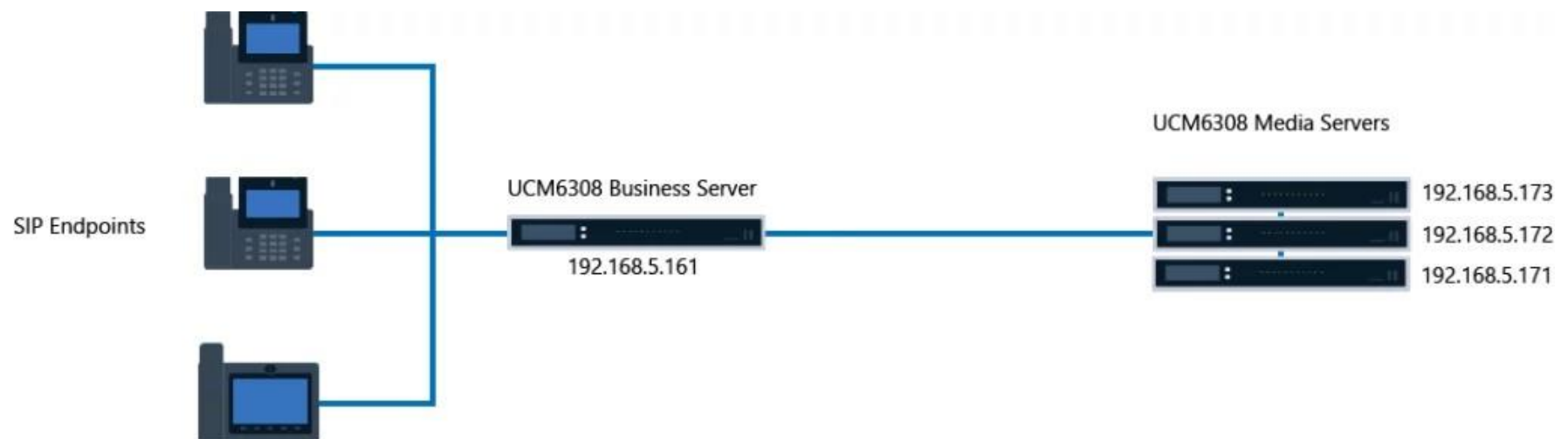


UCM630x - 1+N Media Cluster Guide

INTRODUCTION

UCM630X 1+N media cluster feature allows clustering multiple UCM6300 Series devices to expand the number of concurrent calls and meeting participants.

The deployment architecture of this feature consists of one main business server that handles signaling, and at least one other server handling the media traffic. Please see the illustration below.



Cluster Diagram

Important

Please note that 1+N media cluster feature is currently supported on the UCM6304 and UCM6308 only.

Notes

- All UCMs that make up the media cluster must be under the same switch, and their IP addresses must be in the same network segment.
- The Business Server and Media Servers must use the same firmware version.
- Please ensure that the IP addresses of the business server and media server in the cluster environment do not change. Otherwise, the connection between the cluster devices will be affected. The cluster will need to be rebuilt if a change in IP address occurs.

CONFIGURATION STEPS

The configuration of the cluster feature consists of two main parts, one part will be about the configuration of the business server, and the other part will be about the configuration of the media server(s).

Business Server

Step 1: Setting static IP address

To ensure that the connection isn't lost to the business server, the user must configure a static IP on the business server. This can either be done on the DHCP server by reserving an IP address using the MAC address of the network interface of the UCM, or we can set a static IP address on the intended network interface of the UCM. To set the address statically on the UCM, please follow the steps below:

1. Access the UCM's web UI, navigate to **System Settings > Network Settings**, and then set a static IP on the network interface which is connected to the network where the media servers are hosted.

IPv4 Address	IPv6 Address	Network Port Traffic Control
Preferred DNS Server	<input type="text"/>	
LAN 1		
IP Method	Static	
* IP Address	192.168.5.161	
* Subnet Mask	255.255.255.0	
* Gateway IP	192.168.5.1	
* DNS Server 1	192.168.5.1	
DNS Server 2	<input type="text"/>	
Layer 2 QoS 802.1Q/VLAN Tag	0	
Layer 2 QoS 802.1p Priority Value	0	

Business Server IP Configuration

2. Click "Save" to save the configuration on the UCM.

Step 2: Configure the Cluster-related settings

To configure the UCM as the business server, please follow the steps below:

1. Navigate to **System Settings > Cluster**, then tick the option **Enable Media Cluster**.
2. Choose "Business Server" as the **Device Role**.
3. Choose the **Multicast Network Port**. This depends on the networking settings for the UCM (Route mode or Dual mode).
4. Enter a multicast IP address that will be used to send multicast traffic. Please ensure that the IP address used is within the range of multicast IP addresses.
5. Enter a port range start value and end value in the corresponding fields. Please ensure that the range of ports is between 1024 – 65535.
6. Enter the Business Server Listening Port number. Please ensure that the port number is within the range 1024 – 65535.
7. Then, we will enter the media server addresses, we can enter the addresses for now, then assign them later to the media server(s), in this example, we will assign the IP address 192.168.5.171, which will be set as a static IP address for the media server(s) in the following section regarding the configuration steps for the media server(s).
8. Once all the settings mentioned above are configured, please click "Save" to save the configuration.

Cluster

Enable Media Cluster

* Device Role Business Server Media Server

* Multicast Network Port LAN1 LAN2



* Multicast IP Address


* Multicast Address Port Start Value

* Multicast Address Port End Value


* Business Server Listening Port

Media Server

* Media Server IP  

[Add IP Address](#) 

Media Server Switch Threshold

 If the memory or CPU usage of this media server is exceeded, media service functionality will be disabled for a period of time. Otherwise, this UCM will continue to be used as the media server.




* Memory Usage Threshold (%)

Business Server Configuration

Enable Media Cluster	Enable Media Cluster feature.
Device Role	<p>Configure the device role.</p> <ul style="list-style-type: none"> Business Server: Choosing this role will make the UCM as the main server for operations. Media Server: Choosing this role will make the UCM as a media server only. All the PBX related features will be disabled.
Multicast Network Port	Choose the network port which will be used for the multicast.
Multicast IP Address	The allowed multicast IP address range is 224.0.1.0 - 238.255.255.255
Multicast Address Port Start Value	<p>Enter the multicast address port start value. The port number value can be within the range 1024 - 65535.</p> <p>Note: The multicast address port start value must be lower or equal to the multicast address port end value.</p>
Multicast Address Port End Value	<p>Enter the multicast address port end value. The port number value can be within the range 1024 - 65535.</p> <p>Note: The multicast address port end value must be greater or equal to the multicast address port start value.</p>

Business Server Listening Port	The port on which the business server listens and receives information reported by the media server. The value of the listening port value can be within 1024 - 65535.
Media Server IP	Enter the IP address of the media server. The user can pair up to 5 media servers with one Business server. The statuses of the media servers are indicated using three colors: <ul style="list-style-type: none"> ● Green: The server is available. ● Yellow: The server is in use. ● Gray: The server is offline.
Memory Usage Threshold (%)	When the memory usage of this media server is exceeded, media services will be assumed by another media server in the cluster with the lowest usage at the time.
CPU Usage Call Control Threshold (%)	When the CPU usage of this media server is exceeded, media services will be assumed by another media server in the cluster with the lowest usage at the time.
Memory Usage Threshold (%)	When this server's memory usage exceeds the specified threshold, service from this server will be temporarily paused.
CPU Usage Call Control Threshold (%)	When this server's CPU usage exceeds the specified threshold, service from this server will be temporarily paused.
Disk Available Space (MB)	When the percentage of available space in the device's disk data partition falls below the set value, this server will not be used until the amount of available space is above the threshold again.

The availability of the media server is indicated using the icons below:

- : This icon indicates that the server is in use.
- : This icon indicates that the server is not available
- : This icon indicates that the server is available but it is not in use.

Media Server

Step 1: Setting static IP address

Similar to the business server, we also need to set the static IP address for the media server to avoid losing the connection to it.

1. Access the UCM's web UI, navigate to **System Settings > Network Settings**, and then set a static IP on the network interface which is connected to the network where the business server is hosted.

IPv4 Address	IPv6 Address	Network Port Traffic Control
Preferred DNS Server	<input type="text"/>	
LAN 1		
IP Method	Static <input type="text"/>	
* IP Address	<input type="text" value="192.168.5.171"/>	
* Subnet Mask	<input type="text" value="255.255.255.0"/>	
* Gateway IP	<input type="text" value="192.168.5.1"/>	
* DNS Server 1	<input type="text" value="192.168.5.1"/>	
DNS Server 2	<input type="text"/>	
Layer 2 QoS 802.1Q/VLAN Tag	<input type="text" value="0"/>	
Layer 2 QoS 802.1p Priority Value	<input type="text" value="0"/>	

Media Server IP Configuration

2. Click "Save" to save the configuration on the UCM.

Step 2: Configure the Cluster-related settings

To configure the UCM as a media server, please follow the steps below:

1. Please navigate to **System Settings > Cluster**
2. Tick the option "Enable Media Cluster"
3. Select "Media Server" as the **Device Role**
4. Enter the IP address of the business server and the listening port configured on the Business server.

Enable Media Cluster	<input checked="" type="checkbox"/>
* Device Role	<input type="radio"/> Business Server <input checked="" type="radio"/> Media Server
* Business Server IP and Port	<input type="text" value="192.168.5.161"/> : <input type="text" value="9528"/>
Learn more about Media Cluster with the 1+N Media Cluster Guide	
<input type="button" value="Cancel"/> <input type="button" value="Save"/>	

Media Server Configuration

Enable Media Cluster	Enable Media Cluster feature.
Device Role	Configure the device role.
Business Server IP and Port	Enter the IP address of the business server with the listening port.

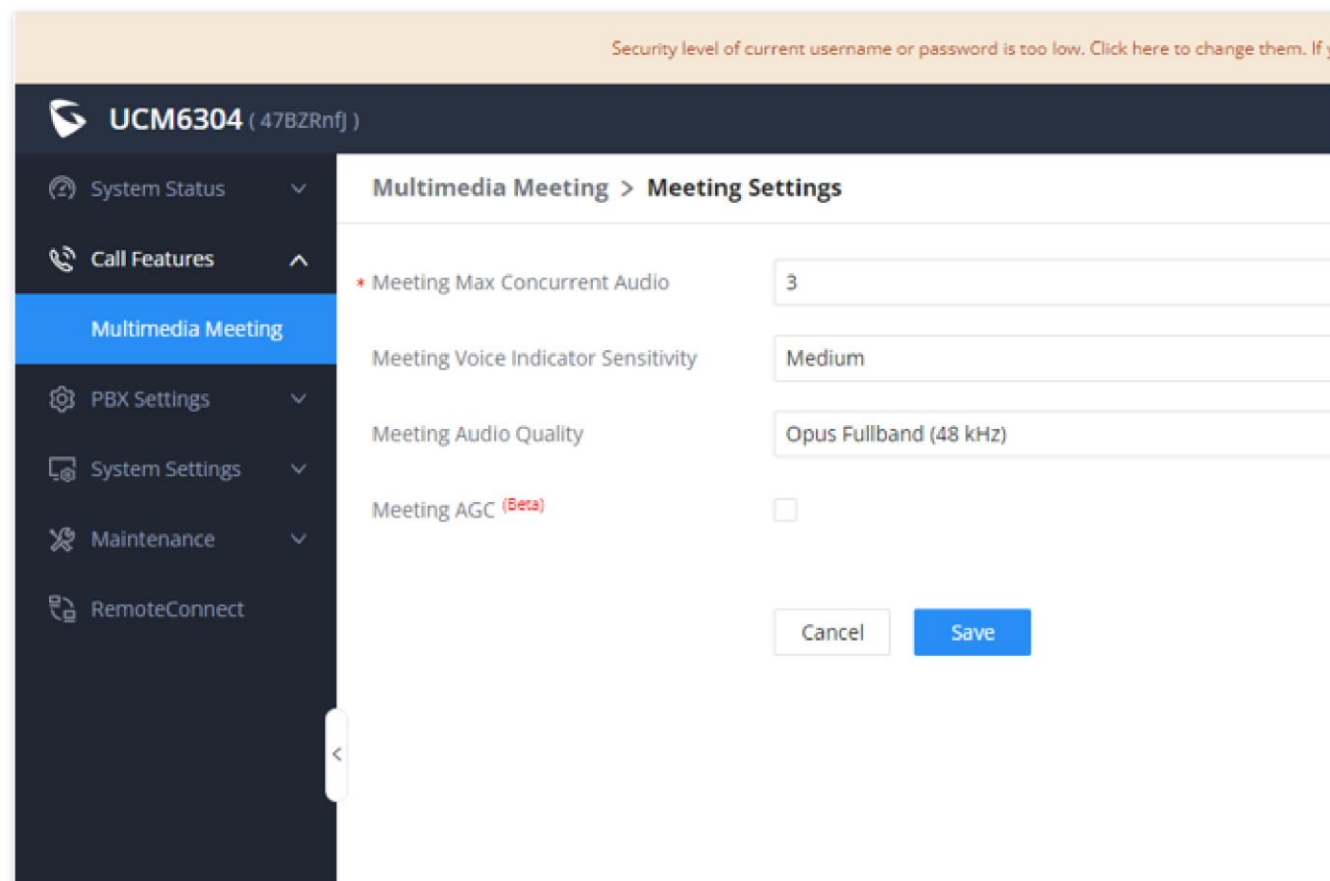
If the business server is using HA Local Hot Standby, the Hot Standby Cluster IP address must be used.
If the business server is using HA Remote Disaster Recovery, the primary UCM and secondary UCM must have their own respective cluster environments.

5. Then click "Save" to save the configuration.

CONSIDERATIONS

Meeting Settings

Please ensure that the following settings are identical across all the UCMs involved in the cluster deployment. To access the configuration page, please navigate to **Call Features > Multimedia Meeting**.



The screenshot shows the configuration page for Multimedia Meeting Settings on a UCM6304 device. The page title is "Multimedia Meeting > Meeting Settings". The settings are as follows:

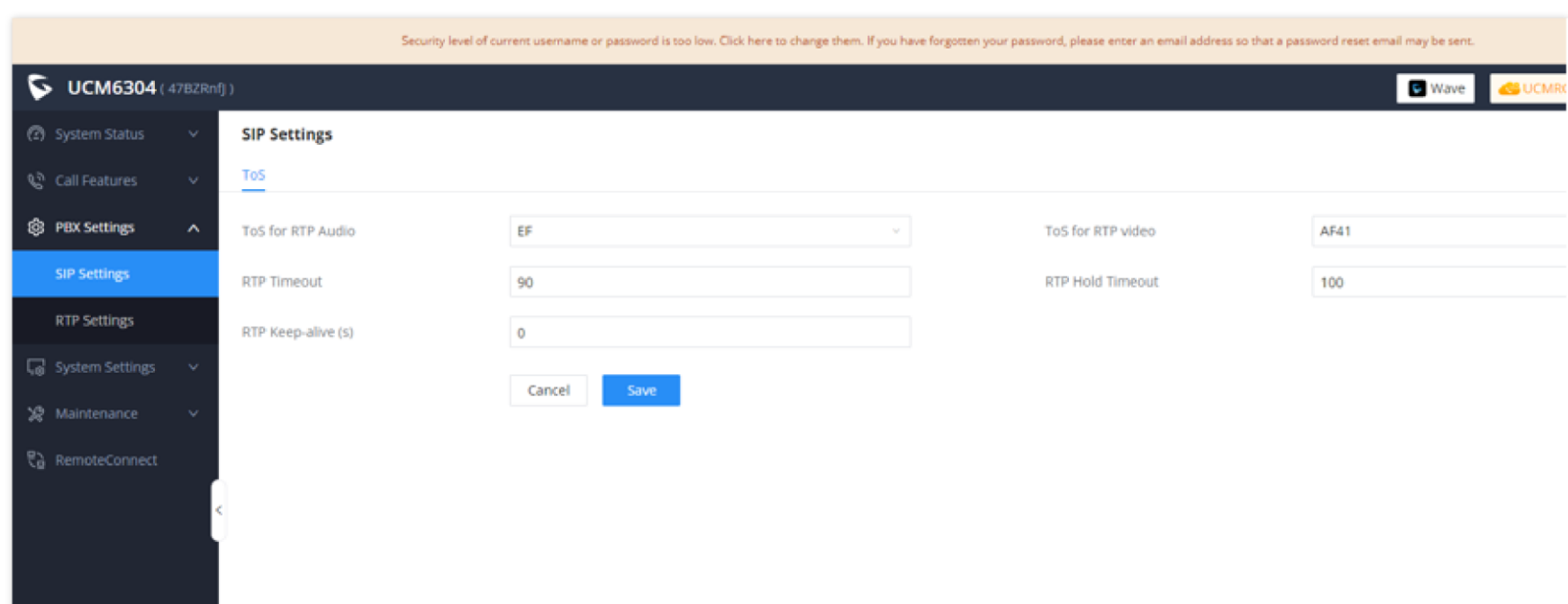
Setting	Value
Meeting Max Concurrent Audio	3
Meeting Voice Indicator Sensitivity	Medium
Meeting Audio Quality	Opus Fullband (48 kHz)
Meeting AGC (Beta)	<input type="checkbox"/>

Buttons for "Cancel" and "Save" are located at the bottom right of the settings area.

Multimedia Meeting Settings

SIP Settings

Please ensure that the following ToS SIP settings are identical across all the UCM devices which are involved in the cluster. To access the configuration page please navigate to **PBX Settings > SIP Settings > ToS**



The screenshot shows the configuration page for SIP Settings - ToS on a UCM6304 device. The page title is "SIP Settings" with a sub-tab for "ToS". The settings are as follows:

Setting	Value
ToS for RTP Audio	EF
ToS for RTP video	AF41
RTP Timeout	90
RTP Hold Timeout	100
RTP Keep-alive (s)	0

Buttons for "Cancel" and "Save" are located at the bottom of the settings area.

SIP Settings – ToS

RTP Settings

In case when the Business Server is behind a NAT router and does not possess a RemoteConnect plan, the user must configure port forwarding on the router and all the UCMs should have different ports ranges for the RTP and BFCP. Assuming that UCM1 has an RTP range of 10000-20000, UCM2 should use 20001-30000, and UCM3 should use 30001-40000 etc... The same logic should apply to BFCP, then port forwarding rules for both RTP and BFCP should be created at the level of the router, each range should correspond with its respective UCM IP address as the destination of the forwarding. If TURN server is used, then the same TURN server can be used for all the media servers.

To access the configuration page of RTP Settings, please navigate to **PBX Settings > RTP Settings**

RTP Settings

CLUSTER CAPABILITIES

The following table mentions the number of calls each business server is capable of processing and the additional calls that each media server will process based on the model of the UCM used.

	UCM6304	UCM6308
Business Server		
Max Concurrent Calls	300	450
Max Meeting Participants	200	300
Media Server		
Media Server Additional Concurrent Calls	335	390
Media Server Additional Meeting Participants	250	300

HIGH AVAILABILITY WITH THE CLUSTER

Local Hot-standby:

If the business server is configured with HA Local Hot-standby, then media server must configure the **Business Server IP** field with the HA cluster IP address. In case of HA failover, the secondary unit will also be able to take advantage of the existing media cluster.

Note

To configure Local Hot-standby for the UCM devices, please refer to the following guide:

[UCM630x/A – High Availability User Guide: Local HA](#)

Remote Disaster Recovery:

Cluster configuration is not synced in Remote Disaster Recovery environments. Users can choose to expand the capacity of only one of the UCMs or both units. In case of the latter, the primary and secondary units must configure their own separate cluster environments.

Note

To configure Remote Disaster Recovery for the UCM devices, please refer to the following guide:

[UCM630x/A – High Availability User Guide: Remote Disaster Recovery](#)