



Grandstream Networks, Inc.

Grandstream Wave for Android™

User Guide

Grandstream Wave User Guide

Index

CHANGE LOG	6
FIRMWARE VERSION 1.0.2.5	6
WELCOME	7
FEATURE HIGHLIGHTS	7
GRANDSTREAM WAVE TECHNICAL SPECIFICATIONS	7
GETTING READY	9
USING GS Wave	11
DIAL SCREEN	11
<i>DIALING A NUMBER DIRECTLY</i>	11
<i>REDIAL</i>	12
<i>DIALING A NUMBER VIA CALL HISTORY</i>	13
<i>DIALING A NUMBER VIA CONTACTS</i>	13
SWITCHING AUDIO CHANNEL DURING CALL	14
ANSWERING A CALL	15
<i>SINGLE INCOMING CALL</i>	15
<i>MULTIPLE CALLS</i>	17
AUDIO/VIDEO CALL	19
<i>CALL HOLD/RESUME</i>	21
<i>MUTE</i>	22
<i>SWITCHING AUDIO CHANNEL DURING CALL</i>	23
MISSED CALLS	24
CALL TRANSFER	26
<i>BLIND TRANSFER</i>	26
<i>ATTENDED TRANSFER AFTER CALLING</i>	27
<i>ATTENDED TRANSFER BEFORE CALLING</i>	27
6-WAY CONFERENCE	28
<i>ADD NEW CONFERENCE</i>	30
<i>INITIATING CONFERENCE</i>	30
<i>REMOVING MEMBER FROM CONFERENCE</i>	32
<i>MUTE/UNMUTE CONFERENCE</i>	32
<i>HOLD/RESUME CONFERENCE</i>	33
VOICEMAIL	34
CONTACTS	36
<i>ADD CONTACTS</i>	37

SEARCH CONTACTS	37
VIEW CONTACT	38
EDIT CONTACT.....	39
DELETE CONTACT.....	39
ADD CONTACT TO FAVORITES	42
LDAP CONTACTS.....	42
CALL HISTORY	43
MESSAGES.....	46
VIEW MESSAGE.....	47
CREATE NEW MESSAGE	49
EDIT MESSAGE.....	49
SETTINGS.....	51
ACCOUNT SETTINGS	51
UCM ACCOUNT (QR CODE SCAN).....	51
UCM ACCOUNT (SELECT QR CODE IMAGE).....	52
SIP ACCOUNT	53
IPVIDEOTALK ACCOUNT.....	55
ADVANCED SETTINGS	60
GENERAL SETTINGS.....	60
CALL SETTINGS.....	61
AUDIO SETTINGS	61
NETWORK SETTINGS	63
ADDITIONAL SETTINGS	63
CUTSOM SETTINGS	66
ABOUT.....	67
DEBUG	67
EXIT	67
FAQs	68
EXPERIENCING THE GRANDSTREAM WAVE APPLICATION	69

Table of Tables

Grandstream Wave User Guide

Table 1: GrandStream Wave Technical Specifications	7
Table 2: Edit Account Parameters	55
Table 3: Account Settings—General Settings Parameters	56
Table 4: Account Settings—Call Settings Parameters	56
Table 5: Account Settings—SIP Settings Parameters.....	57
Table 6: Session Expiration Settings Parameters	58
Table 7: Account Settings—Network Settings Parameters	58
Table 8: Account Settings—Codec Settings Parameters	59
Table 9: Advanced Settings—General Settings Parameters	60
Table 10: Advanced Settings—Audio Settings Parameters	61
Table 11: Advanced Settings—Network Settings Parameters	63
Table 12: Advanced Settings—Additional Settings Parameters	64
Table 13: LDAP Settings Parameters	65
Table 14: Custom Settings Parameters	66
Table 15: Debug Settings Parameters	67

Table of Figures

Grandstream Wave User Guide

Figure 1: Grandstream Wave Installation.....	9
Figure 2: Grandstream Wave Finger Gestures on the Touchscreen	10
Figure 3: Keypad Screen	11
Figure 4: Select Account	12
Figure 5: Dial-up via Call History	13
Figure 6: Dial-up via Contacts.....	14
Figure 7: Switch Call Lines.....	15
Figure 8: Single Incoming Audio Call	16
Figure 9: Single Incoming Video Call	17
Figure 10: Multiple Calls—Audio call	18
Figure 11: Multiple Calls—Video call.....	19
Figure 12: Audio Call.....	20
Figure 13: Video Call.....	21
Figure 14: Call Unhold	22
Figure 15: Call Mute.....	23
Figure 16: Call via Bluetooth.....	24
Figure 17: Missed Call Screen	25
Figure 18: Call Transfer—Blind Transfer.....	26
Figure 19: Attended Transfer after Calling—Transferring	27
Figure 20: Attended Transfer before Calling—Split.....	28
Figure 21: Conference Screen	29
Figure 22: Conference—Add New Call to the Conference	30
Figure 23: Conference—Initiating Conference.....	31
Figure 24: Conference—Delete Conference member	32
Figure 25: Conference—Mute Conference Member.....	33
Figure 26: Conference—Hold Conference.....	34
Figure 27: Configure Voicemail UserID.....	35
Figure 28: Retrieve Voicemail	35
Figure 29: GS Wave Contacts Screen	36
Figure 30: Add New Contact	37
Figure 31: Search Contact	38
Figure 32: View Contact	39
Figure 33: Edit Contact	40
Figure 34: Batch Remove Contact Screen	41
Figure 35: Contact Details Screen	42
Figure 36: Add Contact to Favorites	42
Figure 37: LDAP Contacts screen—Search Contact	43
Figure 38: Call History.....	44

Figure 39: Call History Details Screen	45
Figure 40: Call History Details Screen—Edit Contact.....	46
Figure 41: Messages Screen	47
Figure 42: Message Details Screen	48
Figure 43: Create New Message	49
Figure 44: Message Screen—Edit Message	50
Figure 45: Add New Account Screen	51
Figure 46: QR Code Scan Screen	52
Figure 47: Scan QR Code Image Screen	53
Figure 48: Account Settings Screen—Registration Success	54
Figure 49: Slide to Delete Account.....	54
Figure 50: Add IPVideoTalk Account Screen	55
Figure 51: Call Settings Screen	61
Figure 52: DND Settings Screen.....	61
Figure 53: Reducing Noise Settings Screen	62
Figure 54: Output Gain Screen	63
Figure 55: BLF List Screen	65
Figure 56: LDAP Settings Screen	65

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 1.0.2.5

- 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 HIGHLIGHTS

- • 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, G.729AB (TBD), GSM, DTMF (In audio, RFC2833, SIP INFO), 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.

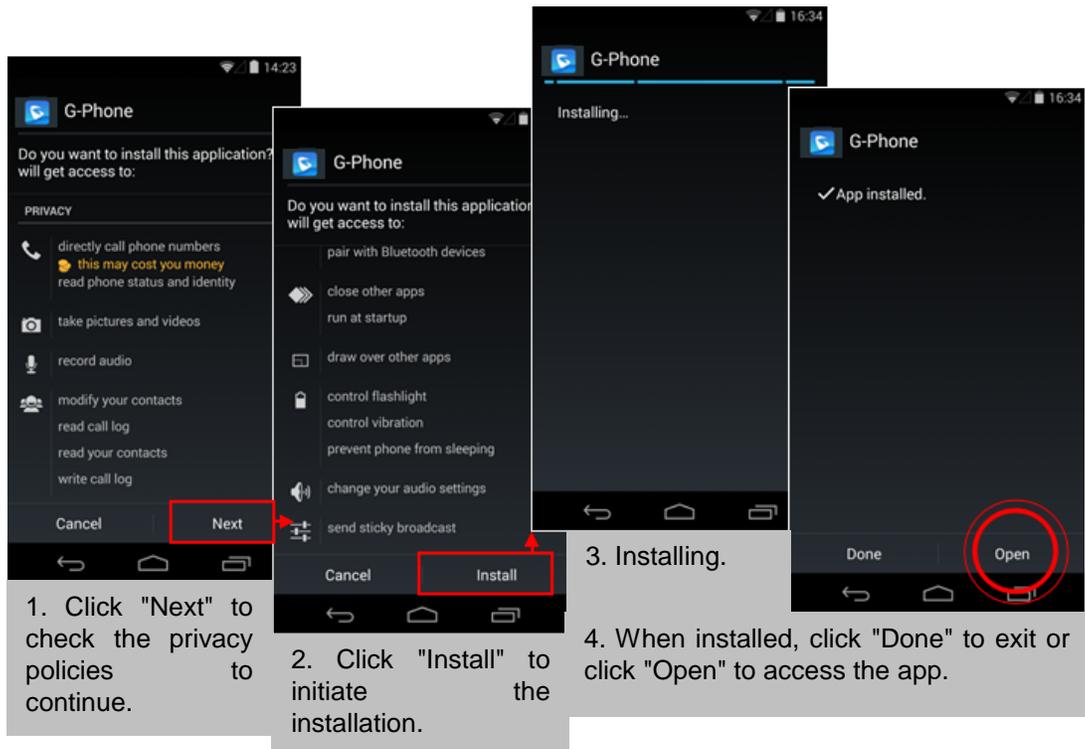


Figure 1: Grandstream Wave Installation



Note:

- For first-time users, users have to confirm whether allow Grandstream Wave to access Contacts from the phone. If it allows, users could view 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.

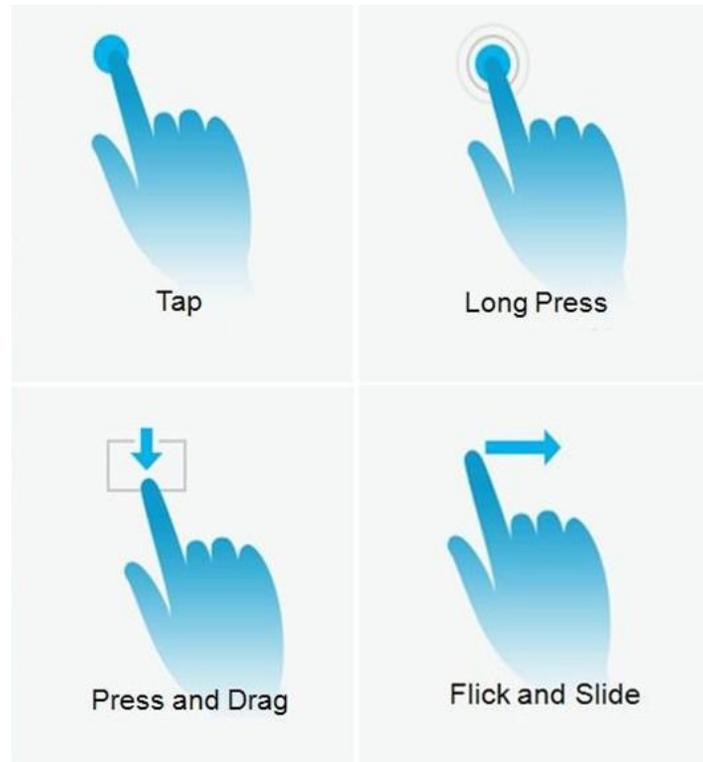


Figure 2: Grandstream Wave Finger Gestures on the Touchscreen

- **Tap**
Slightly touch the screen with fingertip once to initiate menu, options or applications.
- **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 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.

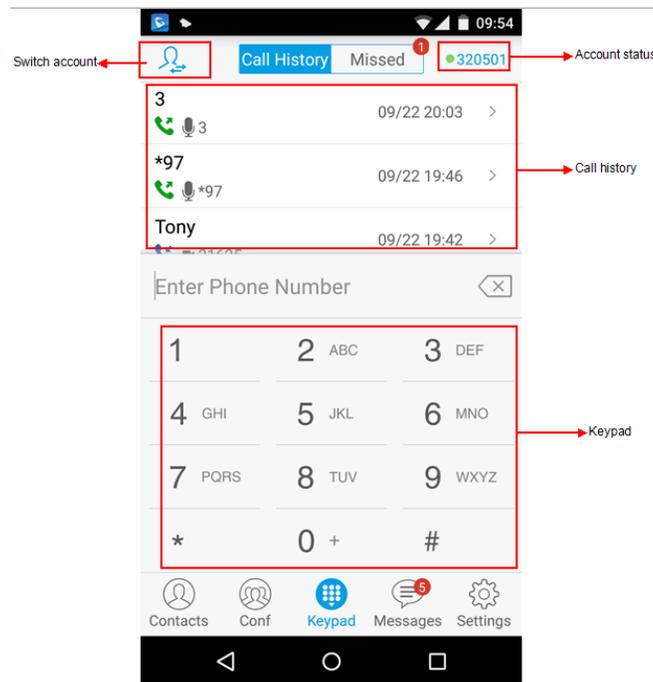


Figure 3: Keypad Screen

DIALING A NUMBER DIRECTLY

1. Access the dial screen;

2. Put one finger on left screen edge, and slide to right or tap  on the upper left corner, select the account as shown in figure 4;

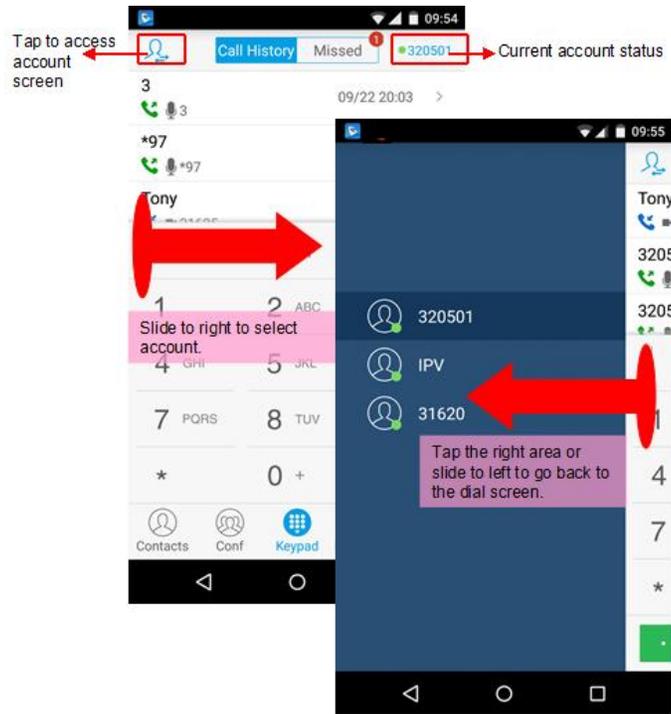


Figure 4: Select Account

3. Tap the right area to go back to the dial screen;
4. Enter the phone number on the keypad;
5. Tap on  to dial out with SIP account; Tap on  and select "Local Call", "Video 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 Grandstream 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.

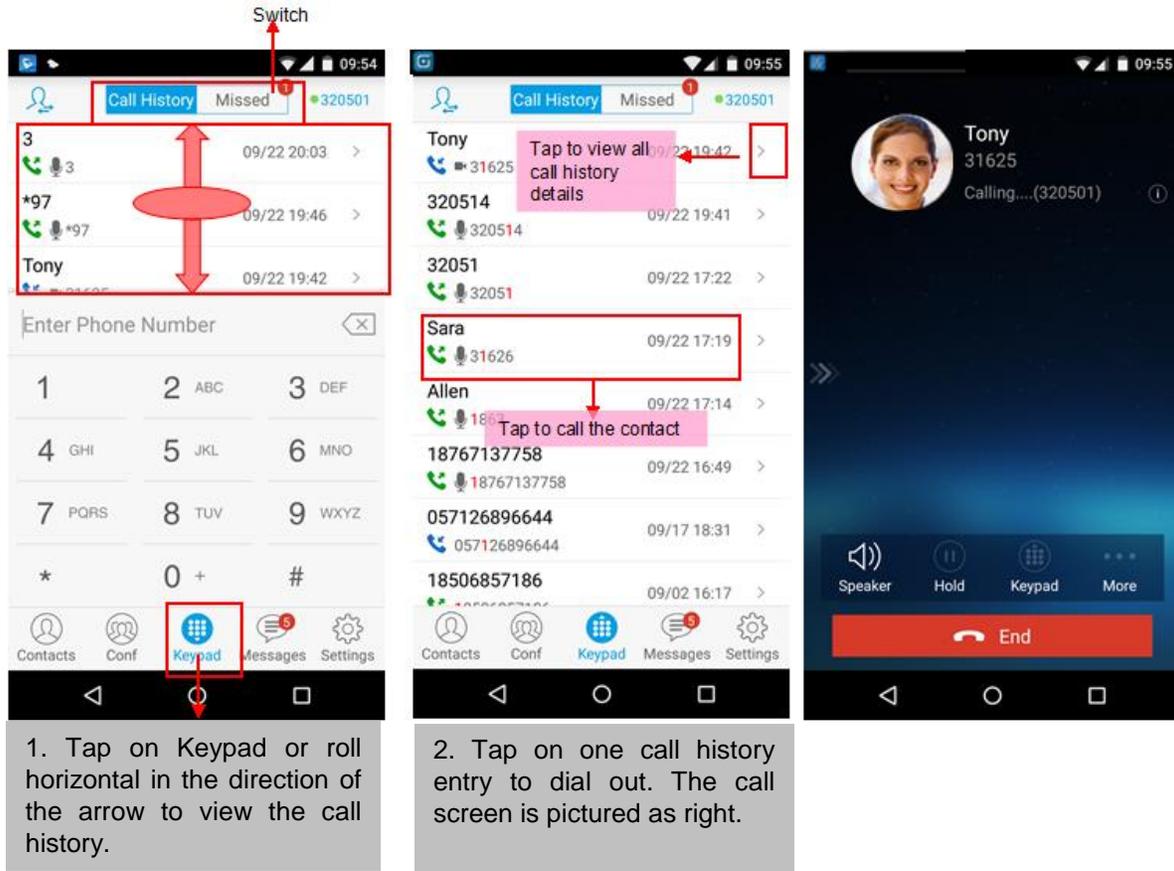


Figure 5: Dial-up via Call History

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.

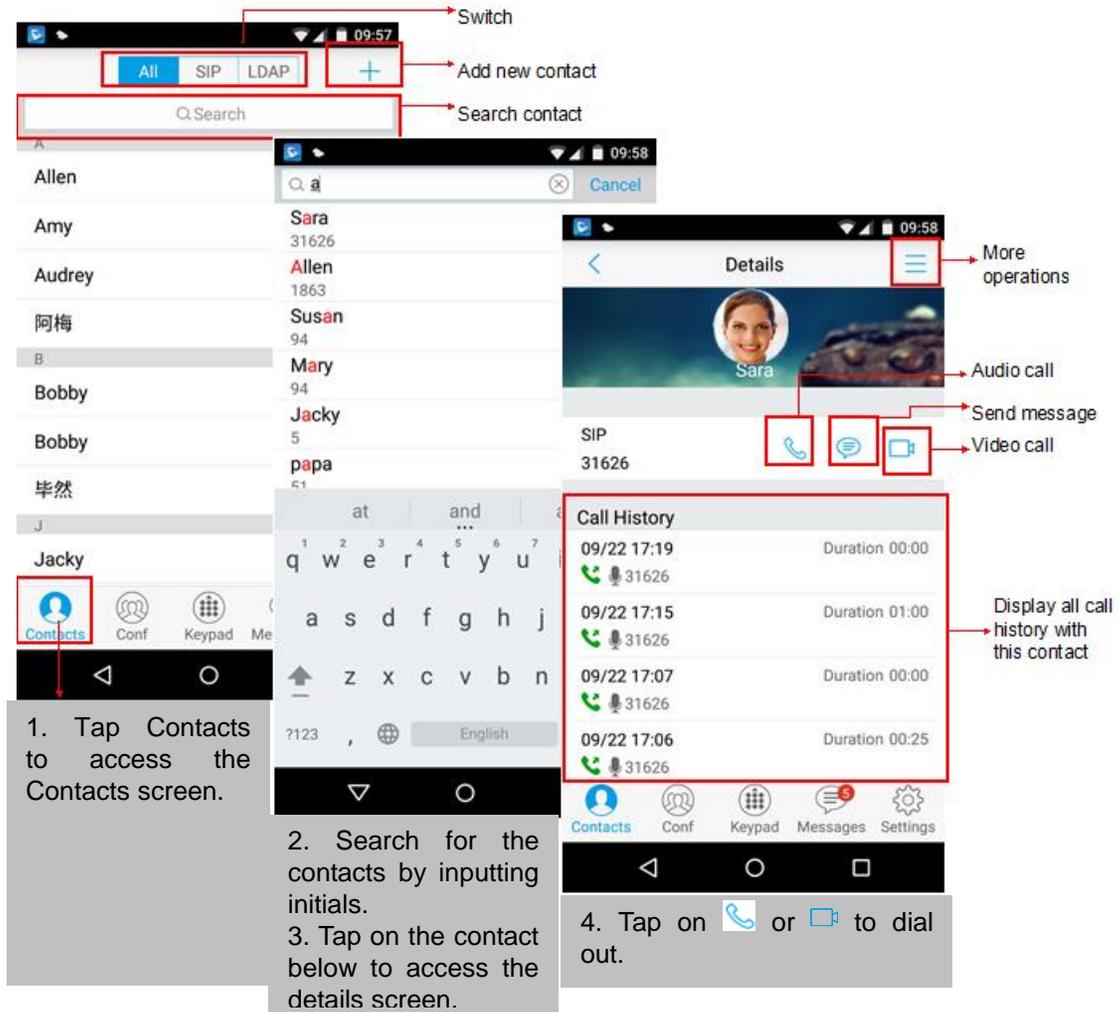


Figure 6: Dial-up via Contacts

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.

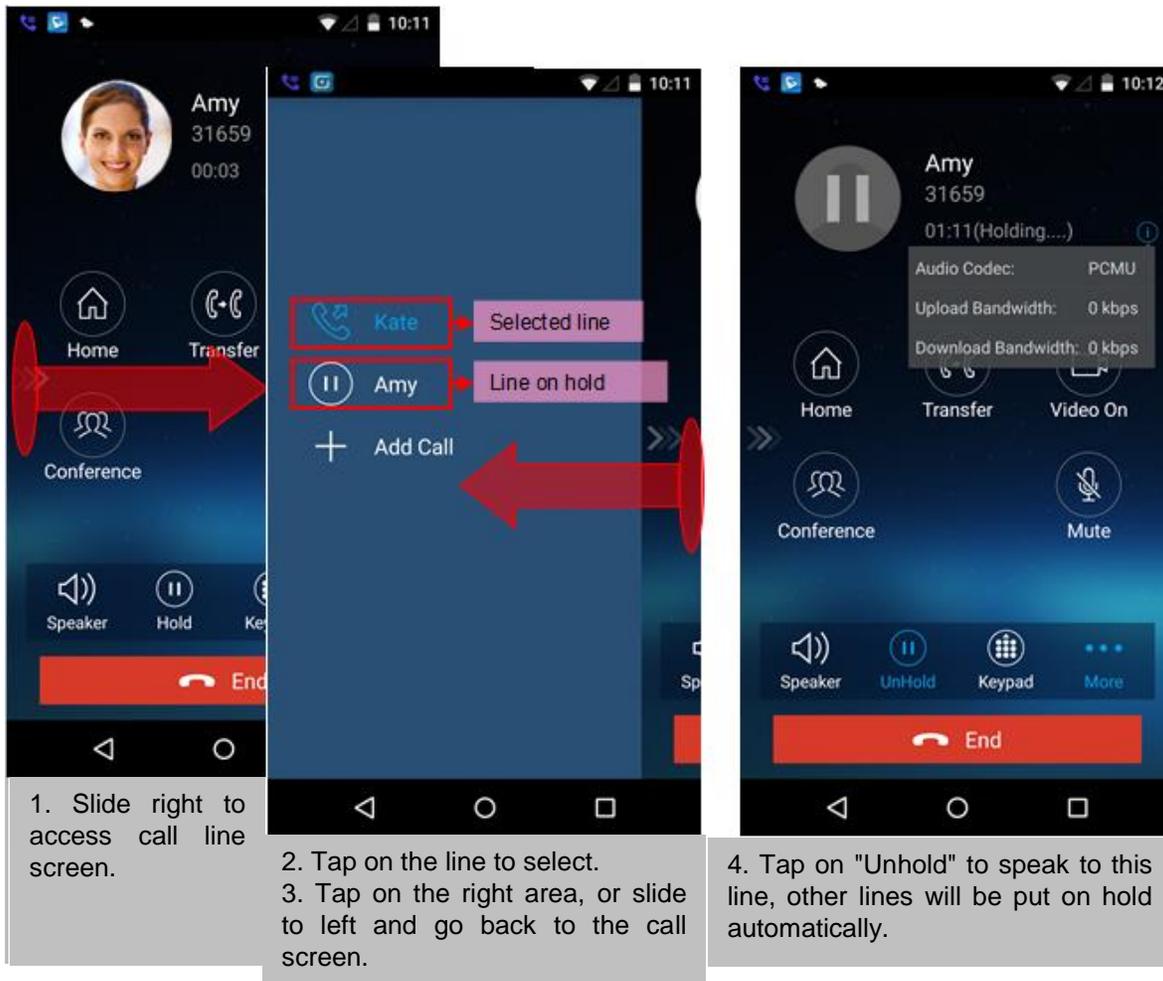


Figure 7: Switch Call Lines

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.

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

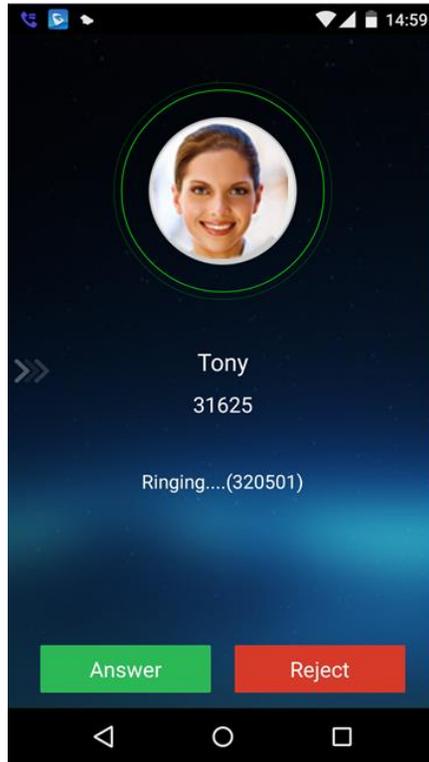


Figure 8: Single Incoming Audio Call

When there is a video call, you can see the screen is as shown below.

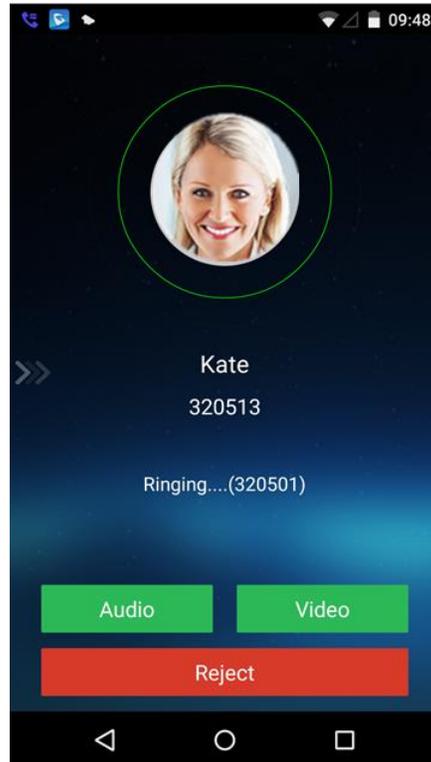


Figure 9: Single Incoming Video Call

MULTIPLE CALLS

When there is another incoming audio call during an active call, the status bar will display the 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 10.

Tap on button  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  , the current active call will not be interrupted.

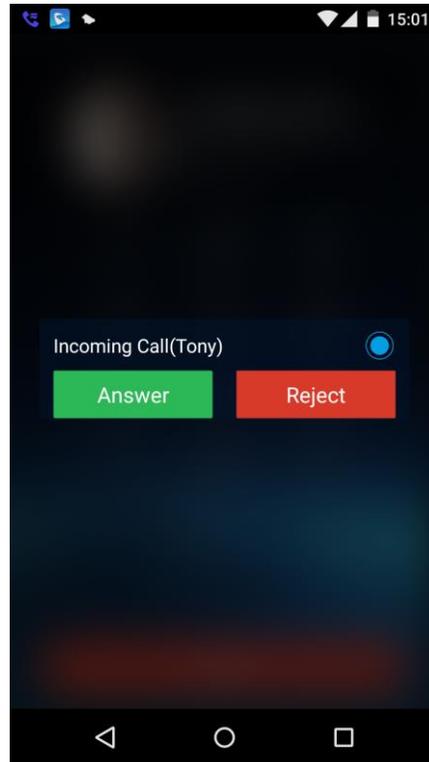


Figure 10: Multiple Calls—Audio call

If the incoming call is video call, the screen is shown as below. Tap on **Audio** or **Video** to answer. 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.

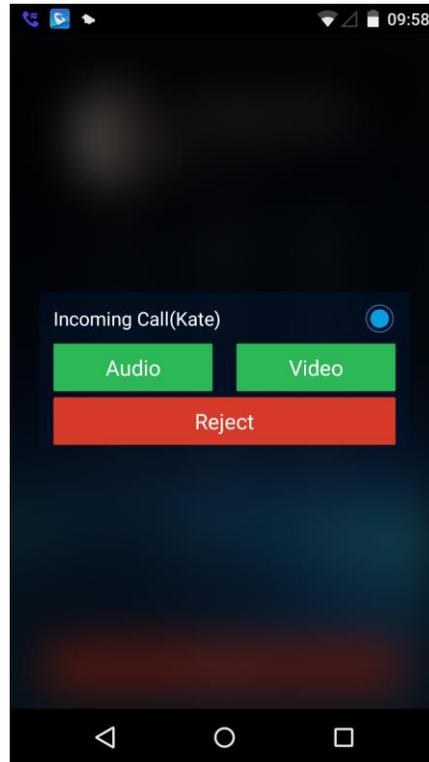


Figure 11: Multiple Calls—Video call

AUDIO/VIDEO 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.

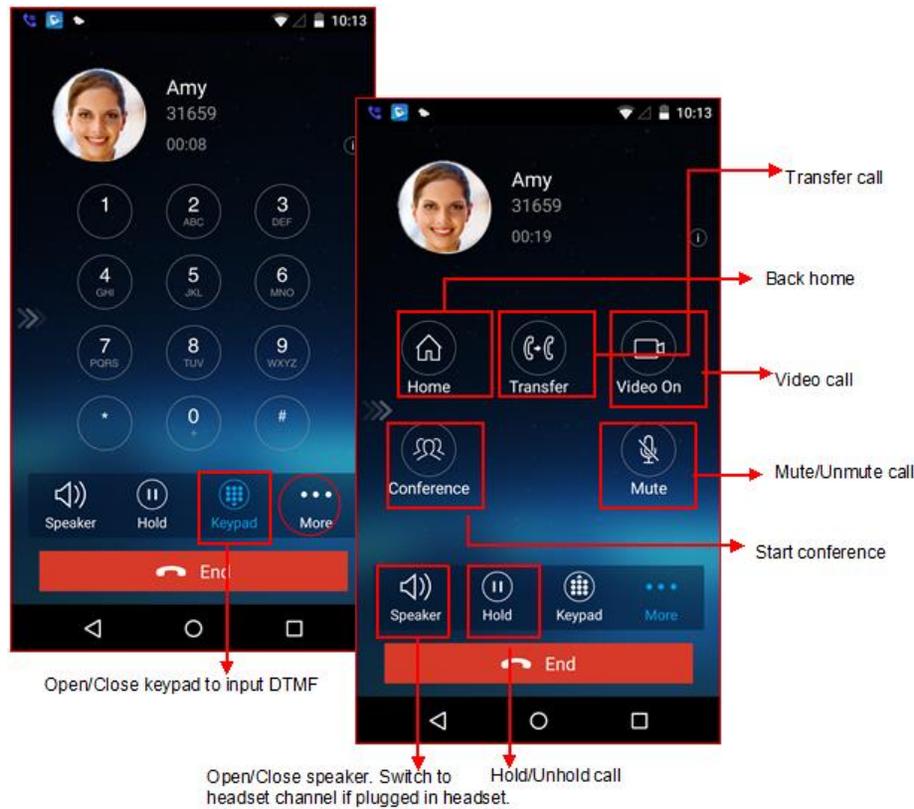


Figure 12: Audio Call

» : 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.

Video On: Enable video call. Tap to dial up video call to the callee.

Conference: Bring up conference screen.

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

End: Tap on the icon to end the call.

The video call screen is as shown below, the basic operations are the same as audio call.

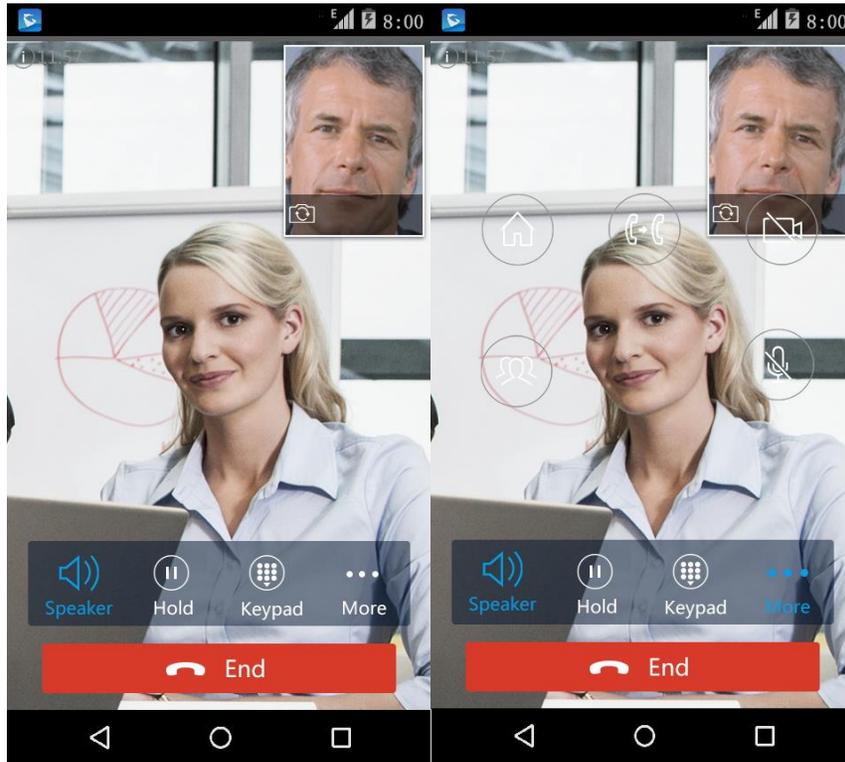


Figure 13: Video Call

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 14 below.

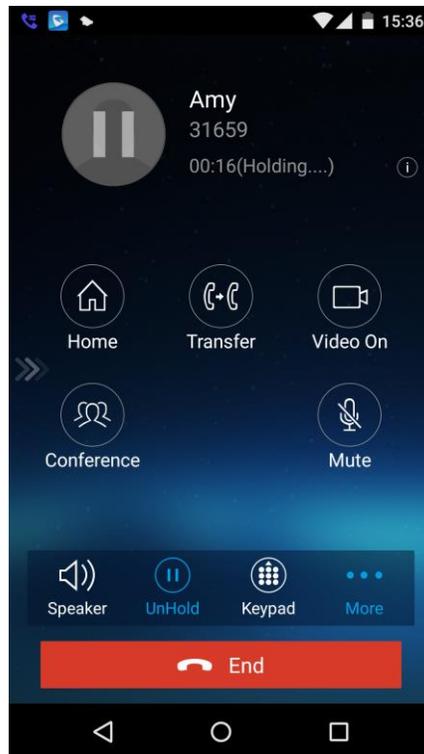


Figure 14: Call Unhold

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 15 below.

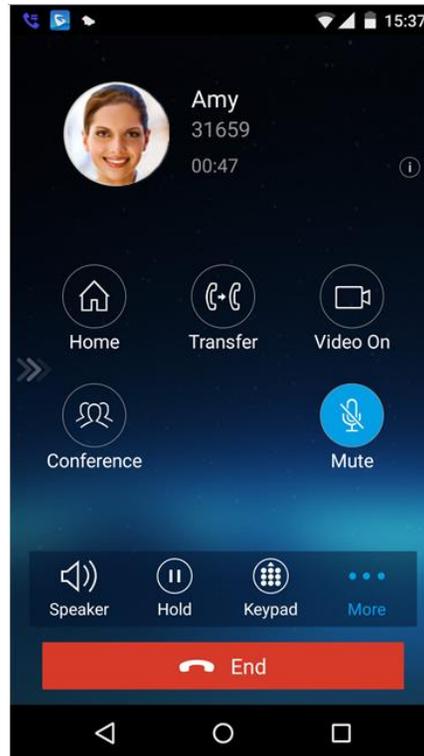


Figure 15: Call Mute

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



Figure 16: 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 17.

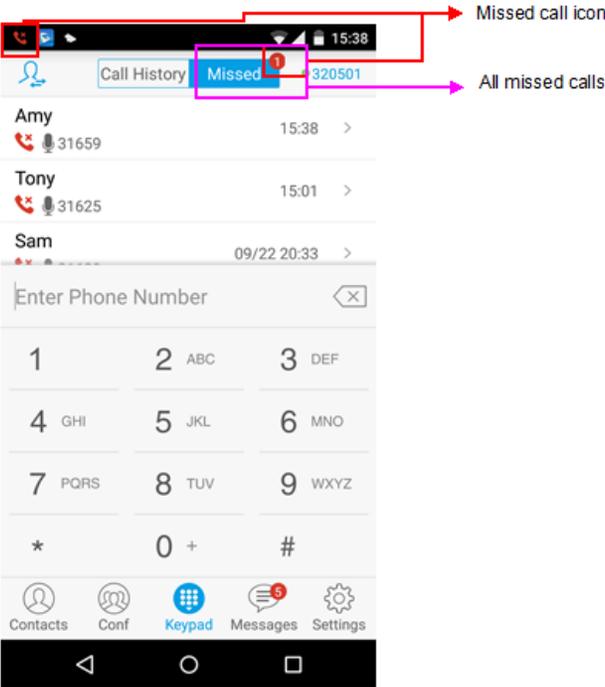


Figure 17: Missed Call Screen

CALL TRANSFER

BLIND TRANSFER

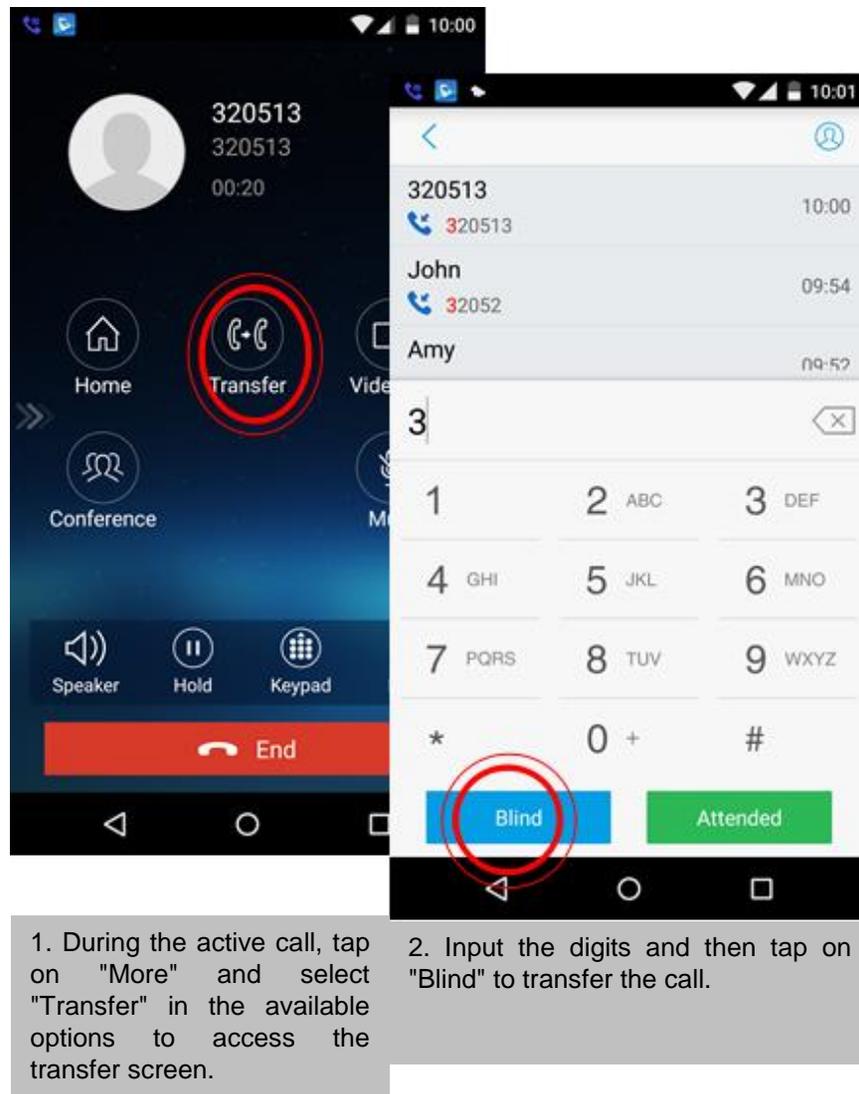


Figure 18: Call Transfer—Blind Transfer

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.

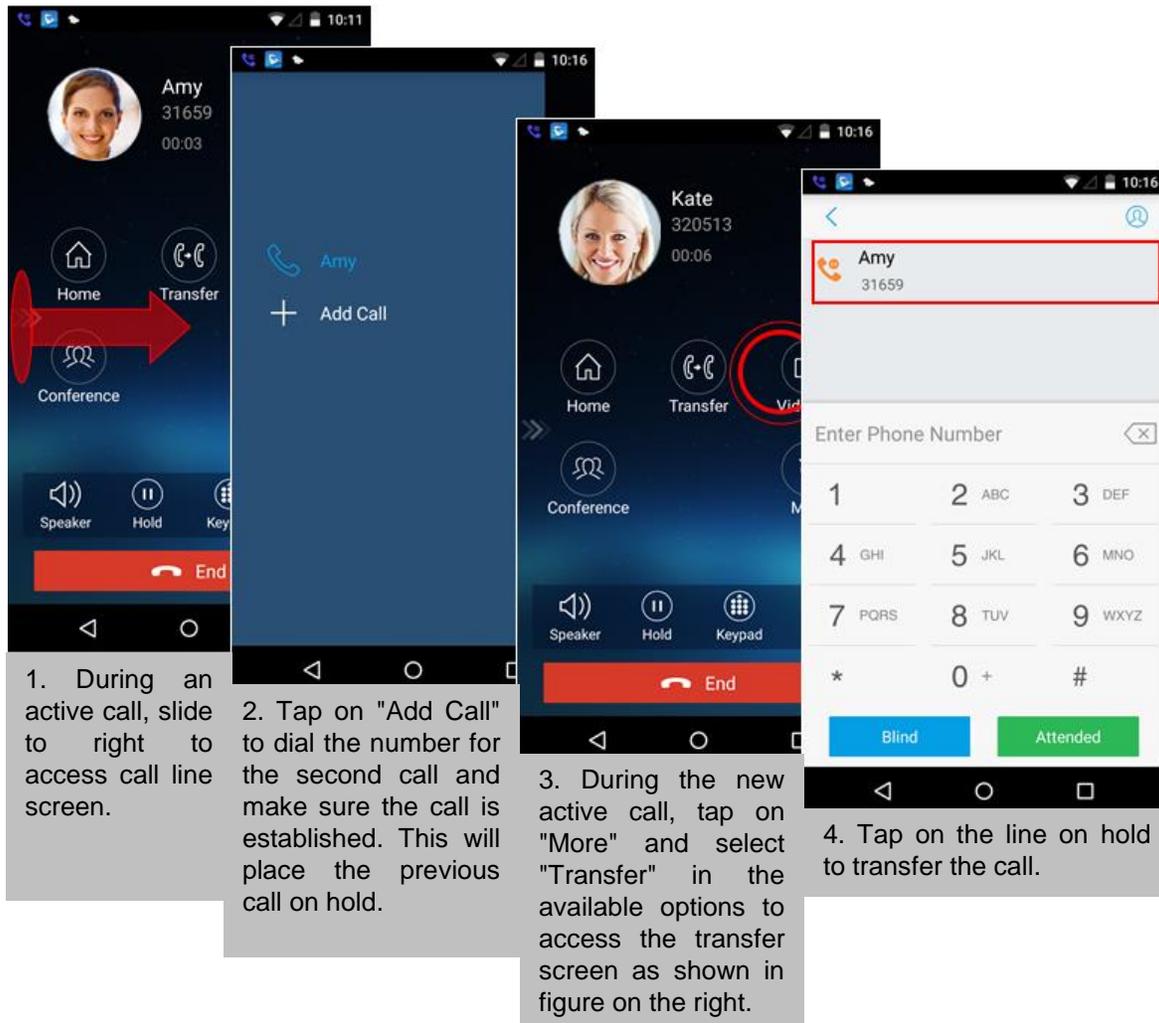
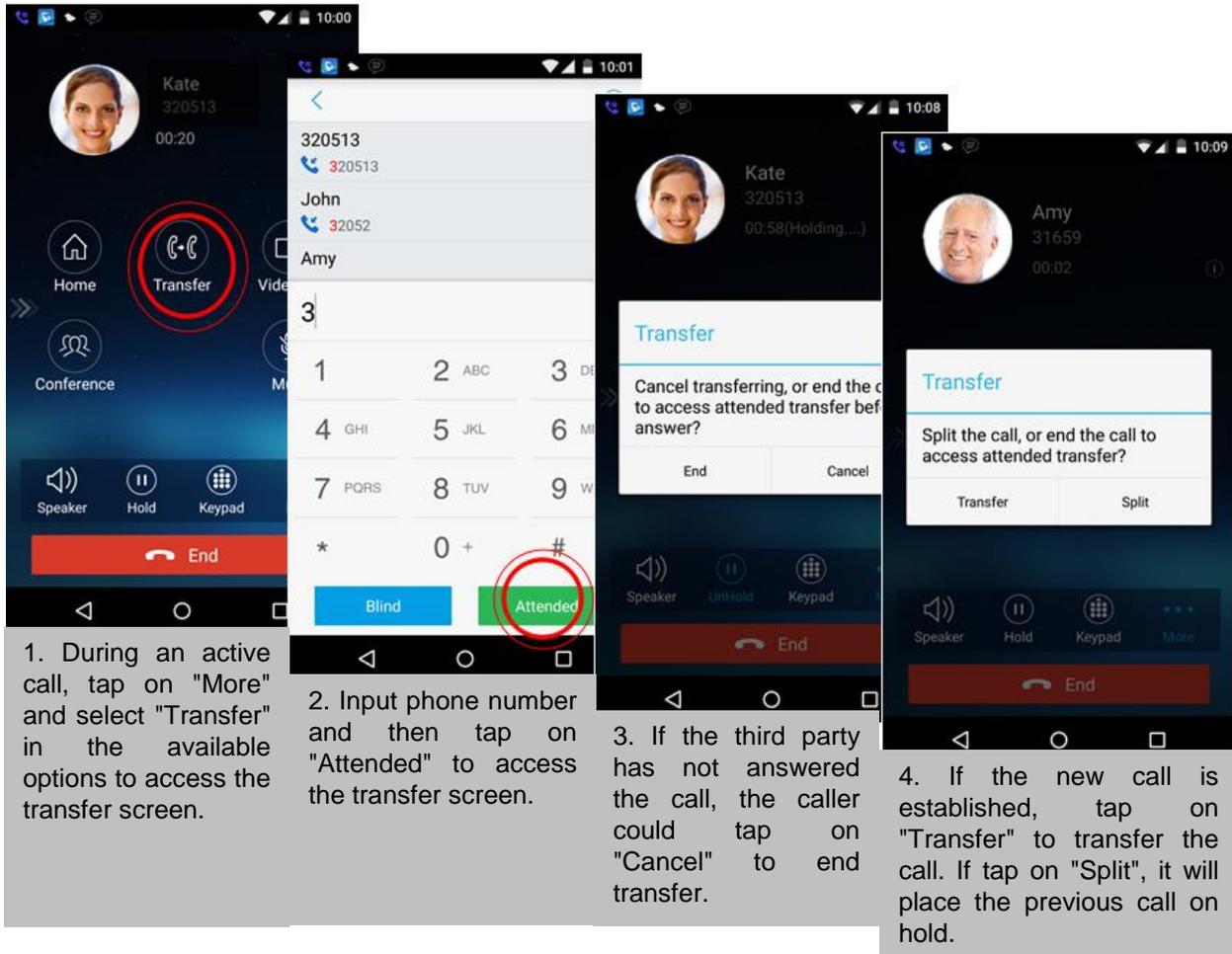


Figure 19: Attended Transfer after Calling—Transferring

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 20: Attended Transfer before Calling—Split

6-WAY CONFERENCE

Grandstream Wave supports up to 6-way conferencing. The conference screen is as shown in figure 21 below.

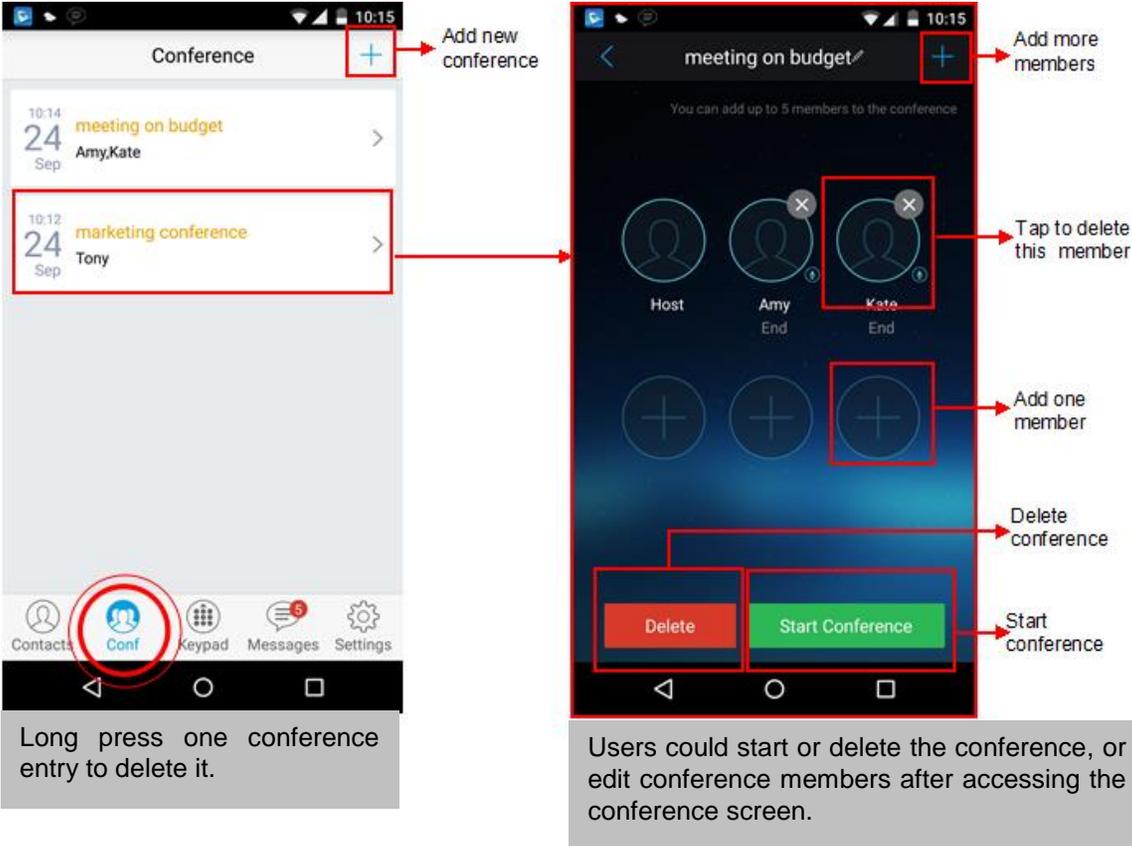


Figure 21: Conference Screen

ADD NEW CONFERENCE

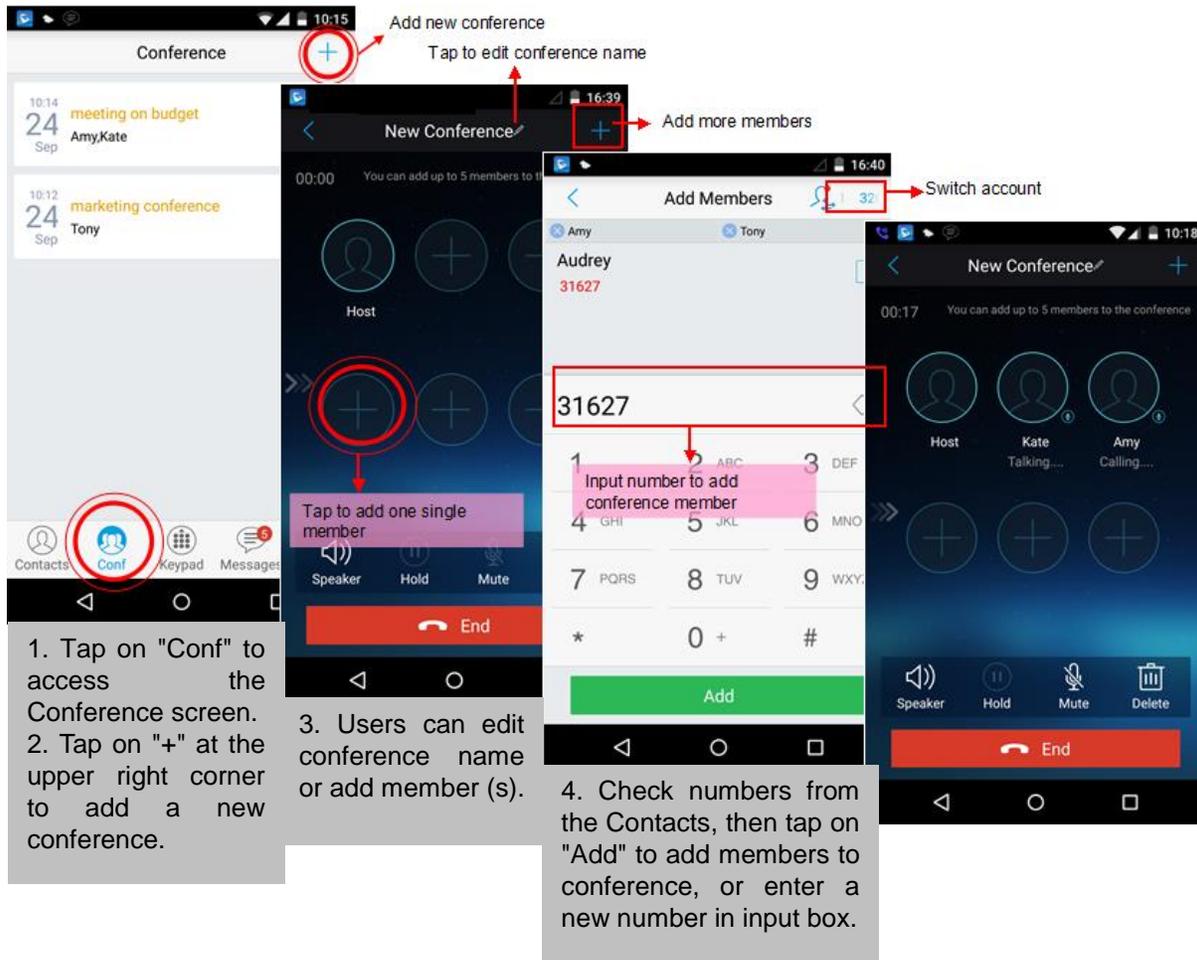


Figure 22: Conference—Add New Call to the Conference

Adding a member 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 members if there exists an active call.

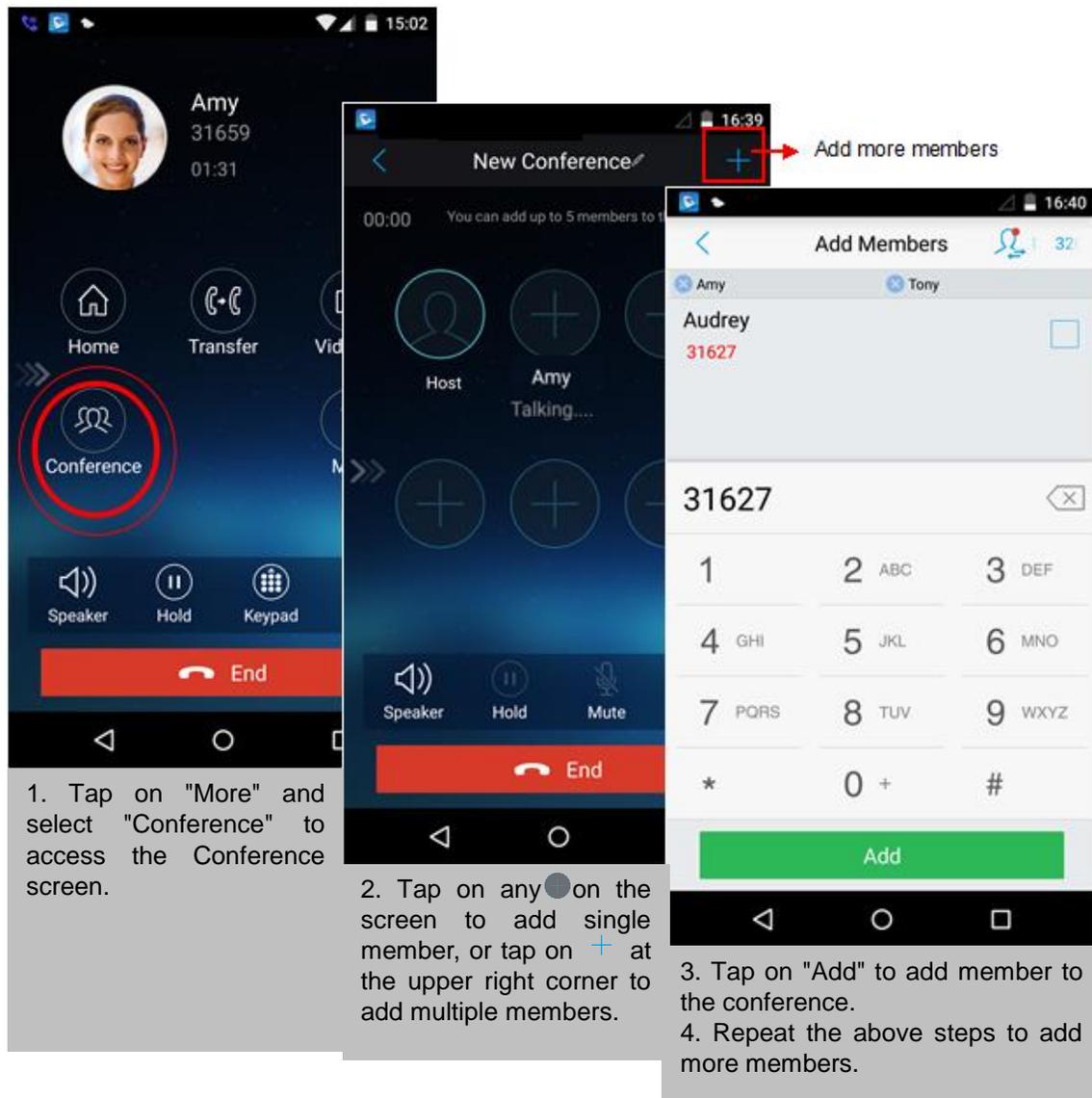


Figure 23: Conference—Initiating Conference

While all members 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 member individually.

Delete: Delete the conference member.

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

REMOVING MEMBER FROM CONFERENCE

To remove a member from the conference, users could press **DELETE** button on phone screen, then tap on  icon at the upper right corner of the member, and then it will be removed.

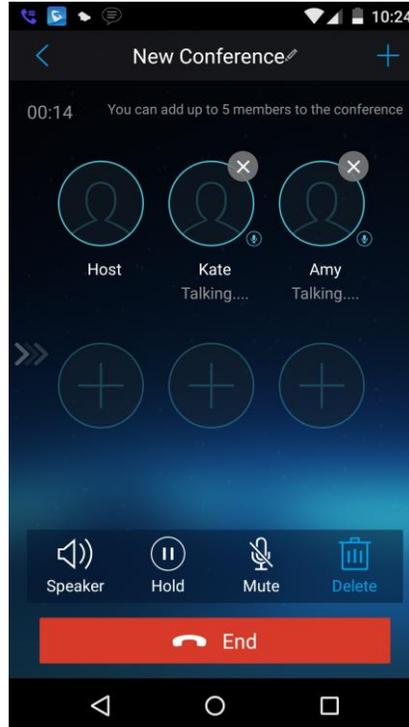


Figure 24: Conference—Delete Conference member

MUTE/UNMUTE CONFERENCE

During an active conference, users could press **MUTE** button on phone screen, and then tap on  at the upper right corner of the member to mute the member. The muted member will not be heard by other members, but can hear other members, while it still exists on the conference screen, the muted

member is shown as



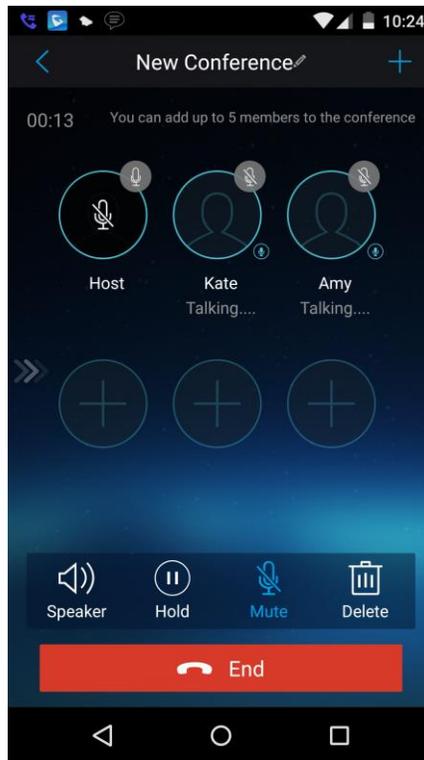


Figure 25: Conference—Mute Conference Member

HOLD/RESUME CONFERENCE

During the conference, users could press the **HOLD** button on phone screen to hold the conference with all members at any time. If the remote member presses the **HOLD** button, it will only hold his/her own call from the conference, as shown in figure 26.

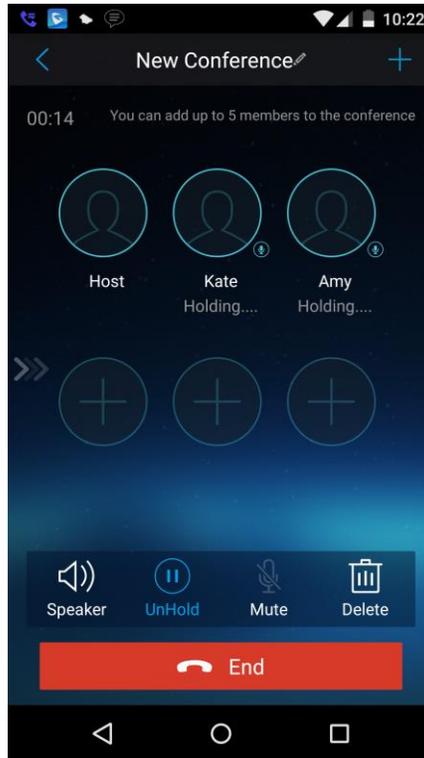


Figure 26: Conference—Hold Conference

To end the conference, users could tap  on phone screen to disconnect all the members from the conference. If the remote member hangs up the call, it will be disconnected from the conference, but other members 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 27.

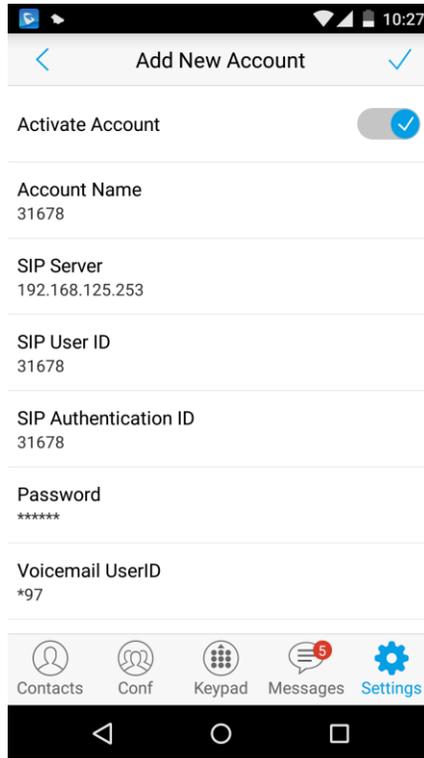


Figure 27: Configure Voicemail UserID

To retrieve the voicemail:

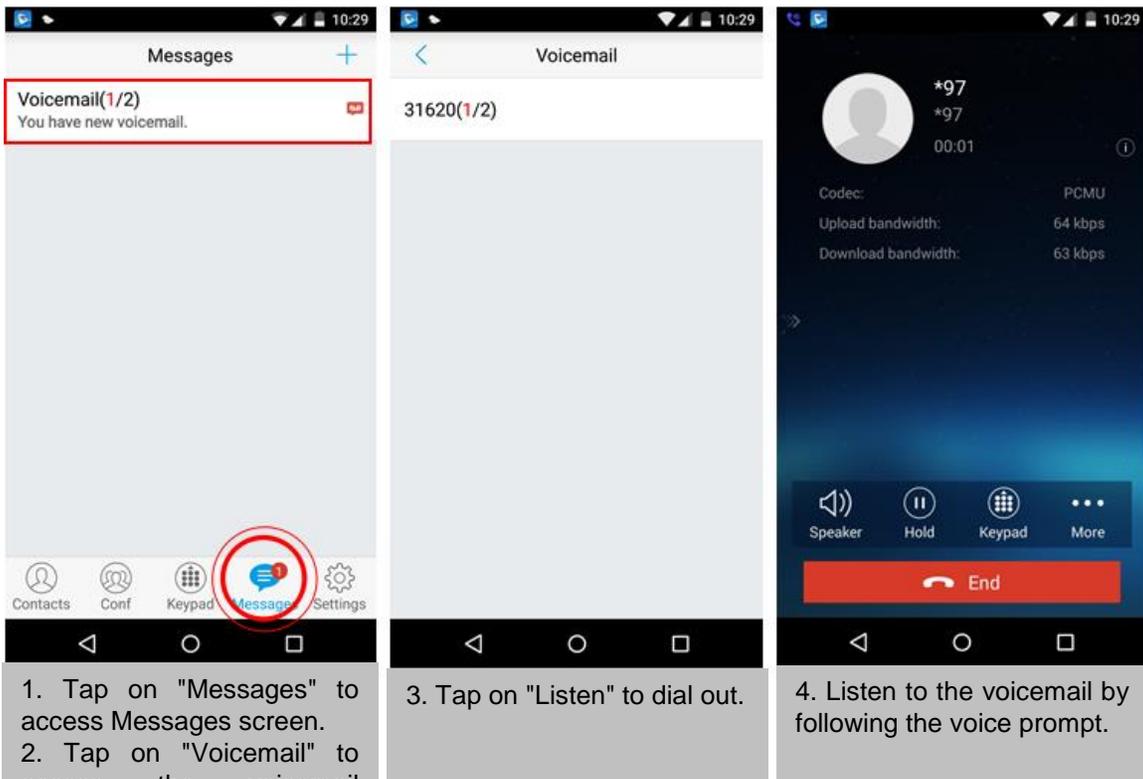


Figure 28: Retrieve Voicemail

 **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 29.

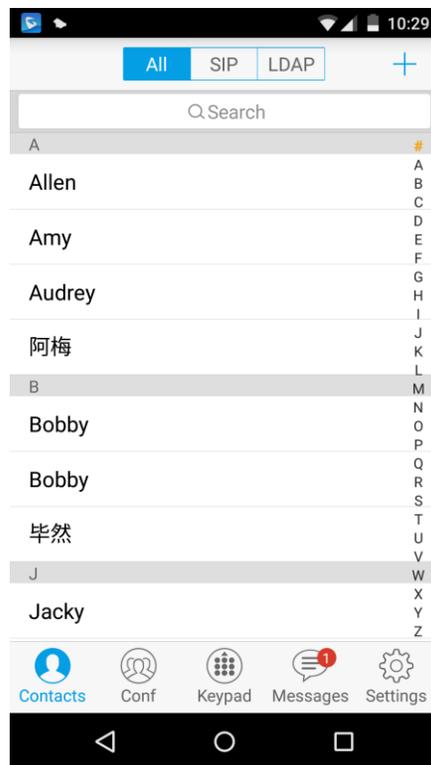


Figure 29: GS Wave Contacts Screen

ADD CONTACTS

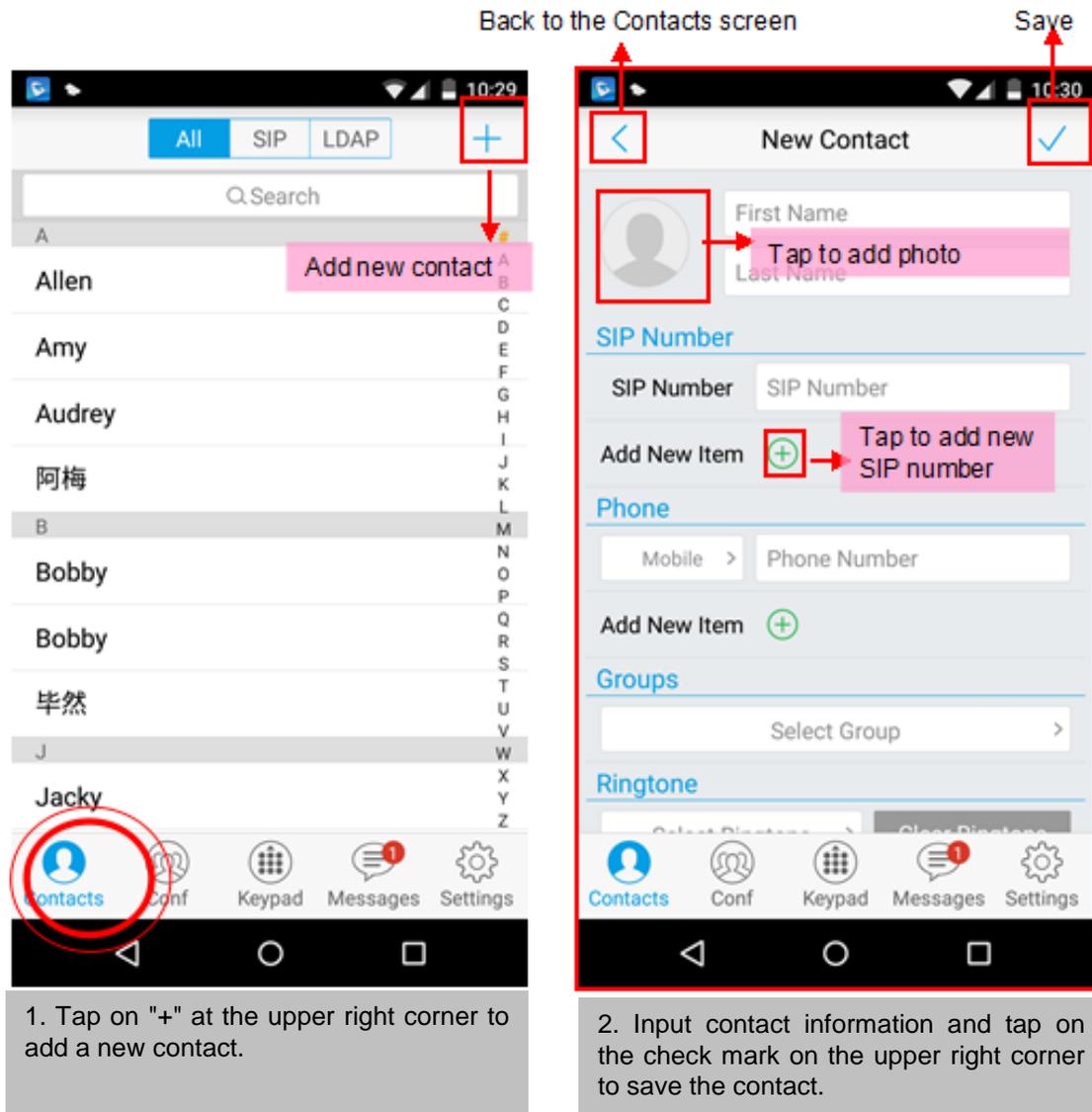


Figure 30: Add New Contact

SEARCH CONTACTS

Tap on the search box on the Contacts screen to access the search screen, as shown in figure 31.

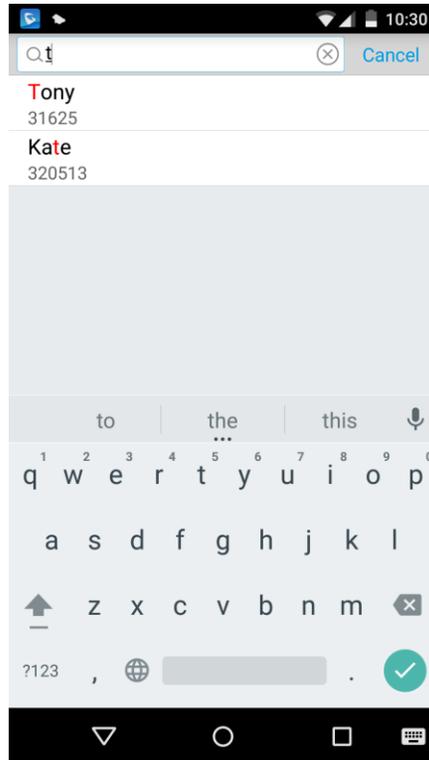


Figure 31: Search Contact

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 32.

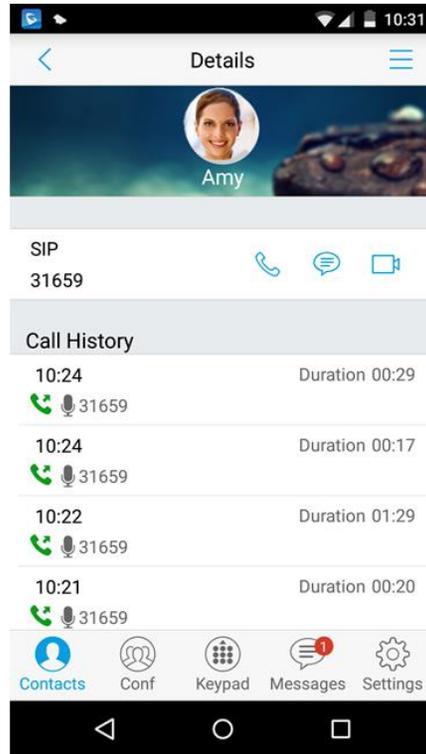


Figure 32: View Contact



Dial out the audio call.



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



Dial out the video call.

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

Follow one of the following 3 ways to delete contact.

1. Long press one contact on the contact list to bring up the dialog box, select **Delete** to access the editing screen.

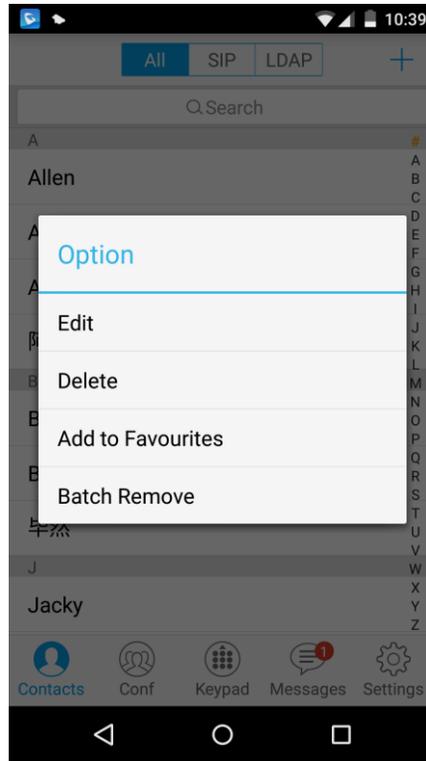


Figure 33: Edit Contact

2. Long press one contact on the contact list to bring up the dialog box, select **Batch Remove** to access batch remove screen, check contacts and tap on  on the upper right corner to delete.

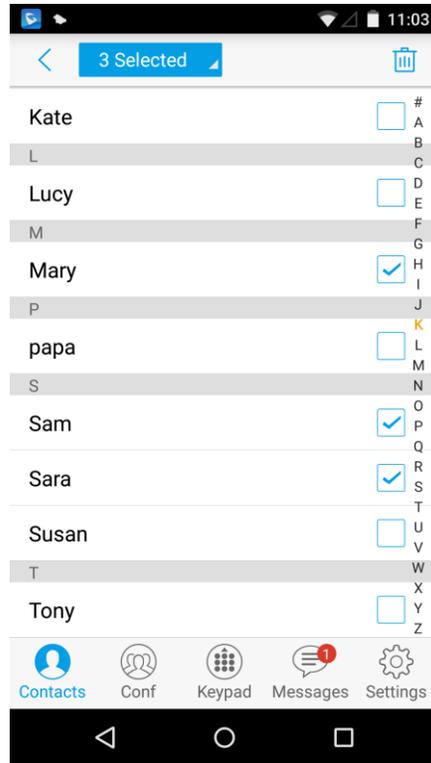


Figure 34: Batch Remove Contact Screen

3. Tap on one contact to access the detail interface, tap on button  at the upper right corner, then select **Delete Contact**, as shown in figure 35.

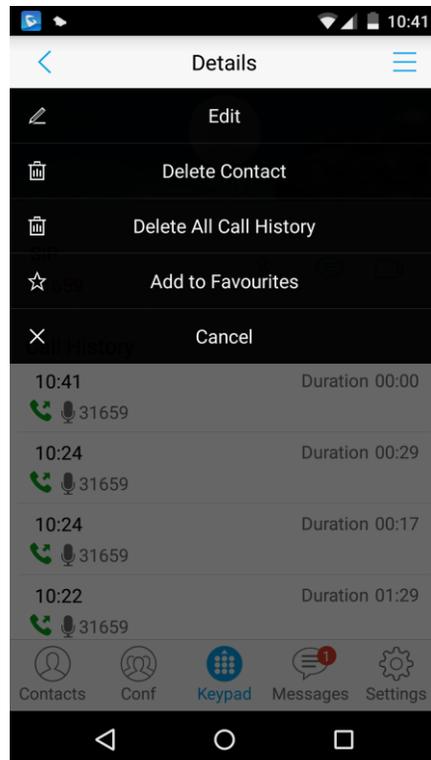


Figure 35: Contact Details Screen

ADD CONTACT TO FAVORITES

To add a contact to favorites, as shown in figure 36.

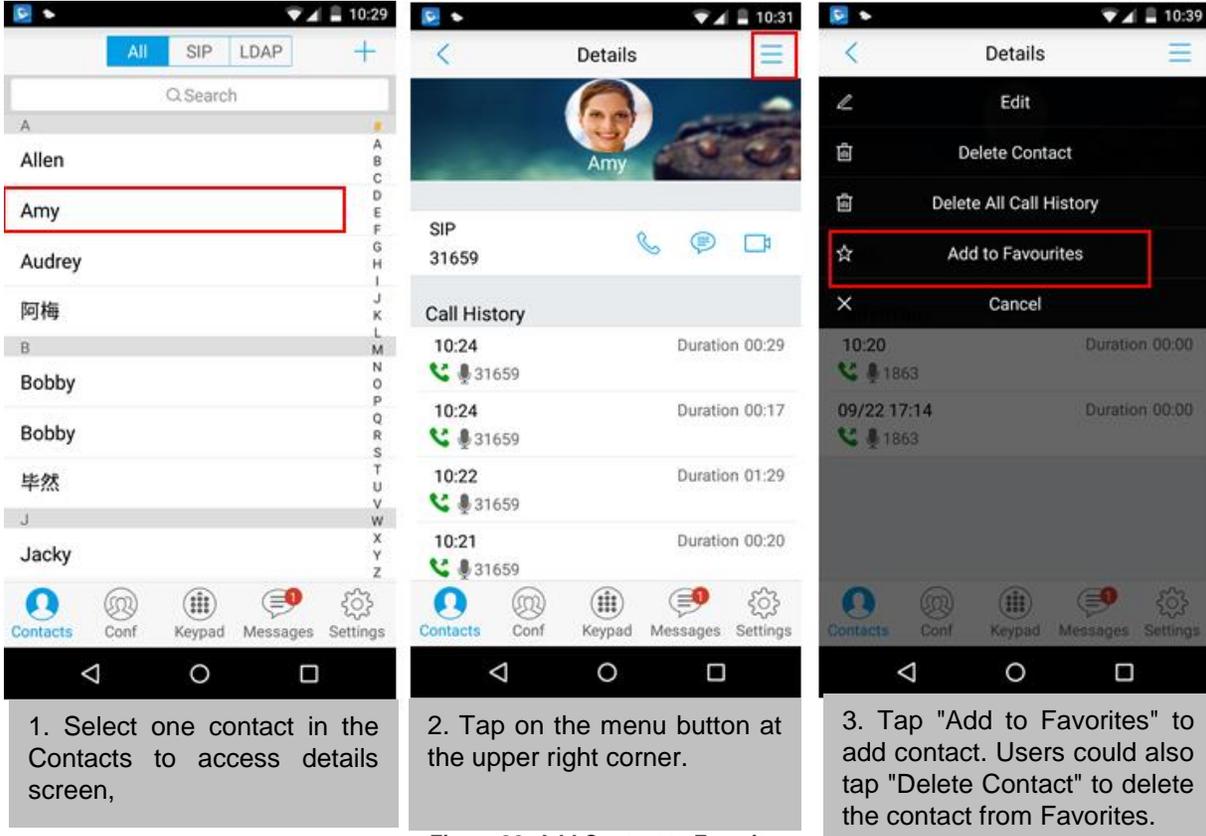


Figure 36: Add Contact to Favorites

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"**.

LDAP CONTACTS

Users could access LDAP screen to search LDAP contacts, view LDAP contact details and add LDAP contact. Please go to Settings->Advanced Settings->LDAP Settings to fill in details.

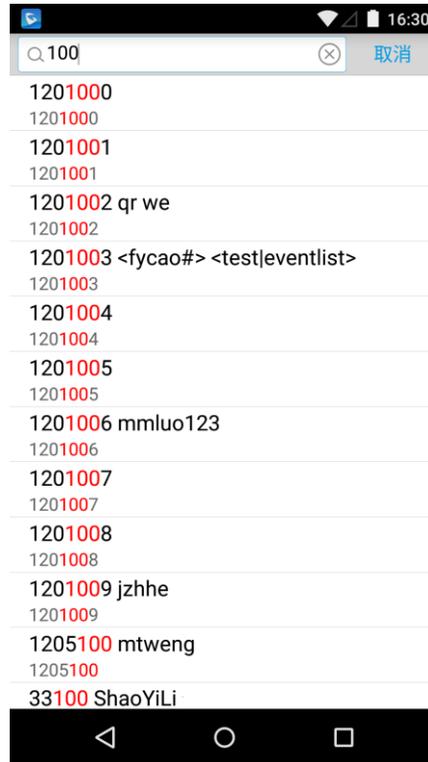


Figure 37: LDAP Contacts screen—Search Contact

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 38.

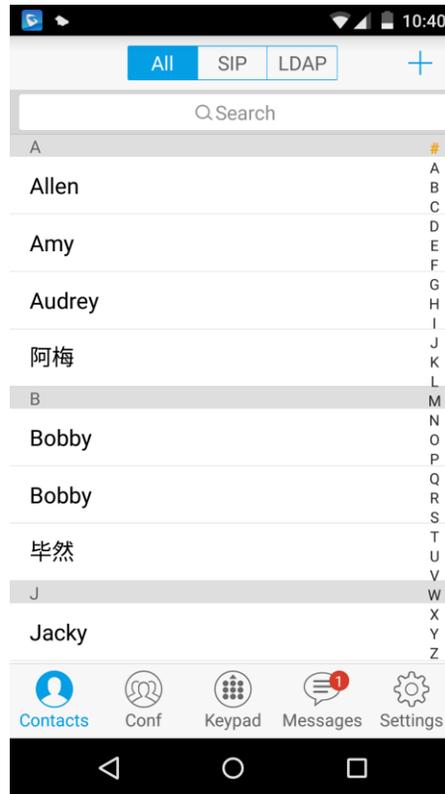


Figure 38: Call History

 Answered calls

 Dialed calls

 Missed calls

 Audio calls

 Video 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 39.

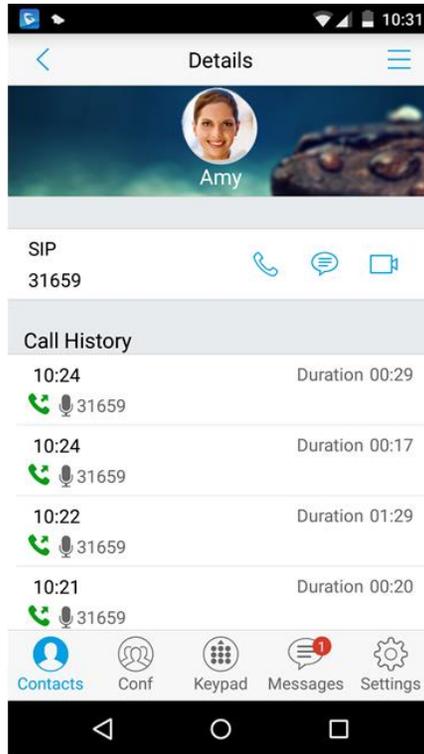


Figure 39: Call History Details Screen

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.

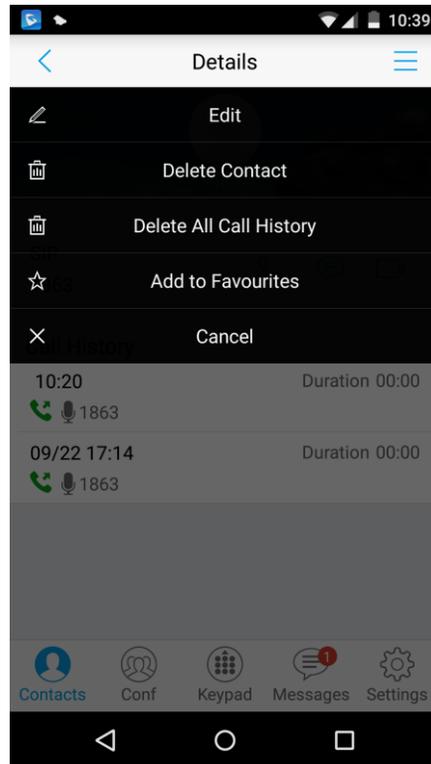


Figure 40: Call History Details Screen—Edit Contact

MESSAGES

Messages function allows users to send/receive messages. Tap on button  to access the Messages screen, as shown in figure 41.

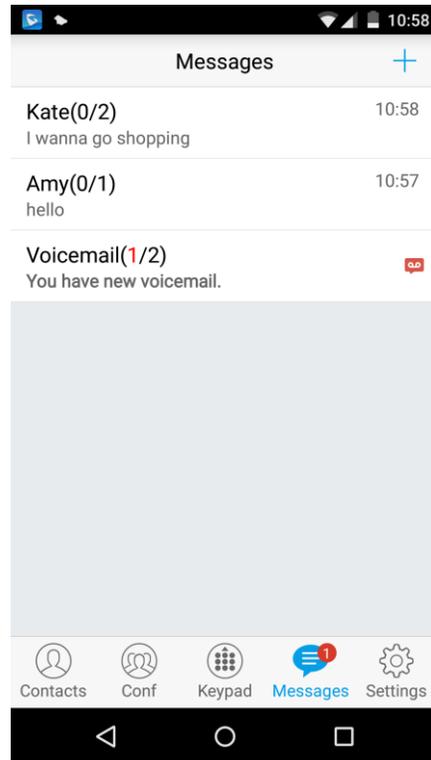


Figure 41: Messages Screen

 **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 42.

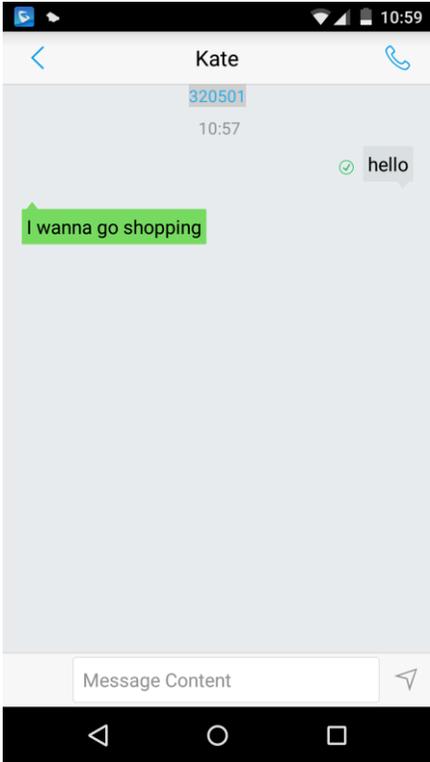


Figure 42: Message Details Screen

CREATE NEW MESSAGE

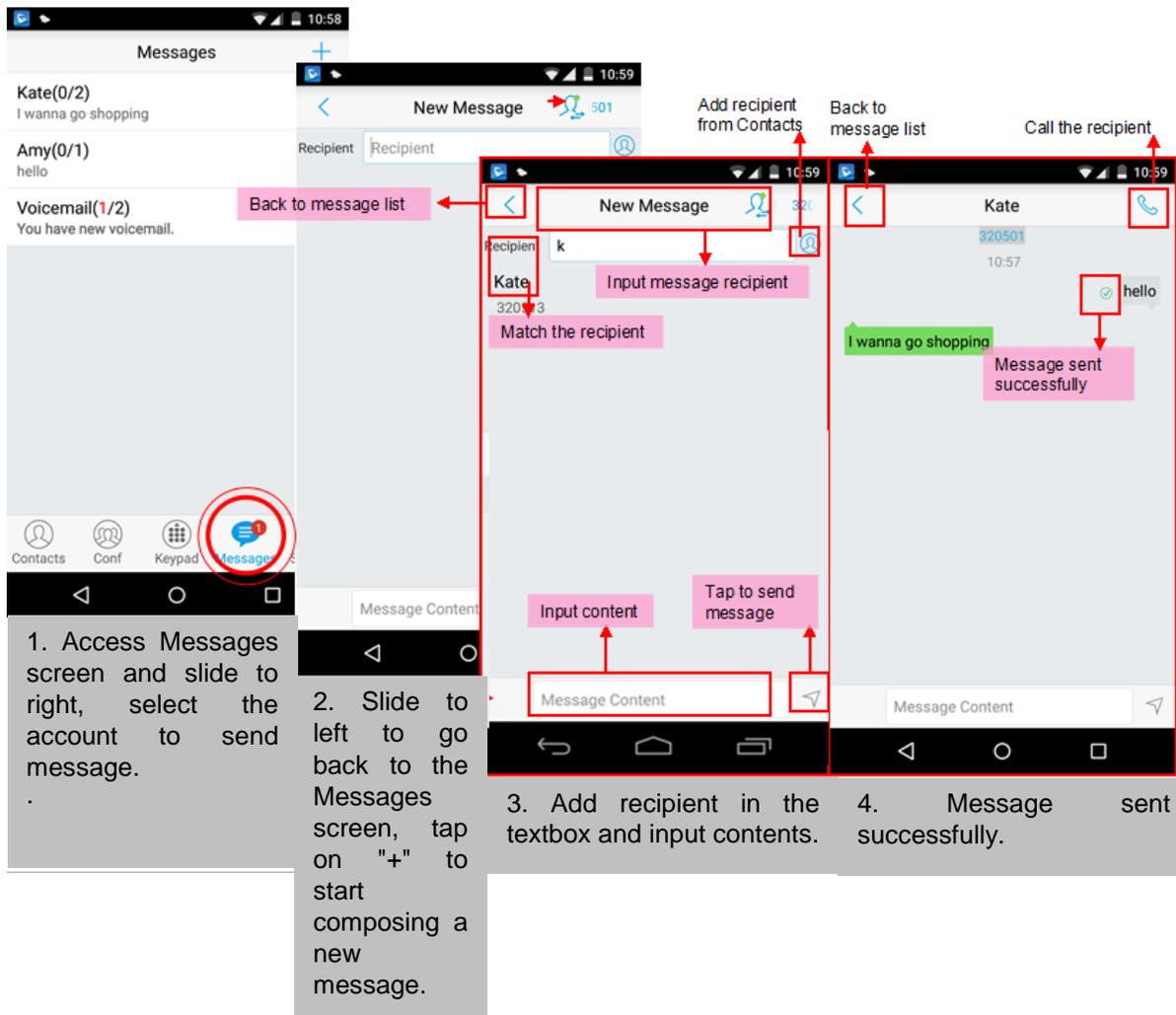


Figure 43: Create New Message

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 44.

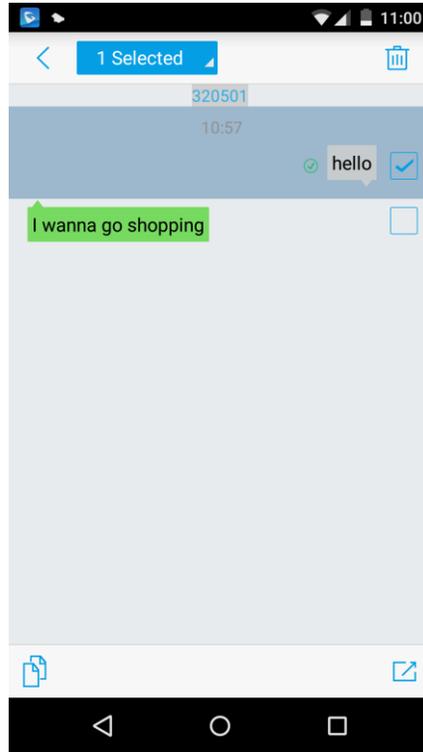


Figure 44: Message Screen—Edit Message



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 manual add account, as shown in figure 45.

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.

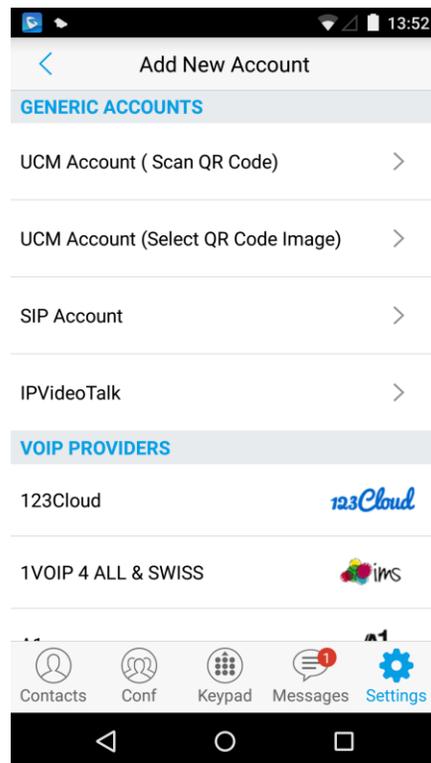


Figure 45: Add New Account Screen

UCM ACCOUNT (QR CODE SCAN)

To add account by QR code scan, please follow the steps below as shown in figure 46.

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.

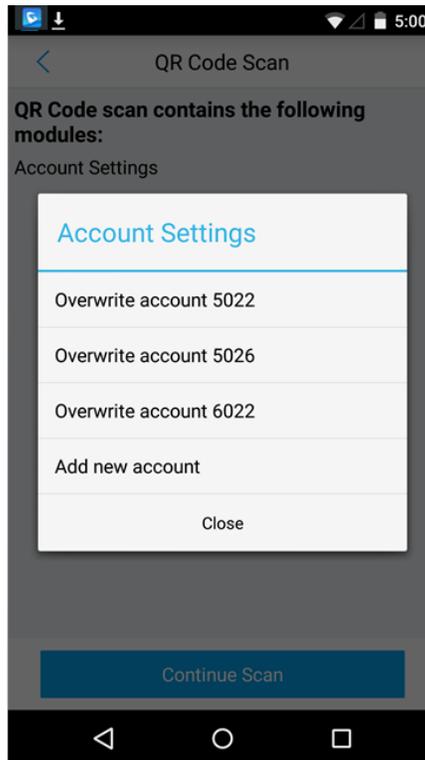


Figure 46: QR Code Scan Screen

 **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.

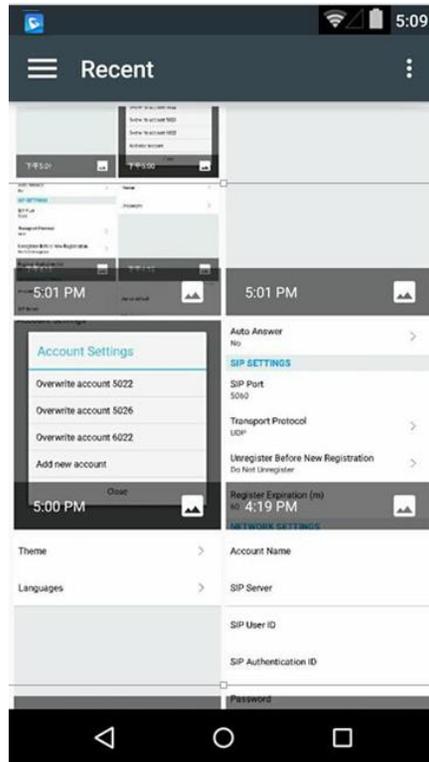


Figure 47: Scan QR Code Image Screen

 **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 activate 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 48 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.

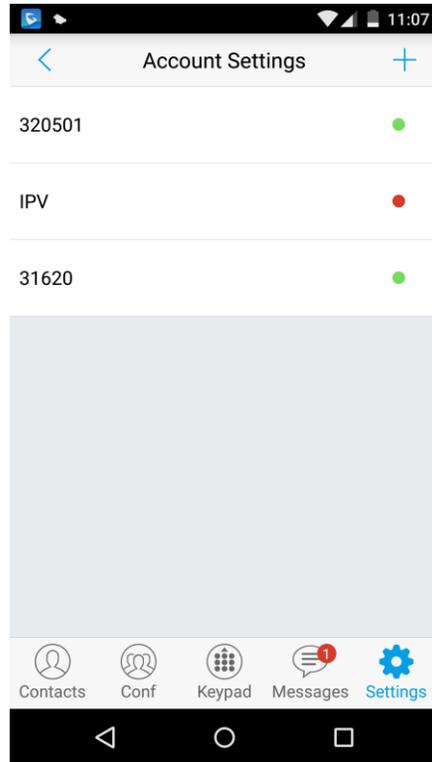


Figure 48: Account Settings Screen—Registration Success

Users could also slide left to delete this account as shown in figure 49.

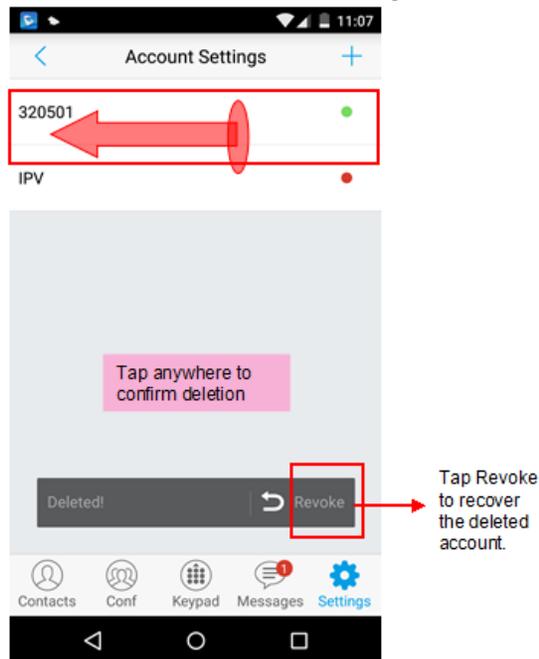


Figure 49: Slide to Delete Account

IPVIDEOTALK ACCOUNT

1. Tap on "IPVideoTalk Account" to access the screen as shown in figure 50 , tap on the button on the right of "Active Account" to activate the account;
2. Fill in Account Name and Email address;
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.

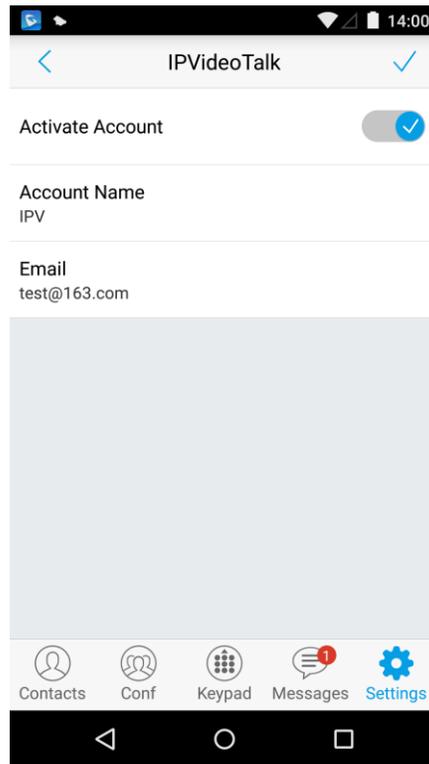
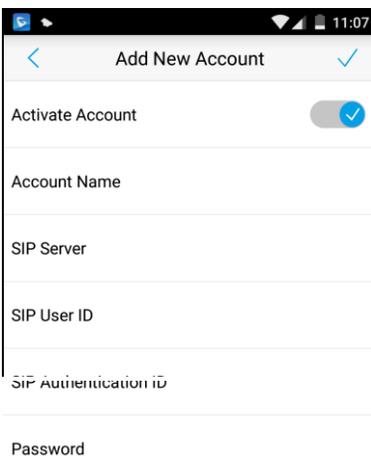
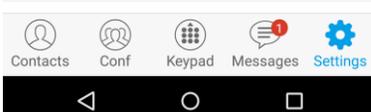


Figure 50: Add IPVideoTalk Account Screen

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.



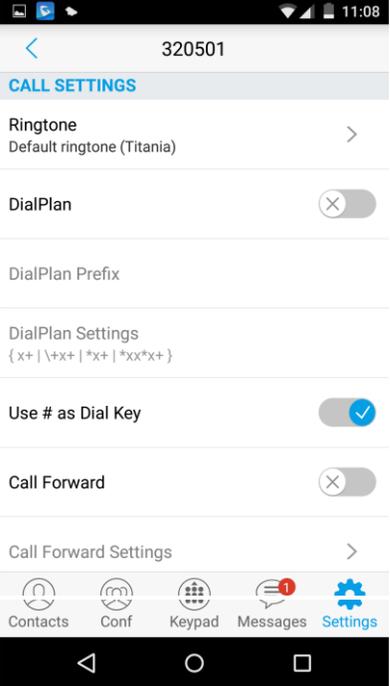
SIP Authentication ID	SIP service subscriber's Authenticate ID used for authentication. It can be identical to or different from the SIP User ID.
Password	The account password required for Grandstream Wave to authenticate with the ITSP (SIP) server before the account can be registered.
VoiceMail UserID	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

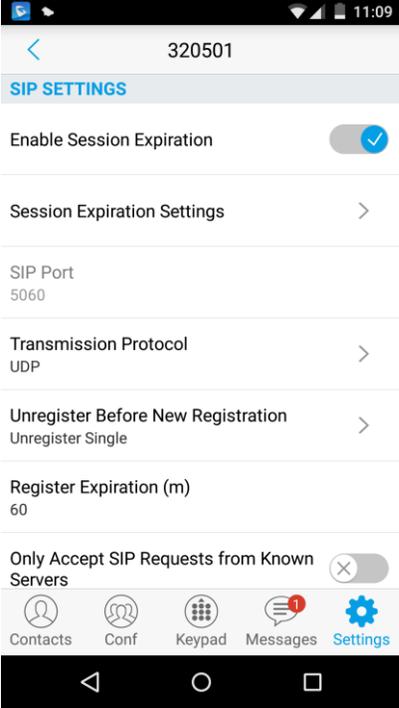
GENERAL SETTINGS		Activate Account	It is used to configure whether to activate account.
Activate Account	<input checked="" type="checkbox"/>	Set as Default	It is used to set this account as default.
Set as Default	<input checked="" type="checkbox"/>	Edit Account	It is used to configure the account parameters.
Edit Account	>	Delete Account	It is used to delete the current account.
Delete 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).

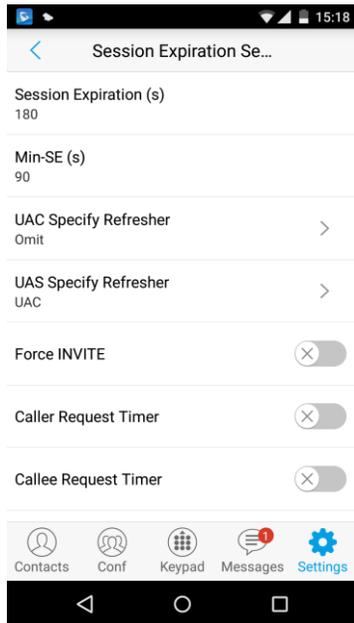
Auto Answer	It is used to configure auto answer mode. If set to "Yes", the phone will automatically turn on the speaker phone to answer incoming calls after a short reminding beep. If set to "Enable Intercom/Paging", it will answer the call based on the SIP info header sent from the server/proxy. The default setting is "No".
DialPlan Settings	<p>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.</p> <p>Dial Plan Rules:</p> <ol style="list-style-type: none"> 1. Accepted Digits: 1,2,3,4,5,6,7,8,9,0 , * , #; 2. Grammar: <ol style="list-style-type: none"> 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 <p>Example 1: <code>{{369}11 1617xxxxxxx}</code> Allow 311, 611, and 911 or any 10 digit numbers with leading digits 1617;</p> <p>Example 2: <code>{^1900x+ <=1617>xxxxxxx}</code> Block any number of leading digits 1900 or add prefix 1617 for any dialed 7 digit numbers;</p>

Table 5: Account Settings—SIP Settings Parameters

 <p>The screenshot shows the SIP Settings menu on a mobile device. The menu items are: Enable Session Expiration (checked), Session Expiration Settings, SIP Port (5060), Transmission Protocol (UDP), Unregister Before New Registration (Unregister Single), Register Expiration (m) (60), and Only Accept SIP Requests from Known Servers (unchecked). At the bottom, there are icons for Contacts, Conf, Keypad, Messages, and Settings.</p>	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	It is used to configure the relevant session expiration parameters. See table 6.
	SIP Port	It is used to define the local SIP port used to listen and transmit.
	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	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)	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).

Only Accept SIP Requests from Known Servers	Once enabled, only accept SIP request sent from known servers, the default setting is "Disable".
--	--

Table 6: Session Expiration Settings Parameters



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)	The minimum session expiration (in seconds). The default value is 90 seconds.
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. The default setting is "Omit".

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".

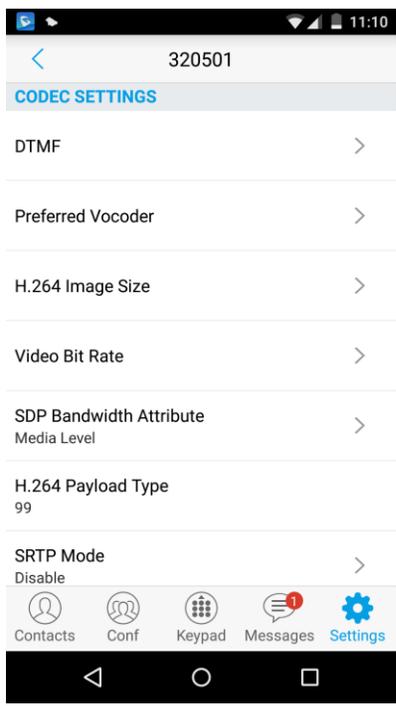
Table 7: Account Settings—Network Settings Parameters

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	IP address or Domain name of the Primary Outbound

	<p>Proxy</p> <p>Proxy, Media Gateway, or Session Border Controller.</p>
	<p>Secondary Outbound Proxy</p> <p>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.</p>
NAT Traversal	<p>This configuration is to enable or disable the NAT traversal mechanism. The default setting is "Keep-alive".</p> <ul style="list-style-type: none"> • 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	<p>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".</p>

Table 8: Account Settings—Codec Settings Parameters

 <p>The screenshot shows a mobile phone interface with a status bar at the top displaying signal strength, Wi-Fi, and battery icons, along with the time 11:10. Below the status bar is a navigation bar with a back arrow and the number 320501. The main content area is titled "CODEC SETTINGS" in blue. A list of settings is shown, each with a right-pointing chevron: "DTMF", "Preferred Vocoder", "H.264 Image Size", "Video Bit Rate", "SDP Bandwidth Attribute" (with "Media Level" below it), and "H.264 Payload Type" (with "99" below it). At the bottom, there is a section for "SRTP Mode" set to "Disable", and a row of icons for "Contacts", "Conf", "Keypad", "Messages", and "Settings". A bottom navigation bar contains back, home, and recent apps icons.</p>	<p>DTMF</p> <p>Users can choose different ringtones.</p> <p>This parameter specifies the mechanism to transmit DTMF digits. There are 3 supported modes:</p> <ul style="list-style-type: none"> • In audio, which means DTMF is combined in the audio signal (not very reliable with low-bit-rate codecs); • 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; • 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".
	<p>Preferred Vocoder</p> <p>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.</p>
	<p>H.264 Image Size</p> <p>Select the H.264 image size from "20P" ,"VGA" ,"CIF" ,"QVGA" or "QCIF".</p>
	<p>Video Bite Rate</p> <p>Configures the video bite rate of the video call. The default setting is 512kbps.</p>

SDP Bandwidth Attribute	<p>Select the SDP bandwidth attribute from "Standard" , "Media Level" , "Session Level" or "None".</p> <ul style="list-style-type: none"> • Standard: Use AS at the session level and TIAS at the media level. • Media Level: Use AS at the media level. This is the default setting. • Session Level: Use AS at the session level. • None: Don not change the format. Please do not change the format or it may cause decode failure if unclear about what format the server supports.
H.264 Payload Type	Enter H.264 codec payload type. The valid range is from 96 to 127. The default value is 99.
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		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.
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		Vibrate When Ringing	It is used to configure whether to vibrate when 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		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 51 and figure 52.

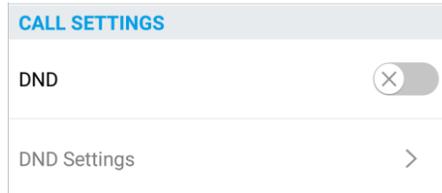


Figure 51: Call Settings Screen

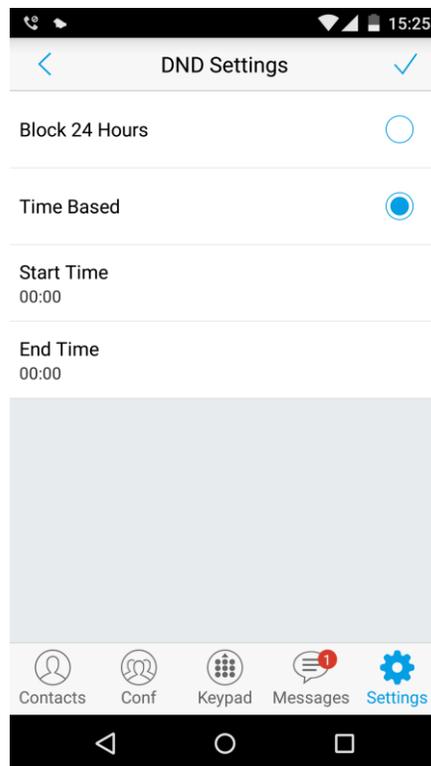


Figure 52: DND Settings Screen



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	Grandstream Wave provides users with multiple noise reduction levels, as shown in figure 53. Choose
Noise Reduction Level Middle	>		
Output Gain 0 db	>		

Level	the level according to the specific environment.
Output Gain	It is used to adjust the output volume of Grandstream Wave as shown in figure 54.

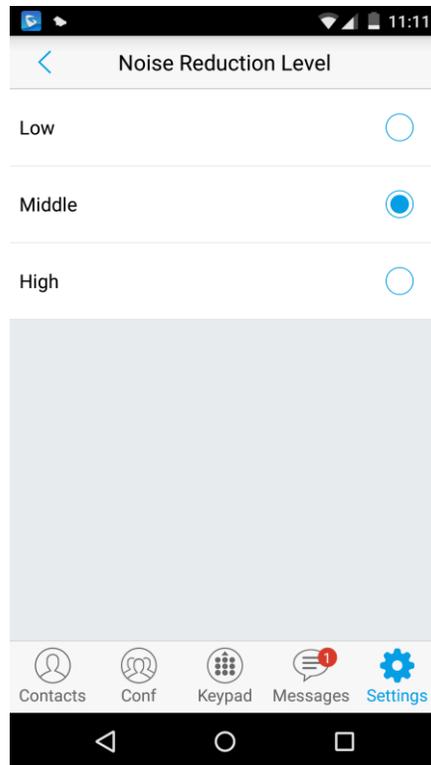


Figure 53: Reducing Noise Settings Screen

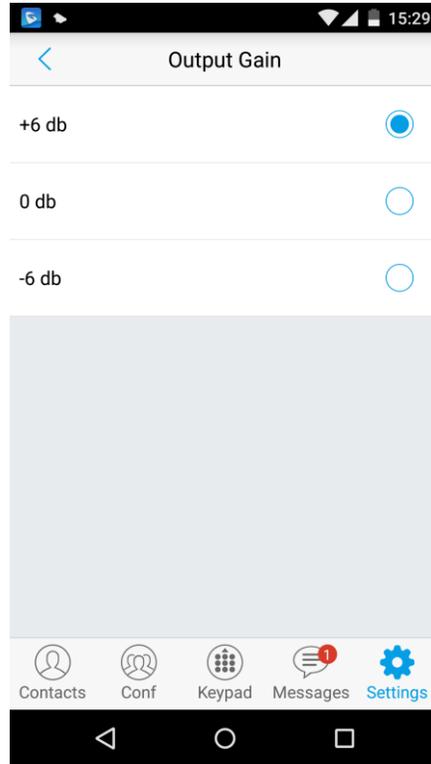


Figure 54: Output Gain Screen

NETWORK SETTINGS

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

Table 11: Advanced Settings—Network Settings Parameters

NETWORK SETTINGS	Network	Users could use Grandstream Wave in 2G/3G/4G/WiFi.
Network >	Only Use This WiFi to Register Account	In the WiFi environment, only register account with this specified connected WiFi.
Only Use This WiFi to Register Account <input type="checkbox"/>	STUN Server Settings	The IP address or URL of the STUN server. Only non-symmetric NAT routers work with STUN.
STUN Server Settings stun.ipvideotalk.com	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.
QoS Settings >	Random Port	When set to "Yes", this parameter will force random generation of both the local SIP and RTP ports. This is usually necessary when multiple phones are behind the same full cone NAT. The default setting is "Yes".
Random Port <input checked="" type="checkbox"/>		

ADDITIONAL SETTINGS

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

Table 12: Advanced Settings—Additional Settings Parameters

ADDITIONAL SETTINGS	
Config Server Path fm.grandstream.com/gs	
Export Configuration Export path:/sdcard/GSWave/config	
LDAP Settings >	
BLF <input checked="" type="checkbox"/>	
BLF List >	

Config Server Path	It is used to define IP address or URL for the server. Grandstream 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)	<p>If enabled, Grandstream Wave will detect the status of the Contacts in the BLF list.</p> <p>There are 3 statuses.</p> <ul style="list-style-type: none">  : Offline. The contact is not online or unregistered.  : Busy. The contact is in an active call.  : Online. The contact is in idle. <p>NOTE: The server should support BLF function if enable BLF.</p>
BLF List	It is used to add members and display the online status. Users could view the online status in the SIP Contacts, as shown in figure 55.

LDAP Settings	<p>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.</p> <ul style="list-style-type: none"> • 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 56.
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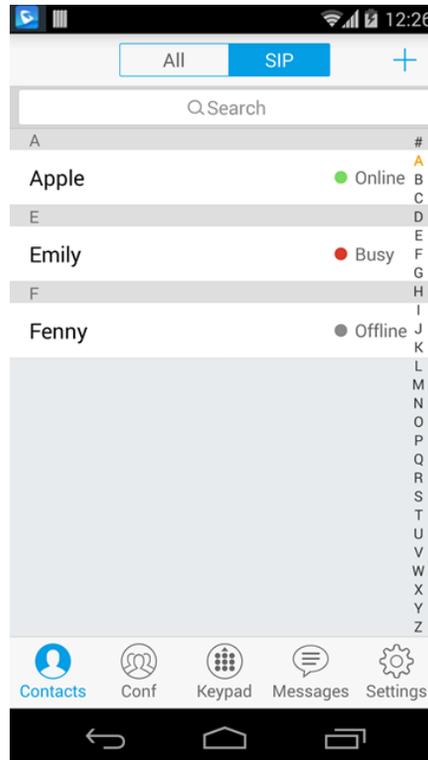


Figure 55: BLF List Screen

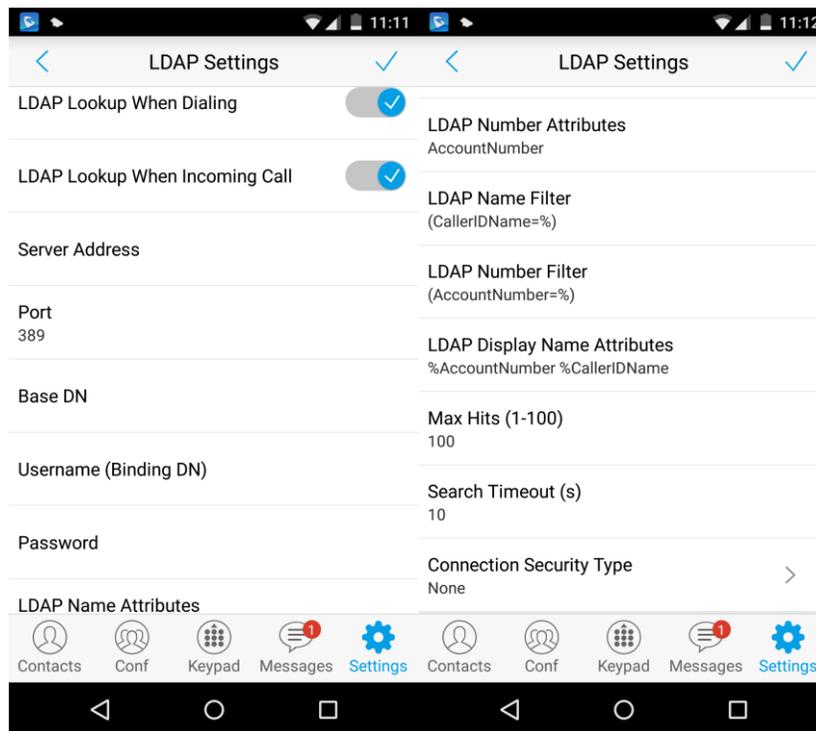


Figure 56: LDAP Settings Screen

Table 13: LDAP Settings Parameters

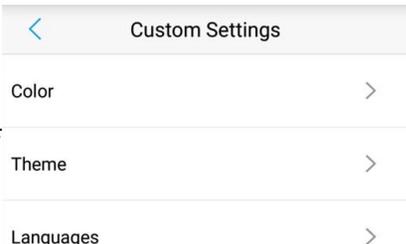
LDAP Lookup When Dialing	It is used to define whether to search LDAP when dialing. The default
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	setting is "Yes".
LDAP Lookup When Incoming Call	It is used to define to search LDAP when there is an incoming call. The default setting is "Yes".
Server 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 "telephoneNumber" 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 (s)	Set the search requests much time no response, no longer to search. The default setting is 10.
Connection Security Type	This setting configures LDAP connection security mode, users could choose None or SSL. The default setting is "None".

CUSTOM SETTINGS

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

Table 14: Custom Settings Parameters

	<p>Color</p> <p>It is used to configure the color of default, icon, title bar and navigation bar.</p>
<p>Color ></p>	
<p>Theme ></p>	
<p>Languages ></p>	

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

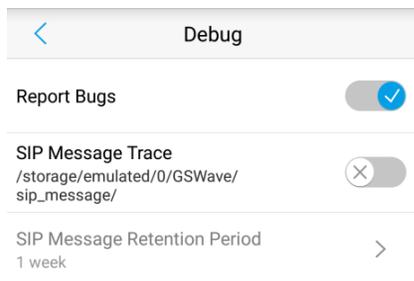
ABOUT

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 in the Grandstream Wave?

For first-time users, users have to confirm whether allow Grandstream Wave to access the Contacts. If allows, you could view local contacts on Grandstream Wave; if not, you are unable to add new SIP contact.

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  on the upper right corner of the 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.