

COBRA

Audio Box

Detailed User Guide

What is the Audio Box?

The COBRA Audio Box is a wireless MP3 player that allows you to play music in sync with your fireworks. You connect your audio box to the sound system and press a single button to start your show using the 18R2. As the script fires, the audio stays in sync. Please read this document to make sure you understand how to use the COBRA Audio Box with the COBRA system.

Perform the following before using the COBRA Audio Box:

1. Make sure your systems are running at least 3.0.1 (see <http://www.cobrafiringsystems.com/release>). To upgrade, you will need the [COBRA Wireless Reprogrammer](#). To learn how to upgrade your units, view the [Using the Wireless Reprogrammer](#) instructions.
2. Prepare your MP3 audio file. See **Appendix - Prepare MP3 File** at the end of this file.

How do I use the Audio Box?

1. To sync the Audio Box to the 18R2, press and hold SYNC on the Audio Box and 18R2 at the same time. The SYNC LED will blink a few times on the Audio Box and 18R2 to indicate the sync is successful. In addition, the 18R2 will display "P." Once complete, re-start the 18R2.

Note: the 18R2 counts the Audio Box as a module when it reports the amount of modules synced.

Note: For existing COBRA users, the SYNC process is slightly different between version 3.0.3 and 3.1+. The difference is that each unit needs to have the SYNC button pressed and held for 2-3 seconds to place into "program" mode. When the audio box is in this mode, the SYNC LED stays on. For the 18R2, "P" is displayed. When the sync process is finished, the 18R2 needs to be re-started to power on normally to confirm sync. Also note that when the 18R2 is in program mode, it only requires 1 second to sync to another unit in program mode. This speeds up the sync process as the user can sync several units in quick succession and then confirm in batch that all units are properly synced.

2. Save the MP3 file to the USB drive, name the file **audiobox.mp3**. Do not save the file into a directory. The filename must be **audiobox.mp3**. Also, make sure you prepare the MP3 file (see **Appendix - Prepare MP3 File** at the end of this file).

- In your cobra.csv script, add a 5th argument to the header row to indicate you want the Audio Box to play your audio. In Excel, this looks as follows; (you can also reference the sample cobra.csv file provided with this document):

Note: If you are creating your script in COBRA Show Creator, this argument is automatically added for you. You can skip this step and goto Step 4.

	A	B	C	D	E
1	#Trigger Channel	Trigger Button	Confirmation Button	Return Channel	
2	1	1	1	1 audiobox	
3	#Event Time	Channel	Cue	Description	
4	00:00:1.0s	1	1	1 Comet	
5	00:00:2.0s	1	1	1 Mine	
6	end				
7					

- Save the cobra.csv script to the USB drive and insert it into your 18R2. The script should load successfully with all green LEDs displaying.
- Insert USB into Audio Box. This can be done before or after the Audio Box is powered on. If you remove the USB stick while the Audio Box is powered on, it will self-reset. This is normal.

Note: If the Power LED on the rocker switch blinks, turn off the Audio Box, wait 5 seconds, and turn it back on. If the LED still blinks, email ssmith@cobrafiringsystems.com for further assistance.

- Connect the Audio Box to any number of sound systems using the headphone, RCA, and / or 1/4" jacks. The headphones both supply L and R channels in the same output jack.
- Press and release the Audio TEST button to start playing the audio to get your sound levels correct. You can use the volume knobs on the Audio Box and also your sound system to obtain the best quality. We suggest a volume of about 70% on the Audio Box. To stop the audio, press and release the Audio TEST button again.

If you press and hold the Audio TEST button, the audio will play for as long as the button is held. When released, the audio will stop.

- To test Audio Box signal strength, press and release the SYNC button while the 18R2 is in test mode and on channel 99. The audio box will always report signal strength on channel 99.

Note: If you have multiple audio boxes, you can repeatedly press and release the SYNC button to cycle through signal strength on each audio box. After releasing the SYNC button, the signal strength followed by the address of the audio box will display. When first syncing the audio box to the 18R2, we suggest you write the audio box address onto the outside of the audio box (for example on a piece of masking tape). This way you can recognize which address each of your audio boxes is on.

For example, if you have 5 modules and 1 Audio Box, you will see "6" display as the number of units in both TEST and ARM mode. Make sure you see this value as it indicates proper function.

- Run your script on the 18R2 and the Audio Box will start playing music. If you press ARM to pause and resume, the Audio Box will resume along. If you turn off the Audio Box and turn it back on while the 18R2 script is running, it will catch up and play alongside in sync to the script automatically.

Note: If the audio is skipping, Prepare your MP3 audio file. See **Appendix - Prepare MP3 File** at the end of this file.

- That's it! Have fun and make sure to read the **Troubleshooting / Known issues** section below.

PLEASE READ / TROUBLESHOOTING

- The Audio Box has an operating time of about 2 hours. There is no sleep mode. We suggest new AA batteries for each show. We are looking to introduce sleep mode in the future. Make sure to use fresh Duracell or Energizer batteries only. If you use a re-chargeable battery, we suggest a lithium or high mAh capacity battery. If you are unsure of the battery capacity, please email ssmith@cobrafiringsystems.com and we are happy to help.
- Add some silence / no events to the beginning of your audio file and script. About 5 seconds is sufficient. This is because the audio box will self-align when the show starts and will likely skip as it is aligning.
- Some USB sticks may not operate properly with the Audio Box. Make sure to test your audio and USB drive before the show. In some cases, the current draw of the USB may be too high and cause the Audio Box to re-start over and over. Please try a different USB drive. Any issues with the USB drive will be apparent right away. We suggest the Sandisk brand USB drive which can be purchased at Walmart. The lower the capacity (GB) the better.
- When pausing and resuming your script, you may notice a small “skip” or “pop”, this is the audio re-aligning after the restart event. We are working to improve this in the future.
- If your Audio Box is blinking the power switch upon power on, it is likely that you have a software version mis-match. This means that either the S19 or SPY file on the Audio Box is a different version, or the 18R2 to which the audio box is synced is running a different version. Please make sure to upgrade all units to the same version. Contact ssmith@cobrafiringsystems.com for any further questions or support on this.
- In version 3.0.1 **only** (does not apply to versions 3.0.3 or 3.1+)
 - The audio box will stop playing audio when the script is finished. Therefore, if the audio file is longer than your script, it will stop prematurely. Place a dummy cue (e.g. channel 99, cue 1) with an event time later than when your audio file ends.
 - There is about a 350ms offset between the Audio Box and the 18Ms firing. When first starting your script, we suggest you press the - button on the 18R2 three times so that “-0.3” is displayed on the bottom 7-segment displays. This issue is solved in version 3.0.3 (see <http://www.cobrafiringsystems.com/release>).

Appendix - Prepare MP3 File

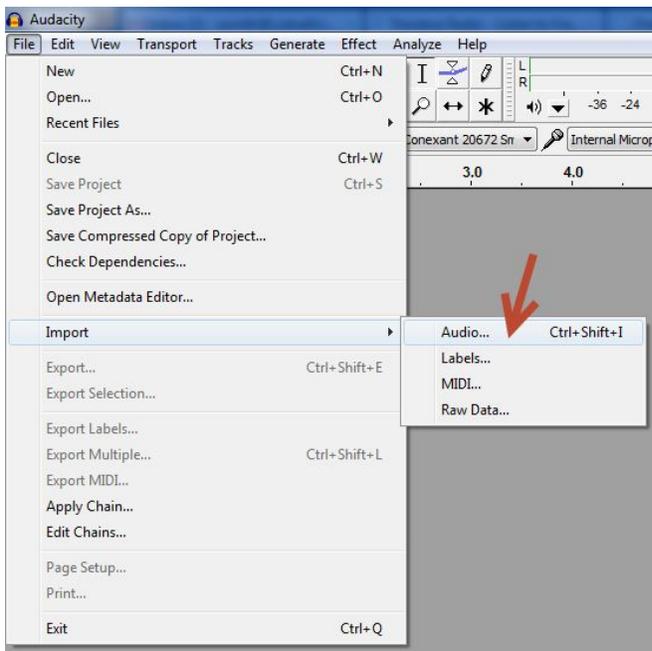
This sections shows you how to prepare an MP3 file for the COBRA Audio Box.

THIS MUST BE DONE USING THE AUDACITY SOFTWARE ONLY (explained below)

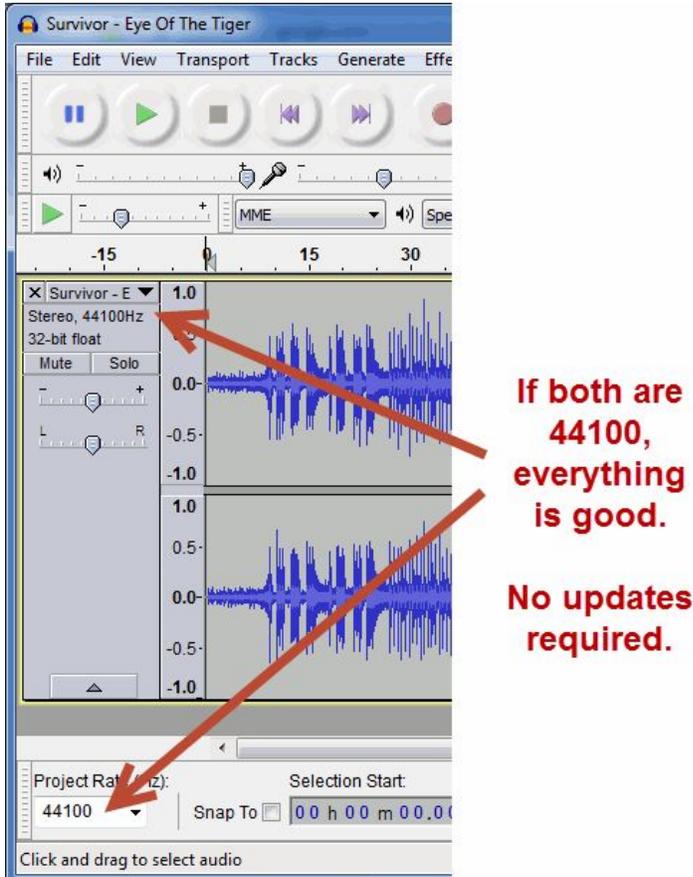
When preparing your soundtrack for your pyromusical, make sure to purchase your sound files from iTunes or another source of high quality original files. We don't suggest downloading your audio files from YouTube as the quality can be poor due to being highly compressed.

We also require you have a few seconds of silence in the beginning of your audio track. This will make sure the audio starts smoothly as the audio aligns. Without this silence, you may notice a small amount of skipping in the first few seconds.

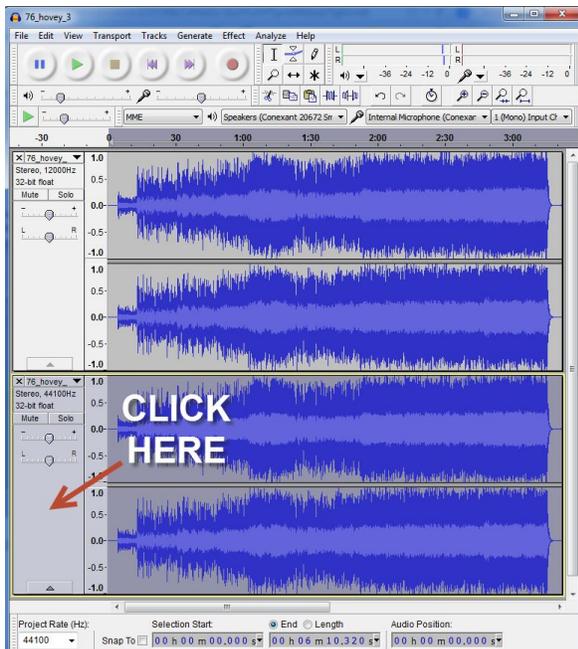
1. Download and install Audacity on your PC from <http://audacity.sourceforge.net/>.
2. Launch Audacity and click File > Import > Audio. Select your audio file and import.
3. Once imported, you need to check two things to see if any changes are required.



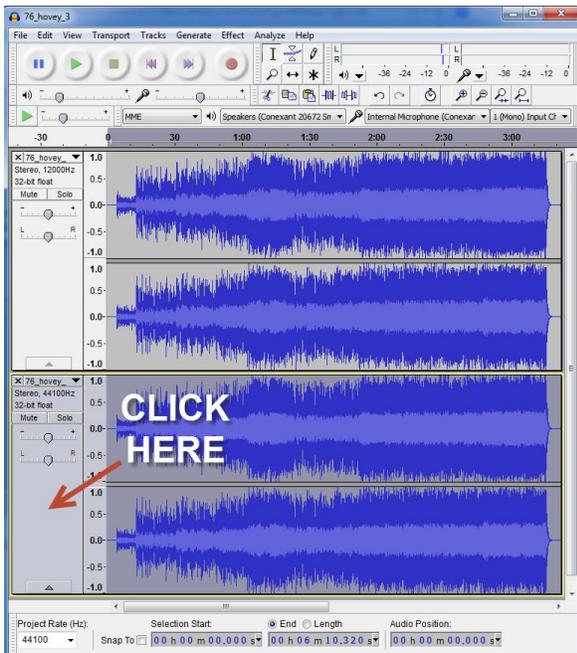
4. Once imported, check the values. If you see 44100Hz, everything is OK, please proceed to **Step 11** below.



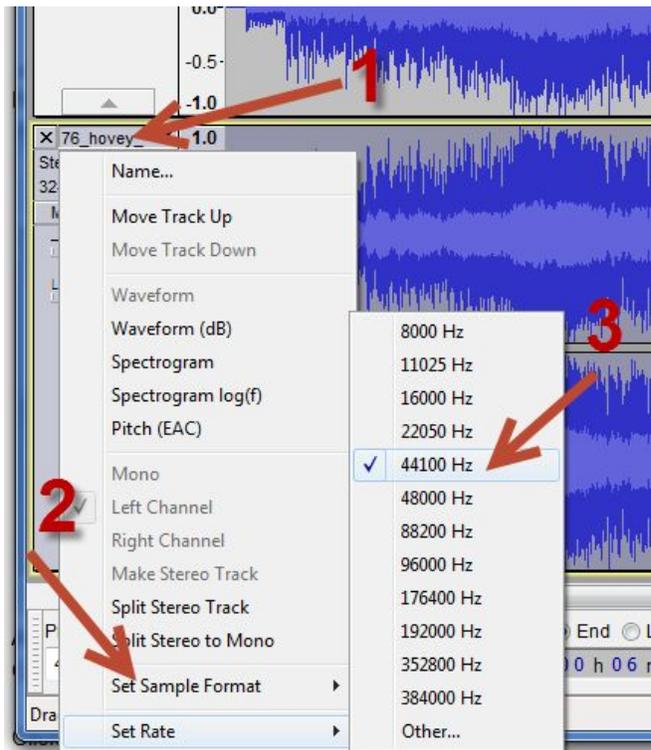
5. If the values show anything other than 44100Hz, you need to import the audio file again click File > Import > Audio. Select your audio file and import. You will see two instances of the imported audio file as shown below.



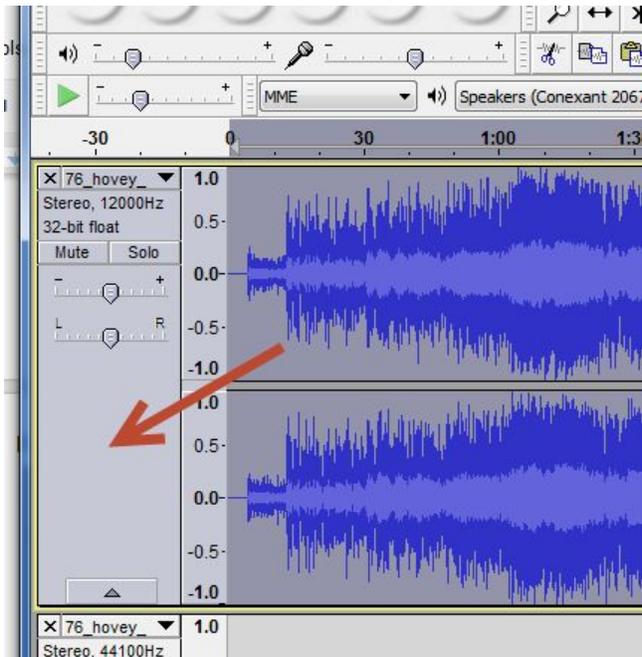
6. As shown above, click on the 2nd audio instance to highlight it. Then, click Edit > Remove Audio or Labels > Cut. This will remove the audio from the 2nd instance.



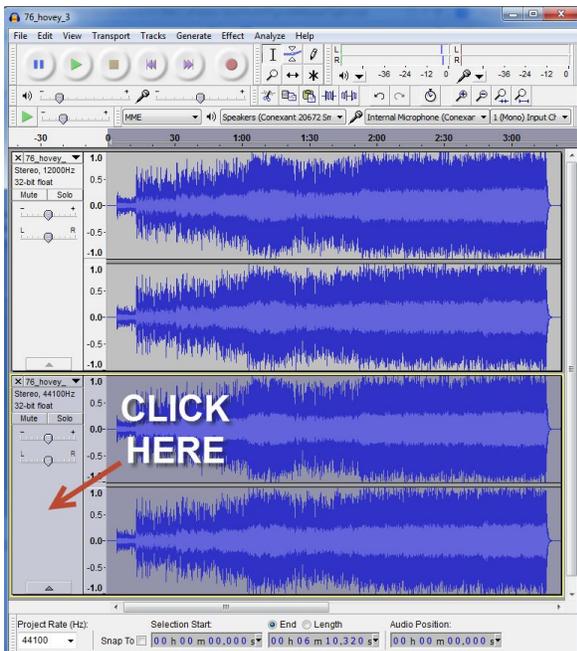
7. For the same 2nd instance, click on the 1, 2, and 3 arrows below to change the Rate to 44100Hz.



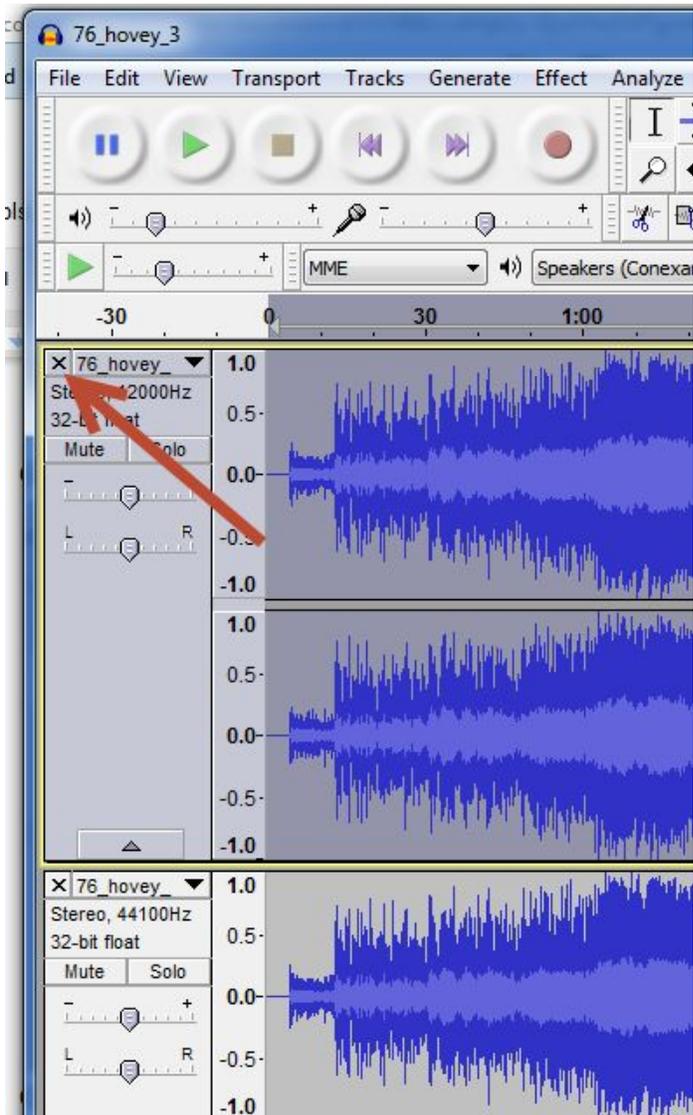
8. Click on the 1st instance to highlight the audio. Then, click Edit > Copy.



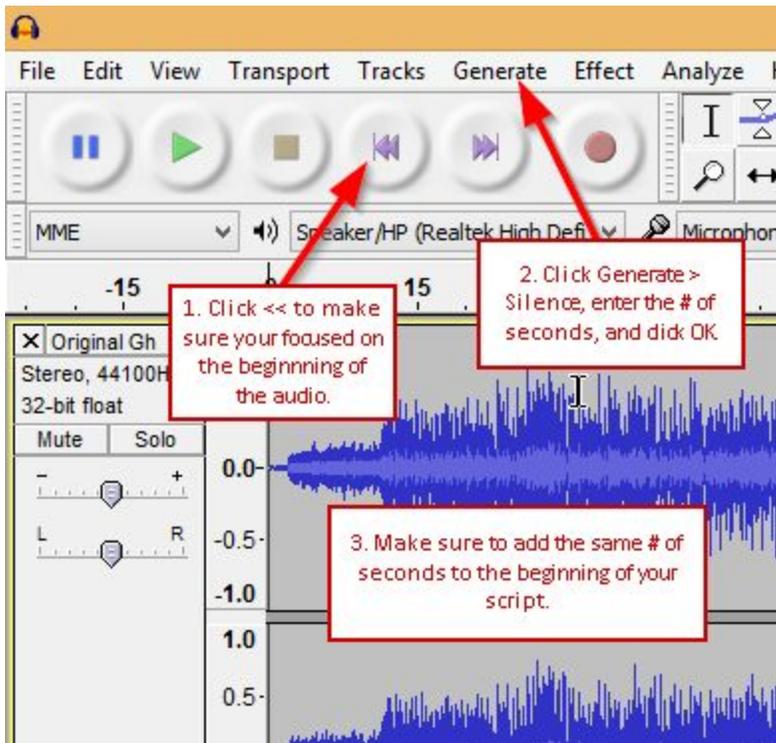
9. Click on the 2nd instance to highlight. Then, click Edit > Paste. The audio will copy to the 2nd instance. After clicking Paste, you may need to wait a few seconds before the audio finishes copying.



10. Delete the 1st instance by clicking X as shown below.



11. To add silence to the beginning of your audio, follow the instructions below.



12. Click File > Export.

13. Click Options in the lower-right. Then, make sure the following are set:

Note: You may be required to install the LAME MP3 Encoder. To install, see <http://www.cobrafiringsystems.com/lame.exe>

Bit Rate Mode: Constant

Quality: Choose **320 kbs** for firmware version **3.0.3 or greater**. Choose **128 kbs** for firmware version **3.0.1**.

Variable Speed: Fast

Channel Mode: Joint Stereo

14. Click OK. Then, save the file to your USB drive with the filename audiobox.mp3. You only need to type "audiobox" without the quotes into the filename. You do not need to add ".mp3".

IMPORTANT!

Always perform a full dry run of your audio file on the audio box WITH the 18R2 running the script and audio. The MP3 may sound good when using the AUDIO TEST button on the audio box, but may sound different when the 18R2 is controlling the audio box with the time code.

Any questions, email Scott Smith at ssmith@cobrafiringsystems.com or call direct at 518-222-7410.