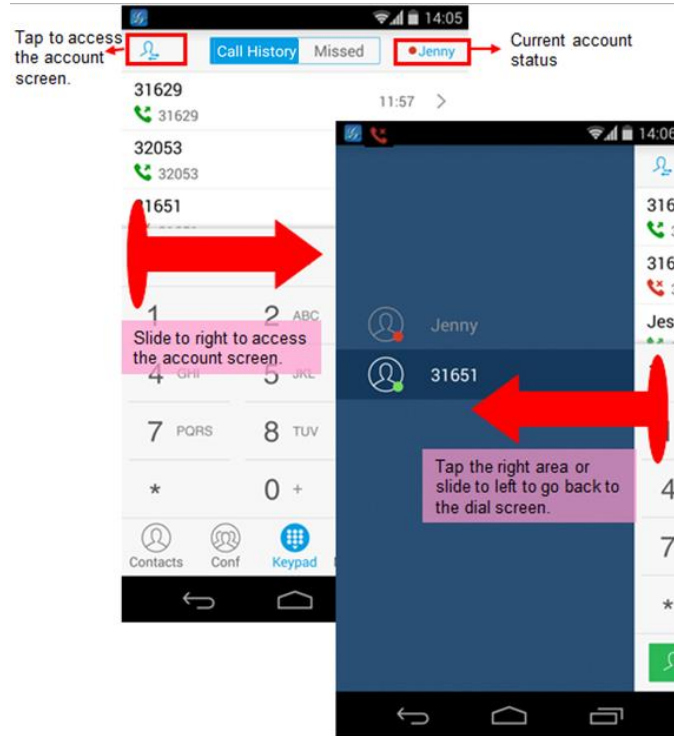
Figure 4: Select Account

3. Tap the right area to go back to the dial screen;
4. Enter the phone number on the keypad;

5. Tap on [📞 Dial] to dial out with SIP account; Tap on [••• More] and select "Dial", "Local Call" or "Paging" to dial out via local phone number, or select "New Contact" to add the number as a contact quickly.

⚠️ **Note:**

- By default, Grandstream Wave allows users to press # key as SEND key. This behavior can be disabled via set option "Use # as Dial Key" to "No" under Settings->Account Settings.
- If inserting an active SIM card into the phone, users could make calls with the SIM card number but cannot send messages with the local phone number.

REDIAL

Users can dial out the last dialed number if there is dialed call history.

1. Access the dial screen;
2. Press # key to dial out the last dialed number.

DIALING A NUMBER VIA CALL HISTORY

The Grandstram Wave call history is listed on the upper of the dial screen. It displays all call histories

(local and SIP account) and missed calls. Navigate on the call history entries by tapping on button

on the bottom of the main screen to slide up/down as shown in figure 5.
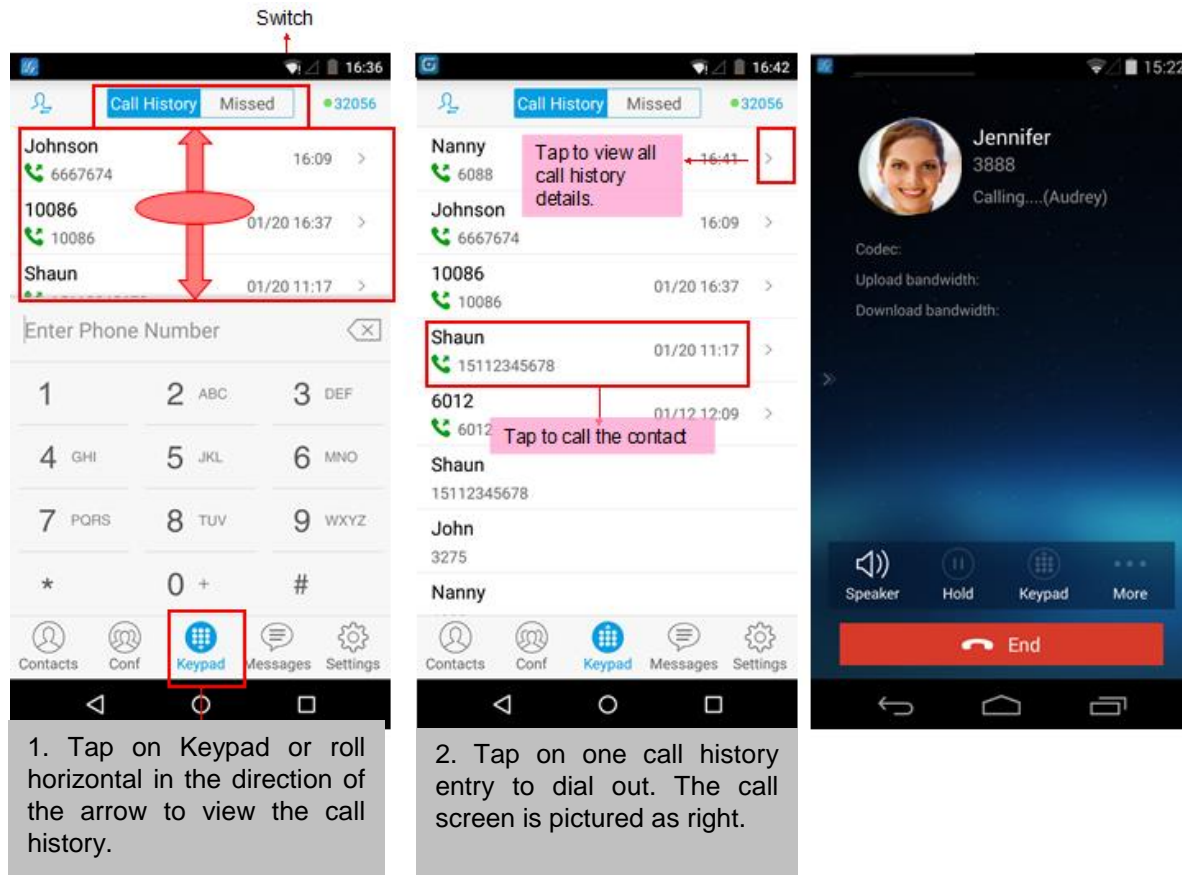
Figure 5: Dial-up via Call History

⚠️**Note:**

- Dialing out through call history will use the account which made the last call.

DIALING A NUMBER VIA CONTACTS

Access Contacts by tapping on ⊘ icon on the bottom of the main screen, the SIP contacts and LDAP Contacts (please go to Settings page to configure first) are shown up individually. Follow the steps in figure 6 to dial a number via Contacts.
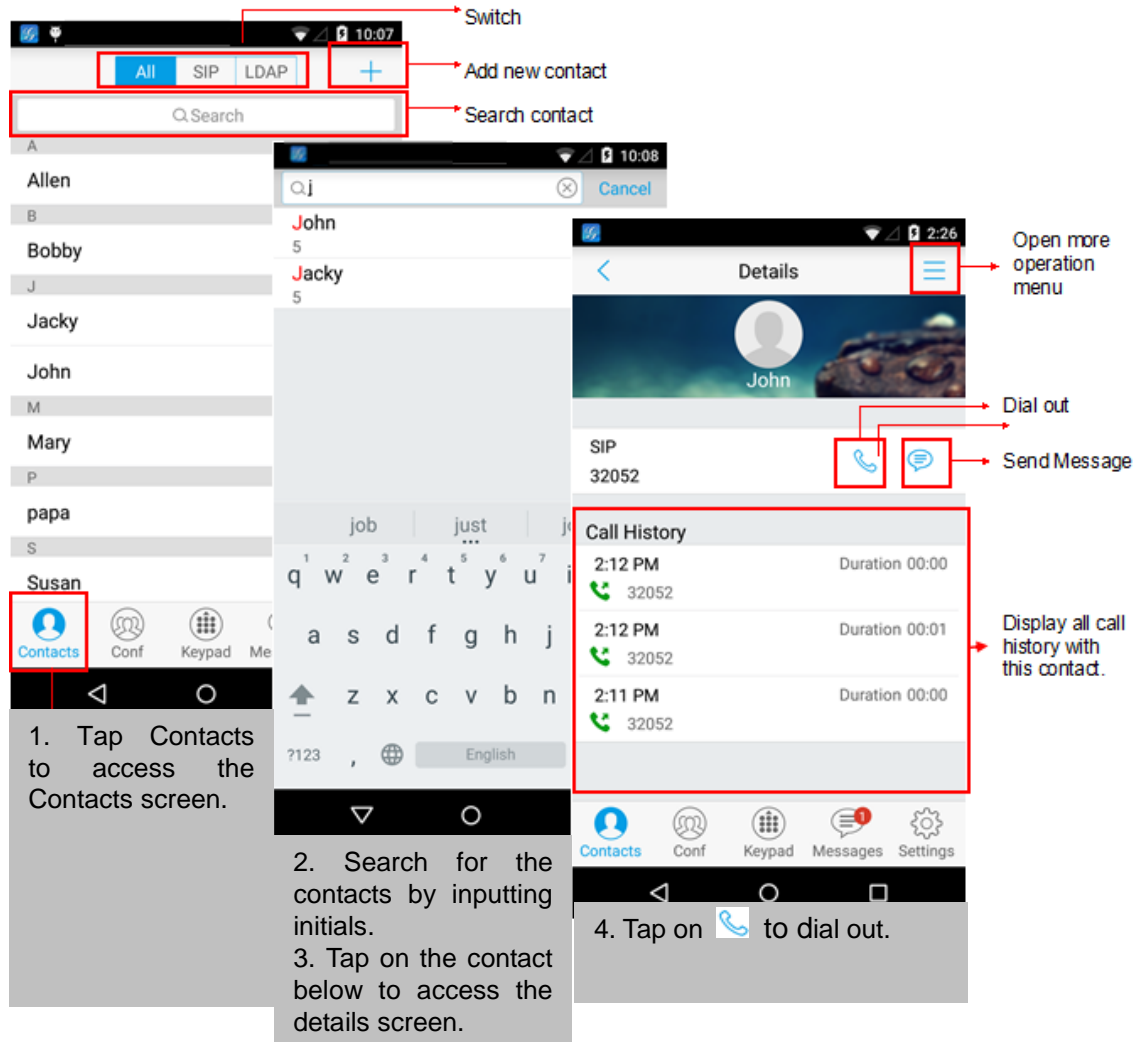
Figure 6: Dial-up via Contacts

SWITCHING AUDIO CHANNEL DURING CALL

Users could switch lines by sliding the call screen when there are multiple calls, as shown in figure 7 below.
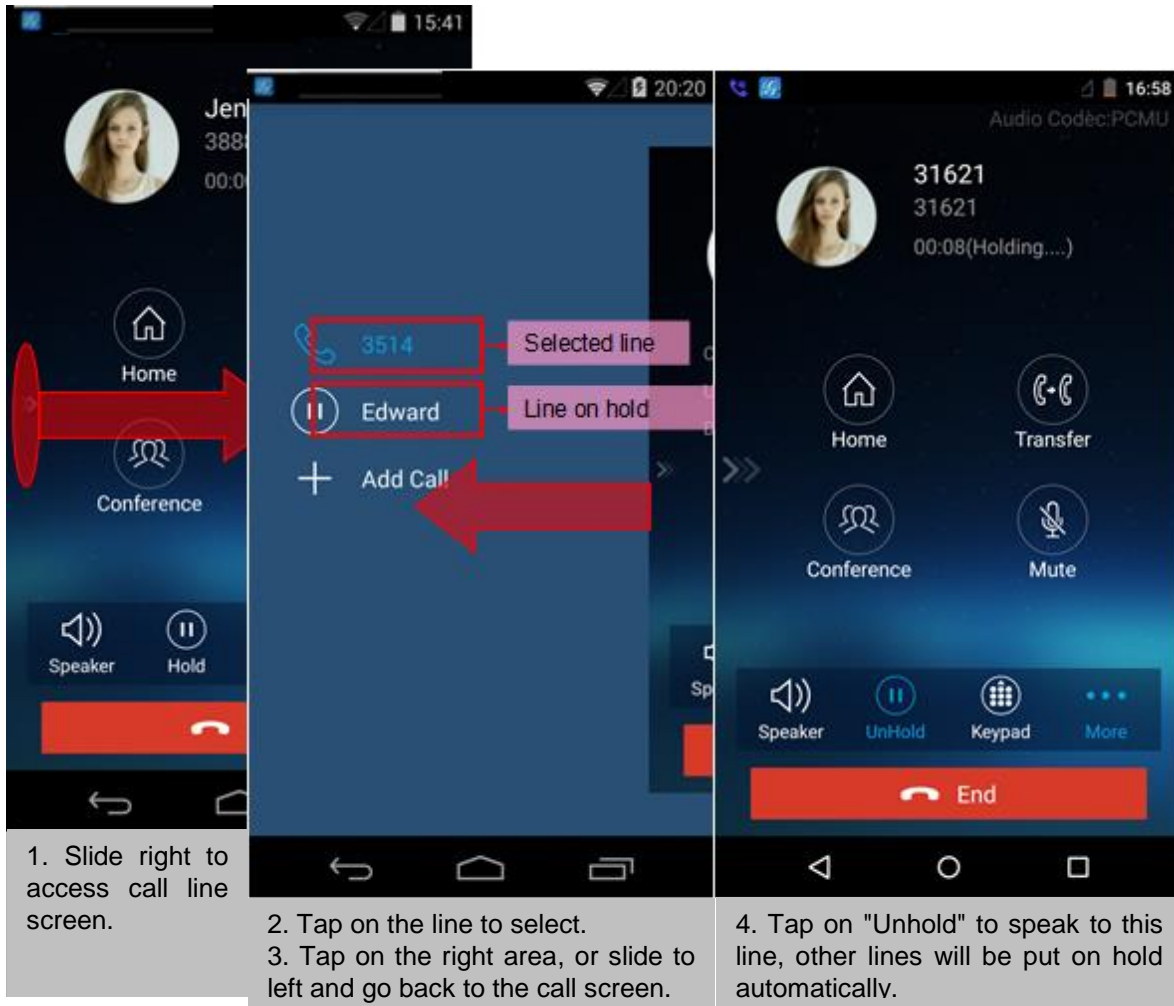
Figure 7: Switch Call Lines

ANSWERING A CALL

SINGLE INCOMING CALL

When the phone is at idle state, and there is an incoming audio call, the status bar will display the icon

and the phone screen is as shown in figure 8 below.
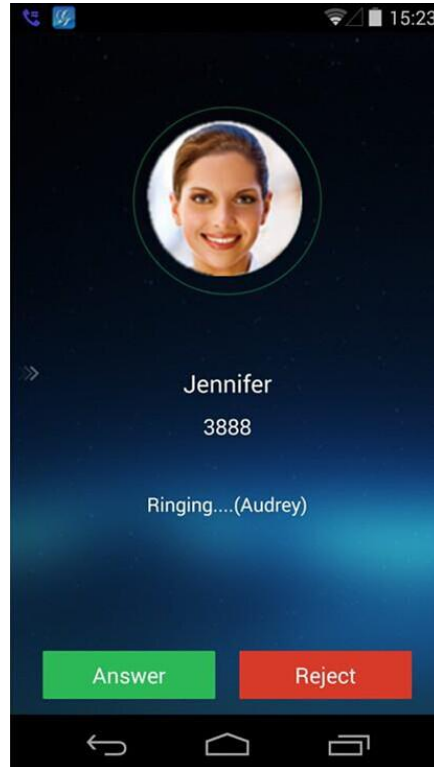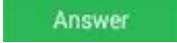
Figure 8: Single Incoming Call

Tap on button ![Answer] to answer the call via speaker, or tap on button ![Reject] to reject the call.

MULTIPLE CALLS

When there is another incoming call during an active call, the status bar will display the icon ![icon] , and at the same time, users will hear call waiting tone, with the screen displaying the caller's name or number for the incoming call. A prompt appears for users to confirm as shown in figure 9.
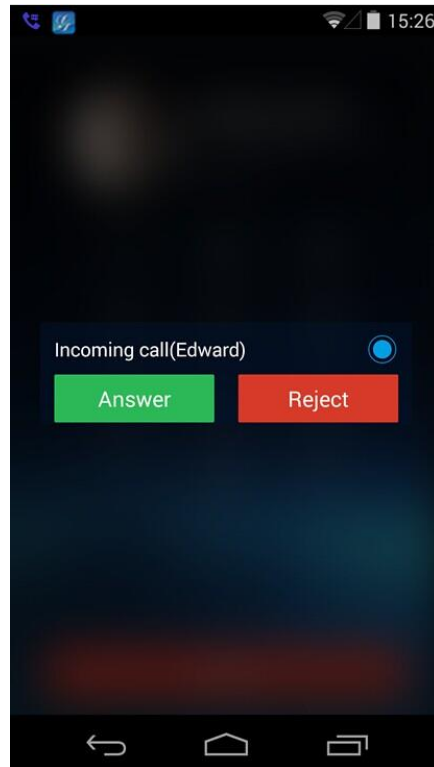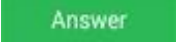
Figure 9: Multiple Calls

Tap on button [Answer] to answer the call, once the new call is answered, the current active call will be placed on hold.

If the new call is rejected by tapping on button [Reject], the current active call will not be interrupted.

VOICE CALL

During an active call, users could hold/resume call, mute/unmute, input DTMF, add new call, initiate conference, end a call or switch audio channel. Tap [»] on left screen, and slide right to bring up the lines list. Users could switch to other lines or add a new call.
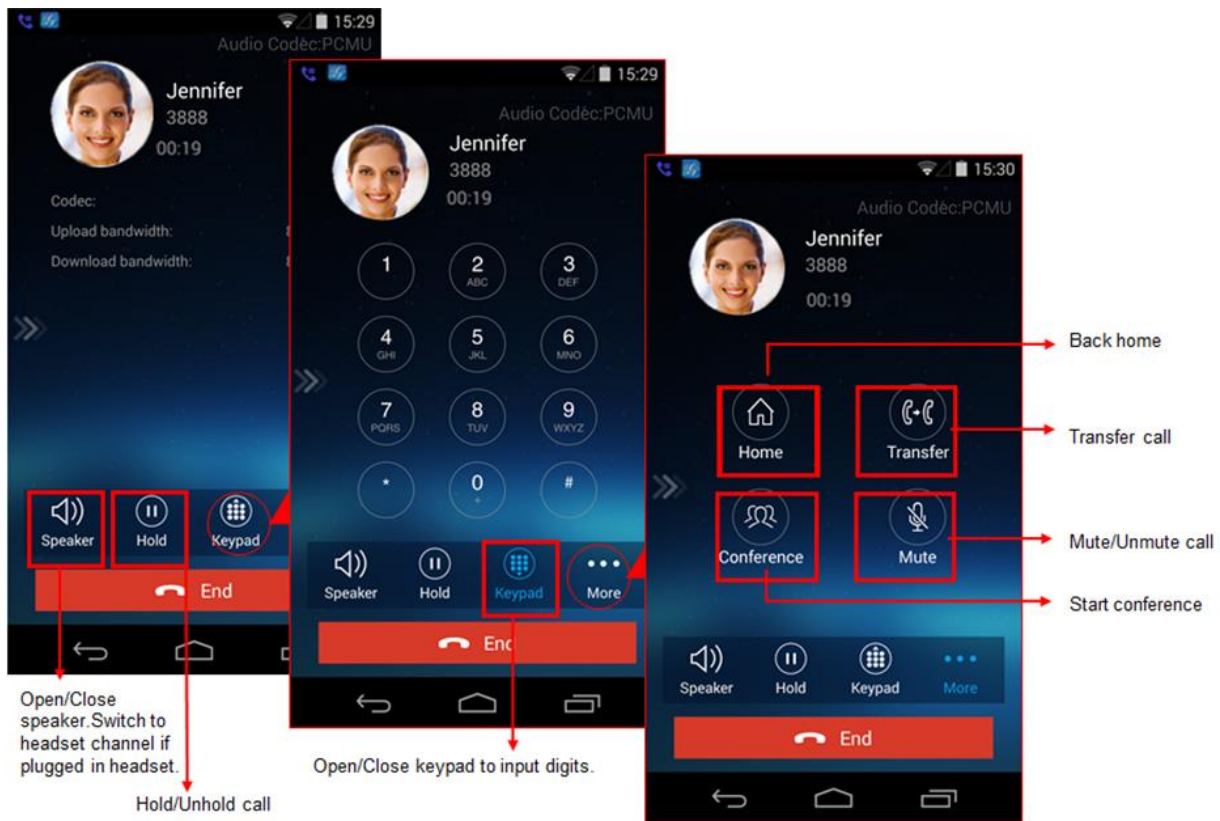
Figure 10: Voice Call

⟫ : Slide to right to add new call or switch lines.

Speaker: Switch voice channels to speaker or 3.5mm headset if it is plugged in.

Hold/Unhold: During the call, users could press the HOLD button to hold or resume the call at any time.

Keypad: Tap on the icon to bring up digital soft keypad for inputting DTMF.

More: Access more operations including Home, Transfer, Conference and Mute/Unmute.

Home: Back to the home screen (dial screen), the active call interface will be hidden; users could tap on

button at the upper left corner of the screen to go back to the call interface.

Transfer: Switch to the transfer screen. Grandstream Wave supports blind transfer and attended transfer. Please refer to chapter *Call Transfer* for more details.

Conference: Bring up conference screen.

Mute: Tap on the icon to mute/unmute the call.

End: Tap on the icon to end the call.

CALL HOLD/RESUME

During the active call, press the **HOLD** button to put the call on hold. Users could dial up or answer a new call. The call hold screen is as shown in figure 11 below.
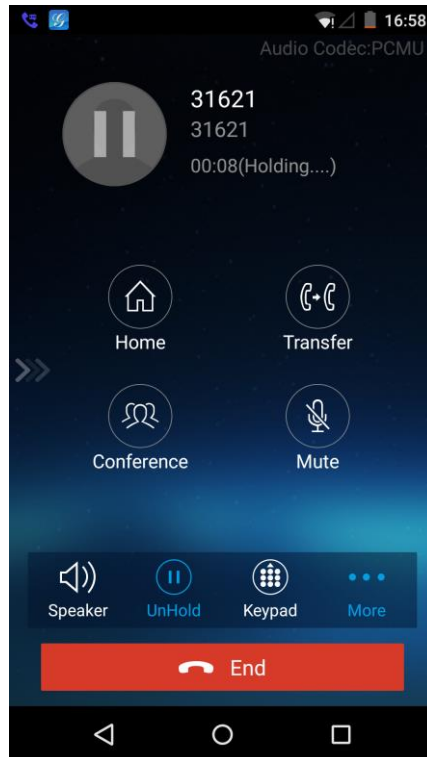
Figure 11: Call Unhold

To resume the call, press the **UNHOLD** button again to resume the call if the current active call is put on

hold, or press to end the call.

MUTE

During an active call, press the MUTE button to mute the call, press the button again to unmute the call. The mute screen is as shown in figure 12 below.
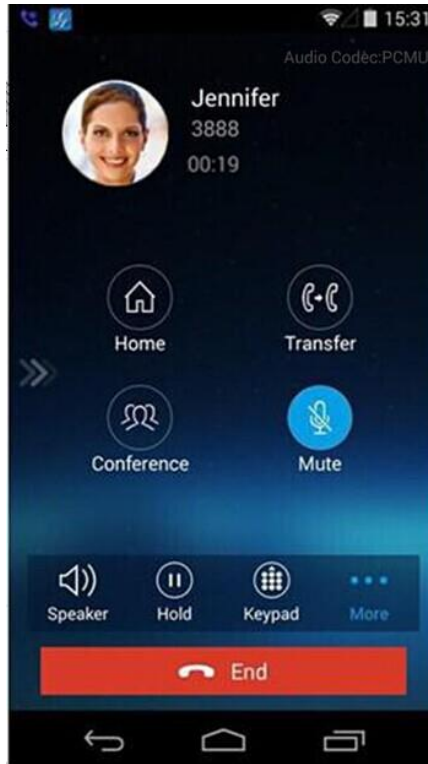
Figure 12: Call Mute

SWITCHING AUDIO CHANNEL DURING CALL

Grandstream Wave allows users to switch audio channel among handset (if user plugs in headset, the handset status will be turned into headset status), speaker or Bluetooth headset when making calls.

Figure 13 shows the call screen when using the Bluetooth, tap on button to switch channels.

Figure 13: Call via Bluetooth

MISSED CALLS

When there is a missed call, the phone will display on the status bar and prompt on Grandstream Wave call history list, as shown in figure 14.
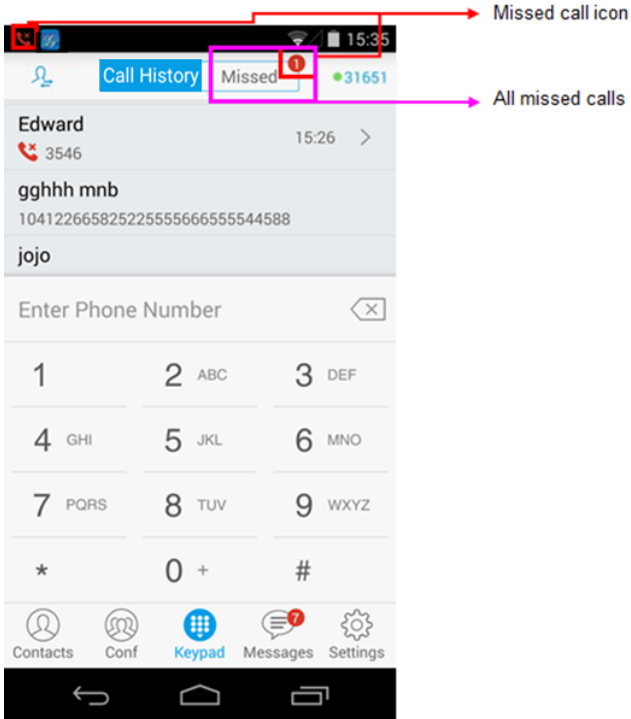
Figure 14: Missed Call Screen

CALL TRANSFER

BLIND TRANSFER

1. During the active call, tap on "More" and select "Transfer" in the available options to access the transfer screen.	2. Input the digits and then tap on "Blind" to transfer the call.
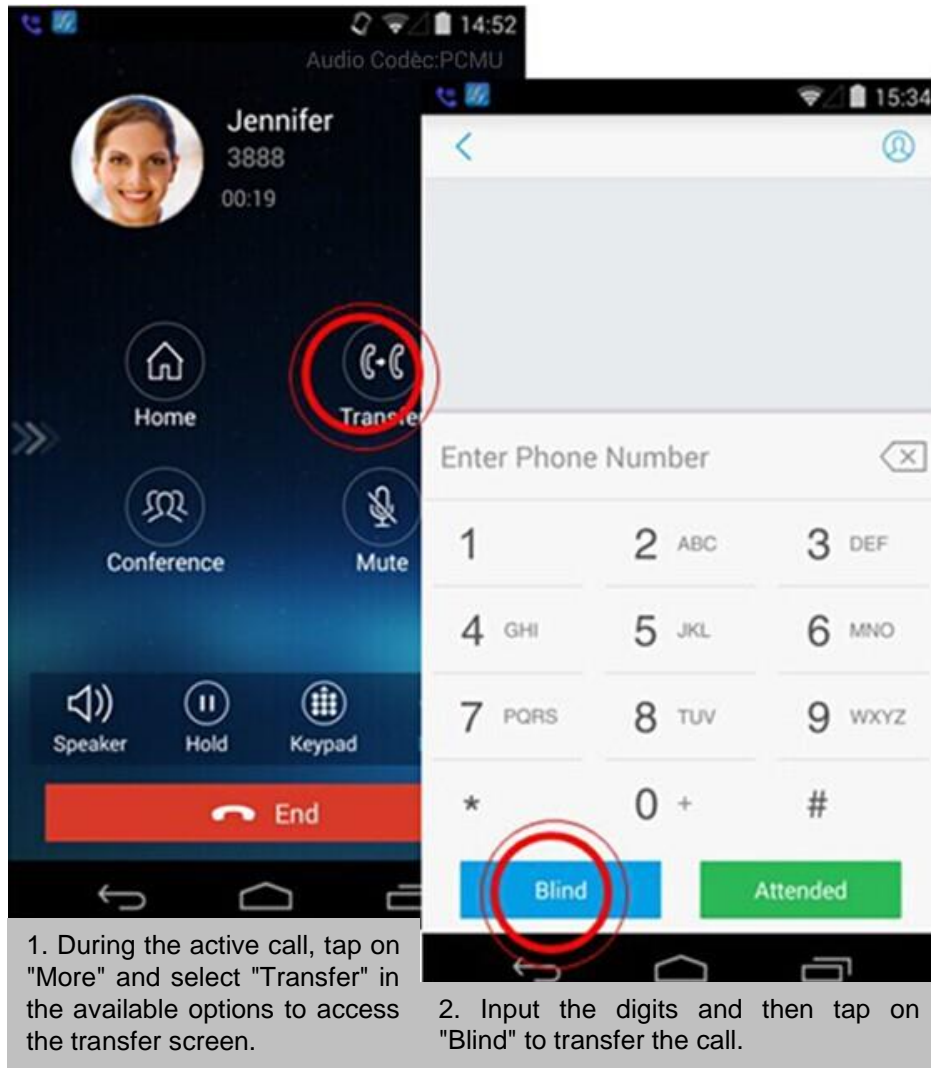
Figure 15: Call Transfer—Blind Transfer

When hears the ringback tone, users will automatically go back to the main screen (dial screen) to complete the transfer after the callee answers the call.

⚠️**Note:**

- If entered incorrect digits, tap on button [×] to delete the digits one by one, or long press it to clear all digits.

ATTENDED TRANSFER AFTER CALLING

Grandstream Wave supports attended transfer before or after calling, which provides users a fast and easy way to complete attended transfer.

Make an active call first and follow the steps below to transfer the call to the third party.

1. During an active call, slide to right to access call line screen.

2. Tap on "Add Call" to dial the number for the second call and make sure the call is established. This will place the previous call on hold.

3. During the new active call, tap on "More" and select "Transfer" in the available options to access the transfer screen as shown in figure on the right.

4. Tap on the line on hold to transfer the call.

Figure 16: Attended Transfer after Calling—Transferring

ATTENDED TRANSFER BEFORE CALLING

Besides the transferring mentioned above, users also could consult the third party first before transferring the call. Make an active call first and follow the steps below to transfer the call.

1. During an active call, tap on "More" and select "Transfer" in the available options to access the transfer screen.	2. Input phone number and then tap on "Attended" to access the transfer screen.	3. If the third party has not answered the call, the caller could tap on "Cancel" to end transfer.	4. If the new call is established, tap on "Transfer" to transfer the call. If tap on "Split", it will place the previous call on hold.
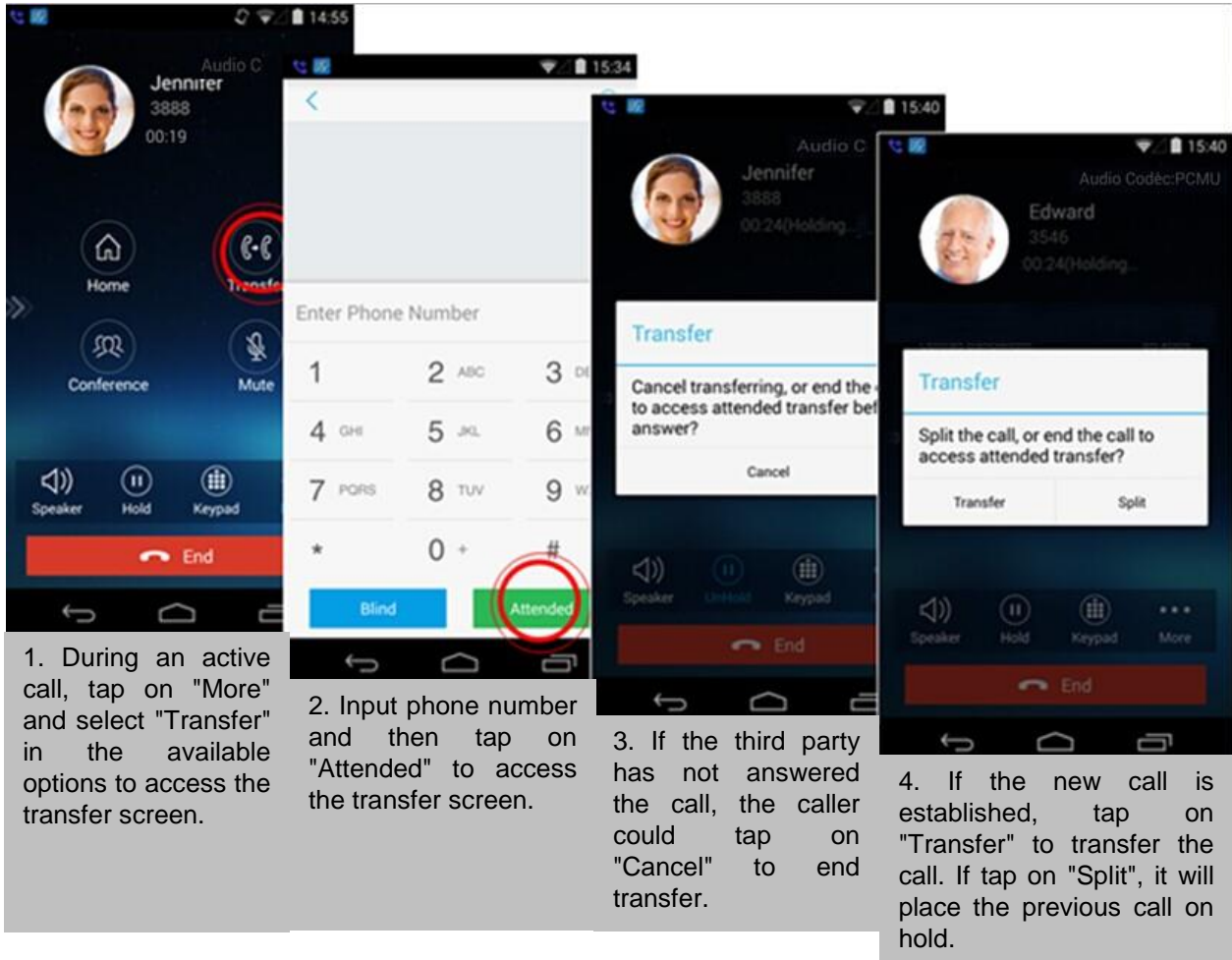
Figure 17: Attended Transfer before Calling—Split

6-WAY CONFERENCE

Grandstream Wave supports up to 6-way conferencing. The conference screen is as shown in figure 18 below.

| Long press one conference entry to delete it. | Users could start or delete the conference, or edit conference participants after accessing the conference screen. |
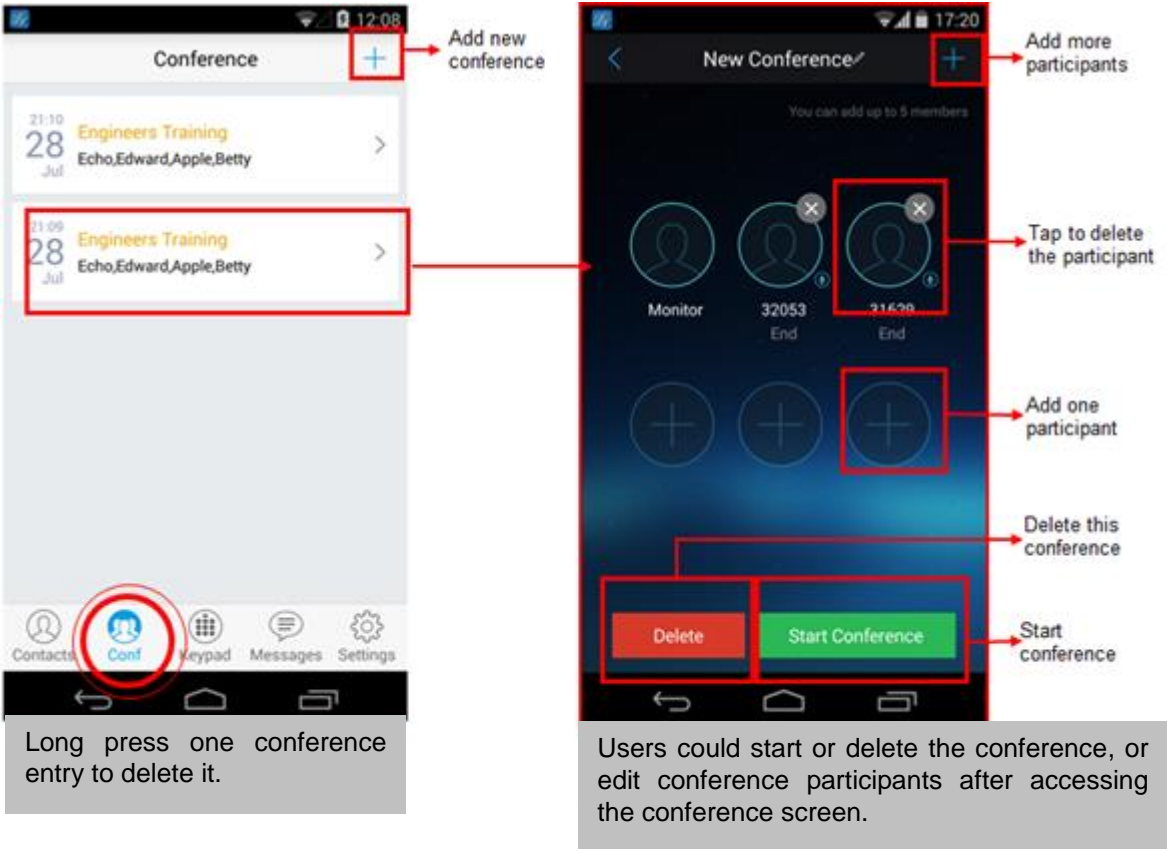
Figure 18: Grandstream Wave Conference Screen

ADD NEW CONFERENCE
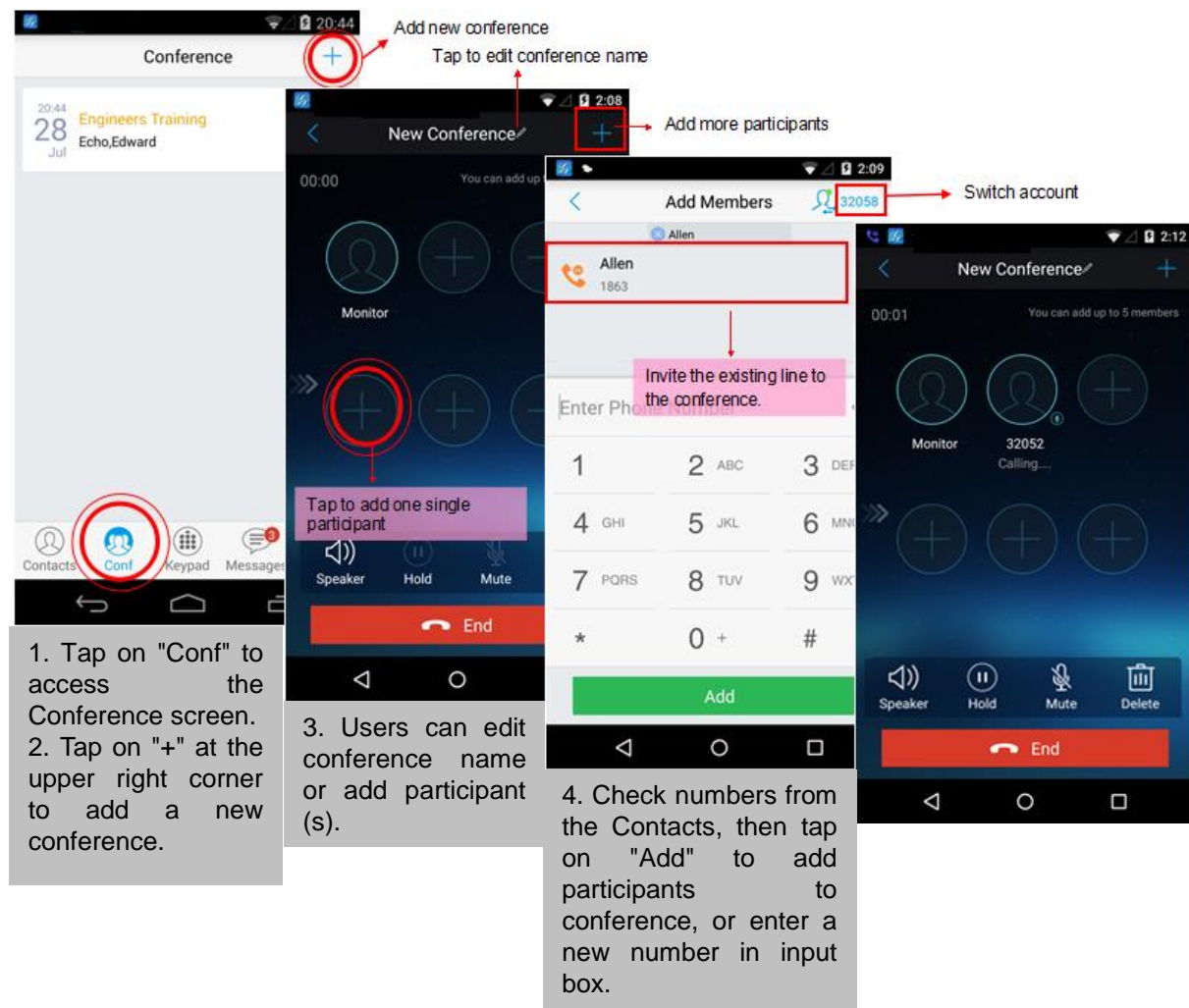
Figure 19: Grandstream Wave Conference—Add New Call to the Conference

Adding a participant to conference via 2 ways:

- Enter phone number in the input box. If this is an existing contact in the Grandstream Wave, it will be shown up. Then, users could add it to the conference.
- Add the existing line to the conference directly.

INITIATING CONFERENCE

During an active call, tap on "More" and select "Conference" to access conference room. Users could add new participants if there exits an active call.
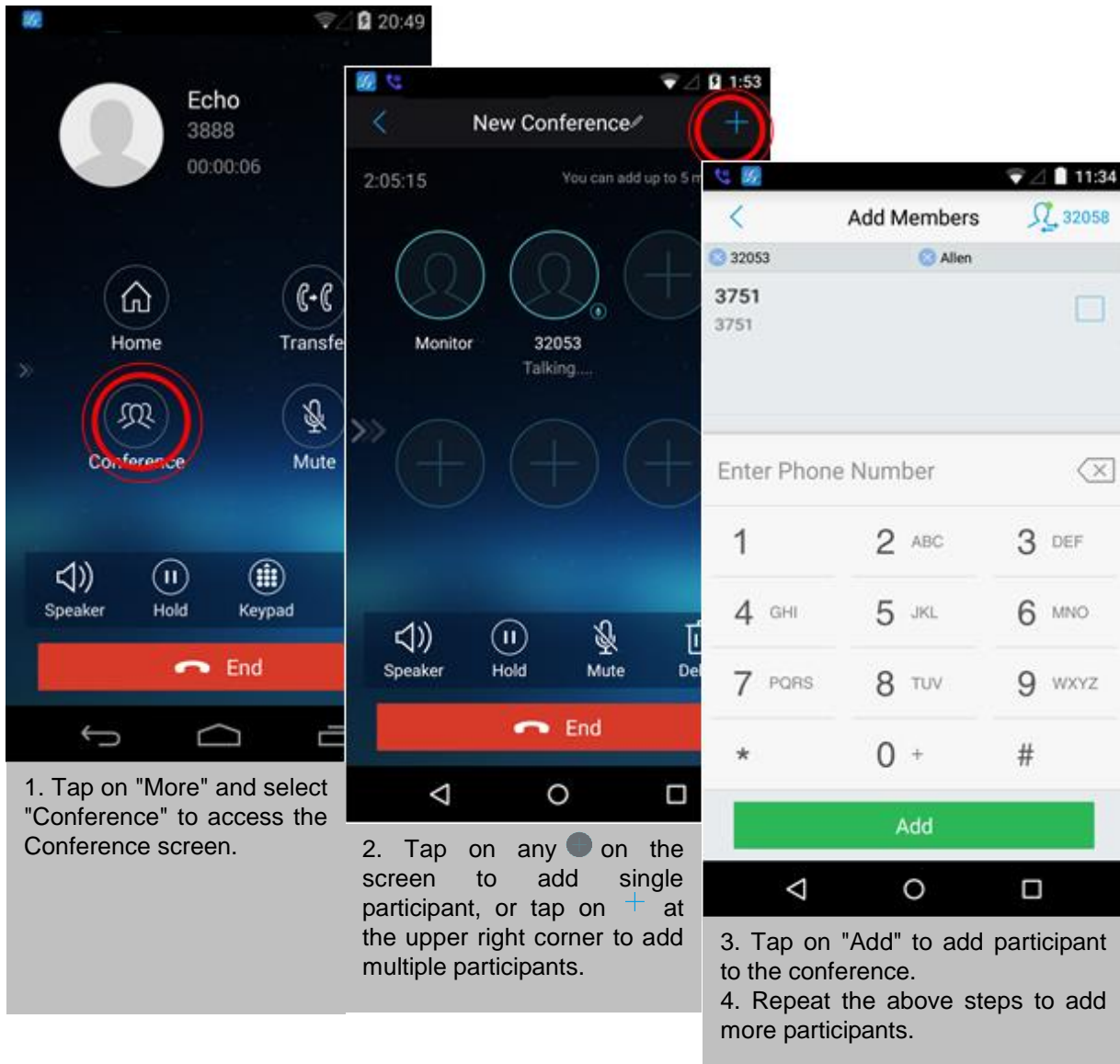
Figure 20: Grandstream Wave Conference—Initiating Conference

While all participants have been in the conference, users could tap on the buttons below to make the corresponding operations.

Speaker: Enable the speaker for the conference.

Hold: Hold the conference.

Mute: Mute the conference participant individually.

Delete: Delete the conference participant.

When the conference participant is disconnected, or the call with the participant is over, tap on the top right corner of the participant to redial.

REMOVING PARTICIPANT FROM CONFERENCE

To remove a participant from the conference, users could press **DELETE** button on phone screen, then

tap on ![x icon] icon at the upper right corner of the participant, and then it will be removed.

Figure 21: Grandstream Wave Conference—Delete Conference participant

MUTE/UNMUTE CONFERENCE

During an active conference, users could press **MUTE** button on phone screen, and then tap on ![mute icon]

at the upper right corner of the participant to mute the participant. The muted participant will not be heard by other participants, but can hear other participants, while it still exists on the conference screen, as shown in figure 22.
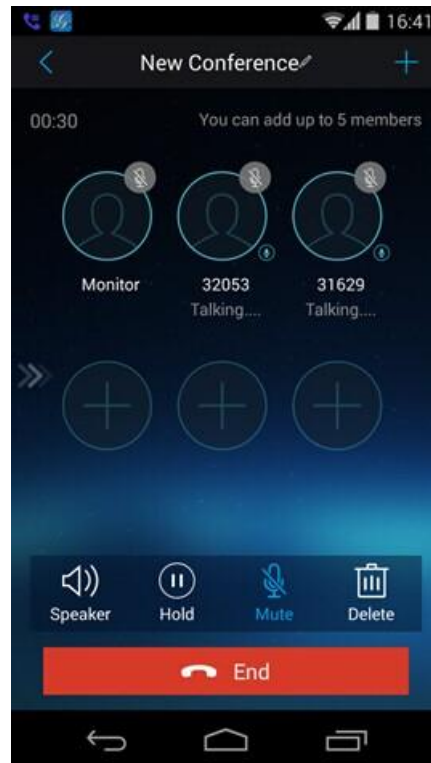
Figure 22: Grandstream Wave Conference──Mute Conference Participant

HOLD/RESUME CONFERENCE

During the conference, users could press the **HOLD** button on phone screen to hold the conference with all participants at any time. If the remote participant presses the **HOLD** button, it will only hold his/her own call from the conference, as shown in figure 23.

Figure 23: Grandstream Wave Conference—Hold Conference

To end the conference, users could tap [**End**] on phone screen to disconnect all the participants from the conference. If the remote participant hangs up the call, it will be disconnected from the conference, but other participants in the conference will stay in the conference.

VOICEMAIL

When there is a new voicemail, the voicemail icon will show up on the status bar, and at the same time users could see a new message prompt on the Grandstream Wave messages list.

To configure voicemail UserID, go to **Settings->Account Settings->Edit Account** to fill in the details, as shown in figure 24.
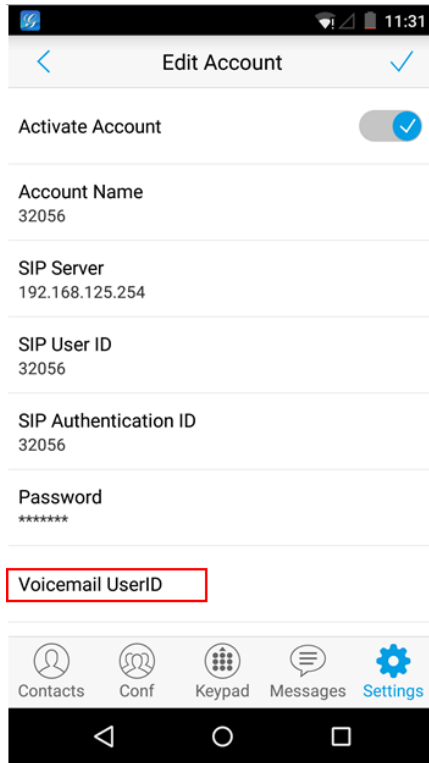
Figure 24: Configure Voicemail UserID

To retrieve the voicemail:
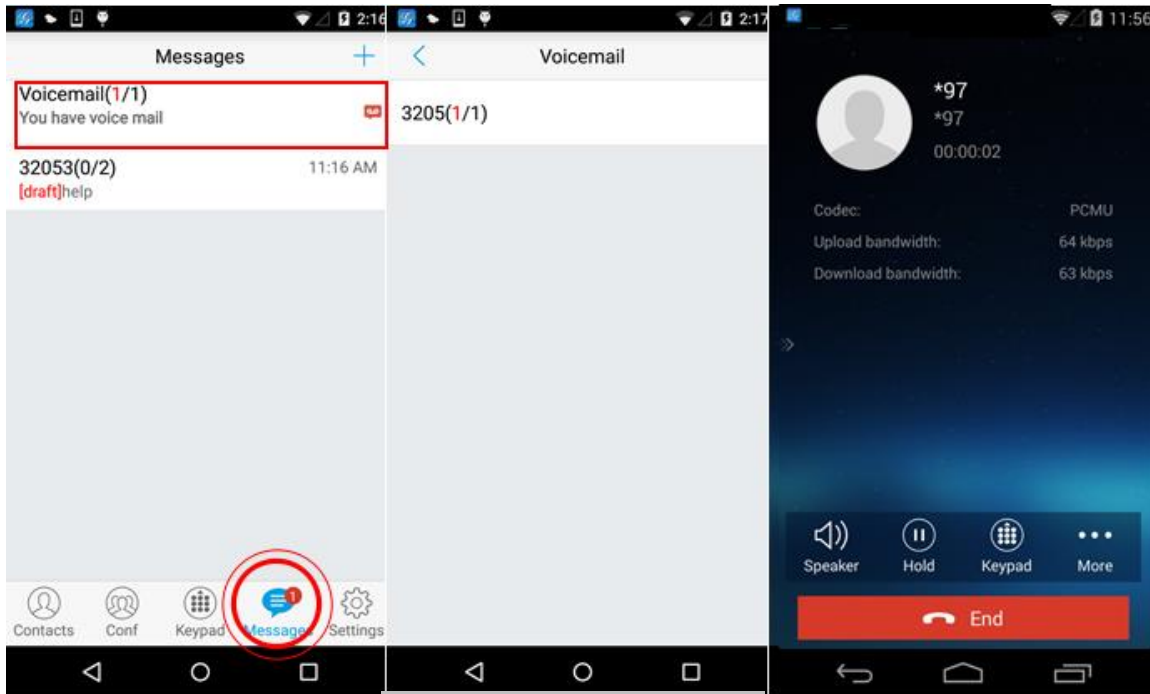
1. Tap on "Messages" to access Messages screen. 2. Tap on "Voicemail" to access the voicemail screen.	3. Tap on "Listen" to dial out.	4. Listen to the voicemail by following the voice prompt.

Figure 25: Retrieve Voicemail

⚠️**Note:**

- It requires a password to listen to the voicemail, please contact the service provider to obtain the password.

CONTACTS

Users can manage their phone contacts and SIP contacts in Grandstream Wave Contacts. To access

Grandstream Wave Contacts, tap on button ⊘ at the bottom of the main screen, as shown in figure 26.
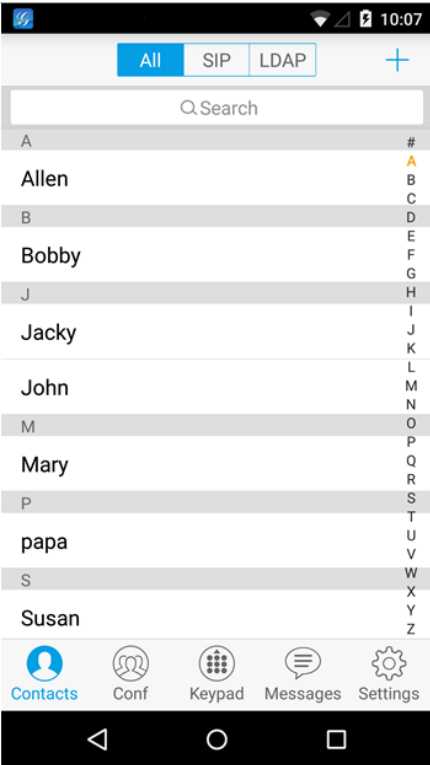
Figure 26: GS Wave Contacts Screen

ADD CONTACTS
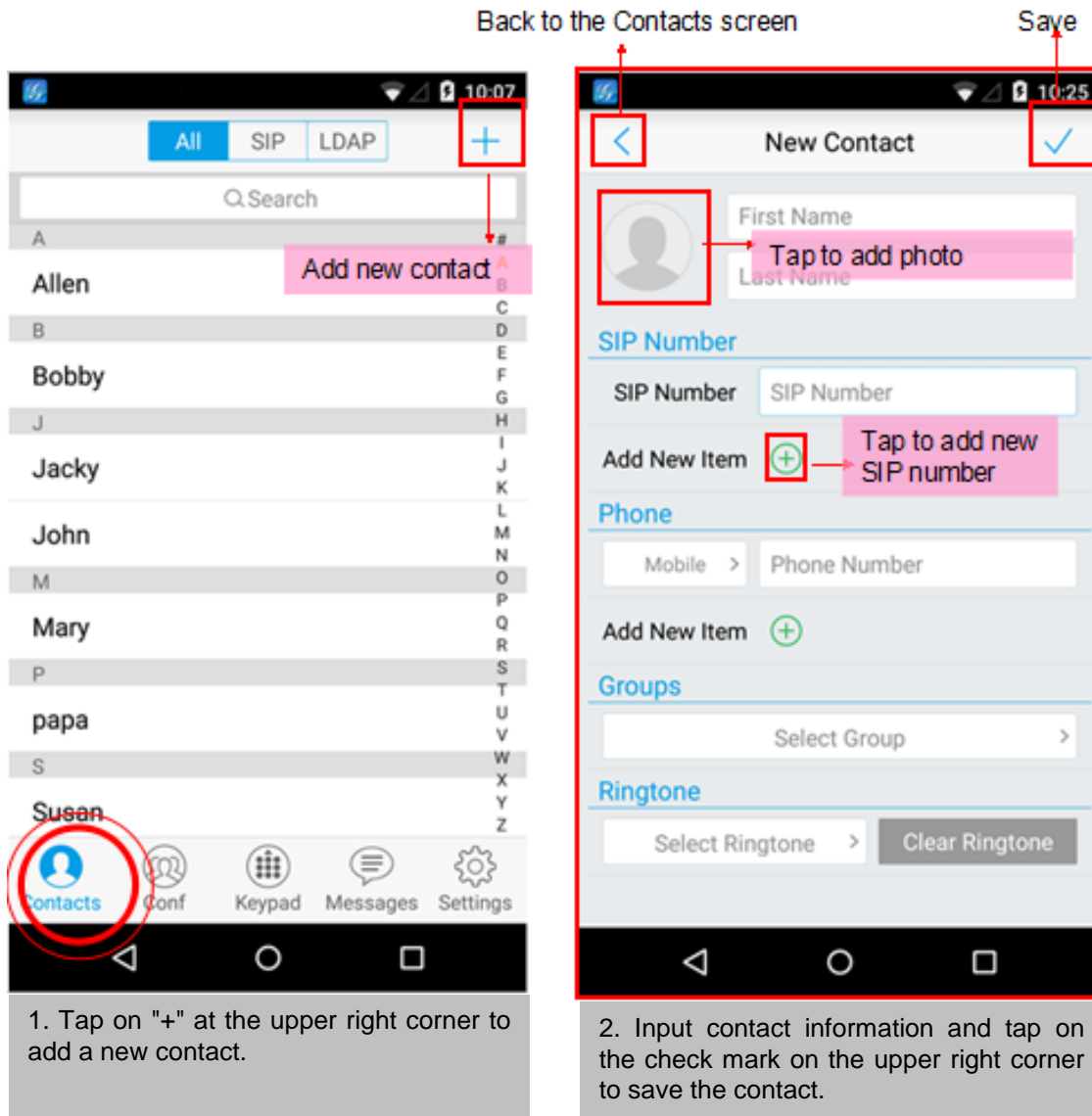
Figure 27: Grandstream Wave Add New Contact

SEARCH CONTACTS

Tap on the search box on the Contacts screen to access the search screen, as shown in figure 28.
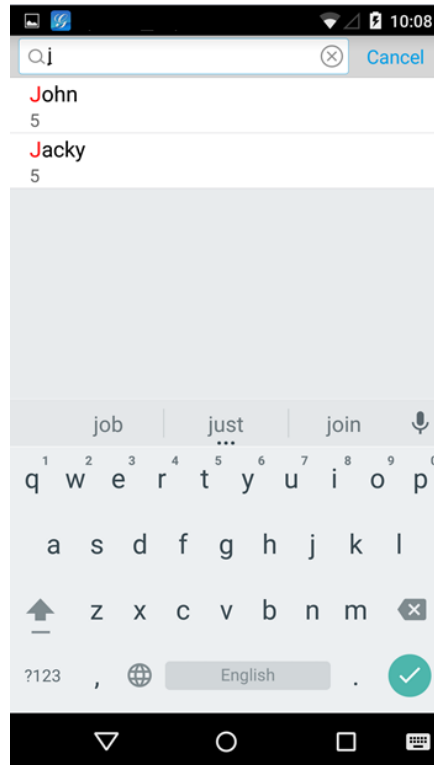
Figure 28: Grandstream Wave Search Contact

Enter contact name or number to search, the contact will be updated and displayed automatically when entering the initial digits. Tap on the number to view details.

VIEW CONTACT

Tap on one contact to view details or edit, as shown in figure 29.
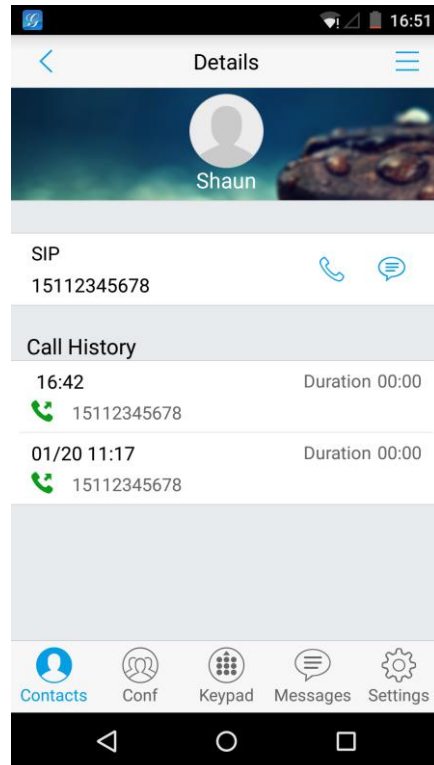
Figure 29: Grandstream Wave View Contact

Dial out the number.

Access the Messages editing screen. This function is not applicable to the local phone Contacts.

EDIT CONTACT

Long press the contact on the contact list to bring up the dialog box, tap on **Edit** to access the editing screen; Or long press the contact to access the details screen, tap on button ☰ at the upper right corner, then select **Edit**.

DELETE CONTACT

Long press the contact on the contact list to bring up the dialog box, select **Delete** to access the editing screen; or long press the contact to access the detail interface, tap on button ☰ at the upper right corner, then select **Delete**, as shown in figure 30.
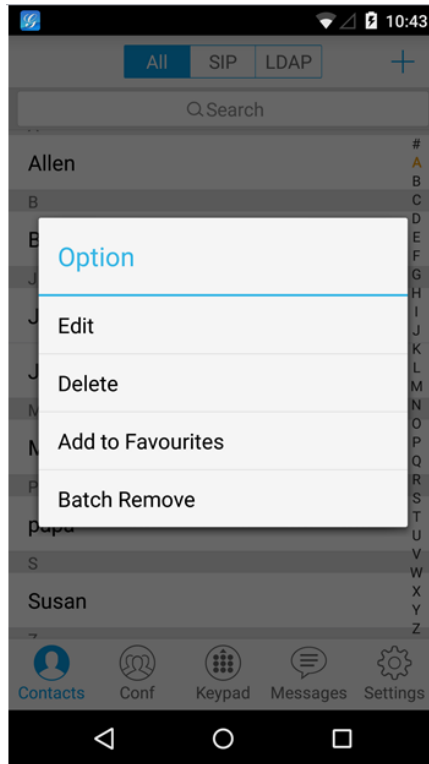
Figure 30: Grandstream Wave Edit Contact

ADD CONTACT TO FAVORITES

To add a contact to favorites, as shown in figure 31.

| 1. Select one contact in the Contacts to access details screen, | 2. Tap on the menu button at the upper right corner. | 3. Tap "Add to Favorites" to add contact. Users could also tap "Delete Contact" to delete the contact from Favorites. |
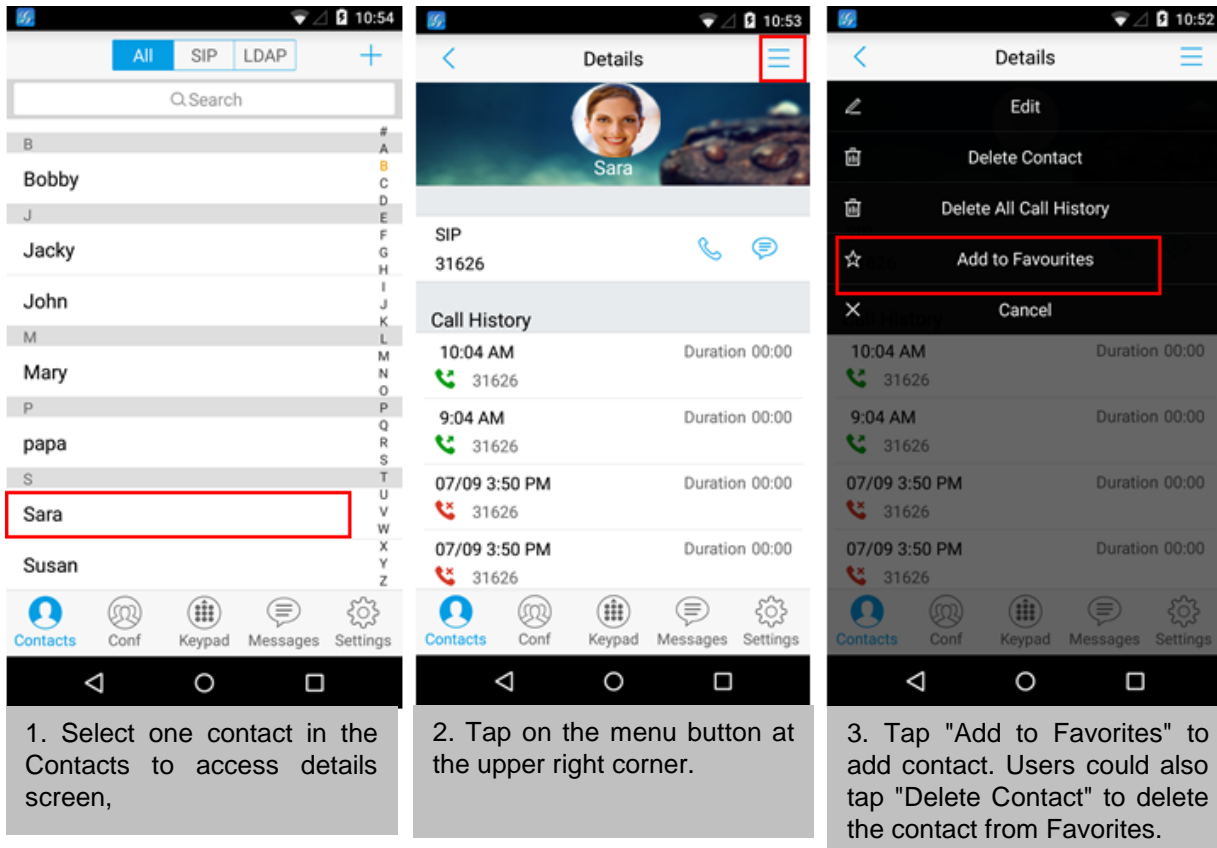
Figure 31: Add Contact to Favorites

Besides the operation mentioned above, users could also select one contact in the **Contacts** and long press it to bring up the dialog box, select "**Add to Favorites**" to add contact to **Favorites**.

Via the similar way, users could delete contacts from Favorites by selecting "**Remove from Favorites**".

CALL HISTORY

To view recent call history or view classified call history on Grandstream Wave, tap ⊞ on the dial screen or slide down the call history, as shown in figure 32.
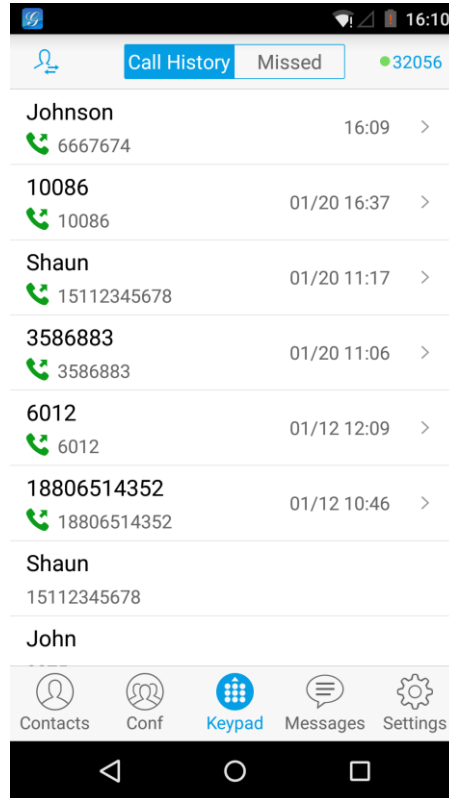
Figure 32: Grandstream Wave Call History

 Answered calls

 Dialed calls

 Missed calls

Tap on one call history entry to dial out with the last dial-out account. To access the details for this entry,

tap ⟩ on the right side of the entry, as shown in figure 33.
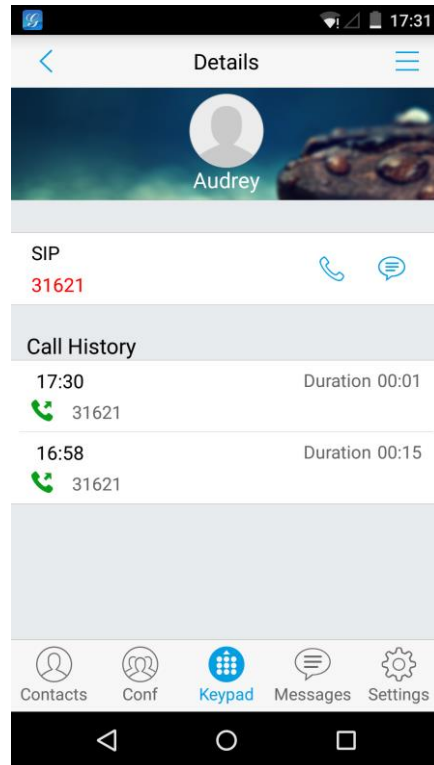
Figure 33: Grandstream Wave Call History Details Screen

Users could view recent call history of this entry, make calls or send messages to it (not applicable to SIM

card number or anonymous call). Tap on button ⎯ at the upper right corner to make operations like **Edit Contact**, **Add to Favorites**, or **Delete All Call History**.

If the call is not an existing contact, save it to **Contacts** before making the operations.
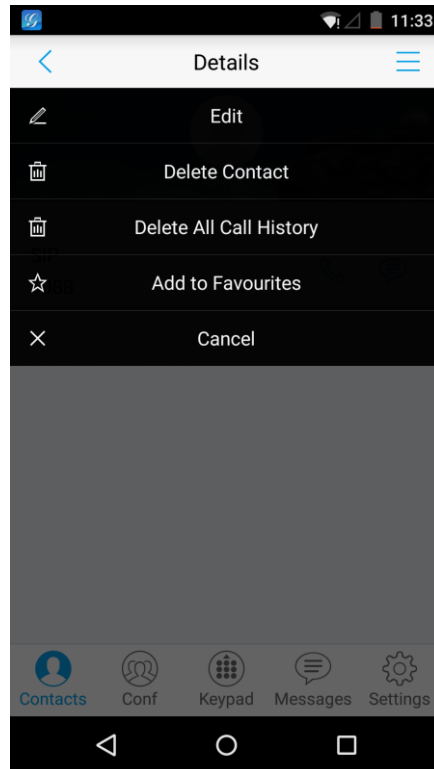
Figure 34: Grandstream Wave Call History Details Screen- Edit Contact

MESSAGES

Messages function allows users to send/receive messages. Tap on button to access the Messages screen, as shown in figure 35.
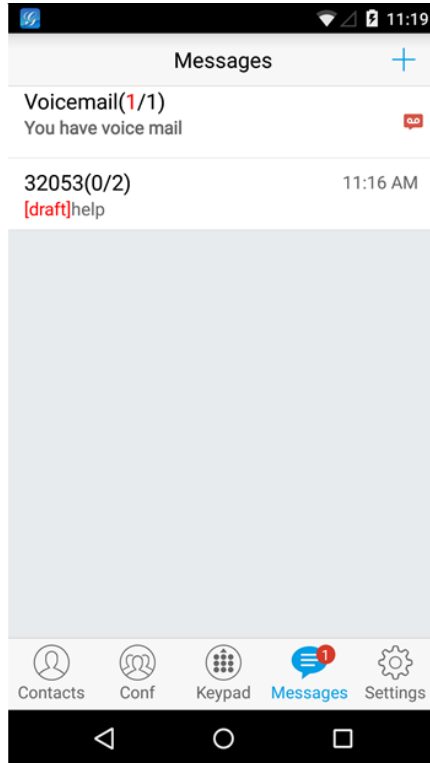
Figure 35: Grandstream Wave Messages Screen

⚠️**Note:**

- Messages function is not available in all countries and regions. Please contact your service provider for more details.

VIEW MESSAGE

The Message screen displays sent & received (draft) messages, the messages are classified by contacts names or numbers while sorted by sent & received time. Tap on one message to check the details, as shown in figure 36.
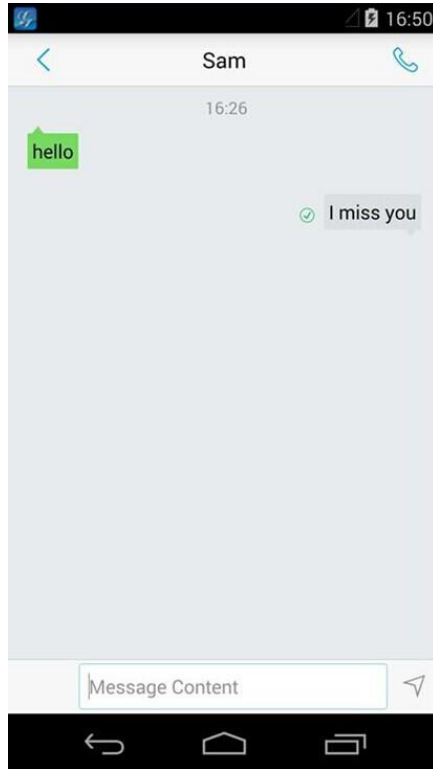
Figure 36: Grandstream Wave Message Details Screen

CREATE NEW MESSAGE
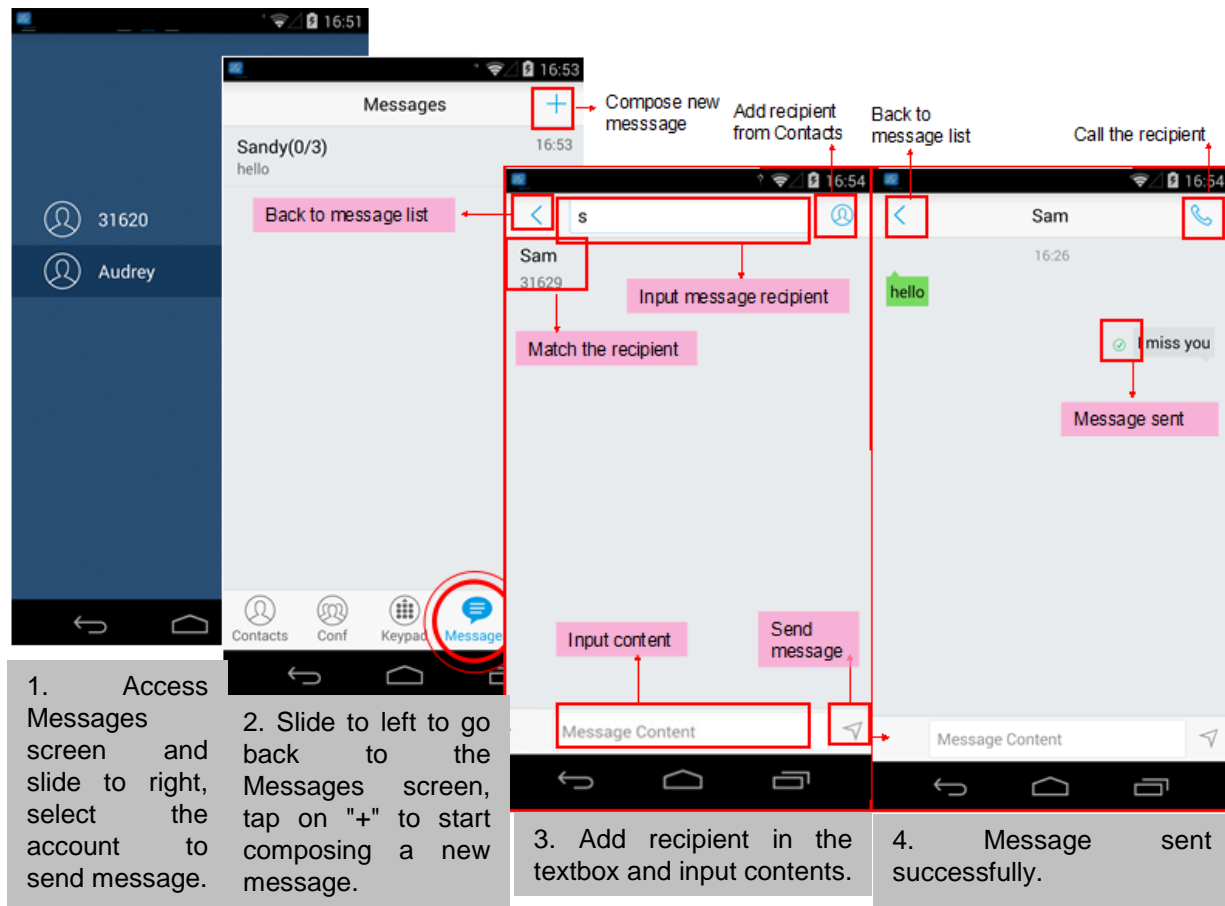
Figure 37: Grandstream Wave Create New Message

Tap ⊚ on the right of the input box to add one contact or more from Grandstream Wave Contacts or input the contact phone number or name in the input box to find the corresponding contact.

If the sent or received message is phone number or Email address, you can tap on the number to dial out directly or tap on the Email address to send an email.

EDIT MESSAGE

Long press one message on the Messages screen, select "Batch Remove" in the pop up dialog box, and

tap 🗑 on the upper right corner to delete all messages with this number.

Long press one message content to access the editing screen, users could edit, copy or forward one single message as shown in figure 38.
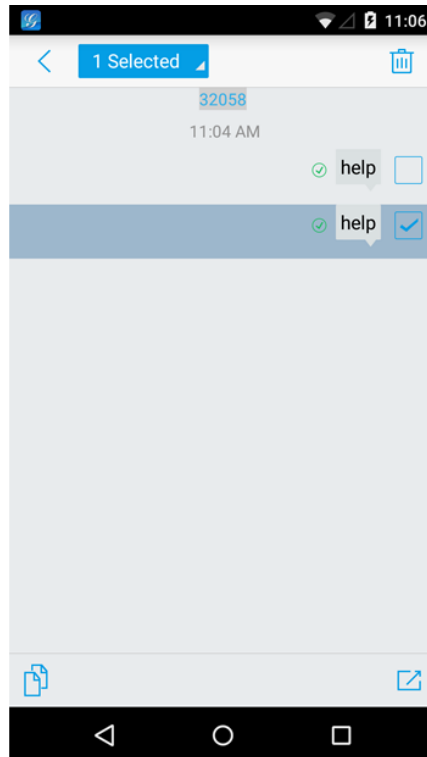
Figure 38: Grandstream Wave Message Screen—Edit Message

 Copy the selected message.

 Forward the selected message.

 Delete the selected message.

SETTINGS

For the first time using Grandstream Wave, go to the **Settings** screen to complete the basic settings, including **Account Settings**, **Call Settings**, **Audio Codec Settings**, **Network Settings**, etc.

ACCOUNT SETTINGS

Grandstream Wave supports up to 6 independent SIP accounts and 6 lines. Users can make calls after registering the account to the SIP server. Tap on button at the upper right corner of the **Account Settings** screen to add accounts. Users could add account via **Generic Accounts** or **VOIP Providers**.

To add generic accounts, tapping on "**UCM Account (QR Code Scan)**" or "**UCM Account (Select QR Code Image)** ", or tap on "**SIP Account**" to add account, as shown in figure 39.

The way to add VOIP Providers accounts is the same as add generic accounts, just select the providers in the list below and input required information.
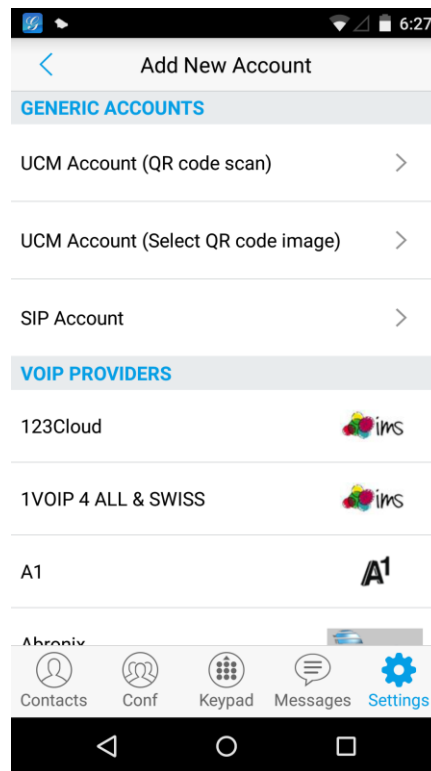
Figure 39: Add New Account Screen

UCM ACCOUNT (QR CODE SCAN)

To add account by QR code scan, please follow the steps below as shown in figure 40.

1. Tap on "**UCM Account (QR Code Scan)** " to access the scan screen;
2. Scan the QR code containing configuration info sent from the UCM server to the mailbox;

3. Choose whether to overwrite account or add new account, and then the account will be added to the list.
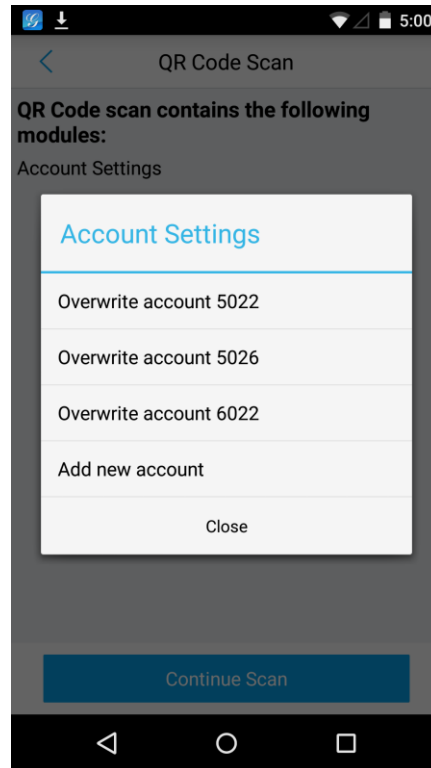
Figure 40: QR Code Scan Screen

⚠️ **Note:**

- Users could add up to 6 accounts, if already reached the limit, you can select overwrite account only.

UCM ACCOUNT (SELECT QR CODE IMAGE)

1. Tap on "**UCM Account (Select QR Code Image)**" to access the images screen;
2. Select the QR code image containing configuration info;
3. Choose whether to overwrite account or add account and then the account will be added to the list.
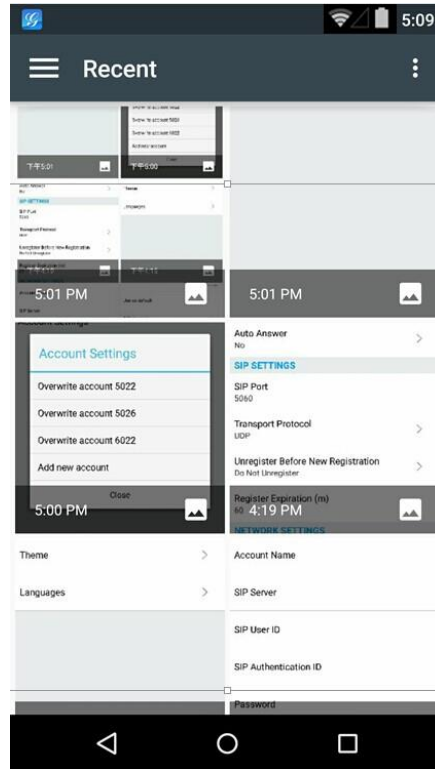
Figure 41: Scan QR Code Image Screen

⚠️**Note:**

- Users could add up to 6 accounts, if already reached the limit, you can select overwrite account only.

SIP ACCOUNT

Follow the steps below to add account manually.

1. Tap on "**SIP Account**" to access the **Account Settings** screen, tap on the button on the right of "**Active Account**" to active the account;
2. Fill in account details and the SIP server address (provided by the service provider);

3. Tap ✓ on the upper right corner to save the configuration and go back to the account settings screen;
4. The following figure 42 shows the accounts are successfully registered, and the account icon is in green ●. If the account icon is in red ●, it means the registration failed.
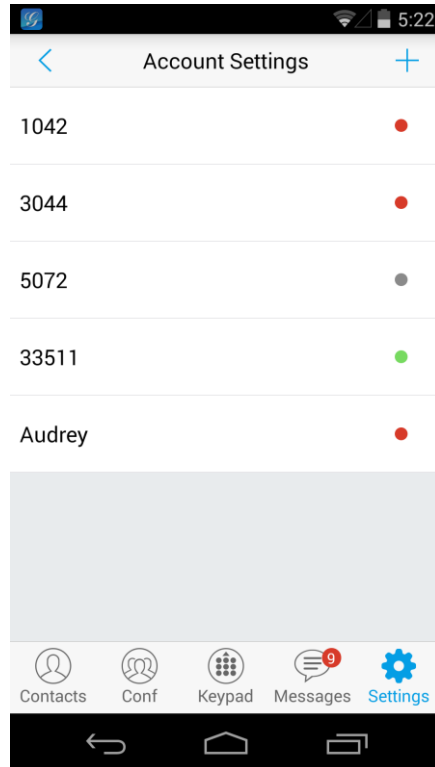
Figure 42: Account Settings Screen—Registration Success

Users could also slide left to delete this account as shown in figure 43.
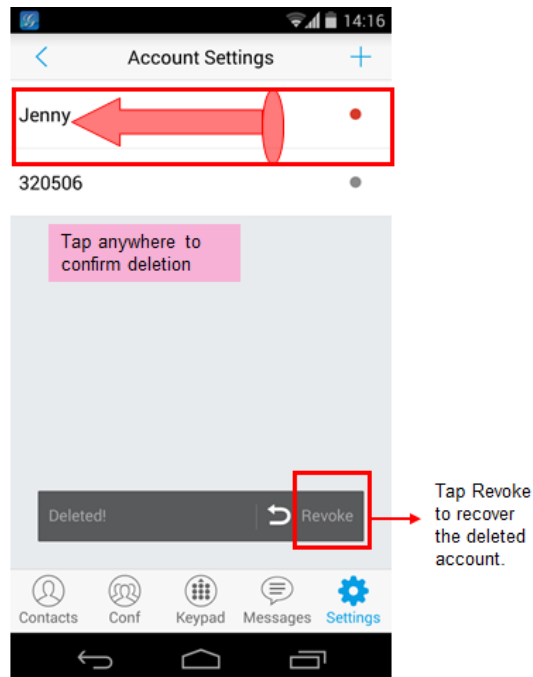
Figure 43: Slide to Delete Account

Table 2: Edit Account Parameters
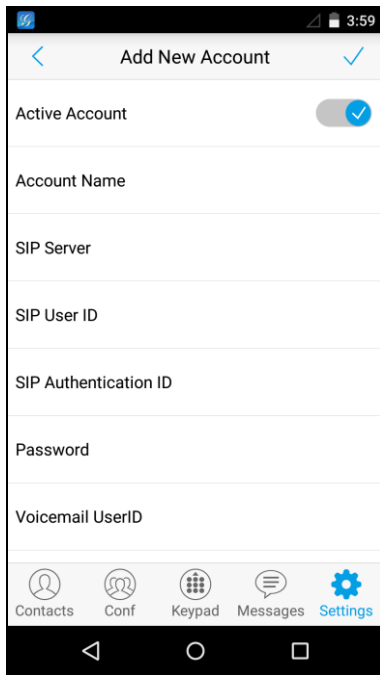
	Activate Account	It is used to define whether to activate account.
	Account Name	The name associated with each account to be displayed on the LCD.
	SIP Server	Domain name or IP address, provided by your VoIP service provider (ITSP).
	SIP User ID	User account information, provided by your VoIP service provider (ITSP). It's usually in the form of digits similar to phone number or the same as the phone number.
	SIP Authentication ID	SIP service subscriber's Authenticate ID used for authentication. It can be identical to or different from the SIP User ID.
	Password	The account password required for Grandstream Wave to authenticate with the ITSP (SIP) server before the account can be registered.
	VoiceMail UserID	To retrieve voicemail by pressing the LISTEN button on the message screen. This ID is usually the VM portal access number. For example, the UCM server voicemail access number is *97.
	Display Name	The SIP user uses to display on LCD when calling, it needs SIP server to support it if this function is enabled.

After configuring the account, users could tap on the existing account for more settings, such as **General Settings**, **SIP Settings**, **Network Settings** and **Codec Settings**.

Table 3: Account Settings—General Settings Parameters
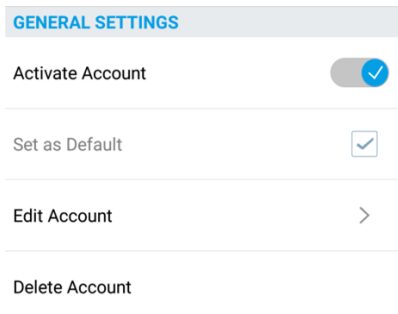
	Activate Account	It is used to configure whether to activate account.
	Set as Default	It is used to set this account as default.
	Edit Account	It is used to configure the account parameters.
	Delete Account	It is used to delete the current account.

Table 4: Account Settings—Call Settings Parameters
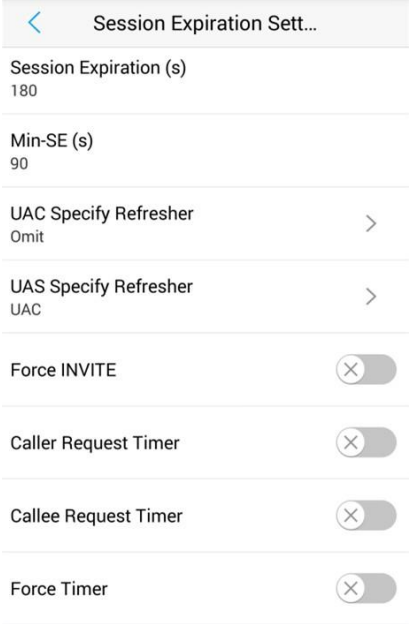
Ringtone	Users can choose different ringtones.	
DialPlan	It is used to configure whether to enable Dialplan.	
DialPlan Prefix	It is used to configure the prefix to be added to each dialed number. All numbers use this account will automatically add the prefix. For example, if the prefix is 5, the phone number is 337, thus the dialing number is 5337.	
Use # as Dial Key	It is used to configure the "#" key as the "Send" key. If set to "Yes", pressing the "#" key to dial the numbers out immediately. If set to "No", the "#" key will be included in the dialing string.	
Call Forward	It is used to define whether to enable Call Forward mode.	
Call Forward Settings	It is used to specify the Call Forward Type from 4 modes: Unconditional, Time Based, Others (Forward When busy and No Answer Forward).	
Auto Answer	It is used to configure auto answer mode. If set to "Yes", the phone will automatically turn on the speaker phone to answer incoming calls after a short reminding beep. If set to "Enable Intercom/Paging", it will answer the call based on the SIP info header sent from the server/proxy. The default setting is "No".	

DialPlan Settings	A dial plan establishes the expected number and pattern of digits for a telephone number. This parameter configures the allowed dial-plan for the phone. Dial Plan Rules: 1. Accepted Digits: 1,2,3,4,5,6,7,8,9,0 , *, #; 2. Grammar: a) "x" – any digit from 0-9; b) "xx" – any 2 digit numbers from 0-9; c) "xx+" or "xx." – at least 2 digit numbers from 0-9; d) "^" – exclude e) [3-5] – digit 3, 4, or 5 f) [147] – digit 1, 4, or 7 g) <2=011> – replace digit 2 with 011 when dialing h) {x+} – allows to dial out all digits Example 1: {[369]11 | 1617xxxxxxx} Allow 311, 611, and 911 or any 10 digit numbers with leading digits 1617; Example 2: {^1900x+ | <=1617>xxxxxxx} Block any number of leading digits 1900 or add prefix 1617 for any dialed 7 digit numbers;

Table 5: Account Settings—SIP Settings Parameters

SIP SETTINGS		
Enable Session Expiration (X)	**Enable Session Expiration**	If enabled, it is used to configure the relevant parameter in "Session Expiration Settings" option below. The default setting is "No".
Session Expiration Settings >	**Session Expiration Settings**	It is used to configure the relevant session expiration parameters. See table 6.
SIP Port 5060	**SIP Port**	It is used to define the local SIP port used to listen and transmit.
Transmission Protocol UDP >	**Transmission Protocol**	It is used to configure the transmission protocol to transmit SIP info. Users could choose TCP/UDP/ TLS. The default is "UDP".
Unregister Before New Registration Unregister Single >	**Unregister Before New Registration**	If set to "Register All", the SIP contact header will use "*" to clear all SIP user's registration information. If set to "Register Single", the phone only needs to clear the current SIP user's info. The default is "Unregister Single", that means do not cancel the SIP user's registration information.
Register Expiration (m) 60	**Register Expiration (m)**	It is used to specify the frequency (in minutes) in which the phone refreshes its registration with the specified registrar. The minimum value is 1 minute while the maximum is 64800 minutes (about 45 days).The default value is 60 minutes (1 hour).

Table 6: Session Expiration Settings Parameters

< Session Expiration Sett...		
Session Expiration (s) 180	**Session Expiration (s)**	The SIP Session Timer extension that enables SIP sessions to be periodically "refreshed" via a SIP request (UPDATE, or re-INVITE). If there is no refresh of an UPDATE or re-INVITE message, the session will be terminated once the session interval expires. Session Expiration is the time (in seconds) where the session is considered timed out, provided no successful session refresh transaction occurs beforehand.
Min-SE (s) 90		
UAC Specify Refresher Omit >		
UAS Specify Refresher UAC >	**Min-SE (s)**	The minimum session expiration (in seconds). The default value is 90 seconds.
Force INVITE (X)	**UAC Specify Refresher**	As a caller, select UAC to use the phone as the refresher; or select UAS to use the caller or proxy server as the refresher. If set to "Omit", that means do not specify the refresh object.
Caller Request Timer (X)		
Callee Request Timer (X)		
Force Timer (X)		
UAS Specify Refresher	As a callee, select UAC to use caller or proxy server as the refresher; or select UAS to use the phone as the refresher.	
Force INVITE	The Session Timer can be refreshed using the INVITE method or the UPDATE method.	

Select "Yes" to use the INVITE method to refresh the session timer.

Caller Request Timer	If set to "Yes" and the remote party supports session timers, the phone will use a session timer when it makes outbound calls. The default setting is "No".
Callee Request Timer	If set to "Yes" and the remote party supports session timers, the phone will use a session timer when it receives inbound calls. The default setting is "No".
Force Timer	If Force Timer is set to "Yes", the phone will use the session timer even if the remote party does not support this feature. If Force Timer is set to "No", the phone will enable the session timer only when the remote party supports this feature. To turn off the session timer, set Caller Request Timer, Callee Request Time and Force Timer all to "No".

Table 7: Account Settings—Network Settings Parameters

NETWORK SETTINGS		
Proxy-Require Outbound Proxy Secondary Outbound Proxy NAT Traversal Keep-Alive DNS Mode A Record	**Proxy-Require**	A SIP Extension to notify the SIP server that the phone is behind a NAT/Firewall. Do not configure this parameter unless this feature is supported on the SIP server.
	Outbound Proxy	IP address or Domain name of the Primary Outbound Proxy, Media Gateway, or Session Border Controller.
	Secondary Outbound Proxy	IP address or Domain name of the Secondary Outbound Proxy, Media Gateway, or Session Border Controller. Secondary outbound proxy will be used when the primary outbound proxy fails.

NAT Traversal	This configuration is to enable or disable the NAT traversal mechanism. The default setting is "Keep-alive". • If set to "STUN" and STUN server is configured, the phone will route according to the STUN server; If NAT type is Full Cone, Address-RestrictedCone or Port-Restricted Cone, the phone will try to use public IP addresses and port number in all the SIP&SDP messages. • The phone will send empty SDP packet to the SIP server periodically to keep the NAT port open if it is configured to be "Keep-alive". • Configure this to be "NAT NO" if an outbound proxy is used. • Configure this to be "UPnP" if the router supports UPnP. • If set to "Auto", the phone will try to use all traversal methods mentioned above until find the available one.
DNS Mode	This parameter controls how the search appliance looks up IP addresses for hostnames. There are three modes: A Record, SRV, and NATPTR/SRV. The default setting is "A Record". If the user wishes to locate the server by DNS SRV, the user may select "SRV" or "NATPTR/SRV".

CODEC SETTINGS		DTMF	Users can choose different ringtones.
DTMF	>		This parameter specifies the mechanism to transmit DTMF digits. There are 3 supported modes:
Preferred Vocoder	>		• In audio, which means DTMF is combined in the audio signal (not very reliable with low-bit-rate codecs);
SRTP Mode Disable	>		• RTP (RFC2833), which means to specify DTMF with RTP packet. Users could know the packet is DTMF in the RTP header as well as the type of DTMF;
Enable SRTP Key Life Time	✓		• SIP INFO. Use SIP info to carry DTMF. The defect of this mode is that it's easily to cause desynchrony of DTMF and media packet for the reason the SIP and RTP are transmitted respectively. The default setting is "RFC2833".
		Preferred Vocoder	It is used to configure whether to enable Dialplan.
			Multiple vocoder types are supported on the phone, the vocoders in the list is a higher preference. Users can configure vocoders in a preference list that is included with the same preference order in SDP message.
SRTP Mode			The default setting is "Disable". Users could choose "Enable and Force" which means enable and force to use SRTP; "Enable But Not Force" means enable but not force to use SRTP.
Enable SRTP Key Life Time			It is used to configure whether to enable SRTP key life time. If enabled, the RTP packets received and sent during the call cannot exceed 231. The default setting is "Yes".

ADVANCED SETTINGS

Advanced Settings include **General Settings**, **Call Settings**, **Audio Settings**, **Network Settings** and **Additional Settings**.

GENERAL SETTINGS

Table 9: Advanced Settings—General Settings Parameters

GENERAL SETTINGS		Edit Before Dial	It is used to configure whether to edit number before dial. If set to "No", tap on the contact or one call history entry on call screen to dial out with the last dial-out account directly. If set to "Yes", when tap on the contact or one call history entry on call screen, the phone will automatically fill in the corresponding number to the input box, users could edit the number before dial out.
Edit Before Dial	⊗		
Default Account Registration Notification	✓	Default Account Registration Notification	It is used to define whether to enable registration notifications for default account. If enabled, users will see the notifications in the status bar once the default account status is changed.
Vibrate When Ringing	✓		
Start on Boot	✓	Vibrate When	It is used to configure whether to vibrate when

Ringing	ringing. It is only applicable to the incoming calls for the GS Wave. The phone settings priority is higher than this option. When set the phone to silent mode, the phone will not vibrate when ringing even set this option to "Yes".
Start on Boot	It is used to configure whether auto start GS Wave when starting up.

CALL SETTINGS

Call Settings is mainly used for DND settings and show bandwidth info. When DND is on, the phone will reject calls automatically and the status bar will display the icon . Tap on "DND Settings" to configure as shown in figure 43 and figure 44.
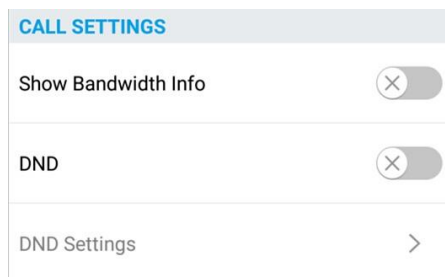
Figure 44: Call Settings Screen
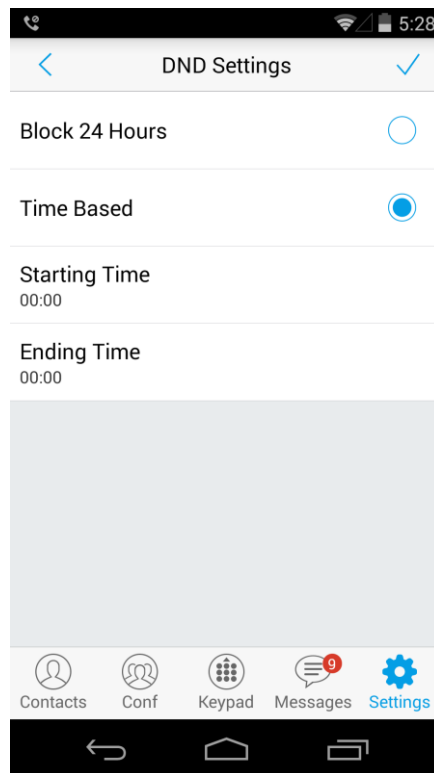
Figure 45: DND Settings Screen

⚠️ **Note:**

- When Grandstream Wave is in an active call, turning on/off DND will not affect the current active call. It will take effect on the next incoming call.
- When the DND is on, users could view all the incoming calls in missed call history.

AUDIO SETTINGS

Table 10: Advanced Settings—Audio Settings Parameters

AUDIO SETTINGS	
Noise Reduction Level Middle	>
Output Gain +6 db	>

Noise Reduction Level	Grandstream Wave provides users with multiple noise reduction levels, as shown in figure 46. Choose the level according to the specific environment.
Output Gain	It is used to adjust the output volume of Grandstream Wave.
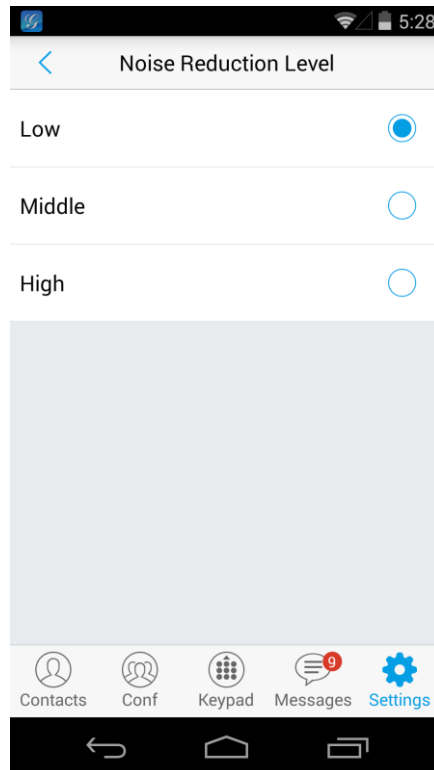
Figure 46: Reducing Noise Settings Screen
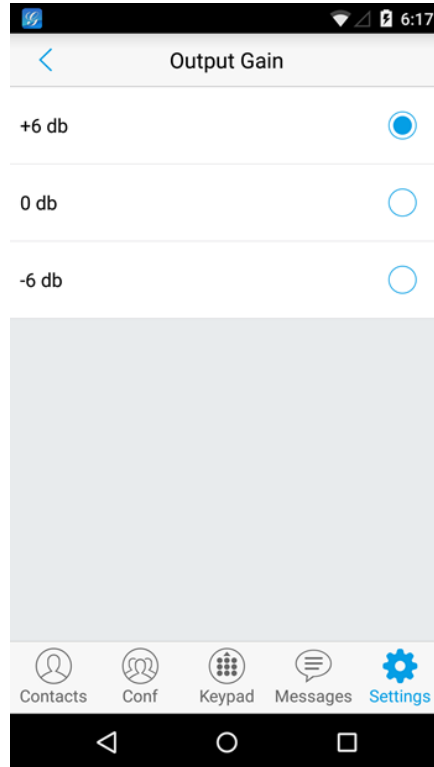
Figure 47: Output Gain Screen

NETWORK SETTINGS

Grandstream Wave supports data communication via **2G/3G/4G** and **WiFi**.

Table 11: Advanced Settings—Network Settings Parameters

Network	Users could use Grandstream Wave in 2G/3G/4G/WiFi.
Only Use This WiFi to Register Account	In the WiFi environment, only register account with this specified connected WiFi.
QoS Settings	It is used to configure layer 3 SIP QoS and layer 3 audio QoS. The valid range is 0-63. The default setting is 48.

ADDITIONAL SETTINGS

Additional Settings includes **Config Server Path**, **LDAP Settings**, **BLF**, etc.

Table 12: Advanced Settings—Additional Settings Parameters

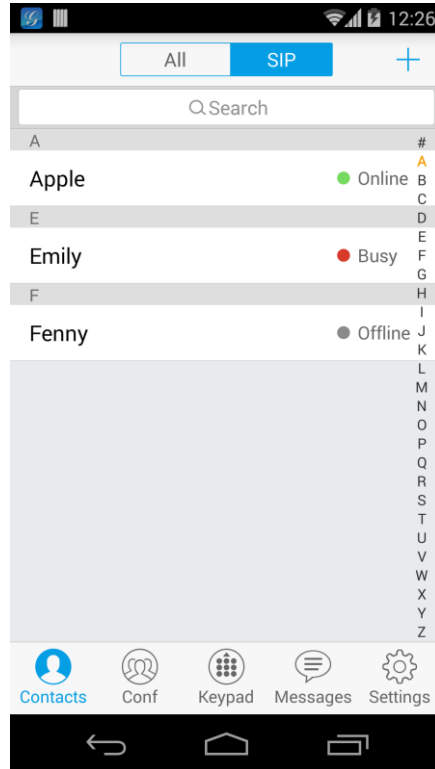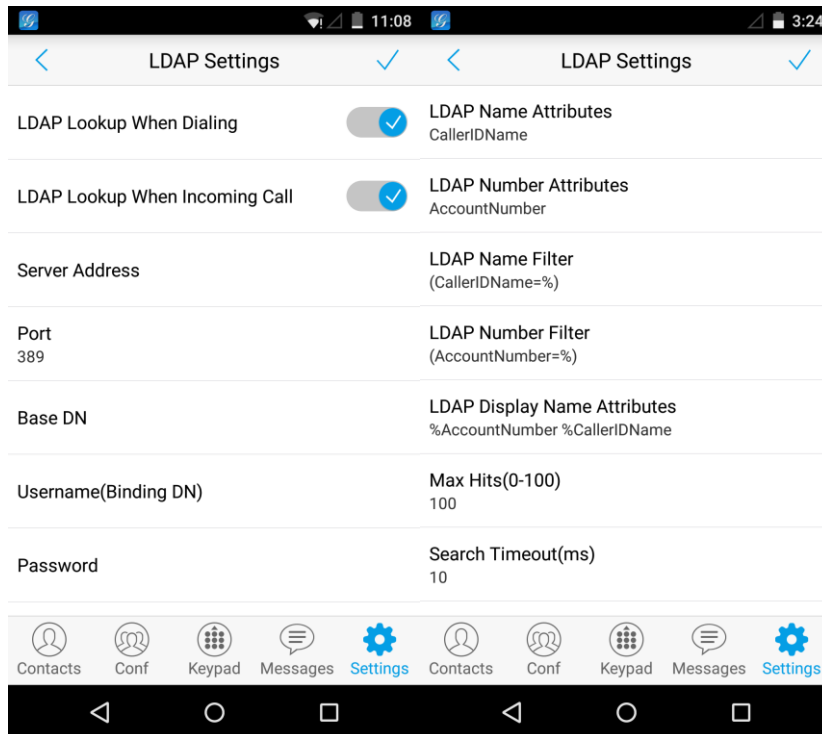|		
	Config Server Path	It is used to define IP address or URL for the server. Grandstreeam Wave could obtain the configurations from the server path automatically.
	Export Configuration	It is used to export the configuration files to the path on the phone: /sdcard/ GS Wave/ config.
	BLF (Busy Lamp Field)	If enabled, Grandstream Wave will detect the status of the Contacts in the BLF list. There are 3 statuses.
		⚫ : Offline. The contact is not online or unregistered.
		🔴: Busy. The contact is in an active call.
		🟢: Online. The contact is in idle.
		NOTE: The server should support BLF function if enable BLF.
	BLF List	It is used to add participants and display the online status. Users could view the online status in the SIP Contacts, as shown in figure 47.
LDAP Settings	Tap to access the LDAP Settings screen to set up features. Users could set by QR Code Scan, Select QR Code Image or Manual Settings.	
	• Tap on "QR Code Scan" to access QR code scan screen, scan the QR code which contains LDAP information sent by the UCM server to configure LDAP settings.	
	• Tap on "Select QR Code Image" to access screen with QR code image, select the image which contains LDAP information to configure LDAP settings.	
	• Tap on "Manual Settings" to access screen as shown in figure 48.	

Figure 48: BLF List Screen

Figure 49: LDAP Settings Screen

Table 13: LDAP Settings Parameters

LDAP Lookup When Dialing	It is used to define whether to search LDAP when dialing. The default setting is "Yes".
LDAP Lookup When Incoming Call	It is used to define to search LDAP when there is an incoming call. The default setting is "Yes".
Server Address	Fill in the LDAP server URL or IP address.
Port	Fill in the LDAP server port. The default value is 389.
Base DN	Fill in the root directory of the LDAP server, it means under which directory to search contact.
Username (Binding DN)	Fill in the username to access the LDAP server.
Password	Fill in the password to access the LDAP server.
LADP Name Attributes	This setting specifies the "name" attributes of each record which are returned in the LDAP search result. Example: gn cn sn description
LADP Number Attributes	This setting specifies the "number" attributes of each record which are returned in the LDAP search result. Example: telephoneNumber telephoneNumber Mobile
LDAP Name Filter	This setting configures the filter used for name lookups. Examples: (|(cn=%)(sn=%)) returns all records which has the "cn" or "sn" field containing with the entered filter value; (!(sn=%)) returns all the records which do not have the "sn" field containing with the entered filter value; (&(cn=%) (telephoneNumber=*)) returns all the records with the "cn" field containing with the entered filter value and "telephoneNumber" field set.
LDAP Number Filter	This setting configures the filter used for number lookups. Examples: (|(telephoneNumber=%)(Mobile=%) returns all records which has the "telephoneNumbe" or "Mobile" field containing with the entered filter value; (&(telephoneNumber=%) (cn=*)) returns all the records with the "telephoneNumber" field containing with the entered filter value and "cn" field set.
LADP Display Name Attributes	This setting specifies the "Display Name" attributes. Up to 3 attributes could be displayed.Examples: %cn %sn %telephoneNumber
Max Hits (0-100)	The maximum contacts results return to the LDAP server. If set to "0", The server will return all query results. The default setting is 100.
Search Timeout	Set the search requests much time no response, no longer to search. The default setting is 100.
Connection Security Type	This setting configures LDAP connection security mode, users could choose None or SSL.

CUTSOM SETTINGS

Users could configure Color, Theme and Languages on Custom Settings screen.

Table 14: Custom Settings Parameters

Color	It is used to configure the color of default, icon, title bar and navigation bar.
Theme	Grandstream Wave supports 3 themes.
Languages	Tap to open a list of language options for GS Wave. The default setting is "Auto", which means in accordance with the language the phone uses. If the settings is not supportive and the same is not mine the m

ABOUT

Tap on "Check Updates" to update the version, tap on "Share Application" to share this application via the **BlueTooth**, **Gmail**, **Google**, etc.

DEBUG

Users could report bugs or trace SIP message with Debug function when coming across software problems.

Table 15: Debug Settings Parameters

Report Bugs	When unexpected crash or accidents occurs, upload the relevant logs to the server, the default settings is "Yes". This function can help users to monitor service condition and locate exception logs.
SIP Message Trace	Save the SIP message on the phone for users to check.
SIP Message Retention Period	It is used to configure the retention period of the SIP message on the phone.

EXIT

Click on this option to quit Grandstream Wave entirely. Users will receive no more calls and messages after exiting.

FAQs

Why can't I register account?

Check whether the network connection is normal; Whether WiFi is connected or 2G/3G/4G is on.

Why can I see my phone contacts and call records in the Grandstream Wave?

For first-time users, users have to confirm whether allow Grandstream Wave to read local call history and import contacts. If allows, these two will be downloaded in Grandstream Wave.

Why can't I see the Grandstream Wave notification on the phone?

Please go to Settings->Advanced Settings to enable Notifications for Default Account. If enabled, you'll see the notifications in the status bar.

How to switch existing accounts?

There are 3 ways: Slide to right; Click ⇌ at the upper right corner of the Dial/Call History screen; Use the MENU button on account settings screen.

EXPERIENCING THE GRANDSTREAM WAVE APPLICATION

Please visit our website: http://www.grandstream.com to receive the most up-to-date updates on firmware releases, additional features, FAQs, documentation and news on new products.

We encourage you to browse our product related documentation, FAQs and User and Developer Forum for answers to your general questions. If you have purchased our products through a Grandstream Certified Partner or Reseller, please contact them directly for immediate support.

Our technical support staff is trained and ready to answer all of your questions. Contact a technical support member or submit a trouble ticket online to receive in-depth support.

Thank you again for purchasing Grandstream Enterprise Application phone, it will be sure to bring convenience and color to both your business and personal life.