



Grandstream Networks, Inc.

UCM63xx Series

GS Wave Web Admin Guide



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INTRODUCTION

OVERVIEW

Wave web is a client application for the UCM63xx series IP PBX users to use web browser to participate in web video/audio conferences and make calls via WebRTC. With Wave web client, users can easily create, schedule, manage, and join video conference calls, share presentation, chat during conference calls, register UCM extension and make point-to-point calls. Wave web helps enterprise users to join meetings and communicate efficiently. It is an ideal product for enterprises looking for tools for users to communicate and work productively.

Feature Highlights

- Supports Google Chrome v75+ and Mozilla Firefox v70+.
- Native integration with UCM including contacts and ability to display SIP users' online status
- Supports LDAP to access contacts in the UCM LDAP server.
- Supports call display, voicemail, and call encryption.
- Supports call history.
- High quality point-to-point audio and video calling.
- Full integration with Grandstream UCM6300 IP PBX, including creation of QR code for automatic login, call transfer, call recording from server and etc.
- Supports Opus and G.722 for HD audio. Jitter resilience up to 50% audio packet loss and 20% video packet loss.
- Supports H.264.
- Supports joining meeting via link without logging in.
- Supports schedule meeting and meeting now at anywhere anytime
- Built-in NAT traversal including automatic NAT discovery and TURN/ICE.
- Integrated UCM user portal entry to access personal data, follow me settings, SCA, wakeup calls and etc.

Specifications

Table 1: Wave Web Specifications

Protocols/Standards	SIP RFC3261, TCP/IP/UDP, RTP/RTCP, HTTP/HTTPS, DNS (A record, SRV, NAPTR), STUN/TURN/IC, SIMPLE, LDAP, TLS, SRTP, IPv6
Voice Codex and Capabilities	Opus, G.711 A-law/U-law, G.722, G722.1 G722.1C, G.723.1 5.3K/6.3K, G.726-32, G.729A/B, iLBC, GSM, NetEQ



	FEC 2.0, NACK Full-duplex speaker, AEC, AGC, Noise Reduction, PLC, Adaptive JIB
DTMF	In-audio, RFC2833, SIP INFO
Video Codecs and Capabilities	H.264, H.263, H.263+, H.265, VP8 1080P HD video, supports displaying multiple videos, screen sharing, camera on/off, GS-Fec
Telephony Features	Call hold/unhold, mute/unmute, call transfer, audio meeting room, video meeting room, call history, scheduling meeting, voicemail, call recording and etc. User portal entries allows access for personal data, wakeup call settings, SCA, follow me settings, call queue, CDR, CRM user settings and etc.
UCM Applications	Supports UCM feature codes (transfer, call park, recording, meeting control options and etc.)
QoS	Layer 3 QoS (ToS, DiffServ, MPLS)
Security	SIP over TLS, SRTP (128-bit and 256-bit), HTTPS
Multi-language Support	English, Simplified Chinese and etc.
Login	Supports login with SIP extension and password. Supports joining meeting via link without logging in.
Upgrade	Wave Web client is built in with UCM and upgrades via UCM.

Please visit our website for more Wave web information and product documentations:

<http://www.grandstream.com>



WEBRTC CONFIGURATION

GS Wave feature requires UCM WebRTC function which is enabled by default. To check and ensure that the UCM has WebRTC turned on, please follow below steps.

1. Navigate to UCM web UI admin page → **Value** → **Added Features** → **WebRTC**. Enable WebRTC support.

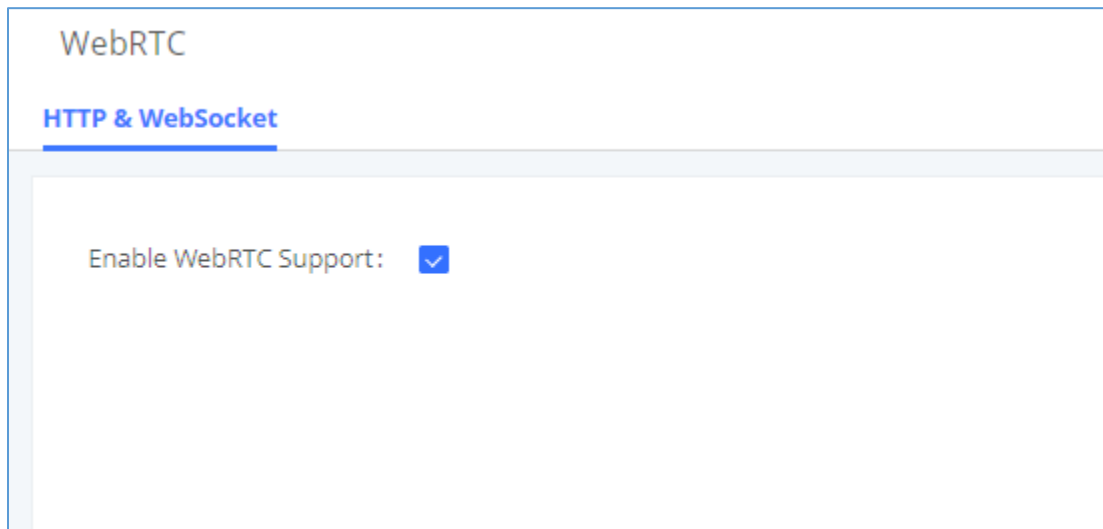


Figure 1: Enable WebRTC

2. Select the extensions that would use WebRTC and enable WebRTC support on them under Features section.

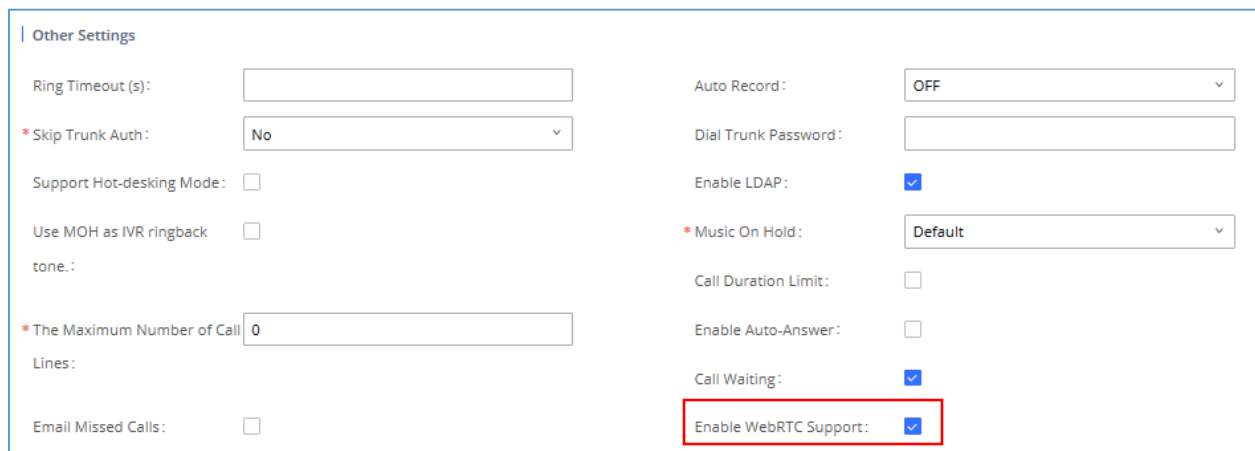
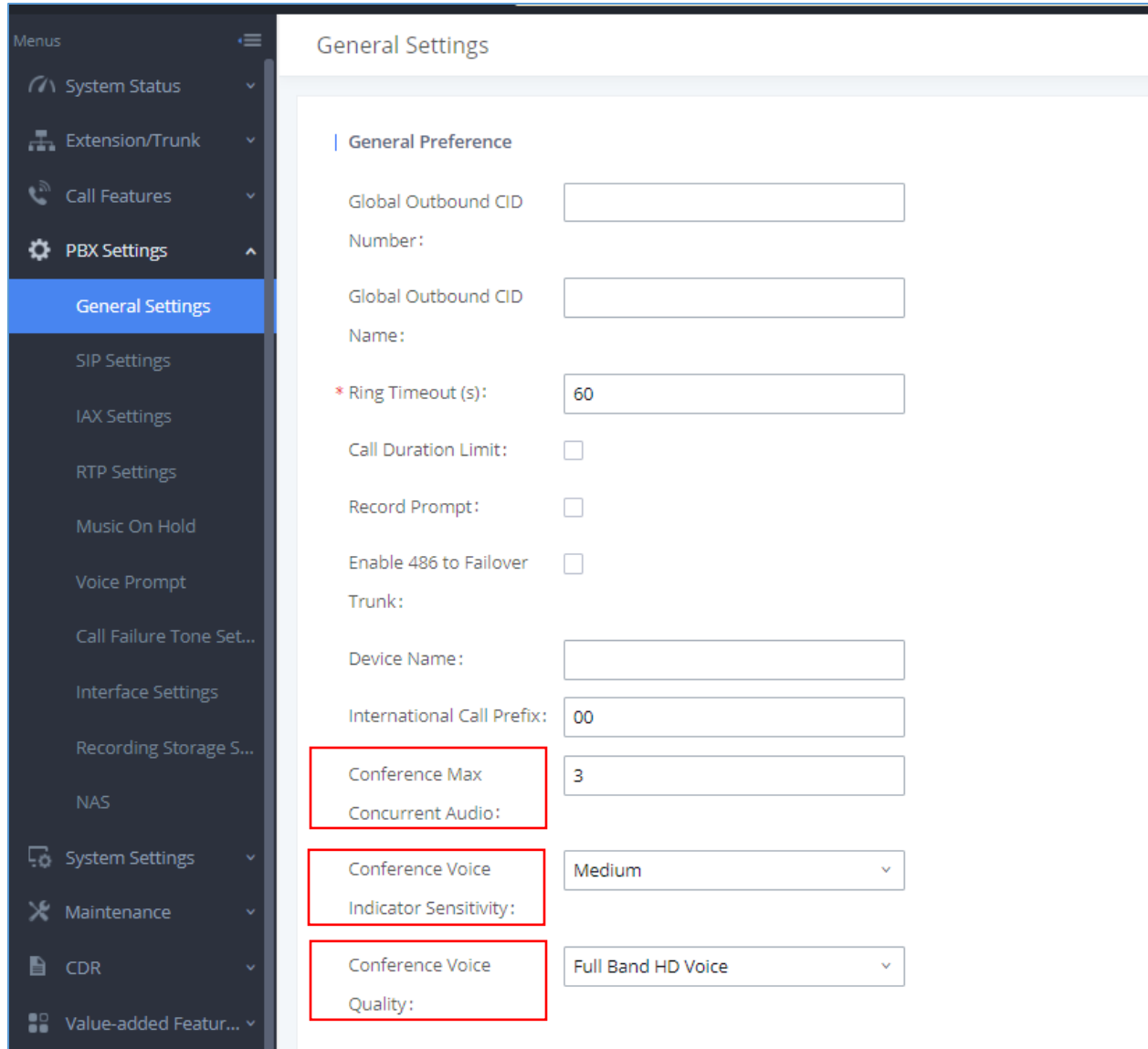


Figure 2: WebRTC Support for Extension



- Also, the administrator can configure some global conference options like the maximum Concurrent Audio and Voice quality a conference can have by navigating to UCM web UI admin page → **PBX Settings** → **General Settings** like shown in the figure below.



General Preference	
Global Outbound CID Number:	<input type="text"/>
Global Outbound CID Name:	<input type="text"/>
* Ring Timeout (s):	<input type="text" value="60"/>
Call Duration Limit:	<input type="checkbox"/>
Record Prompt:	<input type="checkbox"/>
Enable 486 to Failover:	<input type="checkbox"/>
Trunk:	
Device Name:	<input type="text"/>
International Call Prefix:	<input type="text" value="00"/>
Conference Max Concurrent Audio:	<input type="text" value="3"/>
Conference Voice Indicator Sensitivity:	<input type="text" value="Medium"/>
Conference Voice Quality:	<input type="text" value="Full Band HD Voice"/>

Figure 3: Global Conference Options

Table 2: Global Conference Options

Conference Max Concurrent Audio	Configures the maximum number of participants that can be heard simultaneously in audio/video conferences. If the number of participants talking at any given point exceeds this value, the audio of the excess participants will not be heard
Conference Voice Indicator Sensitivity	Configures the sensitivity of the talking indicator in conferences. Setting this higher will make the talking indicator appear more easily for lower volumes of audio. The options available are: Very High, High, Medium, Low . Note: This does not adjust audio input sensitivity itself. Lower volumes of sounds may still be heard even if the talking indicator does not show the source.
Conference Voice Quality	Configures the voice quality of audio and video conferences, two options are available: <ul style="list-style-type: none"> • Full Band HD Voice • Broad Band HD Voice



AUDIO CONFERENCE

UCM supports audio conference. The UCM admin can create multiple audio conference rooms for users to dial in.

Table 3: UCM audio conference specifications

UCM630x series	Number of audio conference room	Participant limit
UCM6301	3	75
UCM6302	8	150
UCM6304	15	200
UCM6308	25	300

Log in UCM web UI as admin and go to Call Features → Audio Conference. In this page, users could create, edit, view, invite, manage the participants, and delete conference rooms. The conference room status and conference call recordings (if recording is enabled) will be displayed in this web page as well.

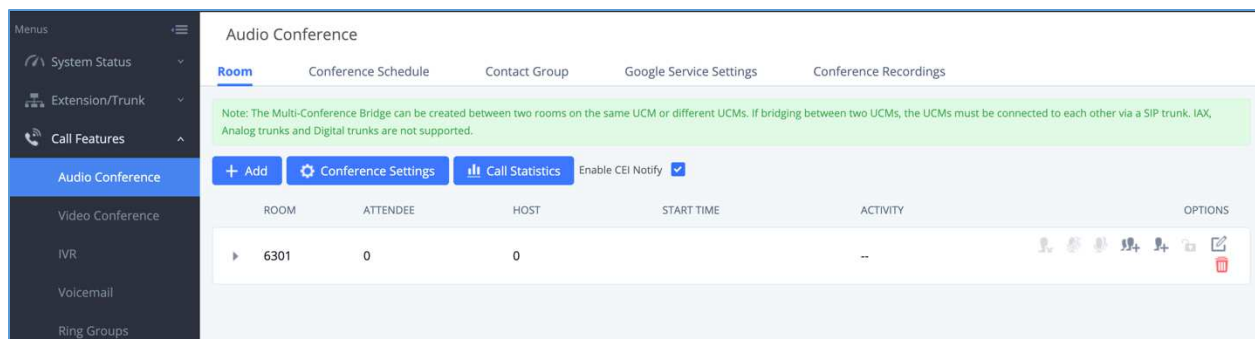




Figure 4: Audio conference room

- Click on “+Add” to create a new audio conference room
- Click on  to edit the audio conference room
- Click on  to delete the audio conference room

Note:

“Enable CEI Notify” option is available for UCM admin to configure. By default, it is disabled on UCM. When it is enabled, meeting participants can view participant list in the audio conference room. UCM admin should evaluate whether to enable this option as too many CEI messages sent for the conference room could affect UCM system’s performance.



Creating Audio Conference Room

Click on “+ Add” to create a new audio conference room. Users will be prompted to configure the following options for the audio conference room:

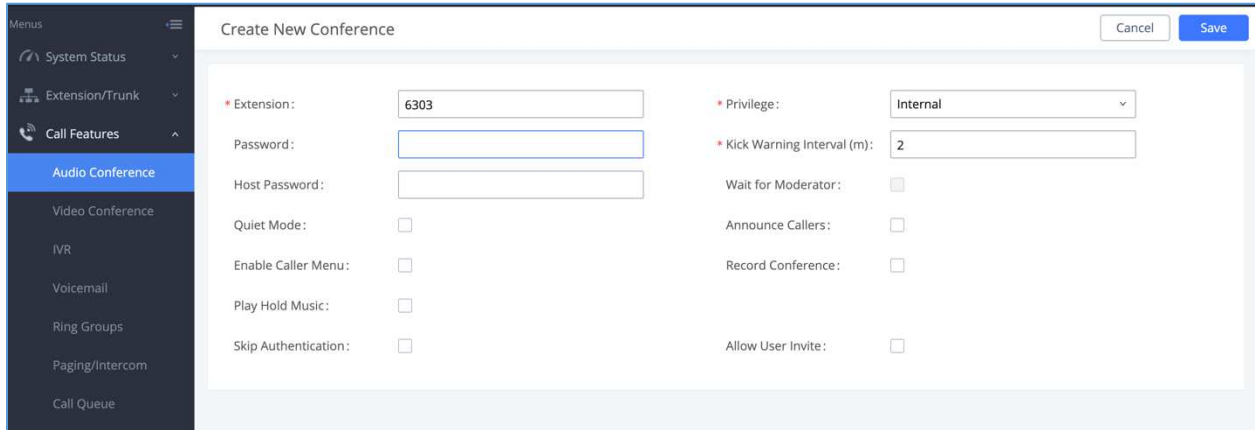


Figure 5: Audio conference room parameters

Table 4: UCM audio conference room parameters

Extension	Configure the conference number for the users to dial into the conference. Note: Up to 64 characters.
Privilege	Please select the permission level for outgoing calls.
Password	When configured, the users who would like to join the conference call must enter this password before accessing the conference room. Note: The password must be at least 4 characters.
Kick Warning Interval	If there is only one participant in a conference room, a kick warning prompt will play at the configured interval. If no input from the participant is received after the prompt, he will be automatically kicked out of the conference. The valid range is 1-60 minutes.
Host Password	Configure the password to join the conference room as Moderator. Conference Moderator can manage the conference call via IVR (if "Enable Caller Menu" is enabled) as well as invite other parties to join the conference by dialing "0" (permission required from the invited party) or "1" (permission not required from the invited party) during the conference call. Note: If the Moderator Password field is left blank, moderator functionality will not be available for the meeting.
Wait for Moderator	If enabled, the participants will not hear each other until the host joins the conference. The default setting is "No".



	<p>Note:</p> <p>If "Quiet Mode" is enabled, the voice prompt for "Wait For Admin" will not be announced.</p>
Quiet Mode	<p>If enabled, if there are users joining or leaving the conference, voice prompt or notification tone will not be played. The default setting is "No".</p> <p>Note:</p> <p>"Quiet Mode" and "Announce Callers" cannot be enabled at the same time.</p>
Announce Callers	<p>If enabled, the caller will be announced to all conference participants when there the caller joins the conference. The default setting is "No".</p> <p>Note:</p> <p>"Quiet Mode" and "Announce Callers" cannot be enabled at the same time.</p>
Enable Caller Menu	<p>If enabled, conference participant could press the * key to access the conference room menu. The default setting is "No".</p>
Record Conference	<p>If enabled, the calls in this conference room will be recorded automatically in a .wav format file. All the recording files will be displayed and can be downloaded in the conference web page. The default setting is "No".</p>
Play Hold Music	<p>If enabled, the UCM630X will play Hold music when there is only one user in the conference. The default setting is "No".</p>
Custom Music On Hold	<p>Select the music on hold class to be played in conference call. Music On Hold class can be set up under Web GUI → PBX Settings → Music On Hold.</p>
Skip Authentication	<p>If enabled, the invitation from Web GUI for a conference room with password will skip the authentication for the invited users. The default setting is "No".</p>
Allow User Invite	<p>If enabled, users could press 0 to invite other users (with the users' permission) or press 1 to invite other users (without the user's permission) to join the conference. The default setting is "No".</p> <p>Note:</p> <p>Conference administrator can always invite other users without enabling this option.</p>



Audio Conference Settings

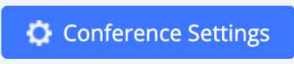
Click on  on the audio conference room page to access and configure global settings for all audio conference rooms. Configuration settings page contains the following options:

Table 5: Conference settings

Enable Talk detection	If enabled, the AMI will send the corresponding event when a user starts or ends talking.
DSP Talking Threshold	The time in milliseconds of sound above what the DSP has established as base line silence for a user before a user is considered to be talking. This value affects several operations and should not be changed unless the impact on call quality is fully understood, the default value is 128.
DSP Silence Threshold	The time in milliseconds of sound falling within the what the DSP has established as base line silence before a user is considered to be silent. This value affects several operations and should not be changed unless the impact on call quality is fully understood, the default value is 2500.

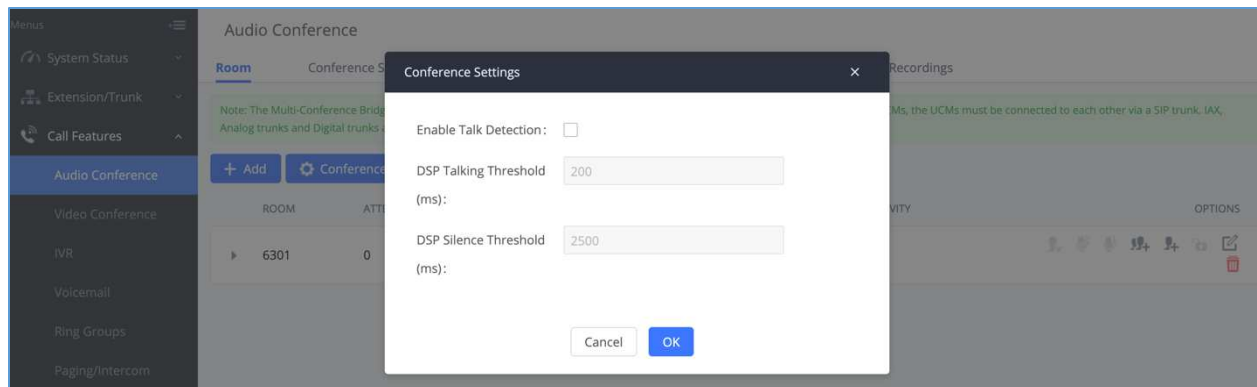












Figure 6: Conference settings

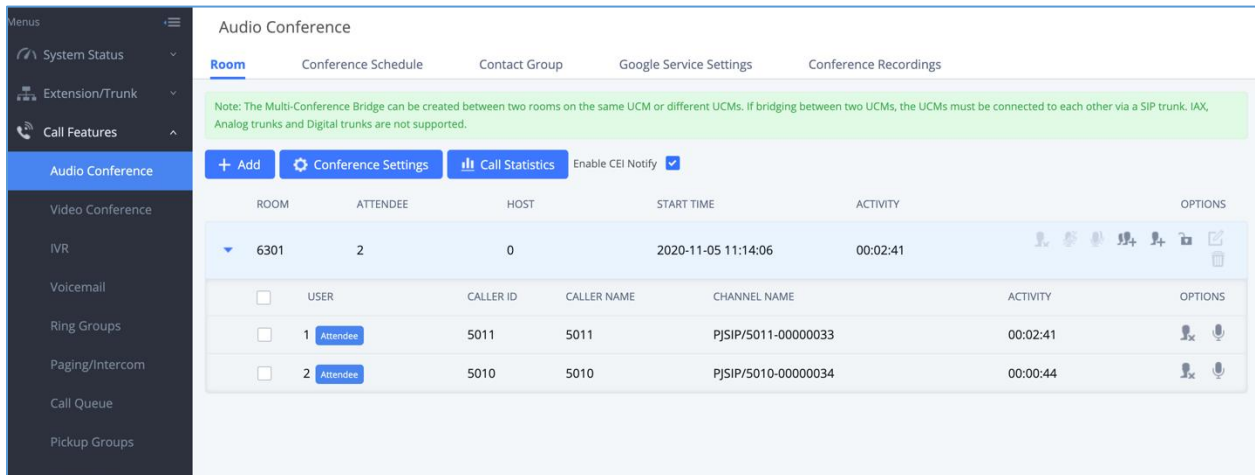
Managing Audio Conference

During the conference call, users can manage the conference from Web GUI after logging in as admin.

- Click on  on the left of each conference room to expand real-time participant list for the admin to view.
- Click on  to remove selected participants from the conference.



- Click on  to mute selected participants.
- Click on  to unmute selected participants.
- Click on  to invite contact group or remote conference room so multiple conference rooms can be bridged.
- Click on  to invite other users into the conference room.
- : This indicates the conference room is unlocked. Click on  to lock conference. If the conference is locked, no new party can be invited or can join the conference.
- : This indicates the conference room is locked. Click on  to unlock this conference room.



The screenshot displays the 'Audio Conference' management page. On the left is a navigation menu with options like System Status, Extension/Trunk, Call Features, Audio Conference, Video Conference, IVR, Voicemail, Ring Groups, Paging/Intercom, Call Queue, and Pickup Groups. The main content area shows the 'Room' tab selected, with sub-tabs for Conference Schedule, Contact Group, Google Service Settings, and Conference Recordings. A green note at the top explains that a Multi-Conference Bridge can be created between two rooms on the same UCM or different UCMs, provided they are connected via a SIP trunk. Below the note are buttons for '+ Add', 'Conference Settings', 'Call Statistics', and a checked 'Enable CEI Notify' checkbox. A table lists the conference details:












ROOM	ATTENDEE	HOST	START TIME	ACTIVITY	OPTIONS	
6301	2	0	2020-11-05 11:14:06	00:02:41	      	
<input type="checkbox"/>	USER	CALLER ID	CALLER NAME	CHANNEL NAME	ACTIVITY	OPTIONS
<input type="checkbox"/>	1 Attendee	5011	5011	PJSIP/5011-00000033	00:02:41	 
<input type="checkbox"/>	2 Attendee	5010	5010	PJSIP/5010-00000034	00:00:44	 

Figure 7: Ongoing conference with participants



VIDEO CONFERENCE

The video conference configurations can be accessed under Web GUI → **Call Features** → **Video Conference**. In this page, users could enable, set the Basic setting, create, edit, view, manage, delete conference rooms, and edit the Conference Schedule.

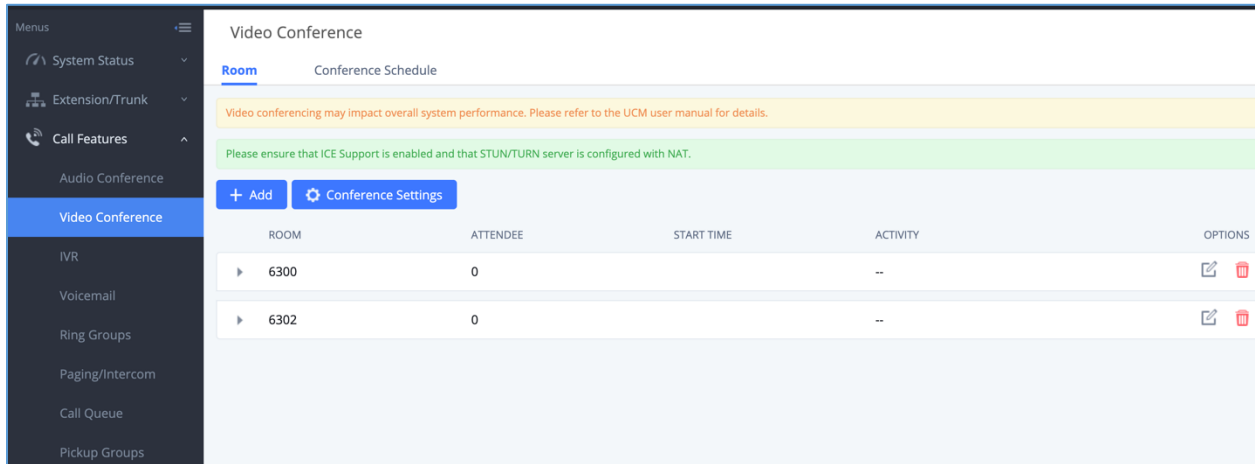


Figure 8: Video conference configuration page



- Click "+ Add" to create new video conference room.
- Click on  to edit the video conference room.
- Click on  to delete the video conference room.

Table 6: UCM video conference specifications

UCM630x series	Number of video conference room	Participant limit
UCM6301	2	12
UCM6302	3	20
UCM6304	4	40
UCM6308	8	60

 **Notes:**

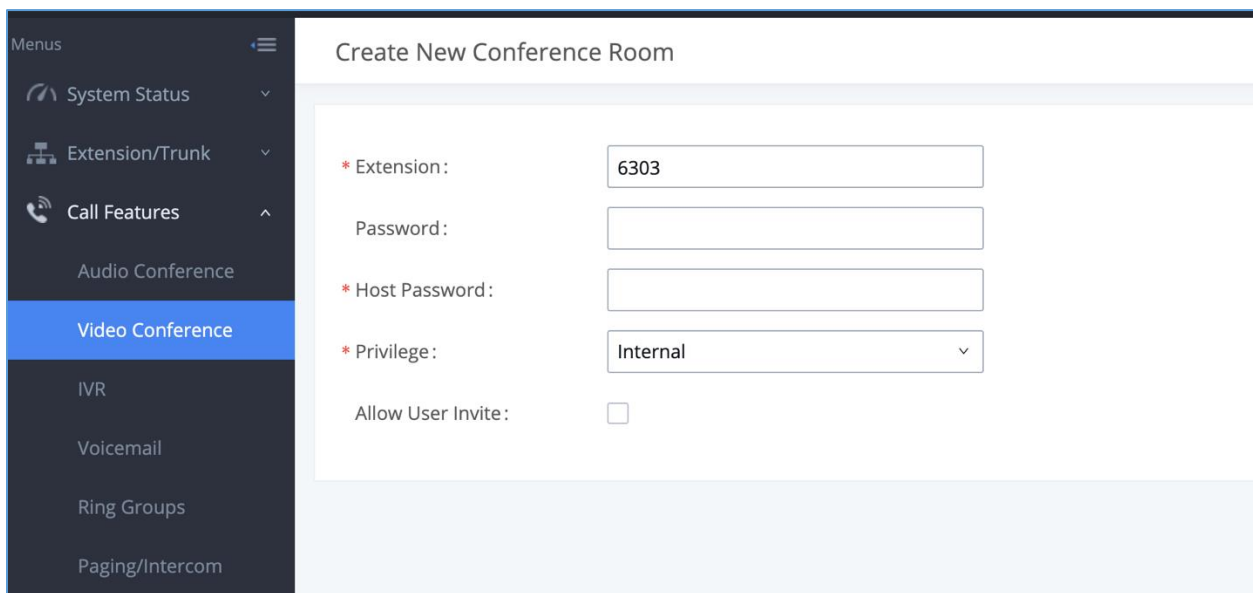
- By default, for each video conference room, up to 4 video feeds and 1 screen sharing can be supported.



- UCM admin could configure the video conference room to support 9 video feeds. However, more video feeds will require more system resources which affects system performance. Please consider and configure as needed.
- During meeting, if the UCM detects other scheduled meeting to be started soon, it will remind the meeting participants that the current meeting will end soon.
- UCM video conference room can be resource intensive. When video conference room is used and UCM is busy at the moment, UCM's performance may be affected.

Creating Video Conference Room

Click on “+ Add” to create a new video conference room. Users will be prompted to configure the following options for the conference room.



The screenshot shows the 'Create New Conference Room' configuration page. On the left is a dark sidebar menu with 'Video Conference' highlighted. The main area has a white background with the title 'Create New Conference Room'. Below the title are several input fields:

- * Extension: A text box containing '6303'.
- Password: An empty text box.
- * Host Password: An empty text box.
- * Privilege: A dropdown menu with 'Internal' selected.
- Allow User Invite: An unchecked checkbox.

Figure 9: Creating new video conference room

Table 7: Video Conference room configuration Parameters

Extension	Configure the conference number for the users to dial into the conference. Note: Up to 64 characters.
Password	When configured, the users who would like to join the conference call must enter this password before accessing the conference room. This field is optional. If not configured, users can join meeting as participants without password.



	Note: <ul style="list-style-type: none"> • Only digits are allowed. • The password has to be at least 4 characters. All repetitive and sequential digits (e.g., 0000, 1111, 1234 and 2345) or common digits (e.g., 111222 and 321321) are not allowed.
Host Password	Configure the Host password. The password has to be at least 4 digits. This field is mandatory. Users must enter this password to become meeting moderator.
Privilege	Please select the permission level for outgoing calls.
Allow User Invite	<p>If enabled, not only the moderator but also participants can invite other users to the video conference.</p> <p>Please note meeting moderator is able to invite other parties whether this option is enabled or not.</p>

Video Conference Settings


Click on  on the video conference room page to access and configure global settings for all video conference rooms. Configuration settings page contains the following options:

Table 8: Video conference settings

Enable Talk detection	If enabled, the AMI will send the corresponding event when a user starts or ends talking.
DSP Talking Threshold (ms)	The time in milliseconds of sound above what the DSP has established as base line silence for a user before a user is considered to be talking. This value affects several operations and should not be changed unless the impact on call quality is fully understood, the default value is 200.
DSP Silence Threshold (ms)	The time in milliseconds of sound falling within the DSP has established as base line silence before a user is considered to be silent. This value affects several operations and should not be changed unless the impact on call quality is fully understood, the default value is 2500.



Max Number of Video Feeds	Set the maximum number of video feeds supported per conference room. By default, it is set to 4. Please note if set to 9, the UCM system performance could be potentially affected.
Audio Codec Preference	Configures the preferred codecs for temporary accounts such as conference participants who joined via link without UCM extension. If Opus is selected, audio quality will be improved but could also affect UCM performance if UCM system is heavily loaded.
Packet Loss Retransmission	Configures packet loss transmission for temporary accounts such as conference participants who joined via link with UCM SIP extension. By default, it is set to OFF.
Jitter Buffer	<p>Select jitter buffer method for temporary accounts such as conference participants who joined via link with UCM SIP extension.</p> <ul style="list-style-type: none"> • Disable: Jitter buffer will not be used. This is the default setting. • Fixed: Jitter buffer with a fixed size (equal to the value of "Jitter Buffer Size") • Adaptive: Jitter buffer with an adaptive size that will not exceed the value of "Max Jitter Buffer"). • NetEQ: Dynamic jitter buffer via NetEQ. NetEQ is an error concealment algorithm used for hiding the negative effects of network jitter and packet loss.



Menus

- System Status
- Extension/Trunk
- Call Features
 - Audio Conference
 - Video Conference**
 - IVR
 - Voicemail
 - Ring Groups
 - Paging/Intercom
 - Call Queue
 - Pickup Groups
 - Dial By Name
 - Speed Dial
 - DISA
 - Callback
 - Event List
 - Feature Codes
 - Parking Lot
 - Emergency Calls

Conference Settings

Enable Talk Detection:

* DSP Talking Threshold:
(ms):

* DSP Silence Threshold:
(ms):

Max Number of Video:

Feeds:

Audio Codec Preference:

Available	Selected
<input type="checkbox"/> 1 item <input type="checkbox"/> OPUS	<input type="checkbox"/> 7 items <input type="checkbox"/> PCMU <input type="checkbox"/> PCMA <input type="checkbox"/> GSM <input type="checkbox"/> G.726 <input type="checkbox"/> G.722

Packet Loss:

Retransmission:





Jitter Buffer:

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Figure 10: Video conference settings

Managing Video Conference

During video conference, users can manage the conference from Web GUI after logging in as admin.

- Click on  on the left of each conference room to expand real-time participant list for the admin to view.
- Click on  to remove the participant.
- Click on  to mute the participant.
- Click on  to unmute the participant.

Menus

- System Status
- Extension/Trunk
- Call Features
 - Audio Conference
 - Video Conference
 - IVR
 - VoiceMail
 - Ring Groups
 - Paging/Intercom
 - Call Queue
 - Pickup Groups
 - Dial By Name

Video Conference

Room Conference Schedule

Video conferencing may impact overall system performance. Please refer to the UCM user manual for details.

Please ensure that ICE Support is enabled and that STUN/TURN server is configured with NAT.

+ Add
Conference Settings




ROOM	ATTENDEE	START TIME	ACTIVITY	OPTIONS
6300	2	2020-11-05 12:45:06	00:00:25	
USER	CALLER ID	CALLER NAME	ACTIVITY	OPTIONS
2 Audio	5010	5010	00:00:12	
1 Video	5009	5009	00:00:25	
6302	0		--	

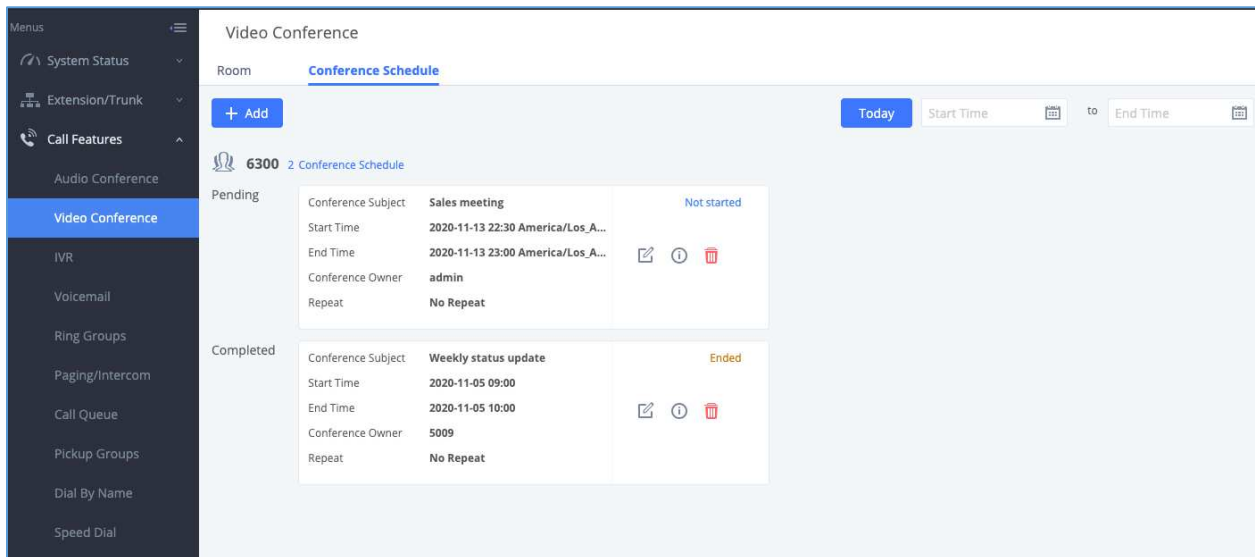
Figure 11: Ongoing video conference

SCHEDULING A CONFERENCE

UCM admin can log in UCM web UI to schedule audio conference and video conference. The following section describes how to schedule a conference using video conference as an example.

Log in **Web GUI** → **Call Features** → **Video Conference** → **Conference Schedule** as UCM admin. Users can create, edit, view, and delete a Conference Schedule.

- Click on “+ Add” to add a new Conference Schedule.
- Click on  to edit a scheduled conference.
- Click on  to view conference schedule details.
- Click on  to delete the conference schedule.



The screenshot shows the 'Video Conference' interface. On the left is a dark sidebar menu with 'Video Conference' selected. The main content area is titled 'Video Conference' and shows a 'Room' of '6300'. There are two conference schedule cards:

Status	Conference Subject	Start Time	End Time	Conference Owner	Repeat	Actions
Pending	Sales meeting	2020-11-13 22:30 America/Los_A...	2020-11-13 23:00 America/Los_A...	admin	No Repeat	Not started, Edit, Info, Delete
Completed	Weekly status update	2020-11-05 09:00	2020-11-05 10:00	5009	No Repeat	Ended, Edit, Info, Delete

Figure 12: Video Conference Schedule

Figure 13: Video Conference Schedule Parameters

Table 9 : Video Conference Schedule Parameters

Schedule Options	
Conference Subject	Configure the name/topic of the scheduled conference. Letters, digits, _ and - are allowed.
Conference Room	Select a conference room for this scheduled conference.
Time	Configure the beginning start/end date of scheduled conference. Note: Please pay attention to avoid time conflict on schedules in the same conference room.
Time Zone	Defines the time zone of the scheduled conference
Password	Configure conference room password. The password must be at least 4 digits.
Host Password	Set the password for the admin of scheduled conference. The password must be at least 4 digits.
Host	Set the admin of this scheduled conference from the following list of members.
Repeat	Choose when to repeat a scheduled conference: <ul style="list-style-type: none"> • No repeat • Every Day • Weekly • Monthly



Allow User Invite	If enabled, participants can invite other users to the video conference.
Call Participants	If enabled, invited participants will be called when the meeting starts.
Email Reminder	If configured, email reminders will be sent out x minutes prior to the start of the conference. Valid range is 5-1440. 0 indicates not to send out email reminders for the conference.
Description	Set a description of scheduled conference.
Invitees	<p>Defines the extensions or emails of the participants to attend scheduled conference.</p> <ul style="list-style-type: none"> - Enter the invitee's number or email address. - After adding one invitee, click on ENTER to confirm. - If the invitee's extension does not have email configured on UCM extension setting, the user can click on "(Add Email)" to add email for this invitee. - To remove an invitee, click on "x" for the invitee.

Once created, the **Web GUI** will display scheduled conference in Conference Schedule, the conference scheduled will be on **"Pending"** Status before it begins and will be marked as **"Not started"**. Please see figure below:

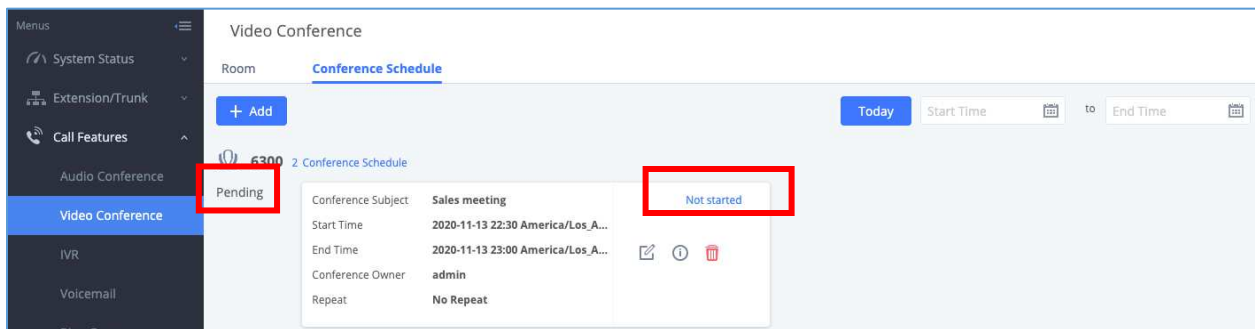


Figure 14: Video Conference Schedule - Pending

After scheduling the meeting, an email reminder will be sent to the participants at the configured email reminder time. The email reminder will include the conference details and a link to the conference. Upon clicking the link, participants will be prompted to enter their GS Wave portal passwords to log in and join the conference.



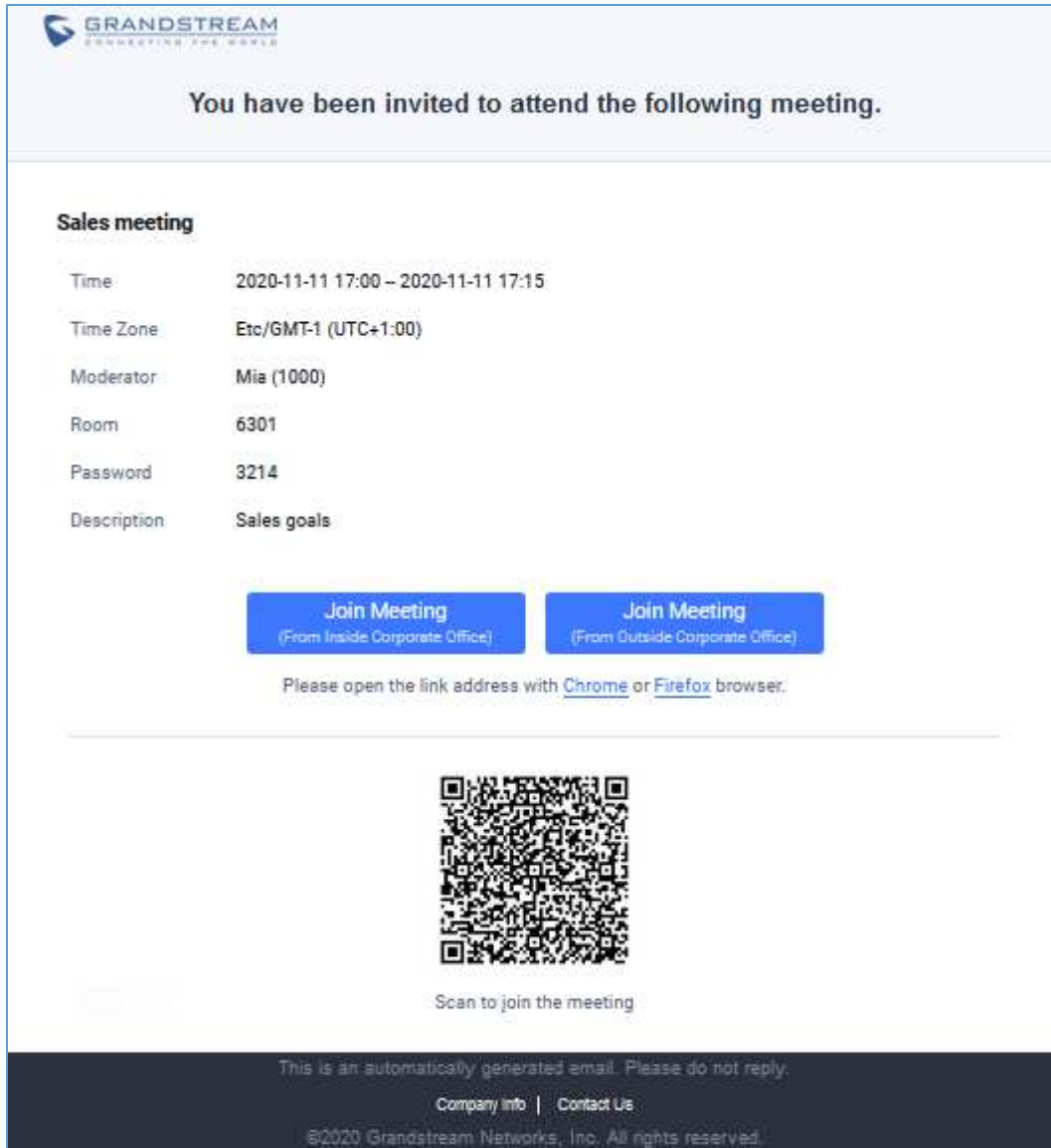


Figure 15: Email reminder for the scheduled meeting

If meeting schedule information is modified, participants will receive email update immediately.

To join meeting, the Wave user can click on the link in the email notification to join meeting directly, or Wave mobile app user can scan the QR code in the email notification to join meeting as well.

Once the conference is finished, on the **Web GUI** under Conference Schedule, the conference status will be updated to "**Completed**" and will be marked as "**Ended**". Please see figure below:






Video Conference

Room Conference Schedule

[+ Add](#)

6300 2 Conference Schedule

Pending

Conference Subject	Sales meeting	Not started
Start Time	2020-11-13 22:30 America/Los_An...	  
End Time	2020-11-13 23:00 America/Los_An...	
Conference Owner	admin	
Repeat	No Repeat	

Completed




Conference Subject	Weekly status update	Ended
Start Time	2020-11-05 09:00	  
End Time	2020-11-05 10:00	
Conference Owner	5009	
Repeat	No Repeat	

Figure 16: Video Conference Schedule - Completed