

How to Use CFRC's Studio A

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Introduction

CFRC's Studio A is a versatile and professional space designed to accommodate a wide range of recording needs, including live or pre-recorded sessions for bands, podcasts, and other group setups. This manual is intended to guide users through the essential steps of setting up and operating the studio effectively, ensuring high-quality audio recordings every time.

Why Use Studio A?

Studio A provides:

- **Spacious Setup:** Compared to smaller studios or control rooms, Studio A offers more room to comfortably accommodate larger groups, whether it's a band or a podcast panel.
- **Enhanced Equipment Options:** The studio is equipped with diverse tools and technologies that cater to different recording scenarios, making it ideal for capturing complex soundscapes.
- **Dedicated Recording Environment:** Designed to minimize interruptions and distractions, Studio A allows users to focus solely on producing great audio content.

What Can You Achieve in Studio A?

- **Bands:** Record live sessions with multiple instruments and vocalists, capturing the dynamic energy of a group performance.
- **Podcasts:** Host engaging conversations with multiple participants, ensuring each voice is clearly captured.
- **Live or Pre-Recorded Sessions:** Tailor the studio's setup to your specific needs, whether you're going live-to-air or recording for later broadcast

Differences Between Studio A and Control Rooms

Studio A is designed for sound production, while the adjacent control rooms are for sound monitoring and manipulation. Key distinctions include:

Studio A:

- Focused on creating and capturing audio.
- Equipped with microphones, stands, and other tools for performers or speakers.
- Provides a comfortable environment for natural performance.

Control Rooms:

- Designed for monitoring, mixing, and making real-time adjustments.
- Houses mixers, computers, and recording software.
- Keeps production tools separate to avoid clutter and distractions in the studio.

Capacity and Layout

While Studio A is relatively compact (approximately 9' x 9'), it can accommodate various configurations:

- Recommended Use: Up to 7 people for optimal comfort and functionality.
- Maximum Capacity: Though not ideal, the studio can fit up to 9 individuals or small ensembles with careful planning.
- Real-Life Examples: Studio A has successfully hosted diverse groups, from jazz bands to theatrical ensembles, proving its adaptability.
- With this introduction, you're ready to dive into the technical details of setting up and operating Studio A effectively!

Getting to Know the Studio

Understanding the layout and purpose of CFRC's Studio A is essential for making the most of its features and capabilities. This section covers the distinctions between the studio and the control room, as well as how they work together to facilitate professional-grade recordings.

What is a Control Room?

The control room serves as the nerve center for audio production. It is equipped with tools and technology that allow you to monitor and adjust recordings in real time without disrupting the session in the studio. Key features include:

- **Mixing and Monitoring:** The control room contains mixers, faders, and audio interfaces that enable precise control over sound levels and signal flow.
- **Recording Software:** Computers with pre-installed DAW (Digital Audio Workstation) software provide a platform for capturing and editing audio.
- **Communication Tools:** Talkback microphones and monitoring systems ensure seamless communication between the control room and Studio A.
- **Separation from the Studio:** By isolating the control room, producers can manage technical aspects without interfering with performers' focus or flow.

What is a Studio?

Studio A is dedicated to sound creation and capture. Unlike the control room, its design prioritizes performers' needs and acoustics. Features include:

- **Space for Audio Sources:** The studio's layout accommodates various instruments, vocal setups, and group arrangements.
- **Simple Setup and Teardown:** Equipment is arranged for efficient setup and easy post-session cleanup.
- **Essential Gear Access:** Microphones, stands, cables, and headphones are readily available to support diverse recording scenarios.

Why Differentiate the Spaces?

Separating the studio and control room minimizes distractions and allows each space to serve its purpose:

- Performers in Studio A can focus on delivering their best performance.
- Producers in the control room can concentrate on capturing high-quality audio without interference.



Capacity and Use Cases

Studio A's compact size (approximately 9' x 9') can handle:

- **Small Groups:** Ideal for podcasts or bands of up to 7 members.
- **Larger Ensembles:** With careful planning, it can accommodate up to 9 individuals or complex setups like jazz bands or theatrical recordings. However, larger groups may require additional considerations for space and sound quality.

Equipment Overview

Studio A is equipped with a variety of professional-grade tools to meet the demands of both novice and experienced users. This section provides an overview of the key equipment you'll encounter and how it contributes to the recording process.

Microphones

- Behringer SL 84C:
 - A versatile and budget-friendly microphone suitable for most recording scenarios.
 - Ideal for vocals, instruments, and general-purpose use.
 - Best practices include maintaining a consistent distance (around 2 inches for vocals) and angling the microphone to avoid plosives or capturing unwanted mouth sounds.
- Ashton Stealth:
 - A more advanced microphone with adjustable pickup patterns for specific use cases.
 - Suitable for recording deep vocal frequencies, guitars, or emulating ribbon microphones.
 - Due to its sensitivity, it is recommended for users comfortable with fine-tuning settings.

PreSonus 1824c Audio Interface

- Acts as a microphone pre-amp to enhance low sound sources.
- Located on the wall facing Control Room 1 for convenient access.
- Features phantom power for condenser microphones and gain controls to optimize signal levels.

Cable Snake Box

- Extends the inputs and outputs of the PreSonus 1824c to other areas of the room.
- Facilitates efficient setups for bands or podcast groups who need to position themselves strategically in the studio.



DI Boxes

- Converts unbalanced, high-impedance signals (e.g., from guitars) into balanced, low-impedance signals.
- Essential for capturing clean, direct input recordings while allowing musicians to monitor through their amplifiers.
- Includes features like ground lifts to eliminate hum and pads to reduce signal gain.

Cables and Connections

- XLR Inputs:
 - Studio A has 8 XLR-compatible line inputs for microphones and DI boxes.
 - Ensure all signals are converted to XLR format for compatibility.
- Headphone Outputs:
 - TRS-compatible outputs designed for use with headphones and amplifiers.
 - TRS cables feature two rings (Tip, Ring, Sleeve) for balanced audio.

Headphones and Amplifiers

- Provide clear monitoring for performers during recording sessions.
- Headphone amplifiers allow multiple participants to monitor audio simultaneously, ensuring everyone hears their performance accurately.

Additional Accessories

- Stands and Clips: For securely positioning microphones.
- Room Dividers: To manage room acoustics and minimize sound bleed between sources.

By familiarizing yourself with this equipment and its functions, you can efficiently set up and operate Studio A to achieve professional-quality recordings

Microphone Placement and Sound Source Positioning

Proper microphone placement is one of the most critical steps in capturing high-quality audio. Whether you're recording vocals, instruments, or a group, following these detailed guidelines will help minimize issues such as plosives, unwanted noise, or microphone bleed while ensuring a natural and clear sound.

Vocals

- Distance: Position the microphone approximately 2 inches away from the mouth of the speaker or vocalist. This distance ensures a strong signal while avoiding excessive proximity effects that can distort the sound.
- Angle: Angle the microphone slightly off-center from the mouth. This technique helps reduce plosive sounds caused by "p" and "b" sounds while still capturing clear vocals.
- Pop Filters: Use a pop filter to further eliminate plosives and protect the microphone from moisture.

Instruments

- Proximity: Place the microphone as close to the instrument as possible without physically touching it. Contact with the instrument may introduce unwanted vibrations into the recording.
- Angle and Position: Depending on the instrument, adjust the angle of the microphone to capture the fullest sound:
 - Acoustic Guitar: Aim the microphone at the point where the neck meets the body, about 6–12 inches away.
 - Drums: Use dynamic microphones for close-miking individual drums, ensuring they're angled to minimize bleed from other pieces of the kit.
 - Amplifiers: Position the microphone slightly off-center from the speaker cone for a balanced tone.

Groups

- Spacing: Ensure a minimum of 3 feet between microphones and sound sources to reduce microphone bleed. This distance helps each microphone focus on its intended sound source.
- Microphone Patterns: Utilize cardioid or supercardioid patterns to isolate sound sources effectively.
- Room Acoustics: Consider the studio's acoustics when positioning microphones for group recordings. If needed, use room dividers to create isolated zones and improve clarity.

Tips for Success

- Monitor Levels: Continuously monitor input levels while setting up microphones to avoid clipping or low signal issues.
- Test and Adjust: Perform a quick test recording to ensure the placement captures the desired sound. Make adjustments as necessary.
- Experimentation: Don't be afraid to experiment with unconventional placements to achieve unique soundscapes, especially for creative projects.

Stage Plots

Stage plots are a vital tool for organizing and executing successful recording sessions with bands or large groups. These diagrams provide a visual representation of the layout and input requirements, allowing you to plan effectively and avoid last-minute complications. Here's how to work with stage plots to maximize efficiency and audio quality:

What is a Stage Plot?

A stage plot is a diagram provided by the band or performers that includes:

- **Musician Placement:** Where each performer will stand or sit.
- **Instrument and Equipment Placement:** Locations of microphones, amplifiers, drums, keyboards, and other gear.
- **Input List:** A detailed list of the audio inputs needed, specifying the type of microphone or DI required for each sound source.
- **Monitoring Requirements:** Notes about headphones, floor monitors, or in-ear monitoring systems, if applicable.

Why Are Stage Plots Important?

- **Preparation:** A clear stage plot allows you to prepare the studio in advance, saving time during setup.
- **Efficiency:** Knowing the input requirements and equipment needs ahead of time minimizes delays and ensures a smoother session.
- **Clarity:** Reduces miscommunication between the producer/engineer and the performers by clearly outlining expectations.

How to Request and Use Stage Plots

- **Request Early:** Ask for a stage plot well before the recording session. Provide performers with a template if needed to ensure consistency.
- **Review the Input List:** Check the list of required microphones, DI boxes, and cables against your available inventory. Address any gaps ahead of time.
- **Plan Layout:** Use the stage plot to determine microphone placement, cable routing, and the best arrangement for performers in Studio A.
- **Prepare for Flexibility:** Be ready to make adjustments if the actual setup differs slightly from the stage plot due to space constraints or unexpected needs.

Reading and Interpreting Stage Plots

- **Symbols and Labels:** Familiarize yourself with common symbols for microphones, DI boxes, and instruments. Ensure each is labeled clearly to match the input list.



- **Prioritize Inputs:** Identify key sound sources, such as lead vocals or main instruments, and ensure these are prioritized during setup.
- **Group Similar Sources:** Arrange inputs logically (e.g., all drum microphones in sequential channels) to simplify mixing and troubleshooting.

Setting Up from a Stage Plot

- **Mark Positions:** Use gaffer tape or markers to designate the locations of microphones, instruments, and performers as shown on the stage plot.
- **Route Cables:** Lay out cables efficiently to minimize tripping hazards and avoid tangling.
- **Double-Check Input Connections:** Ensure that each microphone and DI box is connected to the correct input as indicated in the stage plot.
- **Verify Monitoring:** Confirm that monitoring systems (headphones or monitors) are set up and functioning according to the performers' needs.

Troubleshooting Common Stage Plot Issues

- **Missing Information:** If the stage plot is incomplete, ask the band for clarification or adapt based on standard practices.
- **Space Constraints:** If Studio A's compact size limits the setup, prioritize essential inputs and negotiate adjustments with the performers.
- **Unexpected Equipment:** Be prepared to substitute gear if performers bring items not listed in the stage plot.

Signal Flow Setup

Microphone to Mixer/Interface

- Step 1: Microphones (e.g., Behringer SL 84C, Ashton Stealth) capture the sound from the source (vocalist or instrument).
 - XLR cables connect the microphones to the Snake Box, which routes the signals to the main mixer/interface.

Mixer/Interface (PreSonus 1824c)

- Step 2: The audio signal from the microphone flows through the Snake Box into the PreSonus 1824c interface, which acts as both a mixer and pre-amp.
 - Pre-amp adjusts the microphone's signal level to a line-level signal.
 - The PreSonus 1824c allows for high-quality amplification, ensuring the signal stays clean and strong.
- Step 3: If necessary, DI boxes can be used for instruments (e.g., electric guitars, keyboards) to convert unbalanced signals (from instruments) into balanced signals that the interface can handle.

Mixer to DAW (Digital Audio Workstation)

- Step 4: After the signal is processed by the interface, it is sent to the DAW (such as Reaper) via AoIP to record and edit the audio.
 - Input levels and routing are confirmed within the Reaper template preconfigured for Studio A.

Gain Staging

- Step 5: Gain staging is crucial to avoid distortion and ensure clean recordings.
 - Gain levels on both the interface and the mixer must be set so that the signal doesn't clip or distort.
 - Set the mixer's faders to optimal levels and ensure that the signal is strong, but not too loud (avoiding clipping).

Monitoring the Signal

- Step 6: The signal is sent to headphone amplifiers for monitoring purposes.
 - TRS-compatible headphones are connected to the amplifiers.
 - The control room engineer adjusts the headphone mix to ensure that musicians or hosts hear the right balance of the live recording or previous tracks.

Live vs. Pre-recorded

- Step 7: If the session is live, the signal is routed directly from the DAW through the mixer for real-time broadcast to CR1 or CR2.
 - For pre-recorded sessions, the signal is captured into the DAW and can be further edited before broadcast.

Troubleshooting

- Step 8: If issues arise, check the following:
 - No sound: Confirm all cable connections, mic/line input routing on the interface, and fader levels.
 - Missing Inputs: Ensure the DAW is set to the correct input channels, and check if any channels are muted.
 - Talkback Issues: Make sure the talkback button on the far right of the board is pressed, NOT the ones that are directly on each fader. Also make sure the knob for "Studio" volume is turned up
 - Headphone Mixes: Adjust the headphone amplifier output to balance the sound for performers.

Cable Connections in Studio A

Cable management and proper connections are crucial for ensuring high-quality sound and preventing signal issues in Studio A. Here's a detailed guide to managing the different types of cable connections used in the studio setup:

XLR Compatibility for Inputs

- XLR Cables:
 - XLR cables are the standard for professional audio equipment, especially for microphones. They are used because they carry balanced signals, which are less susceptible to noise and interference over long distances.
 - Input Connections: Microphones, such as the Behringer SL 84C and Ashton Stealth, are typically connected to the mixer or audio interface using XLR cables. The microphones send their audio signals through these cables to the mixer or interface, where the signals are amplified and processed.
- Balanced vs. Unbalanced Signals:
 - Balanced Signals: XLR cables provide a balanced connection, which reduces noise and ensures that the signal remains strong and clean, even over longer cable runs.
 - Male to Female XLR Connections: XLR cables usually consist of male connectors (at the output of the microphone) and female connectors (at the input on the mixer or interface).
- XLR Inputs on Mixer/Interface:
 - Mixer/Interface (e.g., PreSonus 1824c) features XLR input jacks for receiving the audio signal from the microphones. When connecting XLR cables, make sure the cables are firmly plugged in to ensure good signal integrity.

Using DI Boxes for Conversion

- What is a DI Box?
 - A DI (Direct Injection) box is used to convert an unbalanced signal from instruments (such as electric guitars, keyboards, or bass) into a balanced signal that is suitable for use with a mixer or audio interface.
 - DI boxes also provide impedance matching, which improves the quality of the signal.
- How to Use a DI Box:
 - Instrument to DI Box: Plug your instrument (e.g., electric guitar, bass) into the input of the DI box using a 1/4" TS cable (unbalanced).
 - DI Box to Mixer/Interface: The output of the DI box is an XLR connection (balanced), which you then connect to the mixer or

interface using an XLR cable - ensure that 48v phantom power is enabled on the Presonus audio interface.

- Benefits of Using a DI Box:
 - Noise Reduction: Since the DI box converts the signal to a balanced connection, it helps reduce hum, buzz, and other interference that might arise from long cable runs.
 - Cleaner Sound: It ensures the instrument's signal is transmitted clearly and accurately to the mixer or interface, which improves overall sound quality - good for re-amping in post production
 - Ground Loop Elimination: A DI box can also help eliminate ground loop hum, a common problem when connecting electrical equipment to audio systems.

Connecting Headphones and Amplifiers

- Headphones for Monitoring:
 - In Studio A, headphones are used for monitoring live or pre-recorded audio during the session. These are typically connected to headphone amplifiers or mixer headphone outputs for clear and loud sound.
 - TRS (Tip-Ring-Sleeve) Headphones: For optimal sound, use TRS-compatible headphones. TRS headphones have a 3.5mm or 1/4" jack and are designed to handle stereo signals.
 - TRS Cable: The headphone cable typically has a TRS connector (3.5mm or 1/4" jack), which is plugged into the headphone output on the mixer or headphone amplifier.
- Headphone Amplifiers:
 - Purpose: A headphone amplifier ensures that performers, hosts, or engineers can hear the audio clearly and without distortion. It boosts the signal sent to the headphones, especially in situations with multiple individuals monitoring at the same time.
 - Connection to Mixer/Interface: The headphone amplifier is usually connected to the mixer's auxiliary send output or the audio interface's headphone output. This connection ensures that each performer hears the mix that is tailored for their needs. These outputs are found on the Cable Snake on the wall
 - Adjusting Levels: Most headphone amplifiers allow individual volume control, letting each user adjust their own headphone mix. For example, a musician may want to hear more of their instrument or a podcast host may need to hear their voice clearly in the mix.
- Connecting Multiple Headphones:
 - For sessions with multiple performers or crew members, headphone splitters or multiple outputs on a headphone amplifier can be used to send the same mixes to various sets of headphones. This ensures everyone can hear what they need during the session.

Summary of Key Connections

- Microphone Inputs: Use XLR cables for connecting microphones to the mixer or interface.
- Instruments: Use DI boxes to convert unbalanced instrument signals to balanced ones for the mixer/interface.
- Headphones: Use TRS-compatible headphones connected to headphone amplifiers or the mixer for monitoring. Ensure the amplifier or headphone output is set to a proper mix for each user.

Recording Techniques in Studio A

Recording techniques in a professional studio like Studio A involve careful planning, monitoring, and balancing to achieve the best possible sound. Here's an overview of key techniques for both live and pre-recorded sessions, as well as tips for balancing multiple voices and instruments, and ensuring depth and clarity in recordings.

Live vs. Pre-recorded Sessions

In live sessions, all audio adjustments, such as EQ, volume, and panning, need to be made in real-time. The mixer and engineer must maintain a dynamic balance, adjusting the mix as the performance unfolds. It's crucial to create individual headphone mixes for each performer to ensure they hear the elements they need, like their own instrument or vocal, without unwanted bleed from other sources. For example, a vocalist might need more of their own voice in the mix, while a guitarist might need more of the rhythm section. The headphone amplifier must be set up to accommodate these specific needs, providing a personalized mix for each performer.

Managing latency is another important aspect of live sessions. Latency refers to the delay between the input and output of sound, which can affect timing and synchronization in live performances. The engineer should work to keep latency as low as possible, ensuring that performers hear their inputs and the overall mix in real-time without delay. To achieve this, careful routing of signals and use of low-latency settings on the DAW (e.g., Reaper) and interface (e.g., PreSonus 1824c) are essential.

For live broadcasts, whether for radio or streaming, the audio needs to be mixed and sent directly to the broadcast studio (CR1 or CR2) without delay. The master fader on the mixer controls the overall output, ensuring that the live mix is clear and balanced. It's important to continuously monitor the output to avoid any distortion, clipping, or dropouts during the live session.

In pre-recorded sessions, the process allows for more time to fine-tune each element of the recording. The engineer can take their time adjusting levels, EQ, and effects for each individual track. This is especially useful for sessions that involve multiple instruments or voices, as adjustments can be made after the recording to enhance clarity and balance. The audio can be recorded into the DAW, and if necessary, the engineer can punch in or re-record sections of the performance to improve accuracy or fix issues.

Balancing Multiple Voices/Instruments

When recording multiple voices or instruments, balancing each element in the mix is key to achieving a polished sound. Each instrument or voice should be clearly audible, but none should overwhelm the others unless it's intentional (e.g., a lead vocalist or solo instrument). Using the faders on the mixer to



control the volume of each track is essential for ensuring a balanced mix. Start with all faders set to neutral (0 dB) and adjust from there, making sure that no one instrument or voice dominates the mix unless it's meant to stand out.

Panning also plays a significant role in creating space for each element. By panning different instruments or voices left or right in the stereo field, you can prevent the sound from becoming cluttered. For example, if you have two guitars, pan them hard left and right to give them each their own space in the mix. For a more natural feel, vocals can be panned centrally, while backing instruments might be spread across the stereo field.

EQ adjustments can also help separate the different elements in the mix. For instance, vocals might benefit from a slight boost in the midrange frequencies to ensure they stand out, while bass instruments may need a boost in the low frequencies to add warmth and depth. Be mindful of frequency overlap between instruments and voices—cutting some frequencies from one instrument can give another more room to breathe in the mix.

Tips for Depth and Clarity in Recordings

Achieving depth and clarity in your recordings involves a combination of microphone placement, signal processing, and mixing techniques. One of the first steps in ensuring clarity is proper microphone placement. Microphones should be positioned to capture the best tonal quality of each instrument or voice while minimizing unwanted noise and interference. For vocals, place the microphone at a distance that captures the full range of the voice, while for instruments, experiment with mic positioning to capture the desired tone without introducing too much room sound or distortion.

Gain staging is critical for maintaining clarity and avoiding distortion. Set the gain levels appropriately to ensure that the signal is neither too weak nor too strong, as either can result in unwanted noise or clipping. In the mixer, use compression to control dynamics and prevent parts of the recording from becoming too loud or soft. Compression helps smooth out the peaks and valleys of the sound, ensuring a more consistent level.

To add depth to a recording, consider the use of effects like reverb or delay. Reverb can help simulate the natural reflections of sound in a space, adding a sense of dimension. For example, adding light reverb to vocals can give them a more polished, spacious feel. Be careful not to overdo it, as too much reverb can muddy the mix. Similarly, delay can be used creatively to add space and interest to the sound, especially for certain instruments or vocals.

Finally, to ensure the mix is clean and focused, avoid cluttering the frequency spectrum. Too many instruments competing for the same frequency range can cause muddiness. Use EQ to carve out space for each element, ensuring that each voice or instrument occupies its own unique place in the mix. This will allow the recording to sound balanced, with each element clearly distinguishable from the others.

Using the DAW

The DAW (Digital Audio Workstation), in this case, Reaper, is the heart of your recording and mixing workflow in CR1. It is used to capture, edit, and mix audio from the studio's equipment. The Studio A setup has a preconfigured template in Reaper that simplifies the process by setting up channels 1-8 to correspond with the inputs from the Wheatstone DMX 16 mixer.

- Open Reaper and select the preconfigured template for CR1. This will automatically load a session with tracks 1-8 assigned to the appropriate input channels.
- Verify Input Routing in Reaper: Ensure that each track in Reaper is assigned to the correct input channel. The first 8 tracks in Reaper should be set to inputs 1-8, matching the corresponding mic channels on the mixer (mic 1 to track 1, mic 2 to track 2, etc.). To check or change the input routing, click the Track Input button on each track and verify that it is set to the correct input from the Wheatstone DMX 16 mixer.
- Arming Tracks for Recording: Make sure the tracks you want to record on are armed in Reaper. You can do this by clicking the Record Arm button on each track. This allows the track to receive the signal from the mixer. Once armed, you should see the signal levels moving on each track in Reaper as sound is picked up from the corresponding microphone.
- Check for Proper Leveling: It's essential to check that the levels from each mic are neither too low nor too high. Set each track's input gain in Reaper, ensuring the signals are loud enough without clipping. Use the meter to monitor the input levels.

Confirming Input Selections on the Wheatstone DMX 16 Mixer

The Wheatstone DMX 16 mixer is where you control the input sources and direct them to the corresponding channels. The mixer has knobs on the faders that allow you to change the input source for each channel. Here's how you can confirm and adjust the input selections:

- Selecting Input Sources: The knobs on each fader are used to choose which source is routed to that particular channel. For this use case, the sources are labeled mic 1 through mic 8, which correspond to the microphones connected to the mixer. For example, for Channel 1, you'll use the knob to select Mic 1 as the input source. Repeat this for all 8 channels, ensuring each fader is linked to the corresponding microphone (Mic 1 to Channel 1, Mic 2 to Channel 2, etc.).
- Verifying Channel Signal: Once the input sources are selected, check the signal flow by watching the faders on the Wheatstone mixer. As the sound from the microphones is picked up, the faders should move, indicating the



signal is being received. The levels on the mixer should match the levels you're seeing in Reaper, confirming that the input routing is correct. If there's no signal, double-check the fader settings and input selection knobs on the Wheatstone mixer.

- **Adjusting Input Gain:** If the signal is too weak or too strong, adjust the input gain knobs on the preonus pre-amp to ensure the levels are appropriate. This will also affect the levels in Reaper, so make sure to monitor both the mixer's meters and the Reaper track meters for proper level alignment.
- **Monitoring for Clipping:** Be mindful of clipping—if the signal is too hot (too loud), it can distort. Watch the mixer's meters and the Reaper track meters for any signs of clipping. If necessary, reduce the gain on the input source using the gain knobs on the pre-amp to avoid distortion.
- **Using the Talkback Feature:** If you need to communicate with the performers during the session, you can use the talkback mic feature on the Wheatstone DMX 16. The talkback button is labelled TB and is found on the far right of the mixer.

Additional Tips for Efficient Setup

- **Save Your Template:** If you make any custom changes to the template, such as adjusting input routing or adding specific effects, be sure to save it so you can easily recall it for future sessions.
- **Monitor Signal Flow:** Continuously monitor the signal flow throughout the session. If you notice any issues, such as no sound from a specific mic, check both the mixer's input selection and Reaper's track routing.
- **Session Backup:** Consider regularly saving your Reaper session, especially before making significant changes to the setup. This ensures that you don't lose any work if something unexpected happens during the session.

Going Live

When preparing for a live broadcast, seamless coordination between CR1 (the control room for recording) and CR2 (the studio used for the live transmission) is essential to ensure that the broadcast runs smoothly. The fader in CR2 labeled CR1 plays a key role in this coordination, allowing the audio signal from CR1 to be sent to CR2 for live transmission.

- **Signal Flow from CR1 to CR2:** The CR1 control room handles the recording and mixing of the audio, while CR2 is used for broadcasting. The fader labeled CR1 in CR2 allows the operator in CR2 to control the level of the audio being sent from CR1. This fader serves as the key point of control for balancing the live broadcast mix, ensuring that the audio from CR1 is clear and properly leveled when transmitted.
- **Adjusting the CR1 Fader in CR2:** The operator in CR2 should use the CR1 fader to adjust the volume of the incoming audio signal from CR1. This is crucial for live broadcasts, as the operator in CR2 may need to make real-time adjustments based on factors such as ambient noise, mic levels, or specific audio requirements for the broadcast. The fader must be set to a level that ensures the live audio is loud and clear without distortion or clipping.
- **Monitoring the Live Mix:** It's important for both CR1 and CR2 operators to continuously monitor the live mix. The operator in CR1 should ensure that all audio levels from the microphones and other sources are balanced and properly routed. The operator in CR2 needs to monitor the output, adjusting the CR1 fader as necessary to match the live broadcast needs, such as accommodating different voices, instruments, or commercial breaks.
- **Communication Between CR1 and CR2:** Good communication between the operators in CR1 and CR2 is vital for a successful live broadcast. CR1 is responsible for adjusting the audio levels and preparing the content, while CR2 is focused on delivering it to the audience. Operators in both rooms should be in constant communication to ensure that the broadcast transitions are smooth, the levels are correct, and any technical issues are quickly addressed.
- **Live Broadcast Check:** Before going live, it's recommended to conduct a quick live broadcast check where the operator in CR2 ensures that the audio being transmitted from CR1 is of good quality and is being sent at the right levels. This check should involve testing all audio sources (microphones, instruments, sound effects, etc.) to ensure they are properly routed and balanced in both CR1 and CR2.

By using the CR1 fader in CR2 to adjust the volume of the live broadcast signal, and maintaining constant coordination between the two rooms, the live broadcast can proceed smoothly, ensuring that the audio is clear, balanced, and delivered at the right levels for the audience.