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# The Ultimate Guide To Remote Recording

How to Record, Mix, and Collaborate Live With Others Anywhere in the World Using Any Recording Software

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How to Record, Mix, and Collaborate Live With Others Anywhere in the World Using Any Recording Software

Are you ready to step into the future of recording and music collaboration?

You're probably already familiar with the process of digital music production — recording, engineering, and producing music in a home studio or with a band via a DAW (Digital Audio Workstation) on your computer.

Maybe you've even recorded, mixed, or produced music in an actual recording studio — in front of, or behind the glass — either as a player, engineer, producer, or just an observer.

The future of recording and music collaboration encompasses both of these elements. The difference is there's no longer the need for everyone to be physically in the same place, under the same roof, at the same time.

Fast forward to the future of recording and musical collaboration — Remote Recording.

Remote Recording breaks down the walls of the physical recording studio, literally and figuratively, opening up a virtual recording studio environment where musicians, engineers, producers ... now virtually *anyone* can record and collaborate together in a virtual live recording environment.

From anywhere in the world. With anyone in the world.

And the great news is that you probably already have most of the tools you need to step into the world of remote recording. And if not, this guide will help you determine what you need to get started.

Are you ready?

Let's go!

# Introduction — What This Guide is All About

What is this guide to remote recording all about?

We'll cover a lot of ground in the next few pages, including:

- What remote recording is.
- How you can get started with remote recording.
- What DAW you need for remote recording.
- macOS or Windows? (spoiler alert you can use either!)
- How to connect with bandmates, producers, engineers, etc. via HQ (high quality) audio and video.
- How to become famous and make a fortune with your music (just kidding that's for another guide, but this guide will get you on the way!)

#### What is Remote Recording?

Remote recording is the process of writing, collaborating, recording, producing, and mixing music using recording software along with others, without having to be in the same room, city, or even the same country.

#### The Evolution of Remote Recording

It's no secret that the DAW (Digital Audio Workstation) has changed the way music is composed, recorded, mixed, and distributed. Musicians have of course been writing and recording music together in the same room for decades.

In recent years, increasing travel costs and busy schedules, coupled with the advantages and convenience of a work from home (WFH) movement, <u>led music</u> <u>creators to seek out alternative solutions to in-person collaboration</u>. The DAW has made it more convenient to write and record music on a computer. Video platforms like Skype, Zoom and Facetime have become popular mediums for emulating the visual sense of being in the studio together but fall short.

Managing and syncing separate audio, video, and file transfer services is challenging when trying to write and record music remotely. Video and audio streams from services like Zoom and Skype are often grainy, glitchy and have notoriously poor audio quality which doesn't cut it for musical applications, especially recording!

On top of that, latency issues with live audio streamed over the internet make these cobbled together remote recording setups less than ideal for music collaboration (more about the audio latency issue later).

This intersection of the need to collaborate and lack of good tools to get the job done led to the accelerated development of a viable all-in-one solution that provides a streamlined way for music makers to record, mix, and produce music remotely.

Today, with the emergence of the all-in-one remote recording environment, we find ourselves at the dawn of a new era of recording, armed with the tools to do the job properly.

# All-in-One and One-in-All

Today's remote recording studio is moving away from having to manage separate video and file transfer services into an all-in-one DAW-based recording environment. This setup enables musicians, engineers, and producers to gather, share and record music together remotely in a high-quality audio and video environment.

Picture this — band members, each with a DAW connected to one another via an integrated High-Quality video and audio feed from various locations, overdub parts to a master track directly into their respective DAWs. A producer in Los Angeles is listening to the mixed track and calling shots during each take. All while, a New York-based engineer is capturing and mixing the tracks live on a DAW.

After each take, there's discussion about the track over the integrated high-quality video and audio feed. "Should we re-take?" "Overdub a solo?" "Re-record the vocal on the second verse?"

Creating an in-person musical collaboration environment is finally possible today with an all-in-one, DAW-based remote recording setup.

#### The Benefits of Remote Recording

By now, hopefully you can begin to see the benefits a remote recording setup offers, including:

- Access talent remotely, anywhere in the world, at any time.
- Save massively on travel time and costs.
- Collaborate with others live and in person using your own DAW recording software.
- Record, mix, and produce live studio quality audio with others from anywhere in the world.

#### The Art of Collaboration

Collaboration: "The action of working with someone to produce or create something."

Making music is all about the art of collaboration, and collaboration centers around the principle of synergy - 1+1=3. The whole is greater than the sum of the parts.

Remote recording expands on this idea of collaboration, enabling those involved in the music creation process to contribute to a song or project as they would in person, but from anywhere in the world.

In a DAW-based remote recording setup, that producer you've always wanted to work with could be "in the studio" with you, courtesy of a high-quality audio/video feed, contributing ideas and guiding the musicians using talkback as the engineer is mixing the track from another city, or country. The ability to talk and share ideas over an integrated high-quality audio and video feed in the DAW environment can make those moments feel like you're both really in the same room together.

The ability to record, mix, and collaborate live with others anywhere in the world using any recording software. That's what the future of recording — remote recording — is all about.

#### Five Simple Steps to Remote Recording

In a nutshell, here are five simple steps to setting up and working in a remote recording environment:

- 1. Install remote recording software.
- 2. Open your DAW and create a new project or open one that's in-progress.
- 3. Add the remote recording plugins within your DAW project.
- 4. Invite your creative partner(s) to join you via a high-quality integrated video feed.
- 5. Start collaborating!

Next, let's get more into the details about how you can set up and "build" your remote recording studio.

# **Creating the Remote Recording Environment**

The best way to understand how to create a remote recording setup is to start by visualizing what a live recording session in an actual studio looks like.

#### **Control Room**

The control room is the "hub" of the recording session, where the mixing console, monitors and signal processing equipment such as compressors, limiters, reverbs, etc. are located. In an actual studio, audio signals (vocals, guitars, drums, etc.) are typically captured on a DAW in the control room via connected mics, cables, etc.

The control room is often referred to as "behind the glass" because often there's a soundproof glass panel separating it from the recording area to allow visual contact with the musicians when conversing via talkback.

The engineer/mixer is the denizen of the control room. Many times, there's also a producer and other contributors in the control room providing feedback and suggestions to the band members during the recording process.

In a remote recording setup, the master DAW becomes the virtual control room. Note that you can "switch" control rooms in the middle of a session by re-assigning the master DAW to another machine.

Visual contact from "behind the glass" to the musicians is handled by high quality video streaming from the remote recording app to each participant. These individual video feeds are aggregated together in a window set on each computer, putting everyone "in the same room" together.

#### **The Recording Rooms**

Picture each musician in his/her respective DAW-based home studios — a bedroom, living room, garage, etc. In a remote recording environment these spaces become the virtual recording "rooms."

Just as in a real studio where those in the control room look out into the recording areas, in a remote recording studio setup, each person involved in the session, from the engineer and producer to each musician, all have live visual contact with one another via the integrated video feed offered through the remote software app.

And verbal communication, including talkback between the recording musician and engineer, is facilitated through the DAW plugin or a computer's default audio system.

#### **The Recording Process**

A submix of the tracks or *stem* (*see Glossary to learn what a stem is*) of the song being worked on is distributed to each member of the session and imported into their DAW. In remote recording it's important that the same stem track is in the DAW of each musician who will be adding parts to the track.

Let's say the guitar player is going to overdub additional rhythm guitar parts to the track. When it's time for the overdub, the guitar player hits record on his/her DAW and adds a part in real time while listening to the stem track. Everybody in the virtual studio hears the part being played back in sync to the stem track so — no latency! After the guitar part is finished, the guitarist transfers the file directly to the engineer — the one with the master DAW in the virtual control room — who adds the track to the project, mixes it in and plays back the new version with the track for all to hear.

Since everyone is connected in the project via high quality video and audio, discussions about the track happen just as they would in a real recording studio — live, in-person, and in real time.

#### The Problem with Latency

Let's hit Pause for a moment to talk about an important topic in the remote recording world — Latency. It's impossible to think about the process of remote recording without eventually addressing the topic of latency.

Latency often comes up when the inevitable question of "Can I record multiple players live, all at the same time in a remote recording setup?" is asked.

There is no definitive, or easy, answer to this question. And an in-depth discussion of why latency occurs in remote live recording situations is beyond the scope of this guide. Learn more about latency <u>here</u>.

The bottom line is that, due to the nature of the way data travels between computers over the internet, whether via Wi-Fi or connected ethernet cable, and depending on the bandwidth of the connection, there will always be some latency between two remote computers.

That said, an all-in-one DAW-based remote recording setup can provide a way to record and overdub individual parts live, with others participating in the session — without the issue of latency. Just as it would happen in a real studio. More about that in a bit.

#### What Is Latency?

In digital recording, latency is the delay between the signal traveling from the recording source DAW (i.e. a plucked guitar note) and the playback of that plucked sound in another remote DAW connected together via the internet.

It's important to understand that, because of the inherent nature of the way data is transferred via the internet, latency between connected DAWs in a remote recording setup is unavoidable. The amount of latency varies depending on a variety of factors, including distance between users, buffer sizes in DAWs, etc. But the amount of latency is usually 100ms or greater, and almost always well below one second.

Remember, in a digital recording environment, analog signals must be converted to digital data to be transmitted via the internet. This takes *time*. Even if it's milliseconds. And even if the conversion and transmission is ultra-fast, when added up, those milliseconds can create problems when trying to play music in sync together.

So, in general, latency in a live remote recording setup where two or more DAWs are connected is related to distance and internet connectivity issues.

Because of unavoidable latency, playing in real time with two or more players is generally not achievable because even a slight micro-millisecond delay between the two computers will make it difficult to sync up the parts as if played together in the same room.

#### How Does Remote Recording Solve the Issue of Latency?

The problem of latency in a remote recording setup is eliminated by enabling each person to overdub or add parts locally in his/her respective DAW and then transfer them to the producer who has the master version of the project.

The output of the live, overdubbed part and stem track together is streamed live to everyone else in the virtual studio via a plugin that is installed on each person's DAW (more about this later).

Working this way, each person in the session hears the stem reference track on their own local DAW while recording their part in real time — no streaming audio needed! And as a result, no latency in the playback!

#### What are the key components of a Remote Recording setup?

Now that we've set the table with regards to the background and evolution of remote recording, let's dive more into the brass tacks of how to set up a remote recording environment.

The goal of any remote recording setup should be to emulate the collaborative inperson experience and professional audio quality that exists when one is in an actual recording studio.

Here are some of the key components a virtual recording studio setup provides — those similar to that of a physical recording studio.

- Professional Quality Audio
  - The ability to record and stream audio quality up to 48kHz at 32-bit float.
- High Quality Video
  - HD quality (1080p) visual connections within the app-based recording environment.
- Peer-to-Peer Connectivity
  - Ultra-low latency audio connectivity between all participants in the remote recording session.
- Efficient Send/Receive of Audio
  - macOS and Windows-based apps that streamline transfer of audio from computer to computer no matter what DAW you are using.
- Talkback
  - Allows real-time communication between the virtual control room and players during the recording process.
- Community
  - The ability to connect and collaborate with other musicians, engineers, producers without leaving the remote recording studio. Picture being in a virtual session where a live percussion part is needed. Search for "percussionist" in the community app, connect with that person and have them start overdubbing a part within minutes of making the connection.

#### Stepping Inside a Remote Recording Studio

So, how would collaborating on recording a song via a remote recording setup look in a real-world situation?

Let's look at several potential scenarios for a remote recording environment, where two DAWs are connected together in a peer-to-peer setup.

# **Overdub Lead Vocal Track**

- 1. In your DAW, bounce a stereo cue mix of the track needing a lead vocal.
- 2. Use drag and drop file transfer (such as with Sessionwire) to transfer the stereo cue mix to the vocalist.
- 3. The vocalist imports the stereo cue mix into his/her DAW.
- 4. Vocalist Inserts "send" plugin on Master Fader in his/her DAW. This allows you to monitor all audio in the remote DAW including the vocalist's takes during the overdub.
- 5. Vocalist exports final vocal takes and uses drag and drop to transfer vocal takes back to you.
- 6. Import vocal takes into your DAW and mix.

# **Overdub Guitar Solo**

- 1. In your DAW, bounce a stereo cue mix of the track needing the guitar solo vocal.
- 2. Use drag and drop file transfer (such as with Sessionwire) to transfer the stereo cue mix to the guitarist.
- 3. The guitarist imports the stereo cue mix into his/her DAW.
- 4. Guitarist Inserts "send" plugin on Master Fader in his/her DAW. This allows you to monitor all audio in the remote DAW including the guitarist's takes during the overdub.
- 5. Guitarist exports final takes and uses drag and drop to transfer guitar takes back to you.
- 6. Import guitar solo takes into your DAW and mix.

# Replace Midi Drum Track With Live Drums

- 1. In your DAW, bounce a stereo cue mix of the track needing the replacement drum track (with Midi drums muted).
- 2. Use drag and drop file transfer (such as with Sessionwire) to transfer the stereo cue mix to the drummer.
- 3. Drummer imports the stereo cue mix into his/her DAW.
- 4. Drummer Inserts "send" plugin on Master Fader in his/her DAW. This allows you to monitor all audio in the remote DAW including the drummer's takes during the overdub.
- 5. Drummer exports final takes and uses drag and drop to transfer drum takes back to you.
- 6. Import drum takes into your DAW and mix.

# How to Get Started With Remote Recording

Now that we've walked through a typical remote recording scenario, let's step through the basics of what you'll need to get started. Note that some of the DAW options listed below are free, so you can get started with remote recording for a minimal investment!

# DAW

The DAW (Digital Audio Workstation) is the centerpiece of a remote recording setup. There are many types of DAWs on the market today for both iOS and PC computers and the good news is that all listed have both free and paid versions. If you follow these guidelines, your remote recording setup will be able to connect DAW to DAW regardless of the DAW brand, and regardless of computer type (Mac or PC). Some of the most popular DAWs on the market today include:

- Pro Tools
- Logic
- StudioOne
- Cubase
- Digital Performer (DP)
- Audacity
- Cubase
- FL Studio
- Reaper
- GarageBand

# Plugin

In a remote recording setup, the ability to easily route audio from computer to computer — despite the operating system or DAW brand — is due to the plugin. A plugin is a third-party app that gets installed on your Most are available in all three standard formats — AAX, AU, and VST3.

Often, you will have two different plugins in a remote recording setup — one that routes audio from your DAW to another, and a second that routes audio from a second DAW to your computer.

Examples of remote recording plugins available in AAX/AU/VST-3 formats include:

- Sessionwire
- Audiomovers
- Source-Connect

# Audio Interface

Audio interfaces connect to your computer via a USB, Thunderbolt, Firewire, or ethernet cable. An audio interface converts analog signals such as microphone and instrument inputs into digital audio signals that can be captured in your DAW. An audio interface will also send audio from your DAW to your monitors or headphones.

There are many different models of audio interfaces. Some popular ones include:

- Focusrite Scarlett
- Presonus AudioBox
- MOTU M4
- Tascam US-16x08

Learn more about Audio Interfaces here.

#### Camera

Many computers have integrated 1080P (high quality) cameras. If your computer doesn't have a built-in camera, or if you want to have a second camera option for your remote recording video feed, you can purchase a third-party camera. These cameras connect to your computer via a USB cable. Be sure to get the best quality camera your budget allows (1080P is recommended), as the higher quality the video feed, the better the communication process will be during the recording session. You can find many videos online that review various lighting options.

Some camera options include:

- Logic 920 Pro HD
- Razor Kiyo
- Mirrorless/DSLR cameras with USB capture cards

#### Midi Interface

A Midi interface works similarly to the way an audio interface does. The difference is that the Midi interface converts notes from your keyboard into Midi data that can be read and played back from your DAW. The Midi interface is connected to the computer via a USB cable and connected to a keyboard, midi guitar or other instrument via a dedicated Midi cable. Note that some audio interfaces also have basic integrated Midi functionality, so check your needs and options before purchasing a dedicated Midi interface.

#### Speakers/Headphones

You will need an audio monitoring solution both to hear back audio tracks being played, as well as to hear conversations held between participants in a remote recording session. There are an almost overwhelming number of choices for both speakers and headphones, at a wide range of price points. Make sure to get a monitoring solution that faithfully reproduces the High-Quality audio signal you'll get through your DAW.

As many choices as there are for studio monitors, there are more choices for headphones. When choosing a headphone option, you will have three basic styles to choose from: Closed-back, Open-back, and Semi-Open. Closed headphones, also sometimes called "isolation headphones," prevent any sound from leaking out of the headphones into a nearby microphone. This leakage, also called "headphone bleed" can be disastrous for a track as it's almost impossible to remove once it's "printed" with the track

Open-back headphones are basically the opposite of closed-back headphones. An open-back headphone allows sound to escape from the back of the headphone, which can give the mix a more open sound with less bass compression.

#### Microphone

The microphone in a remote recording setup has a dual role — primarily as the source for vocals and audio signals for recording tracks, just as would be the case in any recording setup. In a remote recording setup, the microphone also acts as the audio signal path for the two-way visual communication that happens between participants in a session.

Note that some cameras and computers have integrated microphones, and often the quality is quite good. So you have the option of selecting your internal computer or camera microphone as the talkback source in the remote recording plug in, or you can set this to be the microphone connected to your audio interface.

#### Furniture

Your workspace environment is another important but often overlooked part of planning a remote recording set up. Sit stand desks have become very popular and many music producers are recommending the <u>Stealth Chair</u>. The Stealth Chair has a tilt seat plate to help with better posture as you sit in the chair. The backrest will move with your body as well when leaning forward.

#### **Internet Connection**

When connecting your DAW in a remote recording environment, the quality of your internet connection is of utmost importance. A good quality Internet connection is important when streaming audio in a remote recording environment. Also, it's recommended that your internet connection be via an ethernet cable as opposed to Wi-

Fi, as this will help reduce the possibility of dropouts, lags, or other typical internet issues.

# Steps to Setting Up a Remote Recording Session

Now that we've covered the basics of what equipment you'll need, let's talk about the specifics of setting up your remote recording environment.

For this walkthrough, we're going to use the Sessionwire software suite as an example. You can choose any of the plugin options mentioned earlier, but just know that different software may require different types of setups. And not all remote recording software offers all-in-one video and audio streaming.

But the basic premise of using software to connect and collaborate in multiple DAWs together is the same.



#### Setting up a basic remote recording session with Sessionwire

#### Step 1:

Launch Sessionwire by double clicking the app icon in your Applications folder (macOS) or in the Start menu (Windows). Enter the email you used to sign up for a Sessionwire account and click 'Sign in."

# Step 2:

Once logged in to Sessionwire the main window will appear and video from your camera will appear on the left side.

#### Step 3:

The left-hand side displays elements relating to the Local side of the Sessionwire connection and the right-hand side displays elements related to the Remote side. Mousing over the Local side of the window when not connected to a peer will reveal control buttons to manage audio and video settings for the local machine.

# Step 4:

The dropdown menus under each button correspond to Talkback Audio, Camera and HQ Audio respectively.

The Local Talkback Input and Remote Talkback Output, on opening Sessionwire for the first time, default to the host system's default settings. Before connecting to a peer, check that Talkback Input is set to a webcam/built-in microphone and the Talkback Output is set to whichever device is being used to listen to system audio. If desired, Talkback Input and Output can be changed to the Sessionwire plugins after a successful connection has been made.

The camera device menu shows physical cameras (webcams, HDMI capture cards) as well as virtual camera devices such as OBS's Virtual Camera driver.

The HQ Audio Input and HQ Audio Output default to the Sessionwire Send plugin and the default system audio output device respectively, allowing for quick routing of HQ audio in and out of a DAW.

# Step 5:

The Remote side of the window when not connected to a peer will show the "Add New Connection" section where you can search for and add connections by Display Name. It also shows the "My Connections" section where your accepted connections are displayed.

Search for a connection - when the correct Display Name appears below the text field, click it to preview the connection's Profile.

# Step 6:

After clicking on the desired Display Name, a preview of their profile will be displayed in the Remote panel.

Clicking Send Connection request will do exactly that - a connection request will be sent that the other user will have the option to accept or decline.

#### Step 7:

Connection Requests waiting for a response appear under the notification bell icon - if there are notifications waiting, a red dot is shown on the icon.

Clicking the X will decline the Connection Request while clicking the check mark will accept the Connection Request, and the Connection will be listed in the My Connections list.

#### Step 8:

Note that the Talkback, Camera and HQ Audio streams can all be muted/turned off in Sessionwire. Simply click the desired button to turn on and off. The buttons will reflect the stream's state by turning red and crossing out the icon when the stream is muted as shown in the image below.

When Talkback is muted, a red microphone icon shows beside the Display Name on BOTH sides of the connection for each user.

#### Step 9:

Making a Sessionwire Call

In order to place a call in Sessionwire, first locate the connection you wish to call in the My Connections section - then click their Display Name. A green dot is displayed beside the Display Name if the user is online and available to accept a call.

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# Step 10:

After clicking the desired Display Name, a preview of their profile is displayed along with a row of five buttons. If the user is online and available to call, a green dot is displayed beside their Display Name and the Call/Hang Up button is lit up green.

# Step 11:

Once in an active call, the buttons on the Remote side of Sessionwire become active, and as long as each side has set up their Talkback Audio and HQ Audio appropriately, work can begin.

Mousing over the Remote pane of Sessionwire will reveal buttons to end the call, generate a Sessionview URL and begin screen sharing, as well as full screen for the Remote pane and a picture-in-picture pop out.

# Step 12:

Sessionwire now has talkback automute capabilities built into the app itself. By clicking on the gear icon and enabling Talkback Automute, Sessionwire will receive a trigger from any one of the Sessionwire plugins on playback start/stop.

This allows for the use of a webcam as a talkback input device - automute will turn off the webcam on playback and will turn it on when playback is stopped.

# Step 13:

Sessionwire's built in File Transfer system allows for the easy sending and receiving of any file (*some files may require compressing to .zip format in order to transfer - ex: Logic Pro project files*) by simply dragging and dropping on the Remote pane of Sessionwire.

The File Transfer system between the Local and Remote users in Sessionwire is end to end encrypted over a peer-to-peer connection - there is no server between two users connected on a Sessionwire call. This means File Transfer is an extremely safe and secure way to send files back and forth while working.

# Step 14:

After a file is finished transferring, the receiving user is prompted to save the file to a destination of their choice.

Step 15:

That's all there is to it! Sessionwire is a very simple application with powerful capabilities for sending and receiving HQ audio over the Internet.

# In Conclusion

Now can you see it?

The future of recording and musical collaboration?

While it's true that the benefits of in-person collaboration — writing, mixing, and recording music all in the same space will never disappear (and they shouldn't!), the reality is that today's travel costs and busy schedules have made it harder and harder for musicians to get together at the same place and at the same time.

Advancements in DAW plugin technology that enable all-in-one audio and video collaboration with anyone, anywhere have opened up a new world of collaboration and recording possibilities.

Whether it's with your own band or songwriting partner, or with new musicians you meet and connect with in the remote recording community, it's safe to say that the future of recording — a DAW-based remote recording setup — is here to stay.

Join in, and we'll see you in the future!

#### Glossary

**Audio Interface** — An audio interface converts audio signals (microphone, instrument) into a digital format that can be read by your computer and recording software. The audio interface can also send audio from your computer to headphones and speakers for monitoring. Audio interfaces typically connect to a computer via a USB cable, but can also connect via Thunderbolt, Firewire, an ethernet cable.

**Bus** — A bus is a channel feature that allows you to route audio from one place to another in a DAW project. There are different types of busses, including Aux Busses, Master Busses, and Effects Busses. A bus features both an input and output for directing the audio path as desired.

**DAW** — DAW is short for Digital Audio Workstation. A DAW is a computer software program that is used for composing, producing, recording, mixing and editing audio and MIDI. A DAW enables multiple tracks of audio and MIDI to be recorded simultaneously, as in live recording, or separately, as with overdubbing parts individually. Audio and MIDI data can be edited and manipulated in a DAW during editing for fine-tuning a performance.

**Overdub** — The process of laying new audio or MIDI tracks in, over, or together with existing material in a DAW. In general, the process of overdubbing tracks in a DAW refers to the process of adding individual parts to a multitrack recording.

**Plugins** — Software add-ons that get "inserted" into a mixer channel strip to add functionality or qualities to a track. There are various types of plugins including instrument plugins, also known as "Virtual Instruments," effects plugins such as Reverb, Compression, EQ, and Midi plugins, including arpeggiators and note repeaters. Plugins typically come in AU, AAX, or VST 3 formats.

**Latency** — The delay between a signal traveling from an instrument (a plucked guitar) or microphone source and the playback of that sound in a master DAW or a remote DAW connected together via the internet. Latency is typically measured in milliseconds, and

**Midi Interface** — A device that enables you to connect Midi (Musical Instrument Digital Interface) equipment to your computer. There are 126 various Midi parameters, including Volume, AfterTouch, Modulation, etc. that get sent from a Midi instrument and passed on to the DAW via a Midi interface.

Peer-to-Peer - Refers to the direct connect of two computers together

**Remote Recording** — The process of writing, collaborating, recording, producing, and mixing music using recording software along with others, without having to be in the same room, city, or even the same country.

**Stem Tracks** — Stereo tracks created from mixes of multiple individual tracks. For example, a drum stem is a stereo audio file of all of the drum tracks mixed together. Often, additional processing such as equalization, compression, reverb, etc. is included to ensure that the sound achieved by the mixing engineer matches the artist's intention.

**Talkback** — Refers to the direct communication channel between control room and musicians/artists. Talkback is used during the recording process to allow mixers, engineers, producers, etc. and musicians to dialogue between takes regarding artistic and creative choices during the recording process. Note that Talkback dialogue does not become part of the actual final recording.

**Virtual Instrument** — A type of plugin that simulates the sound and qualities of another instrument, or creates an entirely new sounding instrument. Virtual Instruments can become very sophisticated in replicating a true instrument sound and tone, such as strings (violin, viola), horns (oboe, flute, saxophone), drums (drum set and percussion), and many other instruments.