# Using Anvil Studio's Auxiliary Busses

Creating subgroups of tracks to sharing effects

As an example, assume that you are using 4 microphones to record 2 vocalists, a drum kit, and a bass guitar, and that you want to apply one set of effects to the vocals, and another to the rhythm section. The signal flow for this setup looks like this, where the vocals are merged into Bus A before getting sent to one set of effects. Similarly, the drum kit and bass guitar are merged into Bus B before getting sent to their own set of effects. Then, Bus A and Bus B are merged into the master mix, and a third set of effects, and then out to the speakers.

Vocal 1 ─┬─ Bus A ── *fx* ─┬─ Master ─ *fx* ─ Speakers
Vocal 2 ─┘
Drum kit ─┬─ Bus B ── *fx* ─┘
Bass guitar ─┘
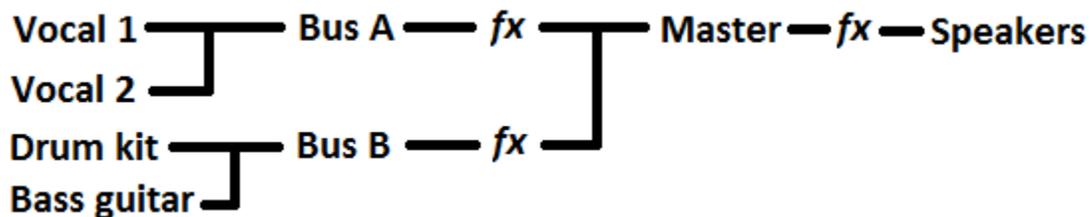
The way to create this setup in Anvil Studio is to create four 24-bit Audio Tracks using the menu Track / Create / Audio, and then clicking the track's Type column to change it from 16-bit to 24-bit. Next, click each track's Track Name column to give it a name. In the example below, the Device column is set to the Lexicon Omega's "Mac USB" interface, which supports 4 audio input channels, and each track is assigned to a different one of its recording channels. Next, record the tracks all at once, or one at a time until you are happy with them. Next, click the 'M' in each of the track's Bus Out columns, which removes the track from the Master mix. Click the 'a' in the Bus Out column for the Vocal tracks, and the 'b' for the drum kit and bass guitar. This adds those tracks to Bus A and Bus B, which are automatically added to the bottom of the track list.

Track Name	Type	On	Bus Out	Device	Channel	Instrument	Vol	L/R Balance	fx	Time
Vocal 1	Audio 24 bit	on	m A b c d	Lexicon Mac USB (2- U	1	mic / line-in			fx	0
Vocal 2	Audio 24 bit	on	m A b c d	Lexicon Mac USB (2- U	2	mic / line-in			fx	0
Drum kit	Audio 24 bit	on	m a B c d	Lexicon Mac USB (2- U	3	mic / line-in			fx	0
✔ Bass guitar	Audio 24 bit	on	m a B c d	Lexicon Mac USB (2- U	4	mic / line-in			fx	0
	Bus A		M a b c d			Vocal 1 / Vocal 2			fx	
	Bus B		M a b c d			Drum kit / Bass guitar			fx	

(Annotations: 1 points to the Bus Out column; 2 points to the Instrument column; 3 points to the Vol and L/R Balance columns)
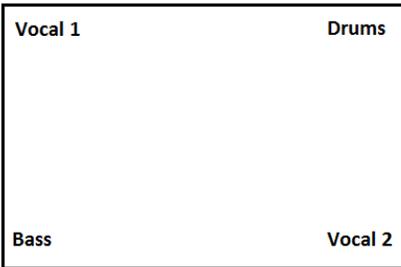
Note that the track names appear in the Instrument column. The Volume, L/R Balance, and FX columns for the top 4 rows control the volume, balance, and effects applied to these tracks in the Master mix, but since they have been removed from the Master mix, these controls don't change anything.

The Volume, L/R Balance, and FX columns in the Bus A and Bus B rows affect how all of the signals in Bus A and Bus B are altered before being blended into the Master Mix.

The Volume, L/R Balance, and FX columns in the rows below Bus A and Bus B rows affect how the vocal tracks are altered before getting added to Bus A, and how the drum and guitar tracks are altered before being added to Bus B.

Create Surround Sound Files

This example creates a 4-channel surround-sound file with each performer appearing to be in the far corner of the room like this:

```
┌─────────────────────────────────────┐
│ Vocal 1                      Drums   │
│                                      │
│                                      │
│                                      │
│                                      │
│                                      │
│ Bass                         Vocal 2 │
└─────────────────────────────────────┘
```

Vocal 1 and Drums will be played by the Master Mix, which is assigned to Front-Left and Front-Right speakers, while the Bass and Vocal 2 are played by Bus A, which is assigned to Back-Left and Back-Right speakers. To assign the Master Mix's output channels, click the View / Mixer screen's **Audio Out** button. If the currently-selected Audio playback device does not support more than 2 output channels, it will display a **Stereo** checkbox, in which case, you should try selecting a different Audio Out device or use the ASIO audio subsystem described later. If it does support more than 2 output channels, it will display a **Channels…** button. Click that to select the output channels you want the Master Mix to be played by. To assign Bus A's output channels, click its Device column to select the same device as the Master Mix, and then click its Channel column. The View / Mixer screen for this setup looks like this:

In the following example, each of the performers is moved toward the center of the room like this:

Vocal 1	Drums
Bass	Vocal 2
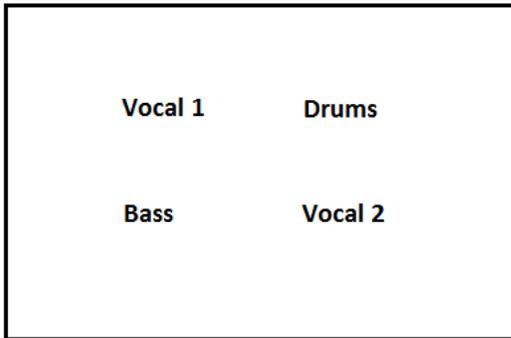
To achieve this, all 4 parts must be mixed into both the Master Mix and Bus A. The setup for this looks like this:

	Track Name	Type	On	Bus Out	Device	Channel	Instrument	Vol	L/R Balance
	Vocal 1	Audio 24 bit	on	M A b c d	Lexicon Mac USB (2- U	1	mic / line-in		
	Vocal 2	Audio 24 bit	on	M A b c d	Lexicon Mac USB (2- U	2	mic / line-in		
	Drum kit	Audio 24 bit	on	M A b c d	Lexicon Mac USB (2- U	3	mic / line-in		
✓	Bass guitar	Audio 24 bit	on	M A b c d	Lexicon Mac USB (2- U	4	mic / line-in		
		Bus A		M a b c d	Speakers (Realtek High	BL + BR			
							Vocal 1		
							Vocal 2		
							Drum kit		
							Bass guitar		

Notice that each track's Bus Out column now includes both M and A. Now, the volume controls are used to control the amount of volume each part adds to the Front speakers (Master Mix) and the Back speakers (Bus A), i.e. the balance between Front and Back speakers. For example, since Vocal 1 is closer to the Front speakers, its Master Mix volume is set to 75 and its Bus A volume is set to 25. Its L/R Balance is set to 25 for the Master Mix as well as for Bus A.

When using the Core Audio subsystem, Audio Output devices support more than 2 channels, and each bus must be assigned to different channels of the same Audio Output device.

When using the ASIO Audio Subsystem, each Audio Output device supports 2 channels, and each bus must be assigned to a different Audio Output device.

Use of Auxiliary speakers requires Anvil Studio's optional Pro-Mix accessory.