



Communicator for Android Tablet

User Guide

Release 22.2.1

Document Version 1

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Communicator Guide

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1 Summary of Changes

This section describes the changes to this document for each release and document version.

1.1 Changes for Release 22.2.1, Document Version 1

This version of the document includes the following change:

- Updated section [3.2 Sign In](#) to indicate support for Single Sign-On (SSO).

1.2 Changes for Release 22.1.1, Document Version 1

This version of the document includes the following changes:

- Added [Appendix A: Third Party Software](#).
- Added section [8.16 Seamless Call Handover for VoIP Calls](#).

1.3 Changes for Release 22.0.1, Document Version 1

This version of the document includes the following changes:

- Updated images.
- Added description for *About* screen.
- Updated Availability information.

1.4 Changes for Release 21.2.1, Document Version 1

This version of the document includes the following changes:

- Added description for sort and display order.
- Added section [5.1 Contact Card](#).
- Updated section [8.13 Call Pull](#).

1.5 Changes for Release 21.1.1, Document Version 1

This version of the document includes the following changes:

- Added information about dialing in to a contact's *My Room* audio bridge.
- Added information to change the Avatar.
- Added section [15 Push Notifications for Calls](#).
- Added information about Clear History.
- Added section [11.1 Guest Client](#).

1.6 Changes for Release 21.0.1, Document Version 1

This version of the document includes the following changes:

- Added section [16.6 Emergency Call Address Change Service](#).
- Added section [10.3.33 Device ID](#) for Lock Device feature.
- Added information about multiple vibrations in silent mode.
- Added section [8.15 Swipe between Chat, Audio/Video, and Screen Share Communication Views](#).

- Added more participants to Video call or N-Way video.
- Added section [13 Screen Share](#).

1.7 Changes for Release 20.0.0, Document Version 1

This document was created for Release 20.0.0.

2 About Communicator for Android Tablet

Communicator for Android Tablet provides the following communication features:

- Instant Messaging and Presence (IM&P)
- Voice Calling (VoIP)
- Video Calling
- BroadWorks Call Settings

3 Get Started

This section contains the essential information for getting started with Communicator.

3.1 Install

Android Tablet clients can be downloaded from Google Play.

3.2 Sign In

When you first launch the application, you are prompted to sign in.

- 1) If displayed, enter the device configuration address (Uniform Resource Identifier [URI]) provided by your service provider.
- 2) Enter your BroadWorks user name and password.
- 3) Select whether you would like Communicator to remember your password.
- 4) Select whether you would like Communicator to sign you in automatically on subsequent launches.
- 5) Tap **Sign In**.

NOTE: If you choose automatic sign in, you are automatically signed in and taken to the *Contacts* list upon subsequent Communicator launches. Otherwise, you are presented with the *Sign In* screen.

A pop-up dialog about emergency calls and an option to update your emergency location may appear on the *Sign In* screen. Depending on your service provider settings, the client may provide basic or advanced sign-in for updating the physical location.

With basic sign-in, there are three options on the emergency call pop-up:

- Update location – Opens a web browser where the user can set the location. When the location is set, the user can return to the client to sign in.
- Ok – Sign-in completes and the user can use the client.
- Cancel – Sign-in is canceled and the user is returned in the *Sign In* screen.

With advanced sign-in, there are two options:

- Update location – Opens a web browser where the user can set the location. When the location is set, the user returns to the client manually. If the location is updated successfully, sign-in completes and the user can use the client.
- Cancel – Sign-in is canceled and the user is returned to the *Sign In* screen.

Depending on your service provider settings, the client may have a link for *Forgot Password* on the login dialog box allowing retrieval of forgotten password. The functionality for retrieving the password is provided by the service provider.

Starting with Communicator Android Release 22.2.1 and iOS Release 22.3.1, the solution supports Single Sign-On (SSO) using an external identity provider (IdP) if supported by the service provider. This initial release supports OKTA SAML 2.0 as identity provider. When using an external IdP, users are redirected to the corresponding authentication page in an external browser. After successful authentication, users are returned to Communicator and signed in.

4 Main Tabs

When you start Communicator for the first time, your *Contacts* list is empty. Use the *search* field to find people and add them to your *Contacts* list. Contacts can also be added manually by tapping the **Add** button.

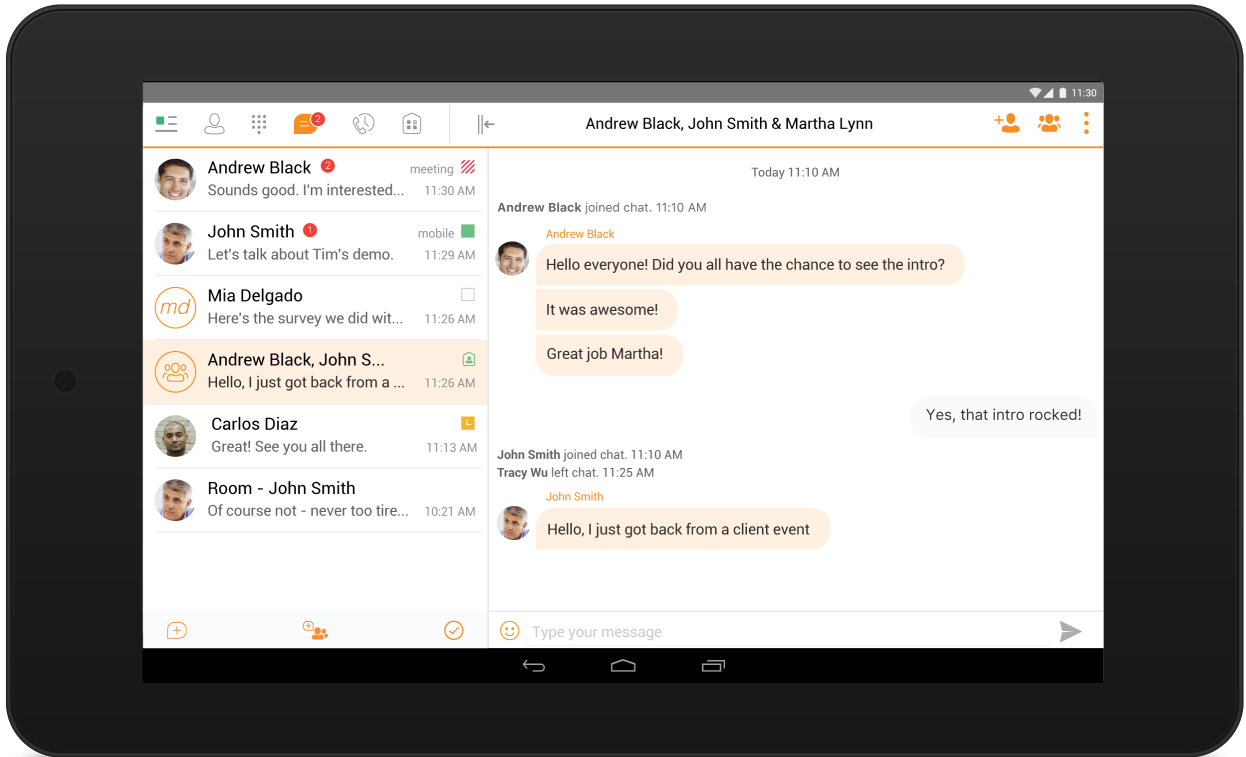


Figure 1 Main View

Icon	Description
	Contacts – View your contacts from a <i>Buddies</i> list, or a local or company directory.
	Chat – View Chat History.
	Dial Pad – Make calls.
	History – View incoming, outgoing, and missed calls.
	My Room – Join your personal room.

The main view contains a number of tabs that present information about the contacts and communications options located on the top bar:

- *Contacts*
- *Dial Pad*
- *Chat*
- *History*
- *My Room*

NOTE: Settings are available from the side navigation menu.

5 Contacts

The *Contacts* list in the *Contacts* tab can contain different types of contacts as follows:

- Presence-enabled contacts
- Non-presence-enabled contacts

Any contact can be marked as a favorite and it appears at the top of the *Contacts* list in the *Favorites* section.

Presence-enabled contacts are users with an Extensible Messaging and Presence Protocol (XMPP) address. These can be other Communicator users or users from federated systems such as Google Talk. Non-presence-enabled contacts can be phone or conference numbers. These are also stored on the server and available on all client instances of the user.

Contacts can also be organized in Groups.

The *Contacts* tab contains the following:

- UC-One Contacts
 - All
 - Online
- Contact Directories
 - Local Address Book
 - Directory

Local Address Book provides contacts from the local contacts. Directory provides contacts from the company directory.

5.1 Contact Card

The contact card displays information about a contact based on the contact type. This includes Communicator contacts, Local Address Book contacts, and contacts from directory search results.

The user can initiate a call or chat session directly from the contact card. This includes joining other contact's My Room or dialing a My Room audio bridge from a directory contact search result.

If the contact has an associated email address, then the application supports sending an email to the contact by launching the native email client on the mobile device.

5.2 Add Contacts

When you sign in for the first time, there are no contacts on your *Contacts* list. Add a new presence-enabled contact at any time by selecting the option *Add Contact* from the plus icon in the left bottom bar. Another way to add new contacts is to use the directory search option from the *Contacts* tab.

In the *Add Contact* screen, enter the contact's information and then select **OK**. By default, your presence information is always shared with a new contact if an XMPP address is provided.

If you receive a buddy request, you can decline or accept it. If you decline the buddy request, you can always share your presence information later by selecting *Subscribe* from the buddy contact card. Note that the contact must accept your subscription request for you to establish the presence relationship successfully.

Add a conference number by selecting the option *Add Conference* from the plus icon in the left bottom bar. In the *Add Conference* screen, enter the conference information and then select **OK**. A conference contact is a special contact used for conference bridges to avoid having to remember a PIN code and a conference number, for example, for a recurring conference.

Add a local contact by selecting the *Add Local Contact* option using the plus icon in the left bottom bar. The *Add Local Contact* option opens the native Address Book for adding a new contact in the local phone book.

Add a group in the *Contacts* list by selecting *Add Group* using the plus icon in the left bottom bar. Type a group name, select contacts that you want to be in the group, and then select **Done**.

5.3 Edit

Tap a contact from the *Contacts* list to open a contact card. This is the same for presence-enable and non-presence-enabled contacts.

- Select *Edit* from action overflow button to open the *Contact Information* dialog box where you can edit information. This works for both presence-enabled and non-presence-enabled contacts.
- Select *Unsubscribe* from action overflow button to remove the presence relationship between you and that contact. This means you do not see the contact's presence information and your contact does not see yours. Select *Subscribe* to re-establish a presence relationship. An unsubscribed contact remains on the *Contacts* list and is always shown as "offline".
- Select *Remove* from action overflow button to remove the contact from your *Contacts* list.

5.4 Filters

There are four contact filters available from the *Contacts* tab:

- *All* – Shows all Presence-enabled and Non-presence-enabled contacts.
- *Online* – Shows only the presence-enabled contacts that are currently online.
- *Local Address Book* – Shows the contacts from your local phone book.
- *Directory* – Shows the contacts from a company directory (which requires a search).

5.5 Sort and Display Order

The following options in *Preferences* control how contacts are displayed:

- *Display by* – display First name or Last name first.
- *Sort by* – sort by First name or Last name.
- *Short name format* – format of the name to be used in chat lists.

NOTE: Asian names – Chinese, Japanese, and Korean (CJK)











On Android, Asian names (CJK) are not dependent on the preceding settings. Asian names are always sorted by Last name and displayed with the Last name first. For Asian names, the short name format is always the full name.

6 Availability

For each contact to which you have subscribed, you can see their availability. Similarly, your contacts can see your availability on their *Contacts* list.

NOTE: *Availability* can also be referred to as *presence status*, which was the term used in previous releases of Communicator.

Availability means that your friends are able to see if you are available, for example, “I’m available” or “I’m busy”.

Icon	What it means
 available	The green availability icon indicates that the user is online and is ready for communication.
 mobile	The green availability icon indicates that the user is online on the Communicator mobile client and is ready for communication. The icon is accompanied by the text “mobile”.
 away	The yellow availability icon indicates that the user is online on their Communicator client but has been idle or away from their computer for more than 10 minutes.
 mobile	The yellow availability icon indicates that the user is online on their Communicator mobile client but has been idle or away from their mobile device for more than 10 minutes.
 offline	The grey availability icon indicates that the user is offline in a call and the only available contact method is calling or leaving a chat message.
 call	The grey availability icon indicates that the user is offline and the only available contact method is calling or leaving a chat message.
 pending	The question mark indicates that a subscription is pending and the contact has not yet approved sharing their availability.
 busy	The red availability icon indicates that the user is busy and does not want to be disturbed.
 call	This icon indicates that the contact is busy due to a call. This is an automated availability status.
 meeting	This icon indicates that the contact is busy due to a meeting. This is an automated availability status. The Busy – In Call status overrides the Busy – In Meeting status so this icon is only seen when there is a meeting but no call.

You can set your own availability by tapping on the availability icon from the status bar in all tabs view. Tapping the availability icon opens the *My Status* screen where you can change your avatar, personal message, and availability status.

Your avatar is the picture that represents you in your friends’ *Contacts* list and in chat screens. Tapping on an avatar opens a dialog with options to select an existing image, to take a new one with your phone camera, or to clear your avatar.

You can enter a status message in the area next to the avatar. This status text is shown in your friends’ *Contacts* list.

If you see the error message, “Chat Unavailable”, under any tab, it means that the XMPP connectivity has been lost for chat and availability; however, you can still make calls. In this case, you should contact your service provider.

The availability update is only triggered by appointments and meetings that are either accepted by the user or made by them. Note that all-day meetings do not trigger an availability change to *Busy – In Meeting*.

7 Instant Messaging

7.1 Chat Tab

Chat shows the list of recent chats since the last login. If User A chats with User B multiple times, their discussions appear as one item in the list.

Tapping the name from the *Chat* list opens the *Chat* view (IM view) in the right pane where new messages can be typed. Old messages are also shown.

New incoming messages are indicated with a notification badge to the right of the name. The icon remains next to the name until the message is read.

Chats are listed so that the newest one is always at the top. Chats are not in alphabetical order and are always listed with the most recent first.

Tapping the **Make all as Read** icon in the navigation bottom bar removes all notification badges from the *Chat History* list. Tapping the **Start Group Chat** icon opens the list of users to select for starting a group chat.

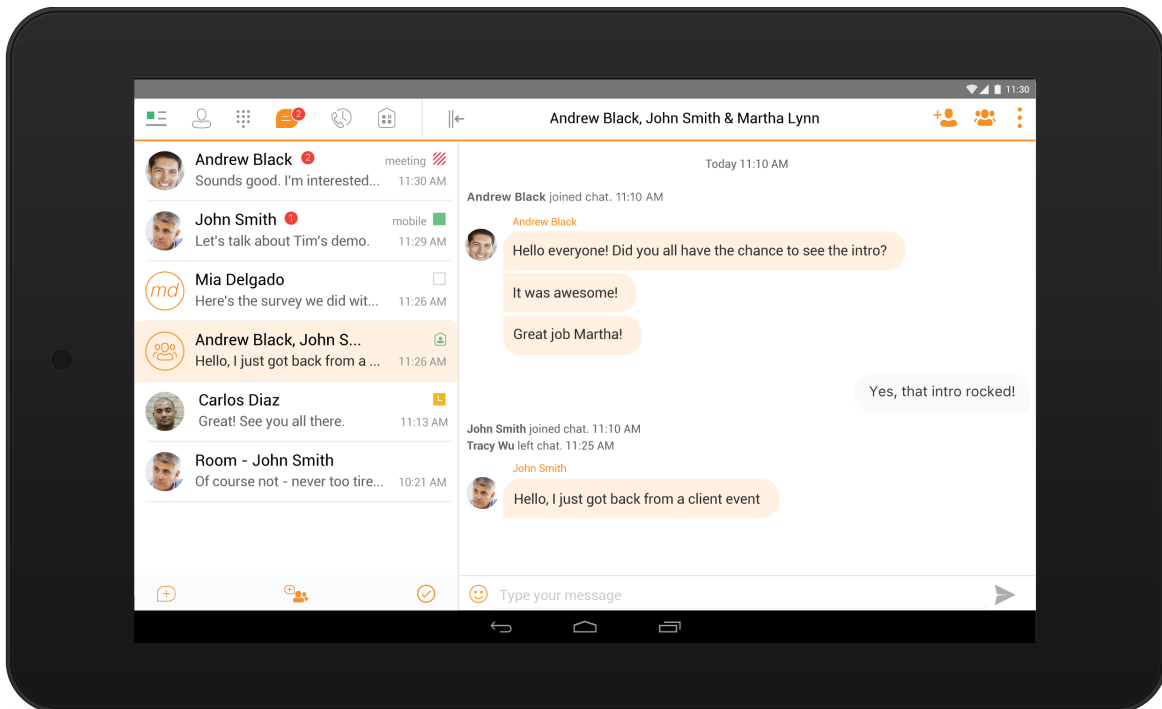




Figure 2 Instant Messaging

7.2 Chat

Start a chat using one of the following methods:

- Tap a contact from the *Contacts* list to open a contact card. From the contact card, choose the chat icon to start a chat.
- From the options provided after a long press on a contact.
- In the *Chat History* list, tap a contact entry to start a chat.
- From left bottom bar in Chat tab, select the *start new* chat icon.
- From search results, tap a contact to open the contact card and then choose the chat icon.

When you initiate a chat, the *Chat* view opens in the right pane. To open chat in full screen, tap the collapse icon  to hide the left pane. Selecting any tab from the tab bar or tapping on the expand icon  opens the left pane view. Chatting with a contact is possible only when you are both online. If your contact initiates a chat, you see a notification badge on the *Chat* tab and the entry appears on the top of *Chat History* list.

When the chat opens, the name of the recipient is on the top bar and there is a presence icon flag before the name. The recipient messages are presented in the orange background and the user is presented in white background.

A smiley can be added to a message by typing the corresponding character codes or by selecting a smiley icon (the smiley is displayed graphically in the message area).

The text input field in *Chat* uses auto-correct, auto-cap, and spell check based on system settings. Use the system settings to enable or disable these features.

7.3 Group Chat (Ad Hoc Rooms)

Start a group chat using one of the following methods:

- In single chat session, tap the add participant icon to escalate from a single to a group chat.
- From left bottom bar in the *Chat* tab, select the *Start Group Chat* icon.
- In the *Chat History* list, tap a group communication entry to start a group chat.

When you initiate a group chat, the *Chat* screen opens. More participants can be added later to the chat using the add participant icon. Anyone in the group chat can add participants. The owner can dismiss participants from participant's list options.

A group chat works the same way as a one-on-one chat. All messages from anyone are sent to everyone else. All contacts must be online to be able to participate in a group chat.

A Group Chat History is saved and is available to view later from the *Chat* tab.

A user can leave a group chat by selecting the *Leave chat* option from action overflow menu. The chat is marked as "offline" and the user no longer receives messages from the chat. When tapping on the "offline" chat, the user re-joins the room and starts receiving messages. However, the user does not receive the messages that were sent in the chat while the user was outside of the room.

The *Clear History* menu item behaves the same way as the corresponding option in the one-on-one chat and removes the local history.

The **View Participants** button opens a dialog that shows the list of participants in the group chat.

Note that deleting a chat room is supported.

8 Audio and Video Calls

8.1 Dial Pad Tab

The *Dial Pad* tab displays a dial pad and a text field used to enter numbers. The dial pad is one of the options used to make audio or video calls. There are three buttons below the dial pad: *Call*, *Video call*, and *Dial Pad* menu that are configurable by the service provider. The top text field also has a delete button that, when pressed, deletes one character at a time.

A badge notification appears on the *Dial Pad* tab when there are messages in the voice mail box. The voice mail icon under digit one becomes orange when there are voice mail messages. A long press on digit one connects you with your voice mail box. When there are no voice mail messages in your voice mail box the icon is grey.

The dial pad menu contains two options: *Pull call* and *Retrieve call*.

8.2 Make Audio or Video Calls

You can make an audio or video call using one of the following methods:

- Choose a contact from the contact list to open the contact card and tap on the headset icon for an audio call or the video icon for a video call.
- From search results, open a contact card and tap on the headset icon for an audio call or the video icon for a video call.
- Open the dial pad, enter a phone number, and then tap the **Call** or **Video** button.
- On the *Call History* list, tap a call entry.
- On the *Chat* screen, tap the headset icon for an audio call or the video icon for a video call.

8.3 Answer Call

An incoming call is indicated with a ringtone. There are two options on the *Incoming Call* screen: *Accept* and *Decline*. If you decline the call, it causes the line to sound busy at the caller's end and they know that you rejected the call.

8.4 In Call Actions

You can perform the following actions from the *In Call* screen:

- End a call
- Mute the microphone
- Open the key pad
- Adjust the volume
- Escalate from an audio to video call
- Downgrade from a video to audio call
- Place a call on hold
- Make a new call
- Transfer a call – Attended
- Transfer a call – Unattended
- Make a conference

- Transfer a call to a circuit-switched call
- Add more participants (on conference call only)
- Merge two separate calls
- Swap two separate calls
- View participants (on a conference call)

8.5 Missed Calls and New Messages

Notifications (for example, for missed calls or new messages) are shown as badges on the tab icons.

8.6 Message Waiting Indicator and Voice Mail Access

If you have pending voice mail messages, then the notification bar on the Android device displays an icon and the message, “You have XX pending voice mail messages”. By tapping the voice mail notification, the application dials the voice mail access number directly and you can listen to the voice mail messages.

Voice mail is also accessible with a long press of the dial pad “1” key (similar to how it is on a regular mobile dial pad). If voice mail messages are available, then the “1” key changes color. In addition, a voice mail notification is displayed as a badge on the *Call* tab icon.

The number for new voice mails changes depending on how many are open or are new. The voice mail icon in the notification area has an associated badge that shows the number of new messages.

8.7 Business Line Call Back

Communicator allows you to originate a call using your desk phone or another configured phone or device. This is done using the Call Back functionality on BroadWorks.

When you select Call Back, your other devices ring based on your service provider configuration.

8.8 Contact Name Lookup for Incoming Calls and Call Logs

When receiving a call, Communicator searches for the name in the following sources and in the following order: XMPP contact name, Enterprise directories, Local Contact, *P-Identifier* header (SIP), and *From* header (SIP). If the number matches one of the contacts, the name is shown on the *Incoming Call* screen.

8.9 N-Way Calling (Conference)

Communicator Mobile supports network SIP-based conference calls. While on a two-way audio or video call, you can add more participants by using the **Conference** button.

Communicator opens the address book on the device to search for and select the new participant. Once the conference is established, the participants are shown on the *Device* screen.

The other way to create conference call or to add participants in an existing conference is to make a *new* second call and select the *merge* option.

8.10 Call Waiting

You can have one active call at any one time if you receive a new incoming call and accept it. There is a dedicated Swap button. Also, tapping a call from the left-side list does the same.

8.11 New Call

The client supports starting a new call while in an ongoing call. To establish a call tap on a *new call* button or choose one of the options in section [8.2 Make Audio or Video Calls](#). After the new call is established, the first call is put on hold. You can swap the two calls or merge them into a conference.

8.12 Call Transfer

The client supports transferring VoIP calls to another party. Two modes of transfer are supported:

- *Attended Transfer* – Establish a call with remote party. Select a contact then choose a number. Select the *call first* option. If the call is successfully established, you can talk with the third party privately before completing the transfer by pressing the **complete** button.
- *Unattended Transfer* – Establish a call with remote party. Select a contact then choose a number. Select the *Transfer* option and the transfer is completed.

8.13 Call Pull

Call Pull can be used in scenarios where a user has two endpoints, for example, a VoIP desk phone and a mobile phone with Communicator. If the user has an active call on the desk phone, this call can be transferred seamlessly to the mobile phone via the Call Pull button. Depending on the application, dialing settings, and service configuration, the call can be pulled as a VoIP or circuit-switched call to the mobile phone. There is no interruption to the voice call.

Call Pull button pulls audio only. The user can pull video calls directly by dialing the feature access code *11 and then selecting the video call button.

8.14 Call Park

The Call Park service allows a “parking” user to park a call against a “parked against” extension. The “parked” user is placed on hold until a user retrieves the parked call. If the call is not retrieved within the provisioned recall time, then the parked call is reverted and presented to the “recall” user.

8.15 Swipe Between Chat, Audio/Video, and Screen Share Communication Views

Communicator provides the ability to switch between Chat and Audio/Video communications sessions for own My Room, other users’ My Room, or two-way chat. The ability to switch between sessions is indicated by the presence of dots at the bottom of the screen. The user can perform a swipe to switch between the sessions.

8.16 Seamless Call Handover for VoIP Calls

Starting with Release 22.1, Communicator for Android Mobile and Tablet clients support seamless call handover for VoIP calls between WiFi and cellular data networks.

If the data connection drops during an ongoing VoIP call, then the application tries to use another data connection, if available, or waits for a configurable period of time, (for example, one minute) for the data connection to be re-established. At that point, the call is retried on the new or re-established connection.

During the transition, there is a beeping sound played to the user and an indication in the user interface that the application is trying to reconnect the call.

Note that if a user has multiple ongoing calls, only the active calls are retrieved after restoring the data connection and the other calls are terminated. In which case, the user is notified about the terminated calls.

A typical use case is when a call is started on a WiFi network in the office and the user leaves the office while on the call. In this case, the call is transferred to the 4G/LTE data network, if one is available.

Another use case is when the device loses data coverage for a brief period of time while the user is on a VoIP call (for example, the user enters an elevator). In this case, the call is recovered when the data connection is re-established, provided it is within the configurable period of time, which is typically one minute.

9 Call History

Call History can be accessed from the *History* tab. Communicator saves a call history for placed, received, and missed calls.

On the list of calls, there are icons indicating whether a call was incoming, outgoing, or missed.

The list of the call items consists of an icon showing what kind of call it was (a green arrow means incoming, a blue arrow means outgoing, and a red arrow means missed). It also shows the name, number, *Unavailable* status for the caller, and below the name, it shows the number, if available. To the right, is the date of the call and the time the call was initiated.

Call History makes it easy for you to redial and call back when you miss a call or when you want to dial a contact with whom you have recently spoken.

10 Side Navigation

The side navigation contains the following items:

- My status
- Call settings
- Preferences
- Test call
- About
- Help
- Sign out

10.1 My Status

You can set your own availability status by tapping on your personal status from the side navigation. It opens the *My Status* screen where you can change your avatar, personal message, and status.

NOTE: *Availability* can also be referred to as *presence status*, which was the term used in previous releases of Communicator.

Your avatar is the picture that represents you in your friends' *Contacts* lists and in chat screens. Tapping on an avatar opens a dialog with options to select an existing image, to take a new one with your device's camera, or to clear your avatar.

NOTE: In order to set an avatar when Communicator is working inside an Android for Work profile, a camera application inside the Work profile should be installed on the device. The system administrator should provision such an application for the given Work profile and the user should install it prior to initiating an avatar change action.

You can enter a status message into the area next to the avatar. This status text is shown in your friends' *Contacts* lists.

If you see the error message "Chat Unavailable" under any tab, it means that XMPP connectivity has been lost for chat and presence; however, you can still make calls. In this case, you should contact your service provider.

10.2 Call Settings

The client supports the following BroadWorks service management features, allowing BroadWorks supplementary services to be turned on or off using the native client *Preferences* window:

- Do Not Disturb
- Always forward
- Forward when busy
- Forward when no answer
- Forward when not reachable

- Remote Office
- Block my caller ID
- BroadWorks Anywhere
- Dialing service
- VoIP calls
- Simultaneous Ring
- This phone number

10.2.1 Do Not Disturb

When you activate this service, all calls are typically blocked by the server and sent to voice mail.

10.2.2 Call Forwarding

By tapping on a different *Call Forward* option, you can enter a number to forward your calls as follows: Call Forward Always, Busy, or When Unreachable.

10.2.3 Remote Office

This service allows the use of any phone as the office phone from a charging and numbering perspective. For instance, a hotel room phone can be used as the office phone.

Enable Remote Office and specify a phone number to be used as the Remote Office number.

10.2.4 Block My Caller ID

You can hide or display your number when calling or communicating with other parties or contacts. To hide your number, set to “Enable”. To show your number, set to “Disable”.

10.2.5 BroadWorks Anywhere

BroadWorks Anywhere allows service providers to offer fixed-mobile convergence (FMC) services without additional equipment.

BroadWorks Anywhere simplifies communications for on-the-go users and remote users by extending the features of a desk phone to any other fixed or mobile device, regardless of the network or handset manufacturer. Callers dial one number and can reach you on any phone the user chooses. A desk phone, cell phone, and/or a soft phone can ring simultaneously.

Voice call continuity is possible with the ability to move live calls from one device to another without hanging up.

Add locations (numbers) that can be used in the service using the **Add New Location** button. Use the *Alert all locations* to activate parallel ringing.

Select *Diversion inhibitor* to prevent a call ending up as a voice mail, which can be problematic, for example, in conference call situations.

Select *Answer Confirmation* to receive a separate audio prompt when answering a call from that number (location). It may be useful in cases where, for example, mobile numbers are being used to prevent incoming calls going to mobile voice mail since the call will be ended without going to voice mail if the Answer Confirmation is not provided.

Select *Call Control* to enable the server platform to provide mid-call services such as Call Transfer and Conferencing for that number (location).

10.3 Preferences

The client supports the following Preferences:

- Language
- Device ID
- Automatic sign-in
- Troubleshooting

10.3.1 Language Support

The client is prepared for localization and can be delivered in any language. Currently, the client is available in the following languages:

- U.S. English
- French
- French (Canadian)
- German
- Italian
- Spanish (European)
- Spanish (Latin America)
- Korean
- Japanese
- Chinese

Additional languages are available upon request as part of a customization project.

10.3.2 Troubleshooting

The troubleshooting function can be used if there are issues encountered with the application. It collects and sends diagnostic information to a predefined support email address that is configurable via the branding process. This helps support personnel to identify the issues. The information sent consists of the application and media engine diagnostic logs.

Troubleshooting is managed by a menu entry in *Settings*. It can be accessed from two places in the client:

- From the *Settings* button on the *Sign In* screen – This opens the screen that contains the help and troubleshooting-related entries. This can be used before the user has signed in, which is most often for cases when a user has issues with signing in or with connectivity.
- From the *Preferences* screen, accessible from the side navigation. These are available while the user is logged in.

10.3.3 Device ID

Communicator has the ability to lock the user to a single desktop or mobile device so that the software cannot be used on other hardware. The Android user can copy the Device ID from *Preferences* before signing into the application and provide it to the company administrator. The administrator locks Communicator to the reported device and the user can sign in only from this device.

10.3.4 Automatic Sign-in

The user can choose to sign in automatically with Communicator client with a default account when the client is started. Together with the functionality to start Communicator automatically at system startup, this makes it easier for users to remember to sign in and be available for communication.

10.4 Test Call

The client provides the ability to perform an audio or video test call to an echo number. Note that the echo service is provided and enabled by the service provider.

A common example of using an echo service is:

- Press **Test Call** to initiate a call to the echo service, then follow the operator's instructions until you hear back your recorded message.

10.5 About

The *About* screen includes three sub views:

- Info – The Info view contains short information text, version, copyright, website URL, app ID, and build version.
- License – The License view contains the End User License Agreement.
- Legal Notices – The Legal Notices view contains third parties used by the application.

10.6 Help Page

The client provides web-based help that can be launched from the *Settings* view.

10.7 Sign Out

You can sign out at the bottom of the left-side navigation drawer.

11 My Room

My Room is an always available and a permanent room that you can use to chat with anyone that joins.

My Room is accessible using the My Room icon  in the Tab bar.

You can add more participants using the add participants icon or they can join your room from your contact card. Once participants join the chat room, they can tap on the **Call** button of that screen to automatically join the conference.

My Room uses your permanent chat room, permanent collaboration room, and a conference bridge (audio or video). All *My Room* sessions start as chats but a call can be added to the session while in progress.

Others join your room by clicking on your name in their *Contacts* list and by selecting *Join Room* from the contact card.

You can dial into another contact's *My Room* audio bridge from the directory contact card.

11.1 Guest Client

This Guest Client feature is specifically intended for users outside of the company. Communicator users can invite Guest Client users to their *My Room* by selecting *Copy Guest Join Link* from the *My Room* menu button on the top right corner. The copied link delivery is outside the scope of UC-One (that is, email).

Guest users can join a session with audio in the web browser by requesting a Call Back using the provided dial-in number and conference PIN. They can also use group chat and sharing inside the web browser. However, guest clients do not have the private chat possibility and they can see the Chat History of messages that occurred after they joined the session.

The *My Room* owner is prompted to *accept* or *reject* Guest Client users joining *My Room* sessions.

A Guest Client user invitation can be revoked by selecting *Reset Guest Link* from the *My Room* menu button.

12 Search Enterprise Directory

The client supports a directory search of the BroadWorks enterprise directory. The search is performed in a separate input field in the *Contacts* tab. Tapping the search icon opens the search view and after a search, the enterprise directory search results are displayed with the names and numbers.

The default starting screen for a search shows the screen when the user has pressed the search icon. Typing in characters starts the filtering process through the contacts. The search is performed in the directory list. Pressing the back key minimizes the keyboard, hides the search bar, and empties the search result.

A long press on a name opens the context menu and hides the keyboard but keeps the search bar with the characters. A short press opens the contact card.

The context menu contains the following options for the directory list:

- VoIP call
- Video call
- Contact details

13 Screen Share

Communicator for Android Tablet supports viewing a Screen Share session initiated on Desktop. When a Screen Share invitation is sent via Desktop Communicator, the badge notification appears on the main bar and in the chat list view. Selecting the entry with screen sharing from chat list opens a communication pane with the share by default. The user can return to the chat / call (if present) with a swipe. When the share is paused, the Screen Share view remains active showing the last image that was shared.

Viewing Screen Share is available in all communication modes:

- My Room
- One-to-one chat
- Ad Hoc group chat room (MUC)

14 Multi-Device Support

Communicator provides support for users with multiple devices. This includes several features:

- Chat invitations are sent to all devices.
- Retrieving one's own presence notifications, when another client updates the user's presence. The client updates its own status based on the information it receives from the server.
- Accepting a shared presence invitation in one client is also recognized by another client, and both clients start receiving presence updates.
- A new presence subscription made in one client is recognized in another. If the contact blocks the invitation, there are presence notifications from the server to all of the user's clients indicating that the subscription was terminated, and this information is shown to the user. If the client receives two presence authorization requests from two or more devices for the same user, it only shows one request to the user.
- Removing a contact from a *Contacts* list in one device is recognized in another client, and the *Contacts* list is updated (that is, the contact is removed) in the other client as well.

15 Push Notifications for Calls

Communicator supports Push Notifications (PNs) for Incoming Calls.

This feature leverages support on the BroadWorks Application Server to send Push Notifications to mobile applications over Google Cloud Messaging (GCM) services.

Mobile client applications use Push Notifications to get alerted for incoming calls and accepting the call as VoIP.

When there is new call, BroadWorks sends a Push Notification to the client, which is presented to the user as either OS-specific visual notification or in the user interface of the client application.

From a user experience standpoint, accepting a call works in the same way for both push-enabled clients and non-push-enabled clients. On Android, the call is presented to the user with an application-specific *Incoming Call* screen with Answer and Decline buttons.

Outgoing VoIP calls are performed with SIP registration on demand, which is transparent to the user. The SIP registration is done only when the user initiates the VoIP call.

In addition to Push Notifications for new calls, the solution also supports Push Notifications for new voice mail.

16 Other Features

16.1 Version Control

Version control is supported using the Google Play mechanisms. When a new release is available, the old version is removed from the store and users of the previous version are notified about the update possibility.

16.2 Privacy Management

Communicator supports authentication with a user name and password for different services and servers requiring authentication. For convenience, the end user can save a user name and password for different realms.

When the end user adds contacts to the *Contacts* list, these contacts receive a *New Subscriber* dialog asking whether they allow the end user to see their presence. This information is stored in this contact's presence policies.

At any time, the user can edit the presence policies (which are stored on the server). The user can see all contacts that are allowed to view the user's presence (white list) and users that are not allowed to view the user's presence (blacklist). This feature requires a compatible presence server.

16.3 Firewalls and Network Address Translations

The client supports *rport* (RFC 3581) for Network Address Translation (NAT) traversal and using the client behind a firewall. However, it is assumed that the client is mainly used with a session border controller (SBC), which also provides support for NAT traversal for several key features, such as calling (that is, currently unlikely to work without an SBC).

16.4 Failover and Failback

The client supports failover and failback mechanisms for all of the used protocols: Xsi, XMPP, and SIP. This feature adds the following:

- Detect multiple connection endpoints (per protocol)
- Order connection points by priority
- Connect to the highest priority connection point
- Reconnect to the next connection point by priority one (if there is a problem with the primary connection point)
- Provide a failback mechanism to switch back to the primary, (which is the highest priority connection point)

16.5 Secure VoIP Communication

The client supports secure VoIP communication, using encrypted call negotiation and media streams. Mandatory, preferred, and optional secure modes are supported.

16.6 Emergency Call Address Change Service

Depending on service provider settings, a special dialog can be shown at login asking if the physical address should be updated. If not, login proceeds normally. If the user replies “yes”, a web browser opens with the possibility to update the physical address for emergency calls. Once the address update is complete, the user can return to the client and continue with the login.

Depending on service provider settings, a separate Emergency Call Address Change Service (ECACS) menu item may also be visible in the application. This menu item allows the ECACS service to be invoked at any time after login.

17 Acronyms and Abbreviations

This section lists the acronyms and abbreviations found in this document. The acronyms and abbreviations are listed in alphabetical order along with their meanings.

CKJ	Chinese, Japanese, and Korean
CS	Circuit Switched
ECACS	Emergency Call Address Change Service
FMC	Fixed-Mobile Convergence
GCM	Google Cloud Messaging
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure Sockets
IdP	Identity Provider
IM	Instant Message
IM&P	Instant Messaging and Presence
IP	Internet Protocol
NAT	Network Address Translation
PBX	Private Branch Exchange
PIN	Personal Identification Number
PN	Push Notification
QoS	Quality of Service
RCS	Rich Communication Suite
RTCP	Real-Time Control Protocol
SAML	Security Assertion Markup Language
SBC	Session Border Controller
SIP	Session Initiation Protocol
SSL	Secure Sockets Layer
SSO	Single Sign-On
TN	Telephone Number
ToS	Type of Service
UC	Unified Communication
UI	User Interface
URI	Uniform Resource Identifier
URL	Uniform Resource Locator

VM	Voice Mail
VoIP	Voice Over IP
VPN	Virtual Private Network
WebRTC	Web Real-Time Communication
XMPP	Extensible Messaging and Presence Protocol
XR	Extended Report
Xsi	Xtended Services Interface

18 Appendix A: Third Party Software

This software uses Smack (<http://www.igniterealtime.org/projects/smack/>), license: <http://www.igniterealtime.org/projects/smack/>

This software uses DNSJava (<http://www.dnsjava.org/>), license: <http://www.dnsjava.org/dnsjava-current/README>

This software uses libphonenumber (<https://code.google.com/p/libphonenumber/>), license: <https://code.google.com/p/libphonenumber/>

This software uses OpenSSL (<http://www.openssl.org/>), license: <http://www.openssl.org/source/license.html>

This software uses libjpeg (<http://sourceforge.net/projects/libjpeg-turbo/files/1.4.0/>), license: <https://github.com/libjpeg-turbo/libjpeg-turbo/blob/master/LICENSE.md>

This software uses libpng (<http://sourceforge.net/projects/libpng/files/libpng16/1.6.17/>), license: <http://www.libpng.org/pub/png/src/libpng-LICENSE.txt>

This software uses libwebp (<https://developers.google.com/speed/webp/download/>), license: <https://github.com/webmproject/libwebp/blob/master/PATENTS>

This software uses libwebsockets (<http://git.libwebsockets.org/cgi-bin/cgit/libwebsockets/>), license: <http://git.libwebsockets.org/cgi-bin/cgit/libwebsockets/tree/LICENSE>

This software uses libjson (<http://sourceforge.net/projects/libjson/>), license: <https://github.com/GerHobbelt/libjson/blob/master/License.txt>

This software uses WebRTC (<http://www.webrtc.org/>), license: <http://www.webrtc.org/license-rights/license>

This software uses OpenH264 (<https://github.com/cisco/openh264>), license: <https://github.com/cisco/openh264/blob/master/LICENSE>

This software uses SQLCipher (<https://www.zetetic.net/sqlcipher/>), license: <https://www.zetetic.net/sqlcipher/license/>