EVAC Control Documentation

As of 1/1/26

Welcome!

This is the official documentation for the *EVAC Control* application by Slender Tech Solutions, a division of Slender Studios. In this documentation, you will find knowledge pertaining to what *EVAC Control* is and how to use it.

What is EVAC Control?

EVAC Control is an application developed by Slender Tech Solutions that aims to enable fire alarm and electronics hobbyists to run DIY EVAC (emergency voice alarm communication) and PA (public address) setups with the power and convenience of their x86 computer. It interfaces with popular digital mixing software *Voicemeeter*, by VB-Audio, to bring professional-grade features found in commercial EVAC and PA systems such as remote paging, background music channel management, and conditional mass notification tone and message mapping into the hands of consumers with basic computer, audio, and electronics knowledge. For more information about downloading *EVAC Control*, please visit https://sts.slenderstudios.com/resources/apps.htm.

Getting Started with Using EVAC Control

After hearing about *EVAC Control's* capabilities, you might be interested in using it with your hobbyist EVAC/PA system. But before you can do so, there are some hardware and software requirements to consider.
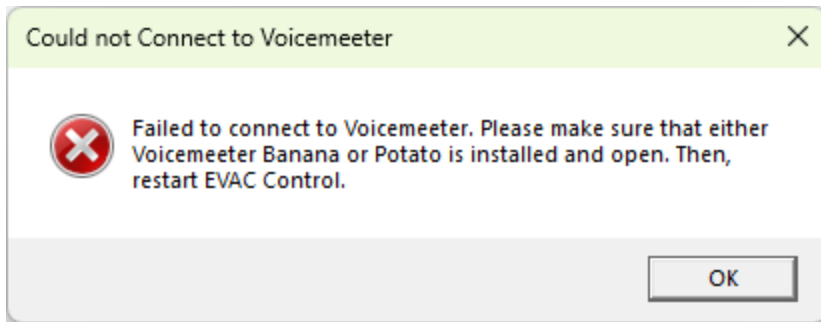
Hardware & Operating System Requirements to Run & Use EVAC Control

In order to run *EVAC Control* you must have administrator access to a computer with a 64-bit x86 CPU running Microsoft Windows version 10 or newer.

General Software Requirements

Voicemeeter

As previously stated, *EVAC Control* interfaces with popular digital mixing software *Voicemeeter* via the *Voicemeeter Remote API* to facilitate many of its EVAC and PA features. *Voicemeeter Banana* and *Potato* are both available for free download under a donationware license at https://vb-audio.com/Voicemeeter/banana.htm and https://vb-audio.com/Voicemeeter/potato.htm respectively. Standard *Voicemeeter* (i.e an edition or version that is not *Banana* or *Potato*) will **not** allow *EVAC Control* to function properly. If *Voicemeeter Banana* or *Potato* is not executed and running on your system prior to starting *EVAC Control*, *EVAC Control* will not be able to connect to *Voicemeeter,* will subsequently display an error message, and will be forced to close:

Could not Connect to Voicemeeter ✕

Failed to connect to Voicemeeter. Please make sure that either Voicemeeter Banana or Potato is installed and open. Then, restart EVAC Control.

OK

Microsoft .NET 8 Desktop Runtime

Another piece of software that is required for *EVAC Control* to run on your system and function as intended is the Microsoft *.NET 8 Desktop Runtime*. *EVAC Control* is written in .NET C#, so it requires this runtime to be installed on your computer. To download and install the desktop runtime, please visit https://dotnet.microsoft.com/en-us/download/dotnet/8.0, scroll down to the section titled ".NET Desktop Runtime 8.X.X", and click the URL to download the x64 executable setup file. Run the downloaded file and follow all instructions as necessary.

FACP Connect

For EVAC functionality to truly be utilized within *EVAC Control*, a companion app developed by Slender Tech Solutions called *FACP Connect* is available for download from https://sts.slenderstudios.com/resources/apps.htm. Though the companion app is not technically required for *EVAC Control* to operate, there will be no way to activate alarm conditions in *EVAC Control* and it will therefore function only as a basic public address and BGM (background music) control interface in conjunction with the functionality of *Voicemeeter*. Interfacing and/or communicating with a fire alarm control panel or other type of emergency system panel will also not be possible without the companion app. The companion app will attempt to connect to *EVAC Control* on application start up, so it should be executed after *EVAC Control* has fully initialized and connected to *Voicemeeter*. Separate documentation regarding *FACP Connect* is available on the Slender Tech Solutions website at https://sts.slenderstudios.com/resources/docs.htm.

Downloading & Installing EVAC Connect

EVAC Control is available for download from the Slender Tech Solutions website at https://sts.slenderstudios.com/resources/apps.htm. In the left-most column of that webpage, scroll down until you see a green download button and click it to download the setup executable for *EVAC Control*. If the setup file is reported by your browser or Windows SmartScreen to be malicious, choose to keep the file and/or run the file regardless. If you do not choose to do this, the file may be deleted and you will not be able to install *EVAC Control* on your computer. *EVAC Control* is developed and maintained by Connor Bosler, also the creator of Slender Studios, the Slender Tech YouTube channel, the Slender Tech Solutions website, all files downloadable from it, and this documentation. He (I) maintain(s) these projects free of charge and for the betterment of the fire alarm and emergency alert systems community. None of the files downloadable from sts.slenderstudios.com will ever be malicious. Once the setup executable is downloaded to your computer, run it and follow all instructions as necessary. This will install *EVAC Control* successfully.

How to Use EVAC Control
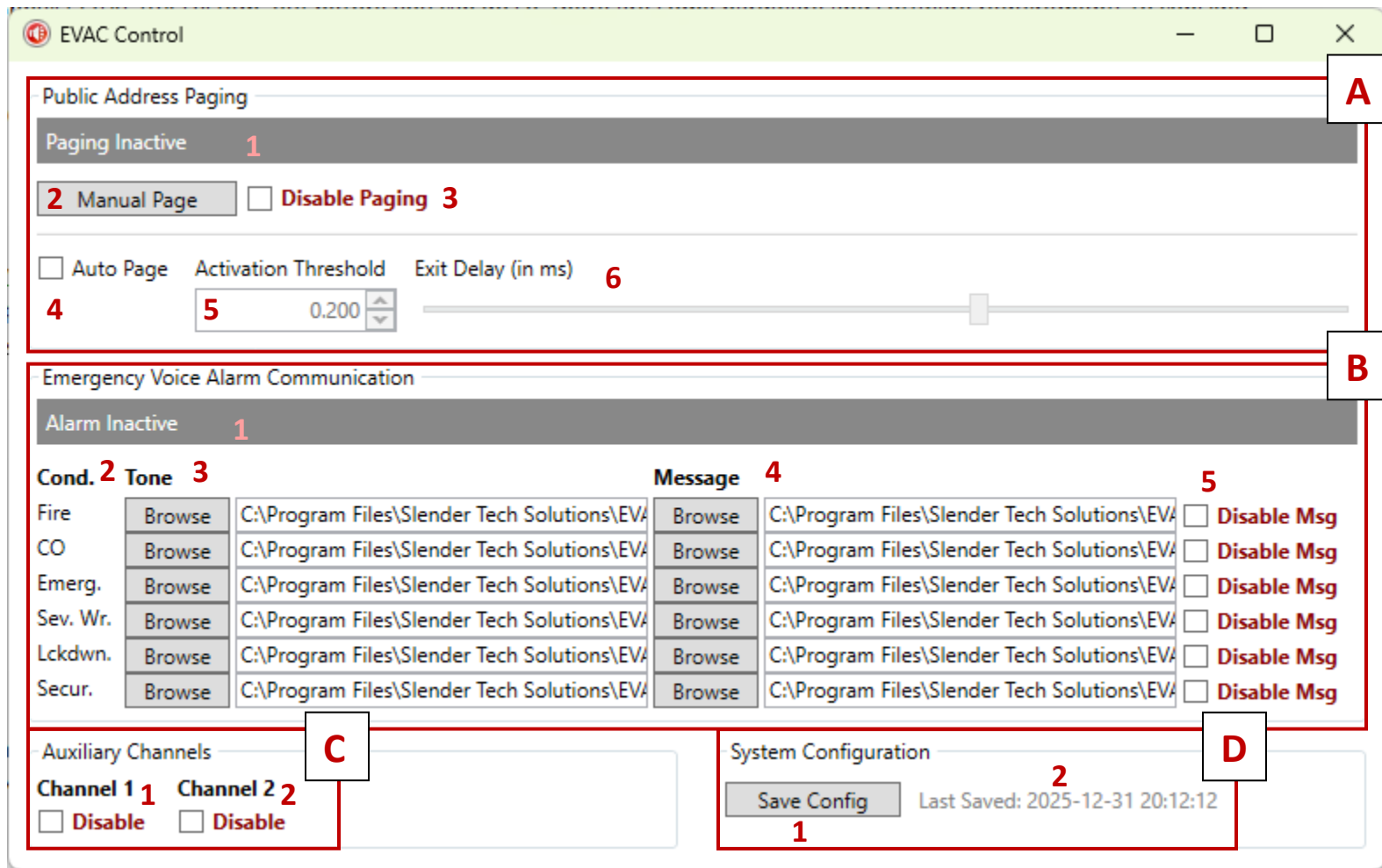
Above is a marked-up screenshot of the main window/interface of *EVAC Control*.

Interface & Functionality Overview

Section A: Public Address Paging

Public address paging is used to broadcast voice announcements from one or more microphones in an audio distribution system to all or certain speaker zones in an audio distribution system.

1. **Paging Indicator:** when paging, this indicator will turn green and display the text, "PAGING ACTIVE"

2. **Manual Page Button:** functions identically to an all-call button on a commercial EVAC panel; when pressed and held, the application initiates a page, analog input strip 0 (in *Voicemeeter*) is unmuted, and audio from that strip is broadcasted over applicable speaker circuits (determined by *Voicemeeter* configuration, *see How to Use Voicemeeter*); aux channels 1 () and 2 as well as the digital cassette (EVAC message and tone player) in *Voicemeeter* are muted; when released, the active page is cancelled

3. **Disable Paging Checkbox:** deactivates auto page, disables pressing the Manual Page Button, and mutes analog input strip 0 (in *Voicemeeter*); reverses those actions once unchecked

4. **Auto Page Checkbox:** when checked, Enables auto page/remote page; enables Activation Threshold and Exit Delay settings; Unmutes analog input strip 0 and when audio with a volume above or equal to the Activation threshold is detected on that strip, mutes aux channels 1 and 2 as well as the digital cassette (in *Voicemeeter*; EVAC message and tone player); when audio is longer detected on analog input strip 0, the duration set by the Exit Delay setting is waited and then the digital cassette is unmuted and all aux channels are unmuted unless the channel is disabled; when unchecked, cancels any active pages and re-mutes analog input channel strip 0.

5. **Activation Threshold:** only works is auto page is enabled; a set level that will trigger actions performed by the auto page feature once audio above or equal to that level is detected in analog input strip 0

6. **Exit Delay Slider:** only works is auto page is enabled; a set value ranging from 0–5000 milliseconds that is waited after audio above or equal to that level is no longer detected in analog input strip 0; after the waiting is complete, certain actions performed by the auto page feature are reversed

Section B: Emergency Voice Alarm Communication

Emergency voice alarm communication is a form of mass notification that utilizes speakers and audio signals in place of fire alarm horns, sirens, or other non-speaker notification appliances. This allows for evacuation instructions, whether prerecorded messages or live pages, to be delivered directly to occupants of a building via audio when an emergency is to occur.

1. **Alarm Condition Indicator:** when an alarm condition is triggered by a third-party electronics system connected to *EVAC Control* via *FACP Connect*, this indicator will turn red and display the text, "ALARM ACTIVE"

2. **Condition Column:** Lists various types of emergency/alarm conditions that can be triggered by a third-party electronics system connected to *EVAC Control* via *FACP Connect*; condition names will flash when an alarm signal is received pertaining to them; some condition names are abbreviated—CO stands for "Carbon Monoxide", Emerg. is an abbreviation for "Emergency", Sev. Wr. is an abbreviation for "Severe Weather", Lckdwn. is an abbreviation for "Lockdown", Secur. is an abbreviation for "Security"

3. **Tone Column:** A column containing rows of a button and textbox for each alarm condition listed in the Condition Column that can utilized to change the tone played over the audio distribution system when a certain condition is triggered; a browse button, when pressed, allows any .wav, .mp3, .flac, .aac, .ogg, or .wma file to be selected to be used as this tone; the system path of the file chosen is displayed in the textbox to the button's right

4. **Message Column**: A column containing rows of a button and textbox for each alarm condition listed in the Condition Column that can be utilized to change the message played over the audio distribution system when a certain condition is triggered (unless the condition's message is disabled); a browse button, when pressed, allows any .wav, .mp3, .flac, .aac, .ogg, or .wma file to be selected to be used as this message; the system path of the file chosen is displayed in the textbox to the button's right

5. **Disable Message Checkboxes**: checkboxes to disable messages from being played when selected alarm conditions are triggered; when a checkbox is checked for a particular condition, only that condition's tone will play over the audio distribution system when it is triggered; once unchecked, that behavior is undone, and both the message and tone will play when the condition is triggered

Section C: Auxiliary Channels

Aux channels can be utilized to play anything at all over the PA/EVAC system, but are generally utilized to pipe-in BGM from the output of a CD player, MP3 player, or other device.

1. **Disable Aux Channel 1 Checkbox:** when checked, mutes analog input strip 1 (in *Voicemeeter*) and prevents it from being unmuted by other features within *EVAC Control*; when unchecked, those actions are undone
2. **Disable Aux Channel 2 Checkbox:** when checked, mutes analog input strip 2 (in *Voicemeeter*) and prevents it from being unmuted by other features within *EVAC Control*; when unchecked, those actions are undone

Section D: Application/System Configuration

This section is utilized to capture all current settings available in *EVAC Control* and save their current configurations to a .JSON file at the system path "%USERPROFILE%\AppData\Local\EVACControl\sysconfig.json". This file is reloaded as is every time *EVAC Control* starts up. Application and settings within *EVAC Control* **do not** auto-save, so make sure to press the Save Config Button whenever you make a change to any setting.

1. **Save Config Button:** when pressed, captures all current settings available in *EVAC Control* and saves them in their current configurations at the time of the button press to a .JSON file at the system path "%USERPROFILE%\AppData\Local\EVACControl\sysconfig.json"
2. **Save Configuration Timestamp:** When the Save Config Button is pressed, a the current system timestamp is saved within the sysconfig.json file; this timestamp is displayed next to the Save Config Button as a note of when *EVAC Control* application configuration was last saved to the system hard drive

In the Event of an Alarm Condition

When any alarm condition is triggered in *EVAC Control* by a third-party electronics system connected to *EVAC Control* via *FACP Connect*, a sequence of events is set into motion:

- Both Auxiliary analog input channels 1 and 2 (in *Voicemeeter*) are muted whether enabled or disabled
- An audio file containing either a tone or a tone and prerecorded message (depending upon *EVAC Control* configuration for the particular alarm condition trigger) is loaded into *Voicemeeter's* digital cassette (*see How to Use Voicemeeter*)

If a second alarm condition triggers, the current message and/or tone corresponding to the original emergency condition registered will not stop playing; no new audio files, messages, or tones will be loaded or played in the cassette until the original or oldest emergency condition has cleared/been silenced by the external electronics system.

Once all alarm conditions are cleared, all audio files are ejected from the cassette and aux channels 1 and/or 2 are either unmuted if they are not disabled or remain muted if they are.

How to Use Voicemeeter (in Conjunction with EVAC Control)

As previously stated, *EVAC Control* interfaces with popular digital mixing software *Voicemeeter* via the *Voicemeeter Remote API* to facilitate many of its EVAC and PA features. Only *Voicemeeter Banana* and *Potato* are compatible with *EVAC Control*. Further documentation regarding *Voicemeeter* than what is below is available in the [Voicemeeter Banana](#) and [Potato manuals](#). In order for both applications to connect with each other, *Voicemeeter* must executed and running prior to launching *EVAC Control*.   **1**

Above is a marked-up screenshot of the main window/interface of *Voicemeeter Banana*. *Voicemeeter Potato* simply features input and output strips.

1. **R-Boxes:** when *EVAC Control* has started up and connected to *Voicemeeter* successfully, one of the eight R-Boxes pictured will "light-up" blue. If *EVAC Control* is closed, the R-Box will return to being black

2. **Analog Output Strips A1, A2, & A3:** using these buttons, up to three separate audio interfaces on three separate channels/strips can be set to output audio from the mixer to the amplifier of your audio distribution system
   a. **Gain Adjustment for Analog Output Strips A1, A2, & A3:** each slider will raise or lower the gain of the audio sent to an interface on strip A1, A2, or A3 respectively
   b. **Mute Buttons for Analog Output Strips A1, A2, & A3:** these buttons will mute their corresponding output channels/strips
   c. **Equalization for Analog Output Strips A1, A2, & A3:** when left-clicked, these buttons will enable/disable EQ adjustment on their corresponding output strips; when right-clicked, a six-band equalizer will be displayed in a separate window allowing manual adjustment of the equalization applied to its each respective strip
   d. **Mono Buttons for Analog Output Strips A1, A2, & A3:** when clicked, these buttons will merge (make mono) or unmerge (make stereo) the individual left and right channels of their corresponding output strip
3. **Analog Input Strips 0, 1, & 2:** clicking on these titles will display a separate window for each analog input strip where up to three individual devices can be selected as audio inputs for the mixer; when starting up *EVAC Control* strip 0 will be named "PA", strip 1 will be named "Aux 1", and strip 2 will be named "Aux 2"; these names correspond to the function of each strip within *EVAC Control*; for example, pressing the page button in *EVAC Control* will toggle mute for strip 0, expecting that a microphone of some kind would be connected to that input strip rather than 1 or 2; these default strip function assignments cannot be changed or configured in *EVAC Control*
   a. **Gain Adjustment for Analog Input Strips 0, 1, & 2:** each slider will raise or lower the gain of the audio received from its respective input device on either strip 0, 1, or 2
   b. **Channel Output Selector Buttons for Analog Input Strips 0, 1, & 2:** pressing each button will activate or deactivate sending audio from input 0, 1, or 2 to any of the three audio outputs A1, A2, and/or A3
   c. **Mute Buttons for Analog Input Strips 0, 1, & 2:** these buttons will mute their corresponding input channels/strips
   d. **Mono Buttons for Analog Input Strips 0, 1, & 2:** when clicked, these buttons will merge (make mono) or unmerge (make stereo) the individual left and right channels of their corresponding input strip
   e. **INTELLIPAN for Analog Input Strips 0, 1, & 2:** these panels feature a square slider that is red in color if it has been moved from its default position and gray in color if it has not been moved; though there are three effects panels in total that can be cycled through by right-clicking on each panel, the most useful is the "Color Panel"; in this panel you can move the square slider around to adjust the brightness and tone of an audio input strip, similar to a limited equalizer
4. **Digital Cassette:** essentially a mini audio player; it is utilized by *EVAC Control* to play tones and messages selected by the user (or the default ones) in the Tone and Message columns of the EVAC section *EVAC Control* to the analog output strips A1, A2, and A3; ***Do not*** use the cassette's recording functionality or either *Voicemeeter* or *EVAC Control* may malfunction when *EVAC Control* attempts to load audio files into the cassette in the event of an alarm or emergency condition
   a. **Channel Output Selector Buttons for Digital Cassette:** pressing each button will activate or deactivate sending audio from the cassette to any of the three audio outputs A1, A2, and/or A3; it is not recommended to disable output to all analog output strips or emergency voice alarm communication evacuation tones and instructions will not be heard over the audio distribution system.

Feedback & Tutorials

Have any questions, comments, concerns, or suggestions regarding *EVAC Control*? Submit them to the *EVAC Control* YouTrack project at https://slenderstudios.youtrack.cloud/newIssue. If you aren't comfortable using YouTrack, you can always contact us directly using our email address: sts@slenderstudios.com.

If you are looking for tutorials on setting up your own audio distribution or mass notification system, please visit https://sts.slenderstudios.com/resources/tuts.htm.