

## BellCommander Web Manager Guide

### Introduction:

The new BellCommander Web Manager provides a streamlined web interface that allows complete management of the BellCommander system through standard web browsers. The system can be used to manage individual sites or a new enterprise/district configuration with multiple schools/sites managed from a single server with separate users and schedules for each school/site.

### System Requirements:

Windows 11, 10, Server 2022, Server 2019, Server 2016, or Server 2012R2

1.8 GHz i3 dual core or higher processors (2 cores on a VM; 4 recommended for 50+ clients or SIP 10+ zones)

4 GB RAM

200 MB HD space

### Software Installation:

The BellCommander software contains a desktop interface that control system level settings and can still be used for managing a single site. AcroVista will provide a license name and serial code specific to desktop interface. To launch the desktop interface after installing BellCommander, click the Windows Start Button, open the BellCommander folder, and open BellCommander. BellCommander will then prompt for the name and serial code:

Welcome to BellCommander

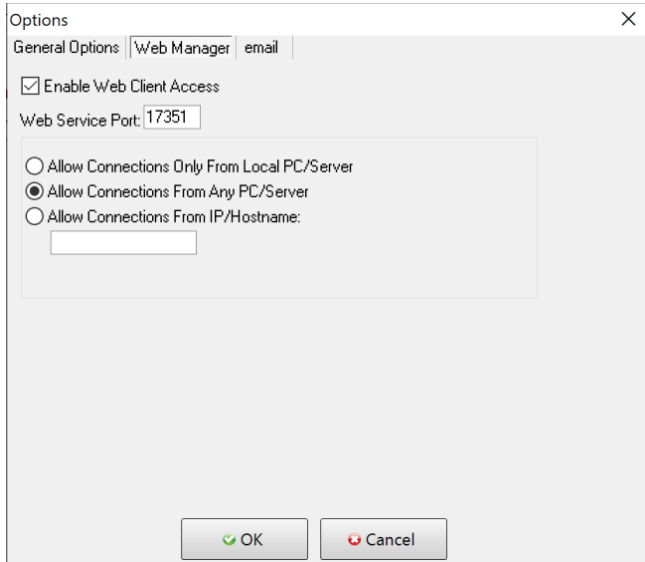
Please enter the name BellCommander was registered under

Please enter your serial number below:

Note: Please refer to your registration email message for the serial number.

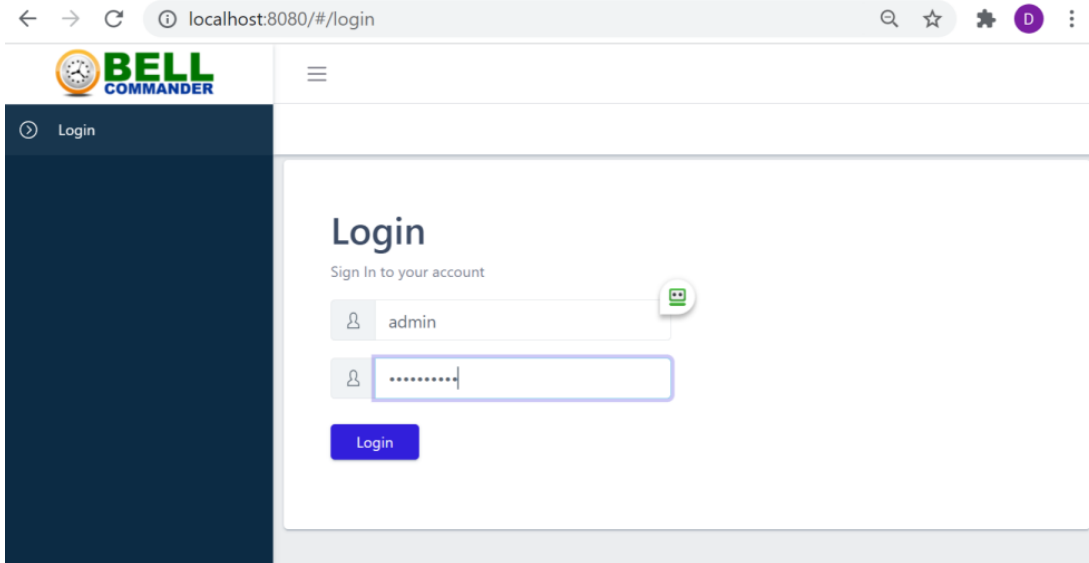
OK Cancel

After entering the serial, select Options|General Options from the BellCommander menu and verify that “Enable Web Client Access” is checked. The port shown is for the previous web interface. By default, the new server will run on port 8080, but the port can be changed in the \Program Files (x86)\BellCommander\bellcommander.ini file.

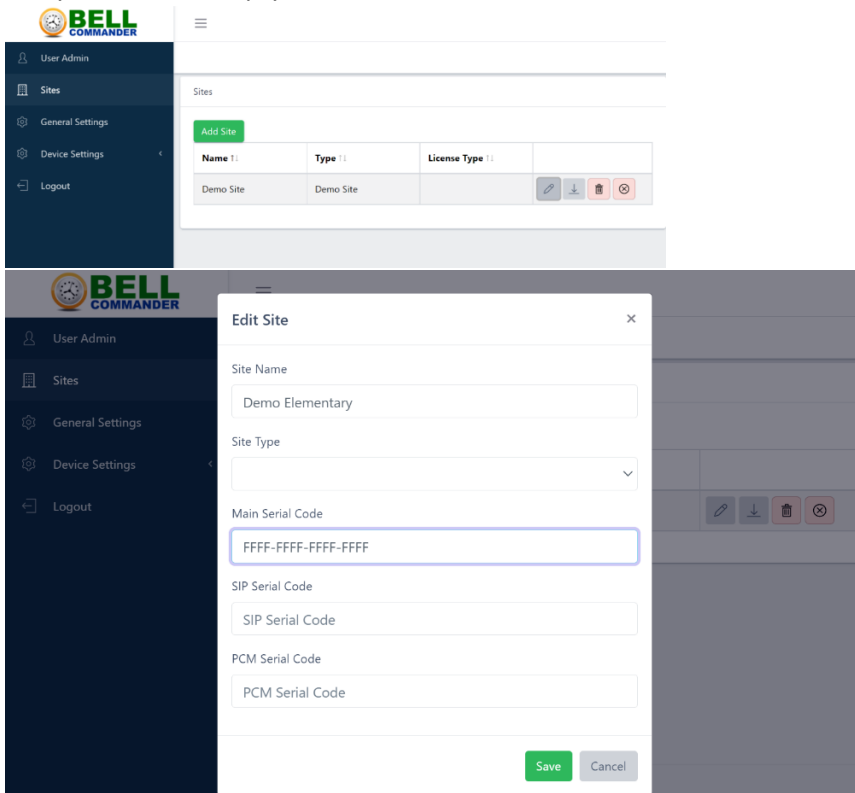


## Web Manager Setup:

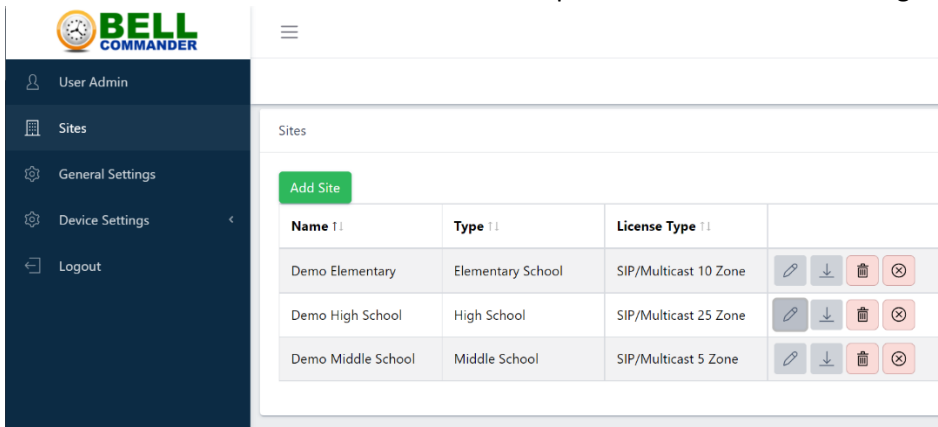
For the initial web setup, open a web browser and go to to open the Web Manager login page. If the browser is on the same system with BellCommander, can be used. Then, enter the default login: admin password: webadmin12



Click the Sites link to setup the sites and licensing. By default, a “Demo Site” entry will be listed. **Edit this entry** for the initial site or the only site on a single site system instead of adding a new site so that it will stay synchronized to the desktop interface and enter the license name and serial code(s) provided. The Site Type entry can be left empty.

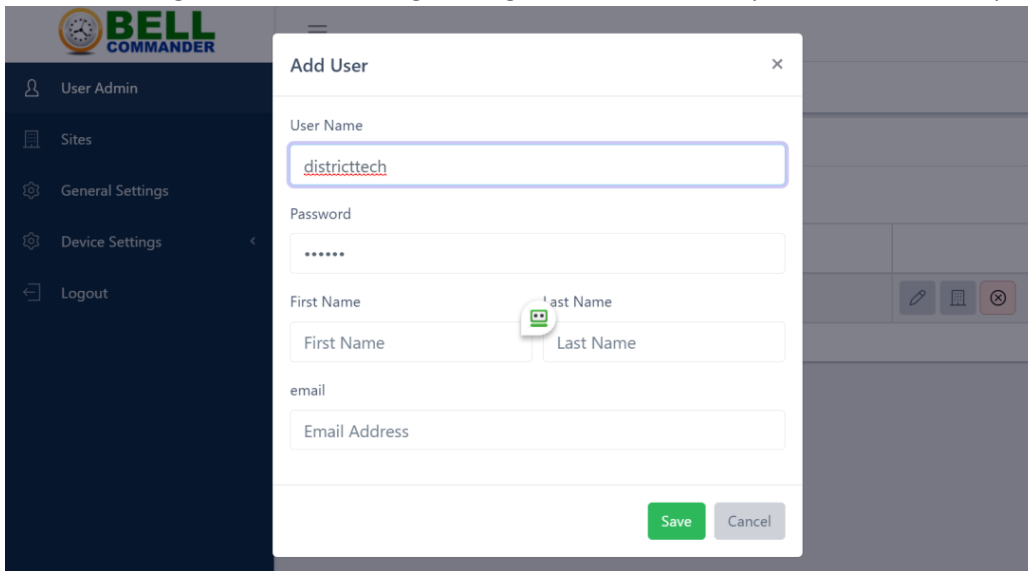


After adding the sites, the Sites page will show the license type for each license entered. The Import button for each site can also be used to load data from a previous BellCommander single site installation.



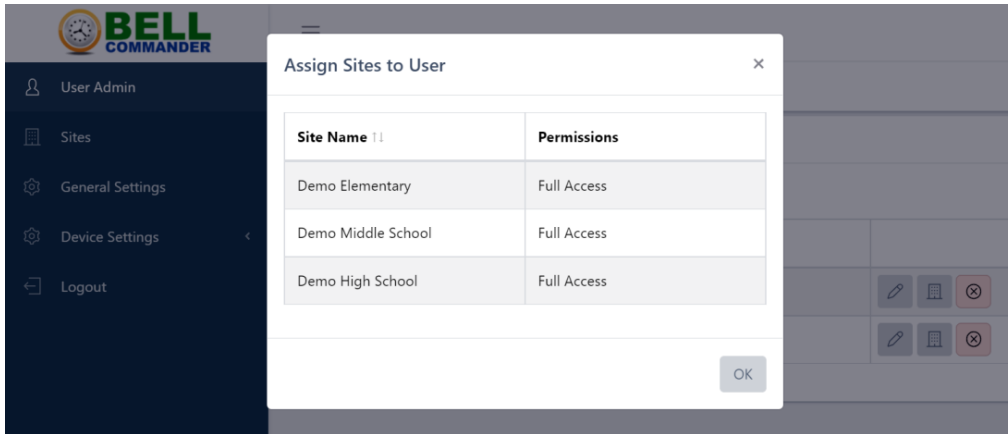
### User Accounts:

User level accounts can be managed through the admin area to create users that have access to specific sites with different permission levels. To add/edit a user account, click on the Users link and then add a new user or edit an existing user. When adding/editing a user account, only the username and password are required:



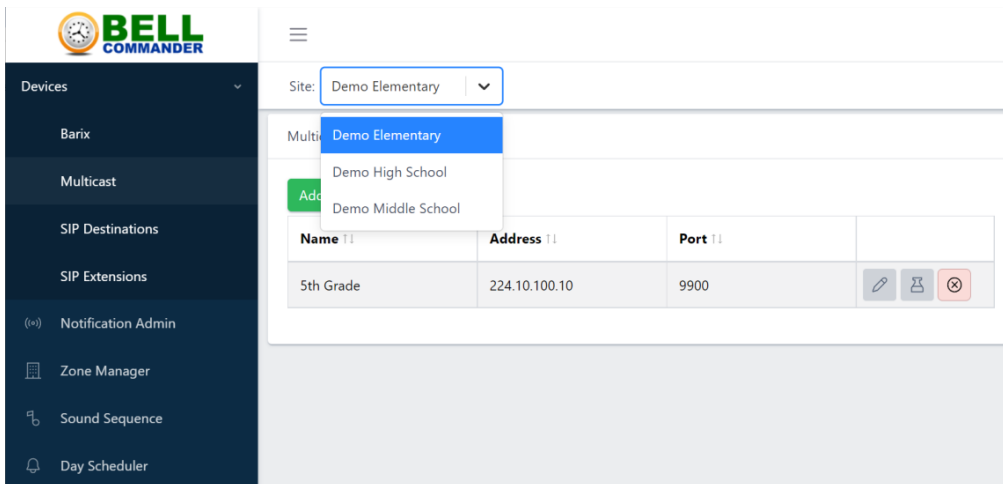
In this example, we created a “districttech” login. The user will have no access to the sites until given permission in the web admin.

To assign permissions, click the building icon and set the permissions level. Full Access will provide access to all areas, including device management and the ability to create notifications:



### Device Management:

Most device types are managed in the user level access area. To login and manage devices, logout of the admin area and login with a user with “Full Access” rights to at least one site. In the user area, expand the Devices node on the menu. The types of devices on the site’s license will be displayed on the left side of the page. If the user has access to more than one site, the Site drop-down at the top will allow the user to switch between sites. Most devices will have add/edit/delete buttons and a button to test the device:



## Multicast Groups:

Multicast groups can be used to send audio to IP speakers, IP phones, and other devices that support multicast audio streams. To add a multicast group, select the Multicast device type and add a multicast group and enter the following:

**Name:** A name to identify the group as in BellCommander

**Multicast Address and Port:** The address and port should match the address the devices for the zone are listening on

**Interface IP:** Use default unless specifying a specific network adapter on a multi-network system

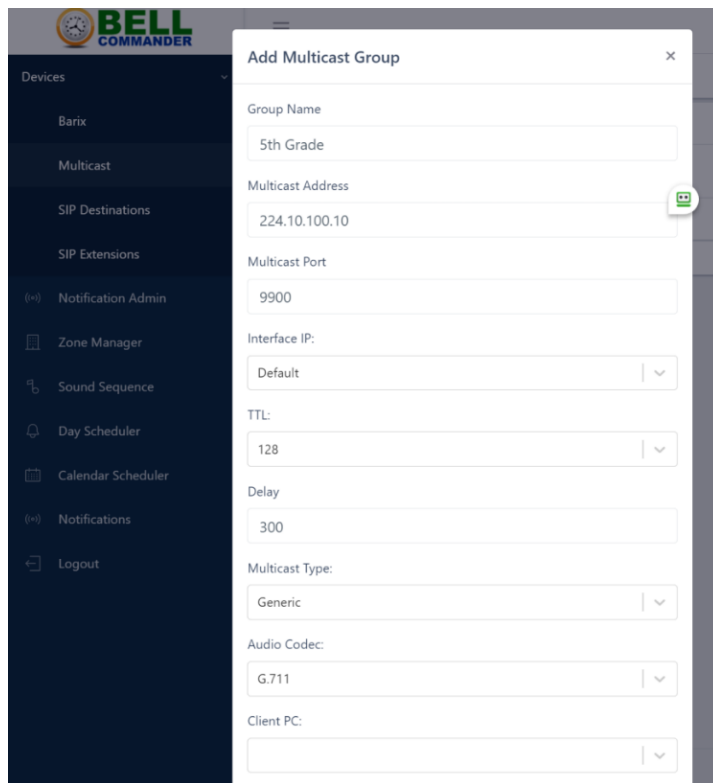
**TTL:** Use 1 if BellCommander and the speakers are on the same subnet/VLAN. Use 128 or network admin specified value if they're on different subnets. Managed switches/routers may also need to have multicast forwarding enabled in this case.

**Delay:** Delay between the scheduled time and when the audio starts to allow for speaking connection/beep

**Multicast Type:** Use "Polycom" for Polycom devices and Generic for most other devices

**Audio Codec:** G.711 and G.722 are currently supported. G.722 may not be supported on older IP speakers

**Client PC:** This is a more advanced option where BellCommander sends audio to a client that rebroadcasts multicast for WAN or complex network deployments. Contact AcroVista for more information.

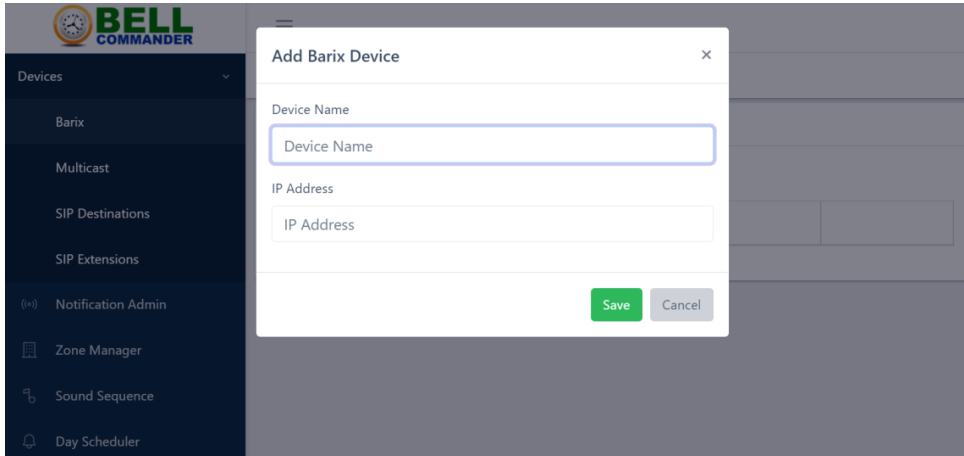


The screenshot shows the Bell Commander web interface with a sidebar on the left containing navigation options: Devices, Barix, Multicast, SIP Destinations, SIP Extensions, Notification Admin, Zone Manager, Sound Sequence, Day Scheduler, Calendar Scheduler, Notifications, and Logout. The 'Multicast' option is selected. A modal window titled 'Add Multicast Group' is open, displaying the following fields:

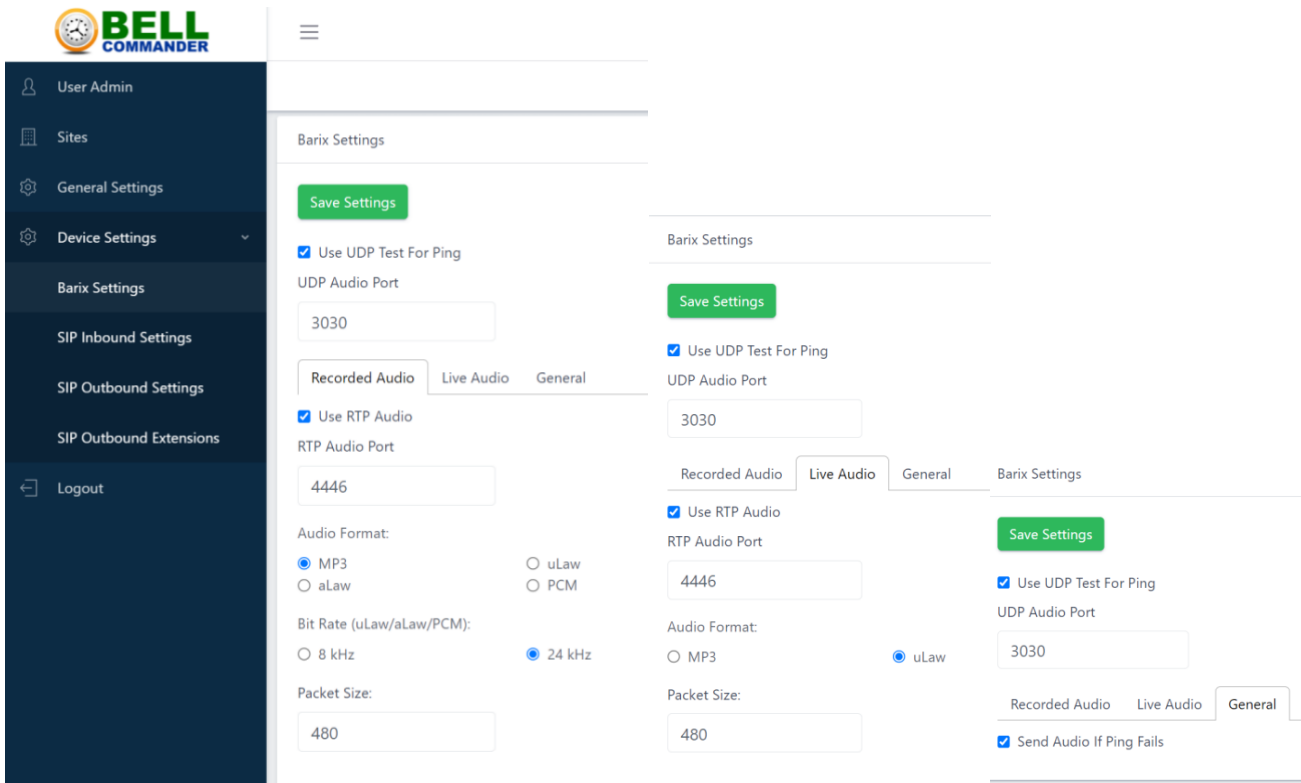
- Group Name: 5th Grade
- Multicast Address: 224.10.100.10
- Multicast Port: 9900
- Interface IP: Default (dropdown)
- TTL: 128 (dropdown)
- Delay: 300
- Multicast Type: Generic (dropdown)
- Audio Codec: G.711 (dropdown)
- Client PC: (empty dropdown)

## Barix Devices:

Barix devices can be added for each site through the user area. When adding the device, only a name for the device and the IP address/hostname are required. The main page will show the status of whether communication was successful to the device. The advanced global settings for the devices (ports, audio formats, etc.) are managed through the admin area of the web interface.



The Barix system-wide settings are managed in the admin area under Device Settings->Barix Settings. With the current Streaming Client firmware or other modern firmware versions, the settings below are typically used and the device's RTP/priority port should match (<http://download.acrovista.com/barixconfig-streaming.pdf>)



## SIP Destinations:

SIP Destinations are used to make SIP calls for sending bells and notifications. Before adding a SIP Destination, login to the admin area and create an outbound extension (Device Settings->SIP Outbound Settings) that BellCommander will register to call out on.

The screenshot displays the Bell Commander admin interface. On the left is a dark blue sidebar with the Bell Commander logo and navigation menu items: User Admin, Sites, General Settings, Device Settings (expanded), Barix Settings, SIP Inbound Settings, SIP Outbound Settings, SIP Outbound Extensions, and Logout. The main content area shows the 'SIP Outbound Server Settings' page. It has a 'Save Settings' button at the top left. Below it are two tabs: 'Main Settings' (selected) and 'Advanced Settings'. The 'Main Settings' section includes: 'SIP Server IP/Host Name' (192.168.68.122), 'SIP Server Port (default 5060):' (5060), 'Domain (optional):' (SIP Domain), and 'Seconds to Begin Dialing Before Bell Time:' (3). There is also an unchecked checkbox for 'Send Invite without Registering as a SIP Server'. The 'Advanced Settings' section includes: 'Delay Before Playing WAV File in milliseconds (0-10000 ms):' (2000), 'Delay Before Hanging Up (0-10000 ms):' (1000), 'SIP Packet Size (20-100 ms):' (20), 'Starting RTP Port (20-65535):' (16412), and 'Registration Interval (30-7200 seconds):' (1200). At the bottom of the advanced settings are several checkboxes: 'Send RTCP' (checked), 'Send DTMF In-Band' (unchecked), 'Use Early Media (Alcatel/SIP systems with early media):' (unchecked), 'Use Compact Headers(Live):' (unchecked), and 'Use G.722 Audio:' (unchecked).

For the main settings:

SIP Server IP/Host Name: SIP server where BellCommander should send registration request

SIP Server Port: Port that the SIP server is listening on. On many systems this is port 5060

SIP Domain: Optional. Used most frequently with outbound proxies

Seconds to Begin Dialing Before Bell Time: How early BellCommander should begin the call/page process for the bell to allow time for the call to connect and sound to begin playing

Send Invite without Registering: Usually left unchecked unless SIP server allows direct dialing without a SIP registration

Advanced Settings:

Delay Before Playing Audio File: How long BellCommander waits to play audio file after connecting

Delay Before Hanging Up: How soon BellCommander waits to hang up after sound is played

SIP Packet Size: Usually 20ms, but can be adjusted

Starting RTP Port: Default value can generally be used unless it needs to be adjusted for a firewall or port conflict with another program

Registration Interval: The option is changed to a shorter interval on hosted/cloud systems

Send RTCP: Send RTCP packets that may help with audio quality. RTCP packets are sent on the next port above the port that the RTP packets are sent on



Send DTMF In-Band: Sends DTMF in audio within the call. This option is not recommended

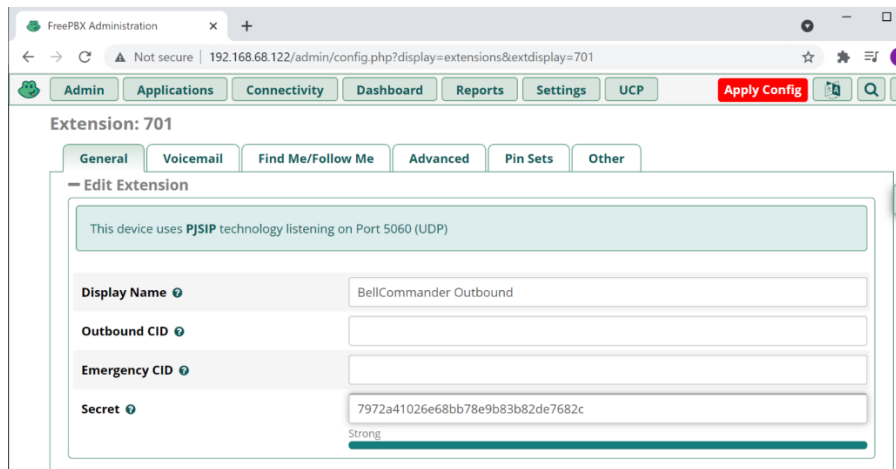
Use Early Media: Most systems should leave this disabled

Use Compact Headers: Will send compact SIP headers as required by Jive

Use G.722 Audio: Will send higher quality G.722 audio instead of G.711. The phone system and devices being paged will need to support G.722.

The next step will be to add the extensions that BellCommander will register to call out on. An outbound SIP extension should be created for each concurrent call on the entire system. For example, if Site 1 and Site 2 will have at most 2 concurrent calls each, it's recommended to register 4 outbound extensions.

A SIP extension should be added to the phone system for BellCommander to register. The example below shows a SIP extension on a FreePBX phone system. Additional guides are available at <https://www.acrovista.com/bellcommander/sip-version.html>



The screenshot shows the FreePBX Administration interface for configuring Extension 701. The browser address bar indicates the URL is 192.168.68.122/admin/config.php?display=extensions&extdisplay=701. The interface includes a navigation menu with tabs for Admin, Applications, Connectivity, Dashboard, Reports, Settings, and UCP, along with an Apply Config button. The main content area is titled "Extension: 701" and features several tabs: General, Voicemail, Find Me/Follow Me, Advanced, Pin Sets, and Other. The "General" tab is active, showing the "Edit Extension" form. A message at the top of the form states: "This device uses PJSIP technology listening on Port 5060 (UDP)". The form fields are as follows:

Field	Value
Display Name	BellCommander Outbound
Outbound CID	
Emergency CID	
Secret	7972a41026e68bb78e9b83b82de7682c

Below the Secret field, a strength indicator shows "Strong" with a corresponding bar.

After adding the SIP extension to the phone system, log into the admin area and go to Device Settings->SIP Outbound Extensions and add the extension that BellCommander will register. The Extension/ID and Password are required from the phone system. The authorization name may be required by some phone systems. The Local Port Number is the port that BellCommander uses and can be any open port. The Interface IP should typically be left on the default, except on multi-network systems where a specific network adapter is used:

The screenshot shows a modal dialog titled "Add Local SIP Extension" with the following fields:



- Extension/ID: 701
- Authorization Name (optional): Authorization Name
- Display Name (optional): Display Name
- Password: [Redacted]
- Local Port Number: 6102
- Interface IP: Default

Buttons: Save, Cancel

After the outbound extension is added, the status should show "Registered". If it shows "Not Connected", the registration failed. The BellCommander log files \Program Files (x86)\BellCommander\logs will show all SIP communication.

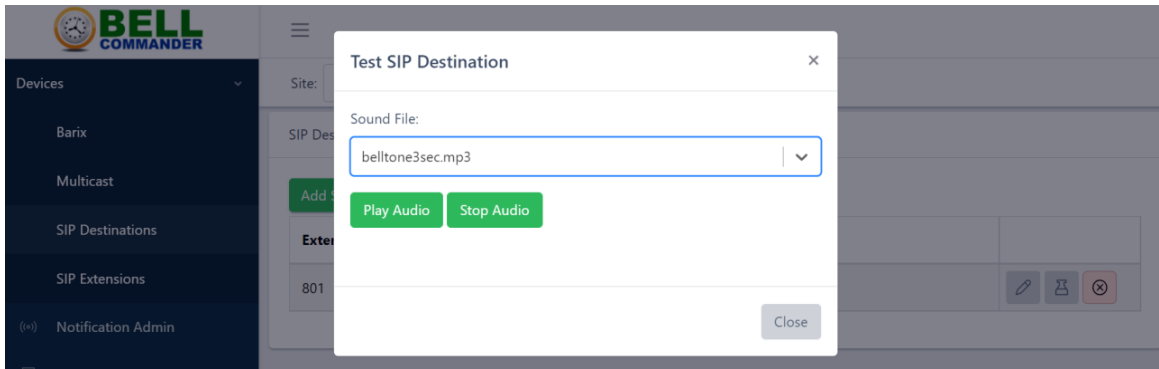
Once the SIP outbound extension is created and registered, login to the user area with a user with "Full Access" permissions and add SIP Destinations for each site. Only a name and the extension number/ID that BellCommander will be calling are required:

The screenshot shows the "SIP Outbound Extensions for SIP Destinations" section in the admin interface. It includes a table with the following data:

Extension/ID	Status	
701	Registered	 

Buttons: Add Local SIP Extension

If the extension status shows “Registered”, try sending a MP3 or WAV file and verify that the audio plays:



### SIP Inbound Extensions:

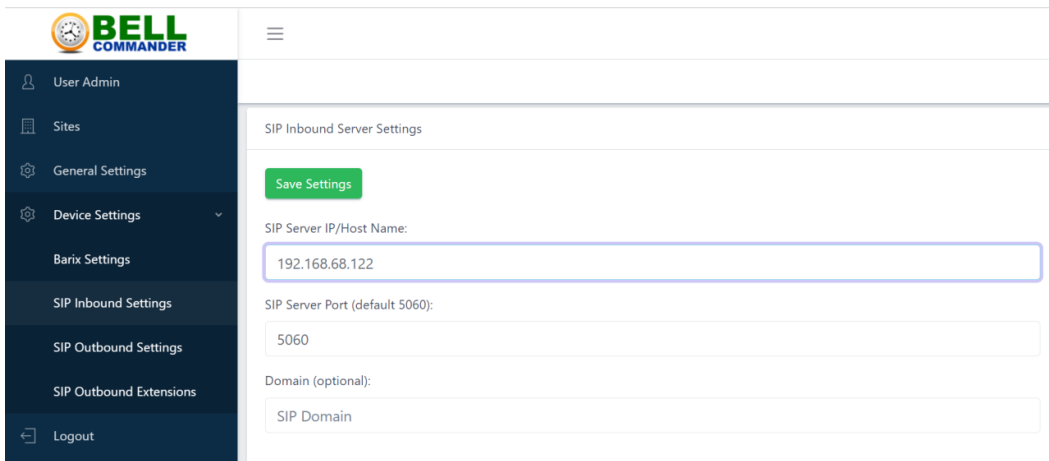
BellCommander can also register extensions to allow users to call into BellCommander to activate notifications and for SIP to multicast, Barix device, or client PC paging.

For the initial configuration, login to the admin area and select Device Settings->SIP Inbound Extensions and edit the following settings:

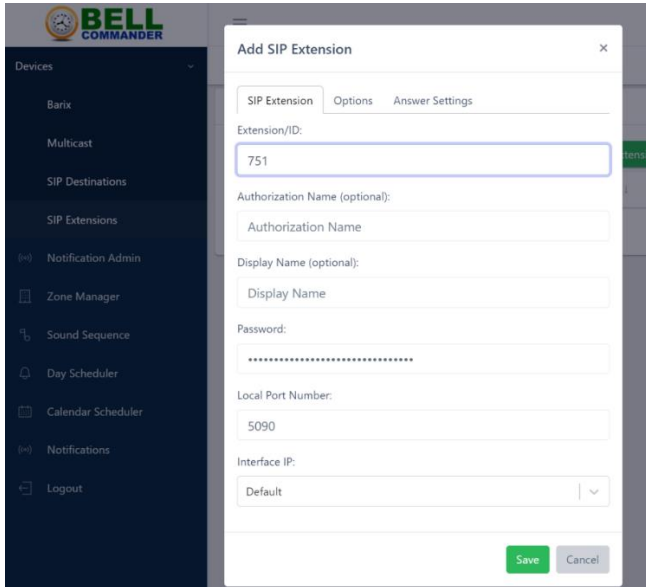
SIP Server IP/Host Name: SIP server that BellCommander should register to.

SIP Server Port: Uses 5060 unless specified differently in phone system

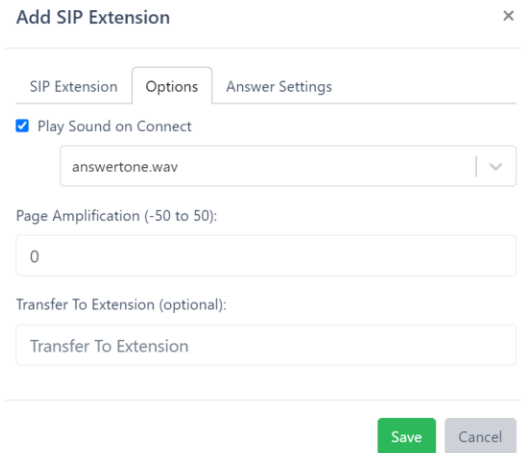
Domain: Can typically be left blank except primarily on hosted systems when a domain is required on the phone system.



Next, login to the user area with a user with “Full Access” permissions and go to Devices->SIP Extensions and add a SIP Inbound Extension. The SIP extension/ID and password are required and should match the phone system. The Authorization Name should also be entered if required by the phone system. The Local Port Number is used by BellCommander for SIP communication for the extension. The Interface IP can typically be left at the default, except on multi-network systems when a network needs to be specified.



Under the Options tab, the Play Sound On Connect will play the specified sound to the caller calling into BellCommander. The Page Amplification will change the level of the audio being sent on a live page to a multicast group from BellCommander. High level values could result in audio clipping.



The Answer Settings tab will set the action that BellCommander takes when it receives a call. Answer and wait for a user to dial a SIP code with have BellCommander answer and wait for the user to enter a SIP code from the Notifications page or the Zone Manager page followed by the # key.

**Add SIP Extension** ×

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SIP Extension   Options   **Answer Settings**

Action to perform when answering call:

Answer and wait for a user to dial a SIP code

Page Zone  
4th Grade ▼

Launch Emergency Notification  
Fire ▼

Stop Active Notifications

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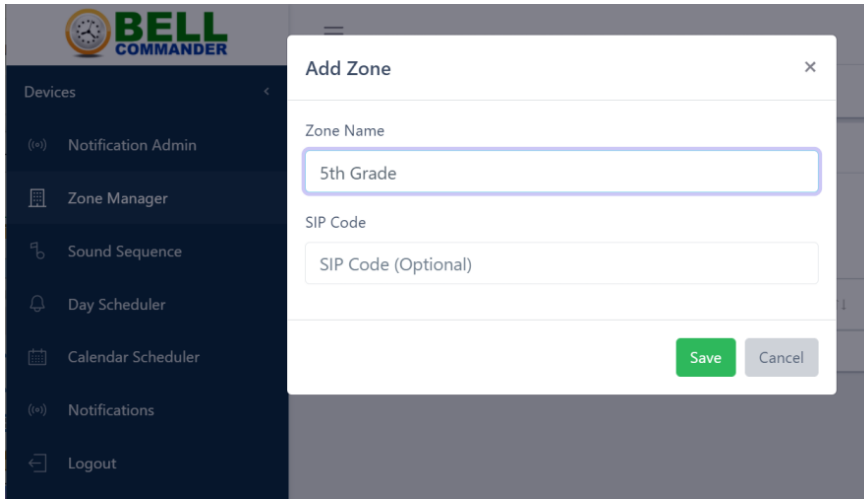
Save Cancel

After saving the inbound extension, click the Add Allowed Extension button to enter the extensions allowed to call into BellCommander. Then, try making a test call from an allowed extension to the SIP Inbound Extension.

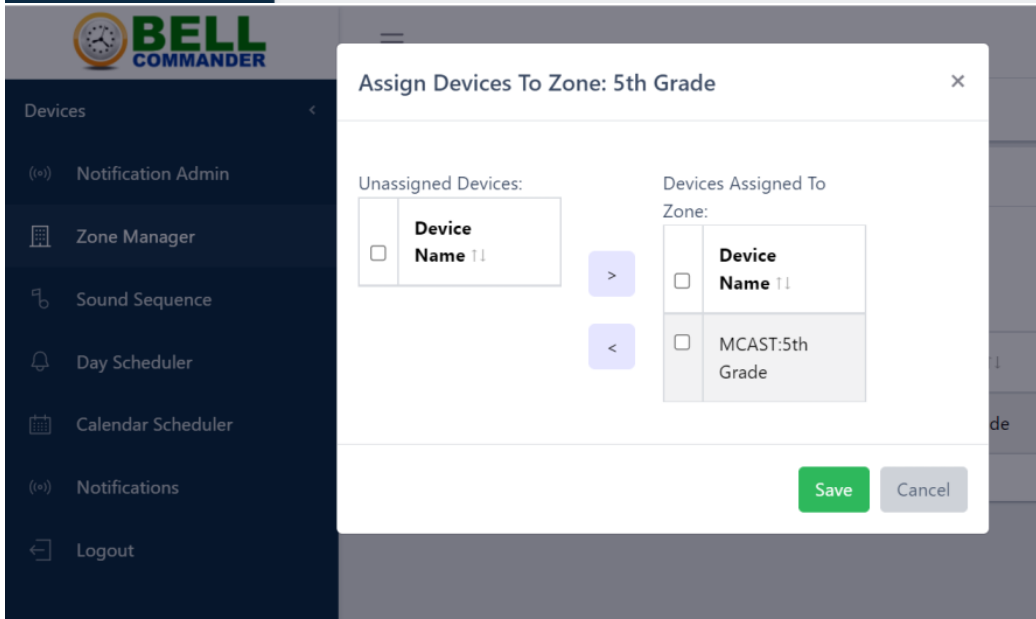
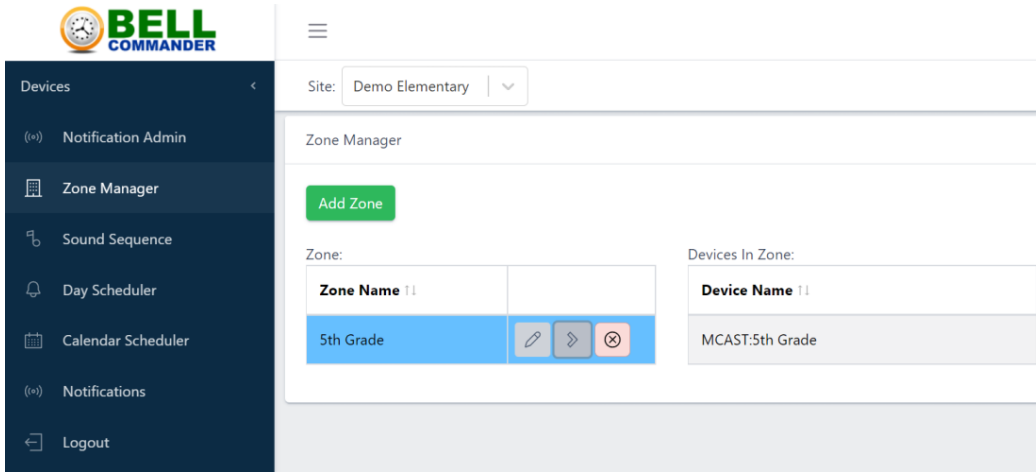
The screenshot shows the BellCommander web interface. On the left is a dark blue sidebar with the BellCommander logo and a menu with items: Devices, Barix, Multicast, SIP Destinations, SIP Extensions, Notification Admin, Zone Manager, and Sound Sequence. The main content area is white and shows a site dropdown set to 'Demo Elementary'. Below this is a section titled 'SIP Extensions' with two tables. The first table, 'Add SIP Inbound Extension', has one row with Extension/ID '751' and Status 'Registered'. The second table, 'Add Allowed Extension', has three rows with Extension/ID values '501', '502', and '503'. Each row in both tables has edit and delete icons.

### Zone Manager:

After creating the devices, zones will need to be configured if the Barix devices or multicast groups are used. To access the Zone Manager, login to the user area with a user account with access to update schedules. Then, add a zone and enter the name for zone and optionally a SIP code if SIP paging will be used to the zone.

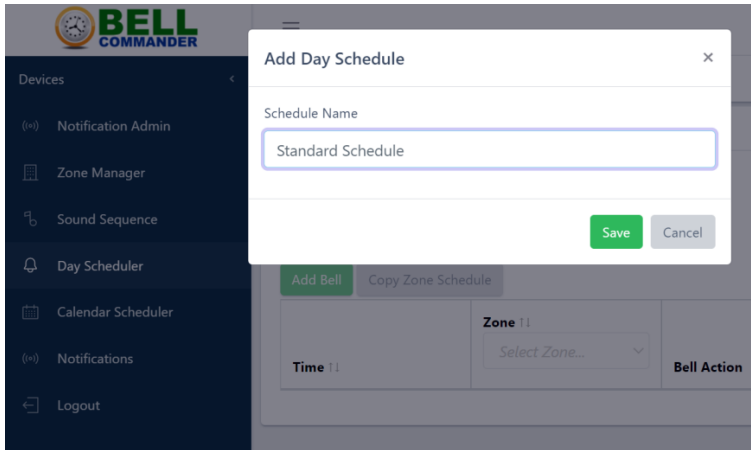


After the zone is created, assign devices to the zone. In the example below, the 5<sup>th</sup> Grade zone has device MCAST: 5<sup>th</sup> Grade assign to the zone. Use the > button to assign/de-assign devices from the selected zone:

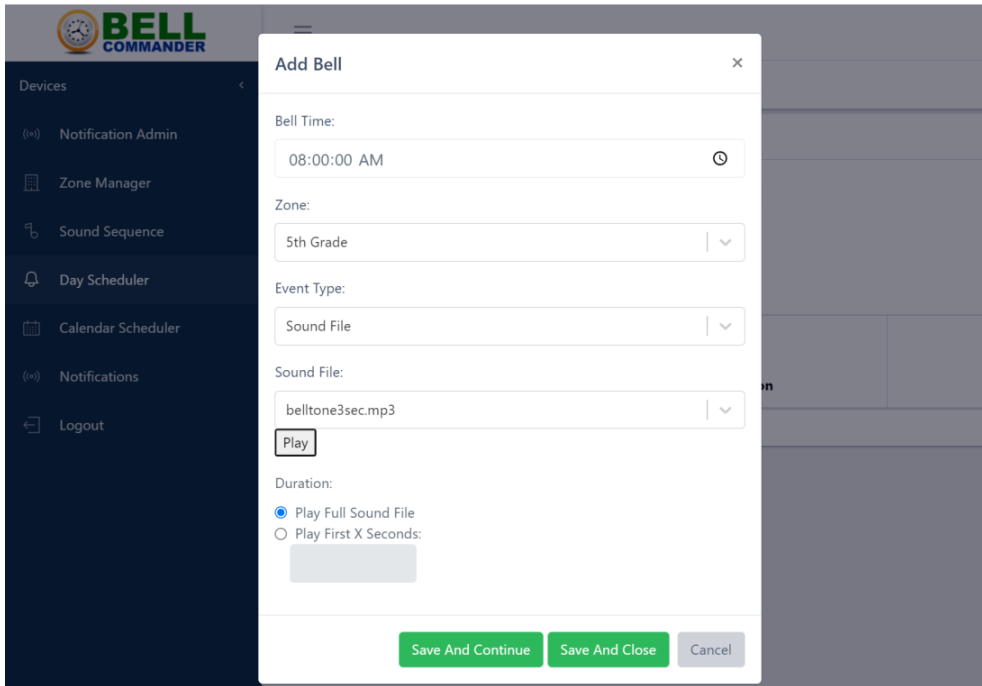


## Day Scheduler:

The day scheduler page allows day schedules to be defined that can be selected in the Calendar Schedule to run on specific dates. To begin in the Day Scheduler, add a Day Schedule and enter a name for the day schedule. A day schedule should be created for each type of schedule. For example, standard, early dismissal, assembly, etc.



Next, click the Add Bell button to add bell events to the schedule:



For the bell event, enter the time of the bell, the zone that it should play to and select the type of event. The default Sound File, will play a single sound file. Sound Sequence will play a sound sequence from the Sound Sequences page that may play one or multiple sound files. Some device types may have additional options, like Barix devices that also include an option to send a BarioNet command for relay closures and other commands on the Barix device.

After adding bells to the schedule, the Zone column can be filtered to view the bell events for a selected zone:

Day Scheduler

Day Schedule: [Add](#) [Rename](#) [Delete](#) [Duplicate Day Schedule](#)

Standard Schedule

[Add Bell](#) [Copy Zone Schedule](#)

Time	Zone	Bell Action	
7:50:00 AM	All School	Play arpeggio.mp3	<a href="#">✎</a> <a href="#">✖</a>
8:00:00 AM	5th Grade	Play belltone3sec.mp3	<a href="#">✎</a> <a href="#">✖</a>
8:50:00 AM	5th Grade	Play belltone3sec.mp3	<a href="#">✎</a> <a href="#">✖</a>

### Calendar Scheduler:

The Calendar Scheduler is used to assign day schedules to calendar dates. Each calendar date can either have a single day schedule assigned or no day schedule. Multiple day schedules per calendar date on the same site aren't allowed. To access the Calendar Scheduler, login to the user area with a user with permissions to update schedules.

Calendar Scheduler

[Set Default Weekly Schedule](#) [Set Exception Schedule](#) [Remove Exception Schedule](#)

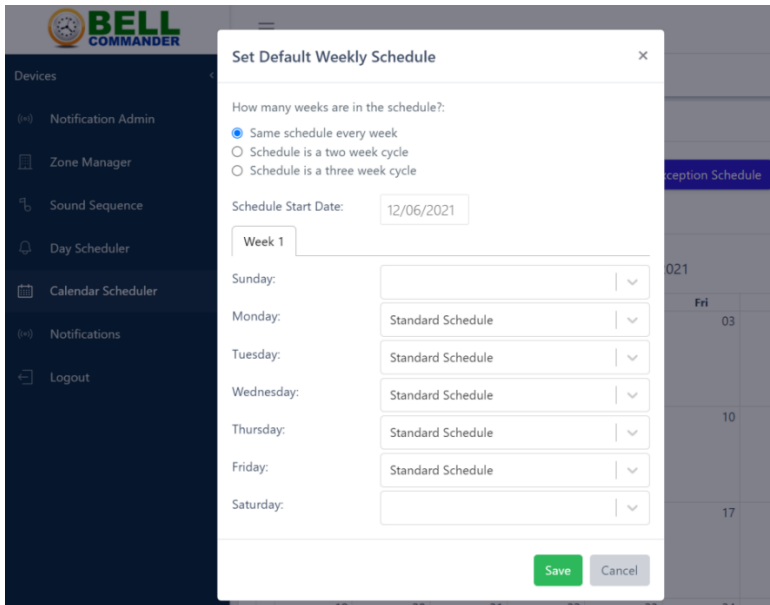
Calendar

Today Back Next November 2021

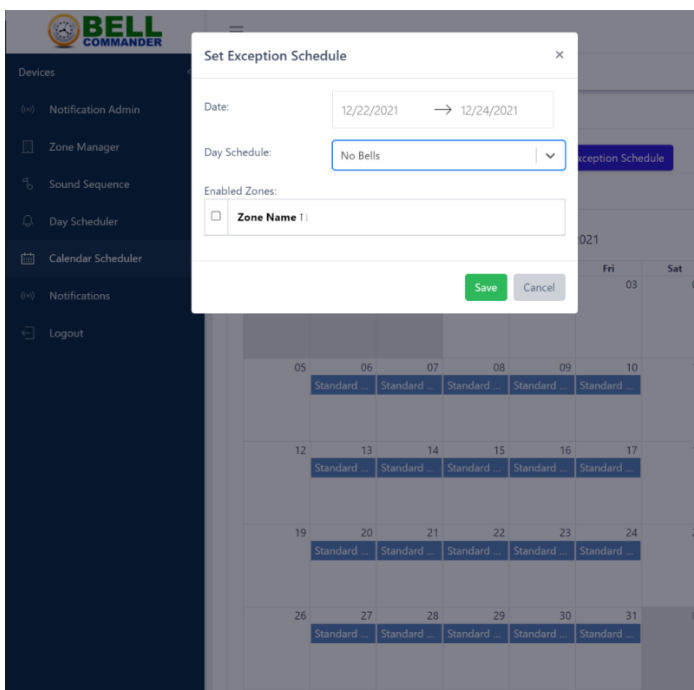
Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	01	02	03	04	05	06
07	08	09	10	11	12	13



In the Calendar Scheduler, a default weekly schedule can be created that will run a selected schedule on each day of the week unless an exception schedule is set. Click the Set Default Weekly Schedule button and select how often the default schedule repeats. For most schools/sites, the “Same schedule every week” option can be used. For schools/sites with repeat bi-weekly or tri-weekly schedules, the two week or three week cycles can be used. Then, enter the date when the schedule should start running. Finally, select the schedule that should run by default for each day of the week:



After setting the schedule, use the Exception Schedule window to set BellCommander to run a different schedule or no bells for the selected date range. The “Selected Zones” can be used to turn on/off bells to specified zones:



After setting the exception schedules, the Calendar Scheduler will show the default schedule in blue and the exceptions in red. Exceptions can be removed and the schedule will revert back to the default weekly schedule.

The screenshot shows the BELL COMMANDER interface for the Calendar Scheduler. The site is set to "Demo Elementary". The calendar for December 2021 is displayed, showing a default schedule in blue and exceptions in red. The exceptions are "No Bells" on December 22, 23, and 24.

Sun	Mon	Tue	Wed	Thu	Fri	Sat
28	29	30	01	02	03	04
05	Standard ...	Standard ...	Standard ...	Standard ...	Standard ...	11
12	Standard ...	Standard ...	Standard ...	Standard ...	Standard ...	18
19	Standard ...	Standard ...	No Bells	No Bells	No Bells	25
26	Standard ...	Standard ...	Standard ...	Standard ...	Standard ...	01

### Sound Sequences:

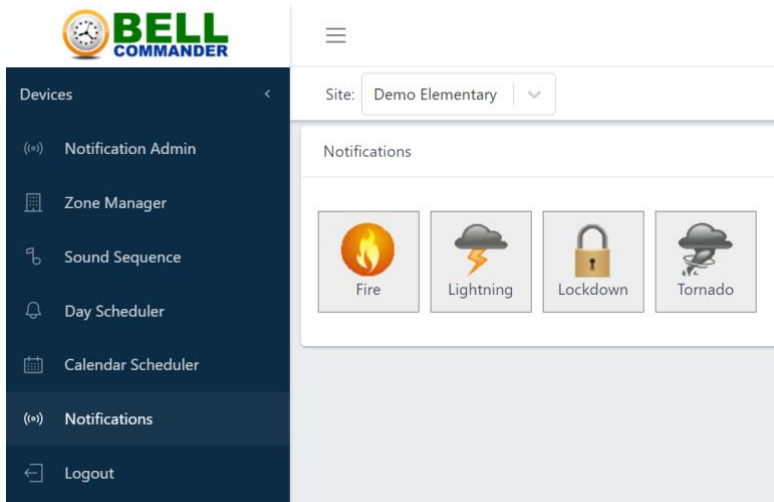
Sound sequences can be used to play one or multiple sounds at specified offsets. To create a sound sequence, login to the user area with a user with scheduling access and select Sound Sequences. Then, click the Add button to add a sequence and the Add Sound button to add sounds to the sequence with the offset specified. In the example below, if a bell was scheduled to play the sound sequence at 8:00:00 AM, it would play belltone3sec.mp3 at 8:00:00 AM, arpeggio.mp3 at 8:04:00 AM, and belltone5sec.mp3 at 8:05:00 AM.

The screenshot shows the BELL COMMANDER interface for the Sound Sequences section. The site is set to "Demo Elementary". A "Class Change" dropdown menu is visible. The "Add Sound" button is highlighted. The list of sound files is as follows:

Offset	Sound File	
0	belltone3sec.mp3	
240	arpeggio.mp3	
300	belltone5sec.mp3	

## Notifications:

The Notifications page can be used by users with access to launch notifications to launch or stop notifications. When a notification is activated, the icon panel will turn red and the notification will stay active until either the notification completes or if the user clicks the button a second time to stop the notification.



Notifications can be managed by users with “Full Access” permissions through the user area Notification Admin. Actions can be added/edited to play loop sounds files, play sound sequences, send Barix command, and other actions. The notification will play in the order specified and repeat continuously until stopped if the “Repeat to step” option is used.

