BellCommander Configuration Guide – CyberData V2 Speakers

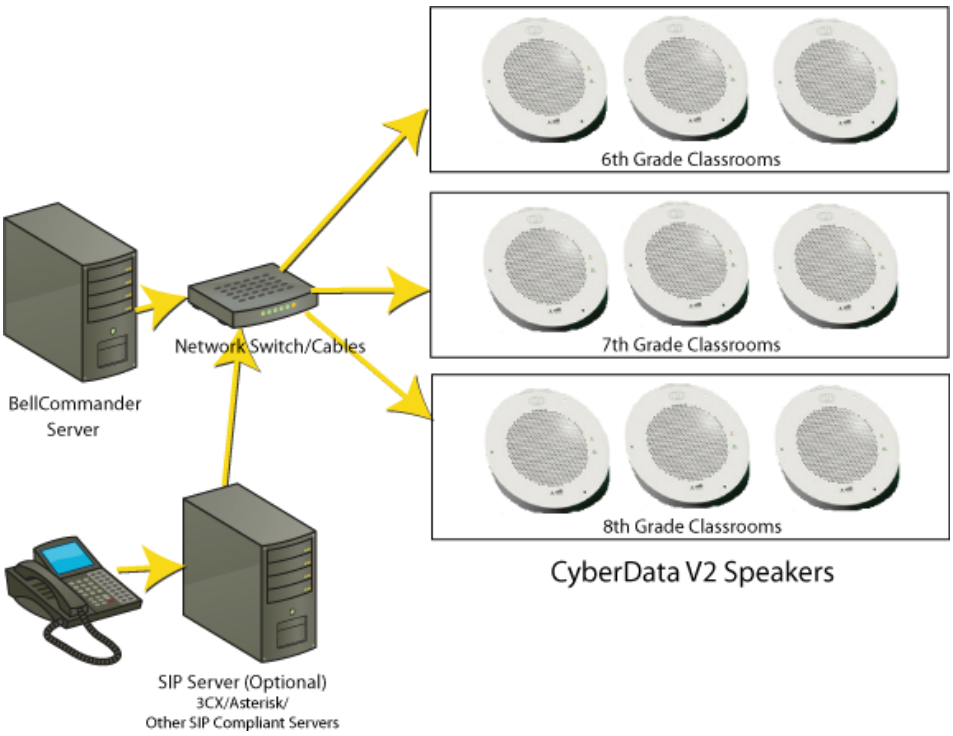
Overview: BellCommander works directly with CyberData V2 IP speakers for audio scheduling and emergency notification. This document details how to configure BellCommander with CyberData V2 speakers for optimal performance.

Multicast Configuration

In this configuration of BellCommander, the BellCommander software is used for audio scheduling and emergency notification. The BellCommander software communicates directly to the CyberData V2 speakers using multicast. Optionally, a SIP phone server, like 3CX or Trixbox/Asterisk, could be used to allow phones to communicate directly to the speakers. The CyberData V2 speakers have the ability to receive multicast from BellCommander and SIP calls from a SIP phone system in the same configuration. Earlier CyberData models do not support the ability to receive SIP and multicast in the same configuration.

Example Configuration:

The example configuration below is for a middle school with CyberData speakers for all classrooms. The BellCommander software communicates with the speakers directly using multicast and the speakers also register with a SIP phone system to receive SIP calls/pages from phones. The speakers are logically organized by grades below, but the physical connection would be a standard network connection via a PoE cable to each speaker.



Multicast Setup Guide

Speaker Configuration:

1. Install the latest firmware for the CyberData devices. (recommended)
2. Access each CyberData speaker by its web-based configuration tool (ex. http://192.168.1.51)
3. Click the Multicast Config button and check the Enable Multicast operation box and configure multicast groups that BellCommander will use:

In the configuration above three multicast addresses will be used by BellCommander for reaching the individual classroom, 7th grade classrooms, and the full campus.

For optimal performance, the system should be configured where BellCommander will send to a single multicast address for each scheduled bell/audio event. In the above configuration, the speaker has a unique multicast address, a multicast address that is shared by 7th grade classrooms, and a multicast address that is shared with all speakers (All Call). When BellCommander sends to the 7th grade multicast address, audio will play to all speakers configured with the 7th grade multicast address and port. The audio is sent by multicast which reduces network traffic and ensures that audio will be synchronized between speakers.

In the example configuration, other 7th grade classrooms would be configured with a unique individual classroom multicast address, but the 7th grade multicast address and the All Call multicast address would be the same on all speakers. For example, the 7th grade classrooms would use the following settings:

7th Grade - Classroom 1202		
Address	Port	Multicast Group Name
239.168.3.9	10000	BC All Call
239.168.3.8	9000	BC 7th Grade
239.168.3.7	**8001**	BC Classroom 1202

7th Grade - Classroom 1203		
Address	Port	Multicast Group Name
239.168.3.9	10000	BC All Call
239.168.3.8	9000	BC 7th Grade
239.168.3.7	**8002**	BC Classroom 1203

The 8th grade classrooms would share the same All Call multicast address and port with the 7th grade classrooms, but would use a different multicast address/port for the grade and a different multicast address/port for each speaker:

8th Grade - Classroom 1301		
Address	Port	Multicast Group Name
239.168.3.9	10000	BC All Call
239.168.3.8	**9001**	BC 8th Grade
239.168.3.7	**8101**	BC Classroom 1301

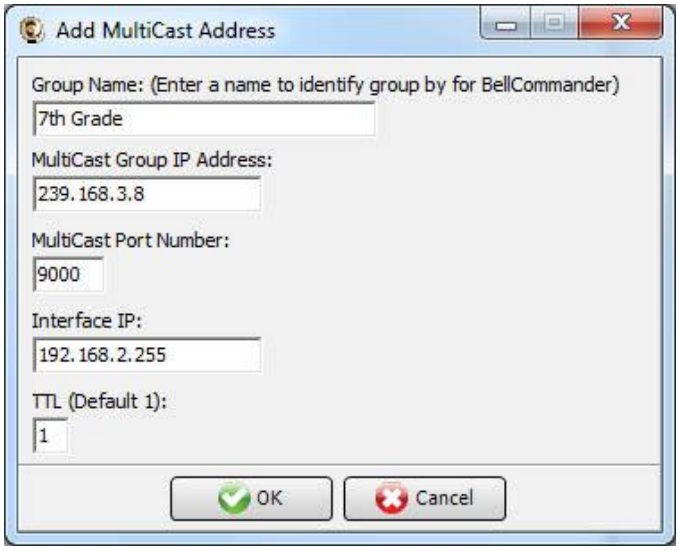
8th Grade - Classroom 1302		
Address	Port	Multicast Group Name
239.168.3.9	10000	BC All Call
239.168.3.8	**9001**	BC 8th Grade
239.168.3.7	**8102**	BC Classroom 1302

After the settings above are applied, BellCommander would be able to send multicast to address 239.168.3.9, port 10000, to page to all speakers. BellCommander would also be able to send to

239.168.3.8, port 9000, to page the 7th grade classrooms and 239.168.3.8, port 9001, to page to the 8th grade classrooms. BellCommander could also page to 239.168.3.7, port 8102, to page to just classroom 1302.

BellCommander Configuration:

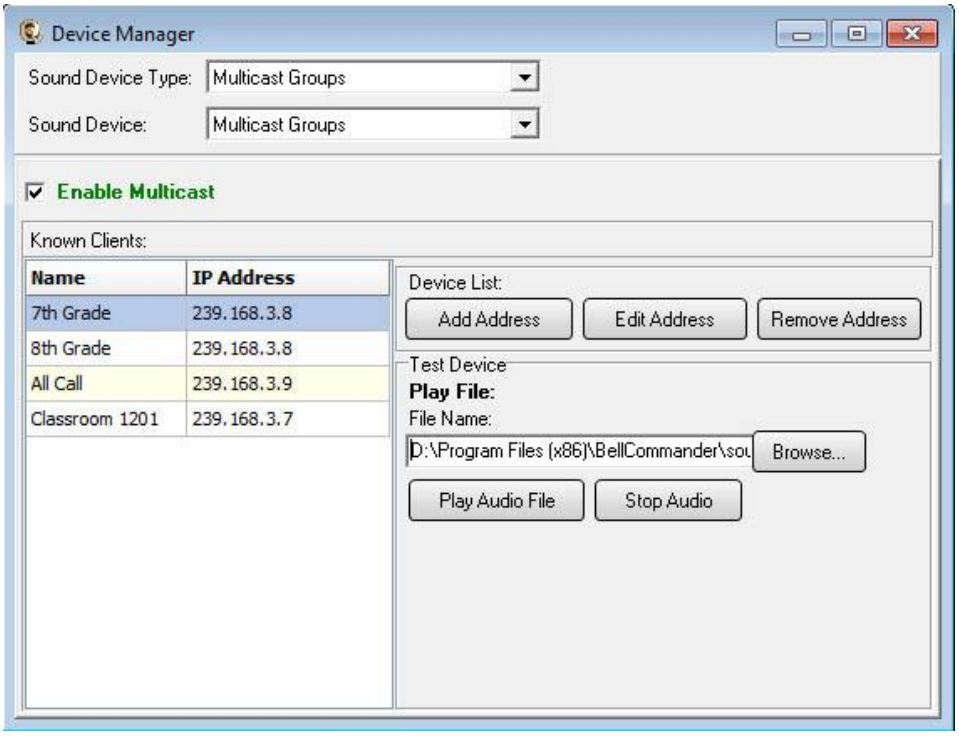
1. In BellCommander, add the multicast addresses:
    a. Open the BellCommander Device Manager by clicking the Devices button.
    b. Select Multicast Groups from the Sound Device Type drop-down.
    c. Click the Add… button.
    d. Enter the following values:
    Group Name – A name to identify the group by in BellCommander.
    Multicast Group IP Address – The multicast IP address
    Multicast Port Number – Corresponding port number
    Interface IP – Generally, the computer's IP with .255 at the end. If the computer is 192.168.2.132, then enter 192.168.2.255
    TTL – Time-To-Live for packets. Generally, set to 1 if on the same subnet.



This example shows adding the 7th grade multicast address/port to BellCommander.

    e. Repeat steps c and d for each multicast address.
    f. To test a multicast address, select a multicast address from the list

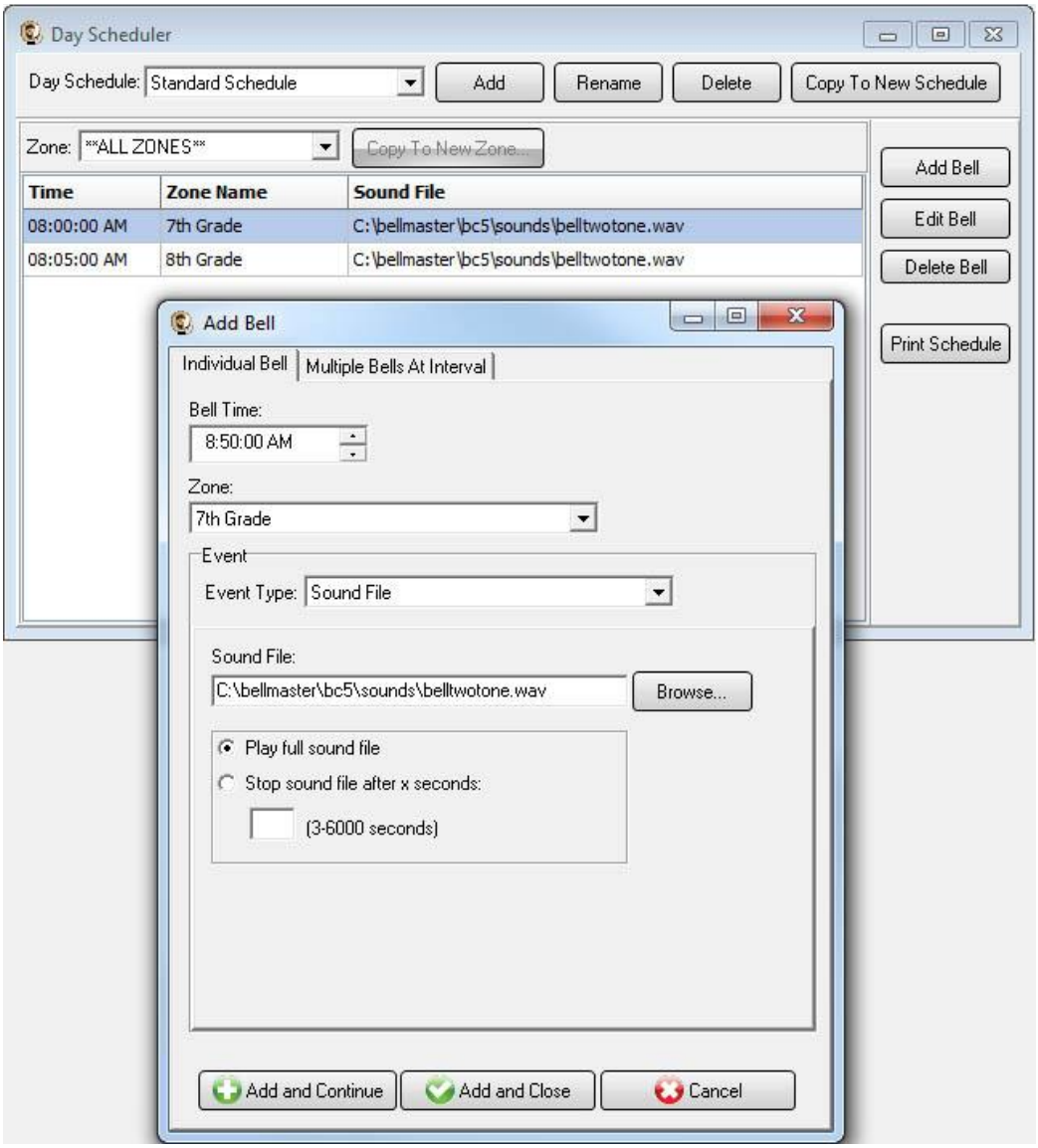
2. Test each multicast address, by selecting the multicast group from the list. Then, click the Browse… button to locate a WAV file and click the Play Audio File button to play the WAV file. The WAV file should play after the button is pressed.



Scheduling For Multicast Groups:

1. Create a zone in BellCommander for each multicast address.
    a. Click the Zones button to view the Zone Manager window.
    b. Click the Add Zone button to add a new zone. Enter a name for the zone, ex. Elementary Classrooms.
    c. Select the new zone and click the Edit Device List button. Select the corresponding multicast group from the Available Devices and click the ">>" button to add it to the zones. Multiple multicast groups can also be added to create a zone consisting of multiple smaller zones; though, for the best results with audio timing and network traffic, use a single multicast group per zone.

2. Create a day schedule. A day schedule represents a single day's 24 hour schedule that can be applied to dates on the BellCommander calendar. To create a Day Schedule:
    a. Click the Day Scheduler button.
    b. Click the top Add button to add a new day schedule. Enter a name to identify the schedule, ex. Standard Schedule
    c. Click the Add Bell button to add a new bell to the schedule. In the Add Bell window,
        i. Select the time for the bell.
        ii. Select the zone that the bell should play to.
        iii. For a single sound file select, select "Sound File" for the event type and select a WAV audio file.



3. Assign the day schedule(s) to the Calendar Scheduler. To assign schedules to the Calendar Scheduler:
    a. Click the Calendar button to view the Calendar Scheduler window.
    b. Click the Set Default Weekly schedule button to set the default schedule and set the following values:

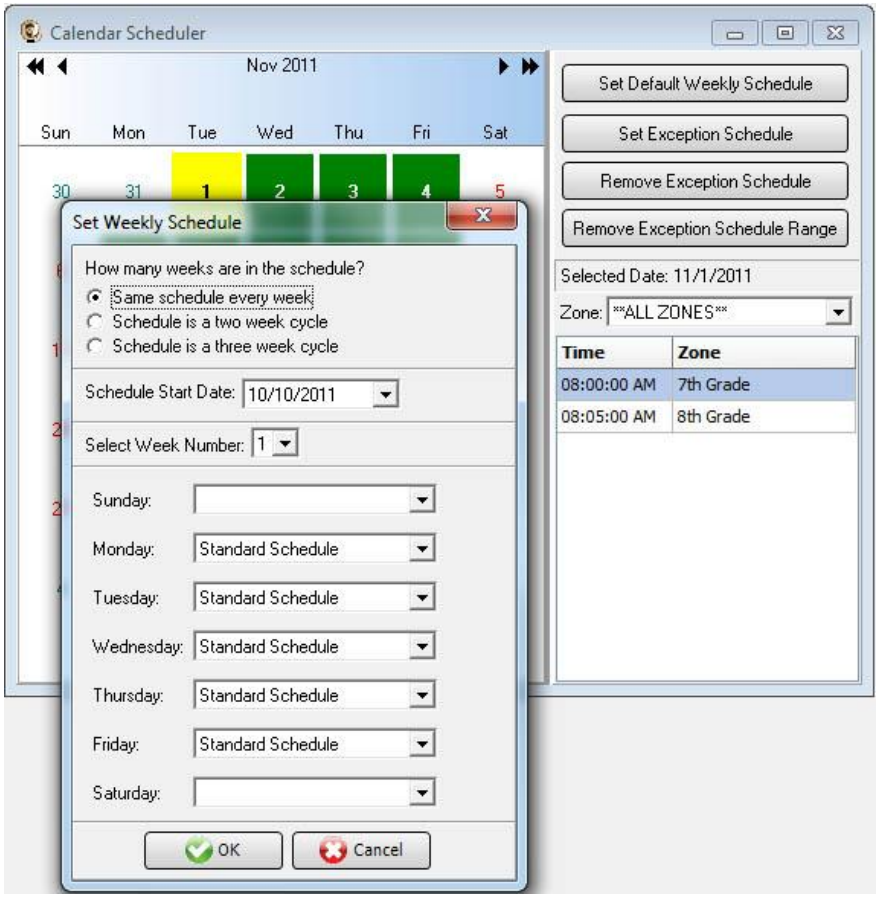
       Weeks in the schedule:

       If schedule is the same every week, select "Same schedule every week".
       If schedule repeats bi-weekly, select "Schedule is a two week cycle".
       If schedule repeats tri-weekly, select "Schedule is a three week cycle".

       Schedule Start Date – If schedule starts in the future select a future date; otherwise, the default value (12/30/1899) will start the schedule immediately.

       Select Week Number – If using a bi-weekly or tri-weekly schedule, this allows the first, second, or third week to be selected for the days of the week listed. Select 1 to program the first week, 2 to program the second week, 3 to program the third week.

       Days of the week – Use the drop-down for each day of the to select a schedule. If no audio should be scheduled for the day of the week, leave the day name blank.



    c. To set different schedules by date, add additional schedules in the Day Scheduler and select dates on the calendar and click the Set Exception Schedule button to set different schedules by date.

Notifications:

To configure notifications to broadcast to CyberData IP speakers, first define a multicast address and port that will be shared between all CyberData units. This can be the "BC All Call" multicast address from the scheduling portion of this document above or a different multicast address may be used. The multicast address should be one of the highest priority multicast addresses on the CyberData units.

To configure the notifications in BellCommander to use the multicast address, first add the multicast address to the Device Manager in BellCommander. Then, create a zone in the Zone Manager and assign the multicast address to the zone. Then, click the Notifications button on the BellCommander toolbar to open the Notifications window. Select one of the notifications and edit the action which plays the sound file. Change the zone for the action from "Sound Card" to the zone with the multicast address that will broadcast to all CyberData speakers:

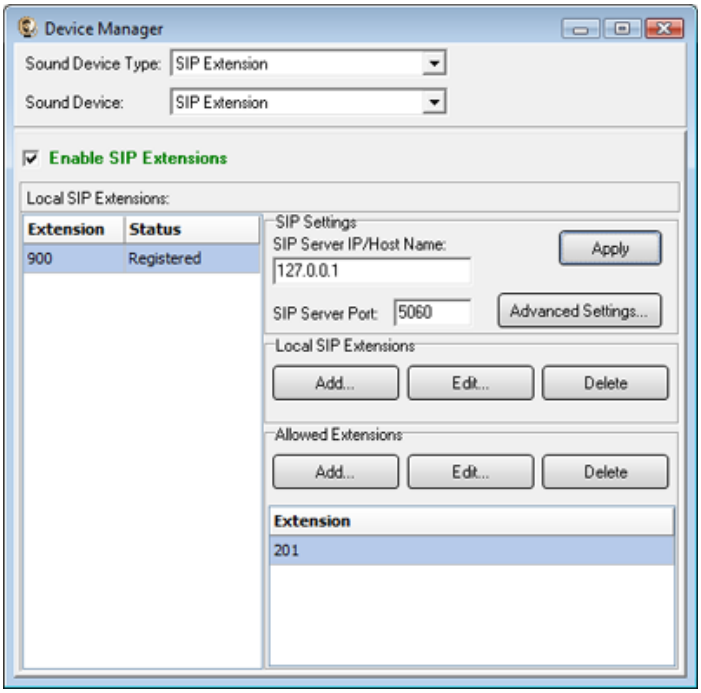
After changing the notification, test the notification by clicking the notification button in the notification bar on the left side of the main BellCommander window. Clicking the button once will activate the notifications. Clicking the button a second time will de-activate the notification. While a notification is active, no bell events will play.

To configure the notifications to be launched from a SIP phone, a SIP code should be defined for the notification. To set the SIP code, edit the notification and enter a SIP code:

BellCommander should also register a SIP extension that authorized users can dial to trigger emergency notifications. An extension should first be added to the phone system that BellCommander will register. The procedure to add the extension will vary by phone system. See http://www.acrovista.com/bellcommander/sip-version.html for phone system guides. Most systems should be similar to Trixbox, if not listed. After adding the BellCommander extension to the phone system, add the extension to BellCommander:

a. Open the BellCommander Device Manager by clicking the Devices button.
b. In the Sound Device Type drop-down select “SIP Extension”
c. Check “Enable SIP Extensions”
d. Enter the SIP server IP and port number.
e. Click the Apply button.
f. Add a SIP extension for BellCommander to register:
    i. Click the Add… button under Local SIP Extensions.
    SIP Extension - Extension that was added to .
    Extension Password – Password for the extension that was added to the phone system.
    Local Port Number – Can typically use the default value
    Map To Zone – Leave this blank for emergency notification.
    SIP Server Options – Select “Connect to default SIP server”
    ii. After adding the extension, the extension should appear in the Local SIP Extension list with a status of “Registered”
g. Add the extensions that are allowed to call BellCommander for emergency notification.
    i. Click the Add… button under Allowed Extensions.
    ii. Enter a phone extension that will be allowed to call BellCommander.

iii. Repeat for additional extensions. BellCommander is licensed by the number for allowed extensions, so the number of allowed extensions may be restricted by the license.



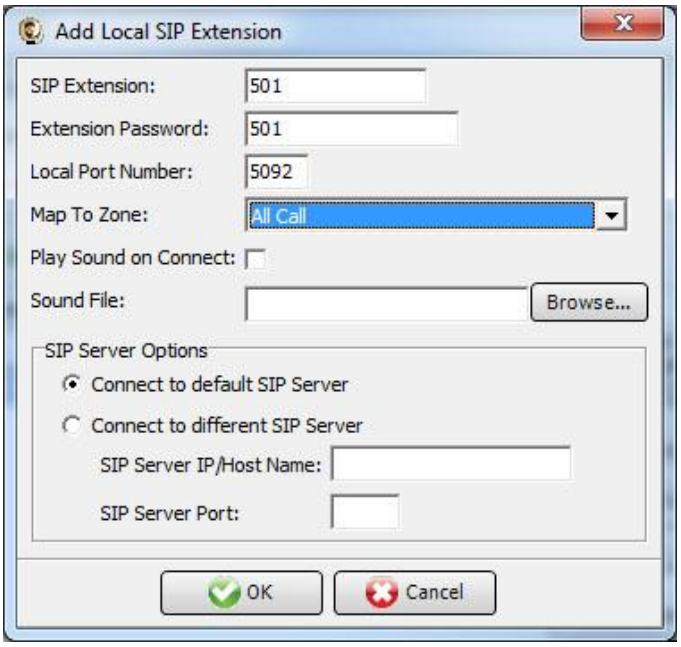
To launch a notification from a phone, use a phone that is listed under the Allowed Extensions list and dial the extension that was added under SIP Extensions. Enter the SIP code followed by the # key to start the notification (ex. 991#). Enter the 999# to stop an active notification.

Paging:

Paging with the CyberData V2 products is normally performed directly within a phone system by a user dialing a paging group extension/code that has all CyberData devices assigned to the paging group. When users dial the paging group extension/code, the audio from the caller is played to all speakers and phones in the paging group.

BellCommander can also act as a SIP to multicast gateway to page to the CyberData speakers if the phone system does not support paging. Users would call the BellCommander extension and BellCommander would take the audio from the call and send it via multicast to the CyberData speakers. To configure the SIP to multicast feature:

To configure direct paging from the BellCommander extension to multicast, follow the same steps on page 10 to add an extension to BellCommander, except set the “Map To Zone” for the extension to a zone with a multicast group assigned to it.



To page from a phone, dial the BellCommander extension (501 in the example above) and BellCommander should answer and immediately begin sending audio from the call to the multicast group.