



School Recording Studio

Student Training Program



Introduction

The information that follows will prepare you with the basic information to run a simple recording session in your school's recording studio. Topics include:

- The components of the studio set up and how to set up a basic signal flow
- How to record audio and MIDI
- A few important tips

This is not exhaustive, but is just meant to get you started experimenting in a way that is safe for the equipment. It represents the minimum information that you should be comfortable with before engaging with the studio and running a session.



Key Terms

DAW- Digital Audio Workstation; the software used to record, edit and playback digital audio (Logic, Garageband, Pro Tools, etc.)

MIDI- Musical Instrument Digital Interface; computer protocol that allows a physical MIDI control surface (keyboard, mixing board, etc) to control software based instruments and sound programs.

Signal flow (chain)- the path that real audio takes from the source (voice or instrument) into your computer and your DAW.

Digital Audio Interface- piece of hardware that connects microphones and other audio gear to your computer and converts sound waves into digital information that can be edited in your computer.

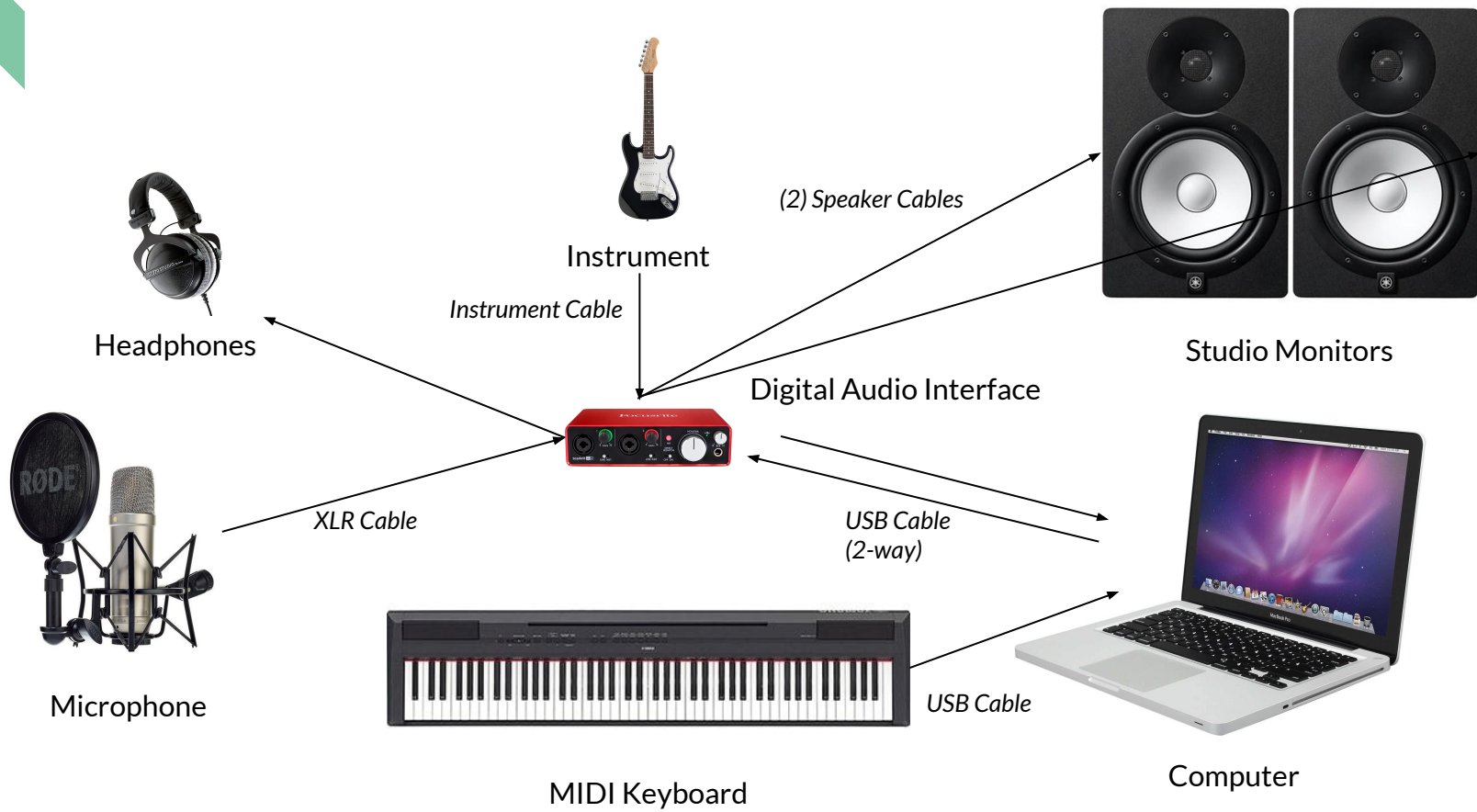
dB or decibels- measurement of sound level or signal strength.

Gain- strength of the sound signal coming into your DAW

Clipping- chopping or compression of a signal that happens when it goes above 0dB. Leads to digital distortion

Distortion- unnatural alteration of the sound wave; is often unwanted and makes it sound bad when caused by an incoming signal that is too high

Equipment Set up





Equipment Set Up (Audio Signal Flow)

- 1) Source (audio into microphone, instrument) *plugged into*
- 2) Digital Audio interface (via XLR for mic or instrument cable) and MIDI keyboard *plugged into*
- 3) computer (via USB cables) *assigned to*
- 4) Audio input in your DAW



Turning On/Off Equipment

Turn speakers on last and turn them off first. Unexpected signals from other equipment can damage speakers.

- 1) Turn on computer which powers Audio interface
- 2) Turn on phantom power if using a condenser mic*
- 3) make sure output volume on interface is low
- 4) open your DAW
- 5) turn on speakers
- 6) assign audio input of your DAW to the appropriate input on your interface

***condenser mics and phantom power**- type of microphone often used for vocals in the recording studio as it is more sensitive to detail. It requires extra power so make sure the button marked -48v or phantom power on your audio interface is pressed if using one.



Recording Vocals or Instruments

Once signal flow is set up:

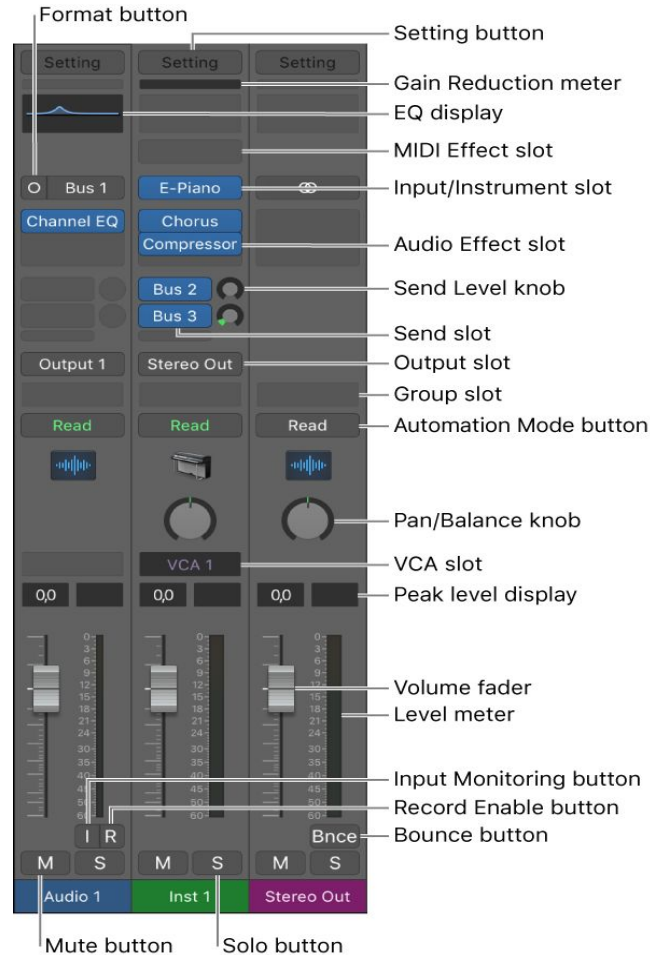
- 1) Make sure gain knob on interface is all the way down
- 2) Arm track for recording (press the button on the channel strip with an R on it).
- 3) Ask singer to perform the song at the anticipated volume to test signal
- 4) slowly raise the gain knob until the signal averages around -18dB and peaks stay below -10dB
- 5) set monitoring level in headphones. Make sure it is not too loud so that the playback is not being picked up by the microphone. When set up in the same space, monitors should also be off for the same reason as well as to avoid feedback.
- 6) click the record button once the vocalist is ready to record a take.
- 7) listen back; make adjustments and re-record if necessary



Recording MIDI

- 1) Create a MIDI (Software Instrument) track in your DAW
- 2) Choose the sound
- 3) Arm track for recording (press the button on the channel strip with an R on it).
- 4) Click the record button and play the part on the MIDI keyboard.

Channel Strip (Logic)



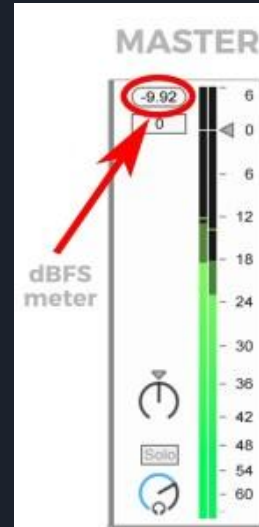
Other Notes

Gain vs. volume:

- Gain is signal strength going into the DAW. Volume is how loud the sound is coming out of the speakers.
- When setting levels make sure the signal peaks stay around -10 dB and average signal stay around -18 dB. The level meter should always be green. Yellow means the signal is nearly clipping and red is clipping.
- Gain is important to get a "healthy" signal to work with in the mixing stage. It's important to get the best sound possible in the recording phase.

Sweet Spot (see figure to the right)

In your DAW 0dB is the highest level on the track meter that a signal can get before it starts to clip. Keeping input signals around -18dB with peaks around -10dB help avoid clipping and distortion in the mix. This 'Sweet Spot' will avoid a signal that is too low and includes too much low level noise and one that is too high and risks clipping and distortion.





Other Notes

Studio Organization

Consider creating systems for:

- File management- keep session files organized in one place on your hard drive. A separate external HD is best, but assign one place where you save all the session files if that is not possible. Create an organized system (perhaps by class) with an organized naming structure so projects are easy to find when needed. You may want to consider having separate folders for a sample library and finalized track files.
- Equipment maintenance- create, document and maintain a consistent protocol and practice for storing equipment when not in use so that it is not stolen, misplaced or broken