

USER GUIDE



This guide is intended as a “quick start” guide. See the individual manuals and books for the specific software and equipment found in the studio.

THE EQUIPMENT

The main piece of equipment to get to know in Studio 11 is the 32-input Behringer X32. This is also known as the “mixing board,” the “sound board,” or just “the board.” The full user manual for the Behringer X32 can be found in a binder located in the studio or online.



GETTING STARTED

Be sure to turn the equipment on in this order:

1. Power strip
2. Computer (power button is located in the back left corner)
3. Mixing board
4. Speakers/Monitors. Note: "monitors" in the studio mean the speakers you use to listen back to your recording, not a computer screen. Always turn on the monitors (speakers) last to avoid damaging them.



In the studio, "monitors" refers to speakers (not computer monitors)

SIGNING IN TO THE COMPUTER

Sign in to the computer by selecting the icon for “BAPL GUEST.” No password is required. Note: when signed in under this profile, your files may not be there the next time you come in, so be sure to save your work and export to a flash drive or cloud storage to take with you.

Options for recording software: Logic, Reaper, Audacity

Each piece of recording software has its own manual for detailed instruction. This guide uses Logic as the example.

RECORDING YOUR FIRST TRACK IN LOGIC

When you first open the software, you will be prompted to select a type of track you are creating. Choose the microphone icon if you are recording voice or an instrument through a microphone. The other options are used for creating digital tracks.

“**Input One**” comes up as the first option for this track. **Input one** on the screen corresponds to the first input on the sound board. Plug your microphone in to input one on the board and whatever you record there will show up as that track.

Arm the track by clicking the button that is second to the right. It will be blinking red. "Armed" is another way of saying "record-enabled."

The software for recording and editing music is also known as “DAW” for “digital audio workstation.”

Make sure your microphone is plugged in and turned on if it has a power switch. Some microphones do not have an on/off switch and work as soon as they are plugged in to the microphone cable.

Select "microphone one" on the mixing board by press the "select" button above input one. It will light up.

The fader at the extreme left (above **input one**) is to control volume on playback. It does not impact how loud the signal is coming in to the board -- just for listening back. Use the gain knob above the fader to control how loud the signal is coming in to the computer.

Technically speaking, **volume** is how loud the **OUTPUT** of the channel or amp is. **Gain** is how loud the **INPUT** of the channel or amp is.

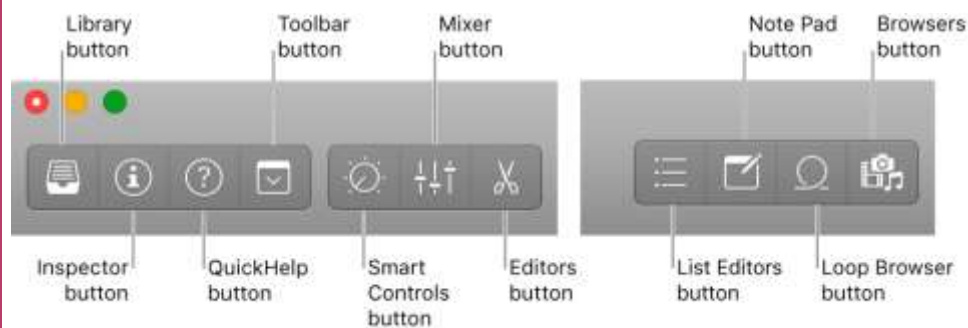
ADDING ANOTHER TRACK

You can add multiple tracks to record at once, or separately. First "un-arm" the previous track then choose **new track** from the menu.

After you create a second track, be sure to change its input to "input two." This designation corresponds to the second input jack on the board. This way you can record multiple tracks at once. You can keep adding tracks and changing the inputs to record multiple microphones at once. Disarm your previously recorded track(s) when recording a new track.

Use the play button at the top of the screen to listen back. Save your file onto a flash drive or upload to cloud storage. The library is not responsible for files saved onto this shared computer.

Tip: Change the label of each track to clearly identify what that track is.

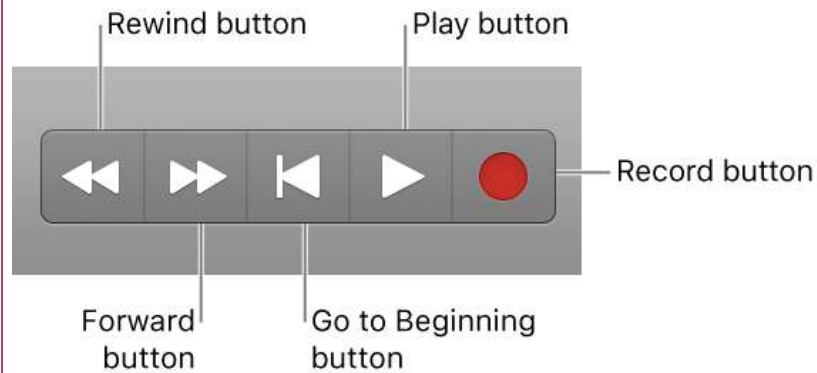


Logic Toolbar

LISTENING BACK

Use the knob on the board labeled "monitor" to control how loud you're listening back. Around 20% is typically a good level to start. Make sure you **mute** the microphones when listening through the monitors.

If you want to listen back through headphones, turn that knob up to 20% as well. Make sure a headphone is plugged into the jack on the left of the board.



Playback and record buttons in Logic

SHUTTING DOWN

When shutting everything down, be sure to shut down the speaker monitors first to avoid damaging them. Then shut down the computer, the board and power strip.

Please put away all microphones, headphones, and other equipment.

Remember to save your file onto a flash drive or upload to cloud storage. The library is not responsible for files saved onto this shared computer.

MICROPHONES AKA MICS

Microphones are the tool that takes sounds from the physical world and changes (or transduces) it into an electrical signal. This studio has several different types of **mics**, each of which serves different purposes.

Three main types of mic are **Condenser**, **Dynamic**, and **Ribbon**. At Studio 11 we have Condenser and Dynamic mics as they are more modern and require less upkeep.

Condenser microphones are very clear, articulate and bright, maybe even “airy”. They are commonly used to record classical music, lead vocalists, cymbals / ambient room sounds. They are sensitive to very quiet sounds but also respond to moderately loud sounds.

Dynamic microphones are a more rugged and dark sounding, not as airy as condensers. They are commonly used to record drums, percussion, guitar cabinets, and for voice-overs. They are less sensitive to quiet sounds and able to withstand loud sounds without distortion.

Ribbon microphones are somewhere in-between dynamic and condensers in that they are articulate and realistic, yet dark-sounding. It's one of the most early microphone designs, using a fragile ribbon of aluminum to pick up sound, which is very sensitive to bumps, drops, temperature, and improper storage.

Each microphone has a **Pickup Pattern**, which is another way of saying what it hears. Four common pickup patterns are **Cardioid**, **Supercardioid**, **Figure 8**, and **Omnidirectional**: each have their own strengths.

Cardioid and Supercardioid are similar: cardioid is a heart shape in front of the mic, and Supercardioid is like a narrow heart in front with a tiny petal shape directly behind it, and surrounded by null space. These patterns are typically used when you want to pick up only the source, with as little room sound as possible. For example, if there was a heater running and you were recording a vocalist, you would likely use a Supercardioid mic and aim the front of the mic at the vocalist and try to aim the null at the heater or noise source.

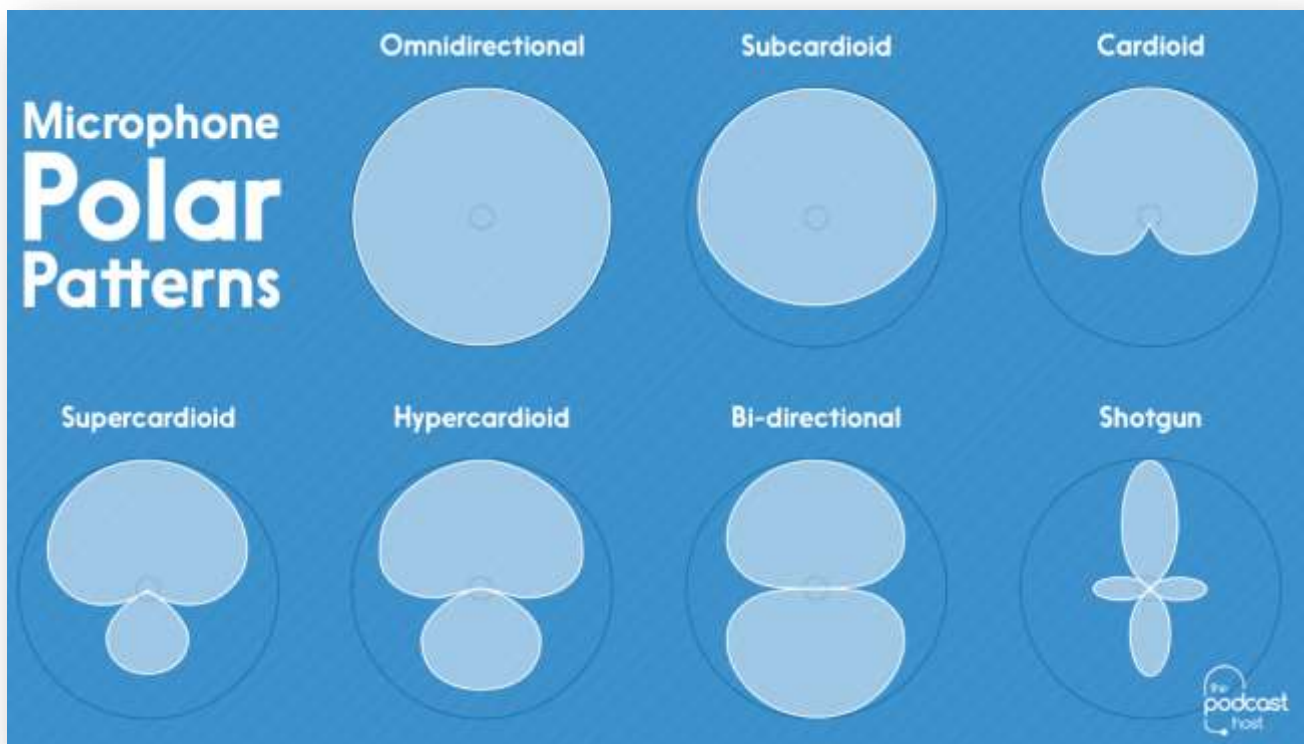
Figure 8 looks like two ball-like lobes in front and back of the microphone which can be good for getting some of the sound of the



room as well as the source, or for recording two sources--Imagine yourself and a friend standing facing each other with the mic between you--you would be singing / talking into the lobes of the figure 8 pattern and you would evenly be picked up.

Omnidirectional mic patterns are a circle around the mic, meaning it picks up sound almost identically from all directions. These are good for recording the sound of instruments in a room, when you don't only want the main source, but some of the ambience. Omnidirectional mics are often used to add a natural room sound to a recorded instrument. For example, many of the hits of Led Zeppelin featured a very room-y drum sound, in most cases, omnidirectional mics in the back of the room.

Studio 11 is equipped with two condensers capable of all the above-mentioned pickup patterns, and many dynamic mics, which are all cardioid. These variations are capable of effectively recording just about any source you can imagine!



AUDIO INTERFACE

An **audio interface** is the equipment that takes the signal from the **analog** world of the mic, amplifies it, and converts it to a **digital** stream into the **computer**. It's important for the quality of audio to make sure the signal doesn't **CLIP** the interface or the computer--this will be discussed in more detail in the "Quick Startup Guide".

The interface at Studio 11 is a **Behringer X32**, capable of putting **32 individual channels** into the computer simultaneously! In addition to sending signals TO the computer, it also receives the playback from the computer, and can add effects like reverb / ambience, delay, as well as equalization and compression. The interface has many more features which will be touched on in the "Quick Startup Guide" but it is set up to very quickly help you monitor, playback and record audio to and from the computer.

DAW or Digital Audio Workstation

The Digital Audio Workstation or DAW is the recording / editing program on the computer that allows you to record, playback, edit, and mix a virtually unlimited number of recorded audio tracks. Studio 11 has two different programs, Logic X and Reaper, both of which are high quality programs designed for professional use, yet are intuitive and user friendly. Once audio tracks are in the DAW of your choice, you have virtually unlimited ability to edit / rearrange, shift pitch, distort, compress, mix, etc. Mixing is the process of balancing levels between all recorded tracks. There are so many ways to edit and manipulate sound once in the computer that entire professional mixes can be done this way! The audio doesn't leave the digital world until it's listened to on headphones, an ipad or laptop, or car speakers. For example, professional mix engineers are often emailed recorded tracks from someone's DAW anywhere in the world, which they can balance, and blend then email back!



Logic



Reaper

MONITORS

Studio 11 has two forms of monitoring audio: near-field **studio monitor speakers**, and closed-back **headphones**. Studio monitors are designed to be flat sounding and unforgiving which allows you to listen almost clinically to your recorded material, helping you to make precise adjustments. The benefit of mixing / monitoring on speakers out loud in the room is that it will be more likely to translate well to other rooms and listening spots. Mixing in

headphones can sometimes **ONLY** sound good in headphones if not double checked on monitor speakers. **Closed-back headphones** as monitors have the advantage of bleeding less (if at all) into live microphones, and allow the listener to hear actual technical imperfections in the source such as unwanted room sounds, hvac noise, etc. This makes them great for recording a podcast or recording a vocal track on a song. Notice you might see a singer wearing headphones, but not as often the producer at the mixing console.

SOUND OF THE ROOM / MIC TECHNIQUES / OTHER CONSIDERATIONS

Studio 11 is not soundproof but you can learn to use the pickup patterns of the mics to your advantage. If there is random or constant noise from the garage or heating / air-conditioning during your session, placing the microphone as close to the source as possible and use the images of mic pickup patterns shown above to put the null space towards the noise and the fattest part of the pickup pattern towards the source. Ex. Using a cardioid mic, you would but the back of the mic towards the noise and the bottom of the hear-shaped pattern towards the source.

Being that the room is almost a perfect cube, there are peaks and valleys in the level of low frequencies, which is built up especially high in the corners of the room. Keeping sound sources and mics a few feet from the walls and corners will help keep them from sounding muddy. That's not to say you should **NEVER** put any instrument or mic in a corner, it can sometimes be used to great effect!

Every room has its own sound and it's important to know that a mix that sounds good in one spot (like headphones, a car) might not translate anywhere. The acoustic treatment and placement of the mixing board and monitors is as such that you will have a fairly neutral sound, but no room is perfect. Crafting a great mix usually takes listening on many systems, in different spaces. At my studio, I've already run cables out to someone's car and mixed it both on studio monitors and while referring to the car stereo!

Remember, there are no rules when it comes to your art. What might be considered an improper technique could be exactly what your music needs or could be how a totally new sound is created!



THIS ONE
GOES TO **ELEVEN**