

Multicasting with Algo SIP Endpoints

Need Help?

(604) 454-3792 or support@algosolutions.com



Introduction

Using an RTP multicast, any number and combination of Algo speakers can activate simultaneously to broadcast a voice page announcement, ring event, emergency alert, scheduled bell, background music, etc. There is no limit to the number and combination of endpoints configured to receive multicast. The Algo paging system can be easily scaled to cover any size room, building, campus or enterprise environment.

All Algo IP speakers, paging adapters and strobe lights can be configured for multicast, where the device is designated as a Sender or Receiver. Only the endpoint designated as the Sender is registered to the telephone system. Receivers do not require SIP registration. This minimizes the costs associated with additional endpoint extensions in a hosted / cloud environment, or SIP licensing which may be required in a premise-based telephone system. Note: Network bandwidth is minimal in a multicast configuration as only one copy of the network packets (~64kb) are sent from the Sender, regardless of how many Receiver endpoints are listening to a given IP multicast channel/zone.

Zones are generally created in the Algo paging system using a multicast IP address. Each multicast IP address configured in the Sender endpoint, will stream audio to the specific group of Receiver devices configured. Receiver devices can be members of any number of multicast zones, including All Call.

Endpoints configured as Receivers require PoE and network connectivity to receive multicast, wired as a home run to a networked PoE switch. No additional Algo hardware or software is required.

Master/Sender and Slave/Receiver Configuration for Single Zone

This example shows how two or more devices can be used simultaneously in order to cover a large area for All Call (single zone). Only the Master device will require a SIP registration.

Part 1: Configuring the Master/Sender.

1. Log into the web interface by typing the device's IP address in the web browser. For device-specific instructions to discover the IP address, check its [User Guide](#), or use the [Network Device Locator](#).
2. The Master/Sender device will have to be configured for:
 - Paging/ringing/emergency alerting with a SIP extension
 - Input relay activation
 - Analog input via the Aux-In or Line-In (8301 only)
3. Navigate to Basic Settings -> Multicast and check the "Master/Sender" option in Multicast Mode. Configure the Master Single Zone to the appropriate zone (Default Zone 1). Hit save.

The screenshot shows the 'Multicast Settings' page in the Algo web interface. The 'Basic Settings' and 'Multicast' tabs are circled in red. The 'Multicast Mode' section has three radio buttons: 'None', 'Master/Sender' (selected and circled in red), and 'Slave/Receiver'. Below this, there is a link: 'Multicast Zone Definitions can be found in "Advanced Settings > Advanced Multicast"'. The 'Number of Zones' section has two radio buttons: 'Basic Zones Only' (selected) and 'Basic and Expanded Zones'. The 'Polycom Group Paging/Push-to-Talk' section has a 'Multicast Type' dropdown with several options: 'Regular (RTP)' (selected), 'Polycom Group Page', 'Polycom Push-to-Talk', 'Regular RTP + Polycom Group Page', and 'Regular RTP + Polycom Push-to-Talk'. The 'Master/Sender Zone Settings' section has a 'Zone Selection Mode' with two radio buttons: 'DTMF Selectable Zone' and 'Single Zone' (selected). Below this is a 'Master Single Zone' dropdown menu set to 'Zone 1' (circled in red). There is a note: 'If "DTMF Selectable Zone" is selected above, then this single zone setting will not apply to Paging (since the zone can now be dynamically selected per call using DTMF), but it will still apply to the Ring Extension and Relay triggered events.' The 'Speaker Playback Zones' section has several checkboxes: 'Priority Call', 'All Call', 'Music', 'Zone 1', 'Zone 2', 'Zone 3', 'Zone 4', 'Zone 5', and 'Zone 6'. There is a note: 'Allows master device to play audio for selected zones only. This is useful if using DTMF Selectable Zone mode (or More Page Extensions per zone) and wishing to make the Master unit a member of only certain zones.' A 'Save' button with a green checkmark is circled in red at the bottom right.

4. Advanced multicast configurations are found under Advanced Settings -> Advanced Multicast. For typical setups, the default settings can be used.

Part 2: Configuring the Slave/Receiver(s).

1. Navigate to Basic Settings -> Multicast and check the "Slave/Receiver" option in Multicast Mode.
2. Configure the Basic Slave Zones to subscribe to the appropriate zones. Hit save

Test to confirm all device are working as expected. Please follow the troubleshooting section if there are any issues.

Configuring Multiple Zones

There are two ways to configure a Master/Sender device for voice paging with multiple Zones

1. Registering a SIP extension per multicast Zone.
 - Navigate to Additional Features -> More Page Extensions
 - Enable the desired zones and enter the SIP credentials to register it
2. DTMF Selectable Zones (only applicable to voice paging): Once the Page extension is dialed the user is able to use DTMF tones to select a single Zone numbered 1-50 (using the telephone keypad).
 - Navigate to Basic Settings->Multicast
 - Change the **Zone Selection Mode** to **DTMF Selectable Zone**



Using the 8301 Scheduler for Multicasting.

The 8301 can be used as a scheduler to alert events such as the start of the day and lunch. These Events can then be sent to specific zones via multicast.

1. Create a schedule by navigating to Scheduler -> Schedules
Note: The 8301 will have to be set as a Master/Sender to be able to multicast the schedule.
2. Select which zone you want each event to be played in
3. Navigate to Scheduler -> Calendar, and apply the schedule to each day and month the schedule applies

The screenshot shows the ALGO Scheduler interface. At the top, there are navigation tabs: Status, Basic Settings, Additional Features, Scheduler (selected), Advanced Settings, System, and Logout. Below these are sub-tabs: Calendar, Schedules (selected), and Data. The main content area is titled 'Schedule Name' and 'Colour in Calendar'. It shows two existing schedules: 'Monday-Thursday' with a blue color and 'Friday' with an orange color. A '+ ' button is visible below the list. A 'Save' button is in the top right corner. The system time is 'Thu 09 Apr, 2020 10:01:10 (System Time)'. Below the schedule list, the 'Current Schedule: Monday-Thursday' is selected. A table of events is shown with columns: Description, Time, Audio, and Page Zone. The 'Page Zone' column is circled in red. The events are: 'Upstairs Bell' at 08:30:00 with audio 'bell-na.wav' and zone '1'; 'Downstairs Bell' at 09:00:00 with audio 'bell-na.wav' and zone '2'; and 'Lunch' at 12:30:00 with audio 'chime.wav' and zone 'All Call'. A '+ ' button is at the bottom left of the table.

Description	Time	Audio	Page Zone
Upstairs Bell	08:30:00	bell-na.wav	1
Downstairs Bell	09:00:00	bell-na.wav	2
Lunch	12:30:00	chime.wav	All Call

Multicasting using Audio Always On.

Primarily used to play background music, this feature will multicast the input audio on the Master Single Zone parameter (located under Basic Settings-> Multicast), as well as Line Out and Aux Out if configured. The input port and volume can be configured by navigating to Additional Features-> Input/Output-> "Audio Input Settings" section. Any call, alert, or scheduled event will interrupt the audio.

Custom Multicast IP Address and Port Number

Custom Multicast IP address and port number can be set for each zone. To update the default addresses, navigate to **Advanced Settings** -> **Advanced Multicast**. Make sure the address is within the range below and Master and Slaves zone definitions match.

- Multicast IP addresses range: from 224.0.0.0 to 239.255.255.255
- Port numbers range: 1 to 65535

Advanced Multicast Settings

Current multicast mode: Master
Multicast mode can be set in "Basic Settings > Multicast"

Master Settings

Master Output Codec: G.711 ulaw
Master Output Packetization Time (milliseconds): 20

Basic Zone Definition

Zone	IP Address and Port	Page Tone
Priority Call (DTMF:9)	224.0.2.60:50000	<Use Default Page Tone>
All Call (DTMF:0)	224.0.2.60:50001	<Use Default Page Tone>
Zone 1 (DTMF:1)	224.0.2.60:50002	<Use Default Page Tone>
Zone 2 (DTMF:2)	224.0.2.60:50003	<Use Default Page Tone>
Zone 3 (DTMF:3)	224.0.2.60:50004	<Use Default Page Tone>
Zone 4 (DTMF:4)	224.0.2.60:50005	<Use Default Page Tone>
Zone 5 (DTMF:5)	224.0.2.60:50006	<Use Default Page Tone>
Zone 6 (DTMF:6)	224.0.2.60:50007	<Use Default Page Tone>
Music (DTMF:7)	224.0.2.60:50008	<Use Default Page Tone>

Save

Default Multicast IP address: 224.0.2.60 port numbers 50000 – 50008

Note: Make sure that the multicast IP address and port number do not conflict with other services and devices on the same network.

Troubleshooting

Configuration Problems

The most common issues that may cause a problem with Multicasting between Master and Slaves are described below. Make sure the following settings match your device's configuration (dependant on Multicast Mode setup).

- Multicast Mode (located in Basic Settings -> Multicast)
 - Master = Master/Sender
 - Slave = Slave/Receiver
- Multicast Type (located in Basic Settings -> Multicast)
 - Master = Regular/RTP
 - Slave = Regular/RTP
- Zone Number (located in Basic Settings -> Multicast)
 - Ensure the Zone # that is selected on the Master is also ticked on the Slave. A proper configuration will ensure the Slave is listening to the Zone where the Multicast packets are being sent.
- Zone Definitions (located in Advanced Settings -> Advanced Multicast)
 - Ensure the IP Address and Port # matches, on both the Master & Slave, for the zone that is being used.

Network Related Problems

If the configuration on the Master and Slave devices is correct, any remaining problem should be related to the network. Below are some issues to be aware of:

- Ensure all devices in the Multicast Zone have IP addresses on the same subnet
- Assure all devices are in the same VLAN;
- Confirm all devices are reachable by pinging them;
- Make sure the network switches have Multicast enabled.

Scenario: multicast works when all units are connected to the same switch, but it does not when going through the network to a different switch

- ✓ Multicast masters use a TTL (Time to Live) of 1. This can be modified to allow more hops, thus avoiding the packet being dropped as it navigates to its destination
- ✓ To adjust this setting, navigate to System -> Maintenance -> Download Configuration File. In that file, look for "mcast.master.ttl" and set it to a value sufficient to handle the number of hops required. Save the file and upload it back to the unit.