

## Tutorial: Recording in Audio Suite 3

We know from our first look at audio signal flow that to record we require a few basic steps:

- 1) A microphone, to capture the movement of air and translate this physical energy to electrical energy. Note that at the front and back ends we have a *transducer* stage, where one form of energy is converted into another. Connected thru an XLR cable to the next stage.
- 2) A preamp stage, where the very low-voltage signal is made useable. Remember that we are dealing with very small moving elements in the microphone. We need to somehow magnify that energy so that it can ultimately become something very powerful. Turning up the *gain* at a preamp stage helps makes this happen. The amount of gain needed will be dictated by the subject being recorded, the microphone, the environment, and the recorder. Preamps can be found both on consoles (sometimes marked 'trim') and on stand-alone recorders (flash, DAT, minidisc) as the first stage after plugging in.
- 3) Routing to a recorder, where the sound is stored as magnetic, analog information (as with tape) or, after a conversion process, digitally (DAT, hard disk ie Pro Tools, Flash recorder, MD).
- 4) Amplification to give the signal enough power for stage 5:
- 5) Monitoring on loudspeakers or headphones.

Simply note that all other stages added in-between are simply to enhance capability of routing and manipulating the signal.

With this discussion foregrounded, we can begin to practically approach the situation with respect to the Audio Suite.

### IN THE STUDIO

The first stages are simple and obvious – screw the microphone clip or shockmount onto a stand (without the mic – save connecting it for last). The stand should be tightened at all adjustable points. I generally prefer to make it such that height is the only adjustment made when the vocal talent comes in.

Next, set up your mic cable(s) running from the 'snake' in the live room, XLR-male end at the snake, female end at the microphone. The snake is a box that allows many cables to be run together to a single access point. It has 12 XLR inputs that run directly to the patch bay in the control room, labeled 1-12.

Connect the microphone, making sure that no pads (-10, -20) and rolloffs (filter for reducing low frequency sounds) are engaged unless you want them to be. Also choose the pickup pattern you want if this applies (do you want to pick up the whole room? Choose Omni – circle diagram; tight pattern that focuses on the subject? Select cardioid).

Make sure to set up any baffles you'd like to use to lower room reflections, and make this a place that's comfortable for your voice talent to be in – and move in and out of. There's nothing more disconcerting for a session than recording someone who isn't happy with the situation!

As the signal runs into the control room, so should you at this point.

#### THE CONTROL ROOM:

The first destination for all signals from the studio is the *patch bay*. It may look imposing, but its principle is simple – it's simply a group of outputs – places signals are coming from – over inputs – places that signals are being directed to.

We note by looking at the top left of the patchbay that we see something like this:

Mic Line 1



Mic Input 1



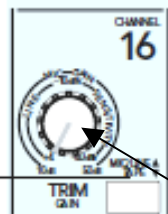
This means we expect a direct connection from the output of *Mic Line 1* (the first channel coming from the snake in the studio) to the first channel of the console – to its microphone preamp. We *should* have to make this connection between the two using the tiny telephone patch cables in the control room.

However, we don't! Because this connection is *normalised*, it's already made for us in the back of the patchbay. This makes sense and saves the trouble of making patches every time we wish to do a simple recording. All mic line-mic input connections in this room are normalised. Mic Line 2 goes to Mic Input 2 and so forth.

#### THE CONSOLE:

It can appear imposing, but again, reduce it to its most basic elements and it becomes clearer. It's simply an apparatus for controlling levels and for sending signal *somewhere*. The key is knowing where you want it to go. Know that

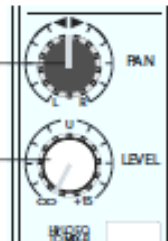
each of the 16 channels have the same exact functions – we'll just be using them for different things.



If we've made the connection to mic line 1 in the studio, we should have a mic that we're ready to start working with.

We know the first stop for the signal is the preamp – the section marked **TRIM (GAIN)** at the top of the channel.

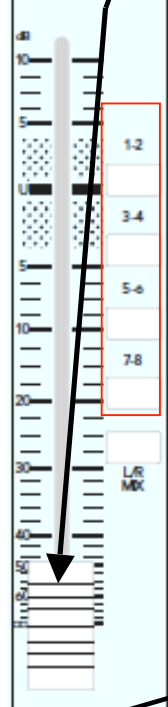
We'll continue through the routing and adjust this later.



Much of the middle of the channel can be ignored by beginners. Again, these sections are simply for added flexibility and ability to send the signal to different places. Our mission here is to get this signal to Pro Tools first, THEN to listen to it afterwards so we can confirm that we are listening to what we've recorded.



The next destination for this signal that concerns us is the **channel fader**. This is going to control the amount of signal we're going to send out. We tend to like to leave all faders at **UNITY** (marked "U") to trust that we're sending out the most efficient signal level possible. Having the fader level low and cranking the gain up is not a good practice and you will hear the results. Start at Unity and adjust your preamp afterwards. Small adjustments to the fader level later on are acceptable to fine-tune.

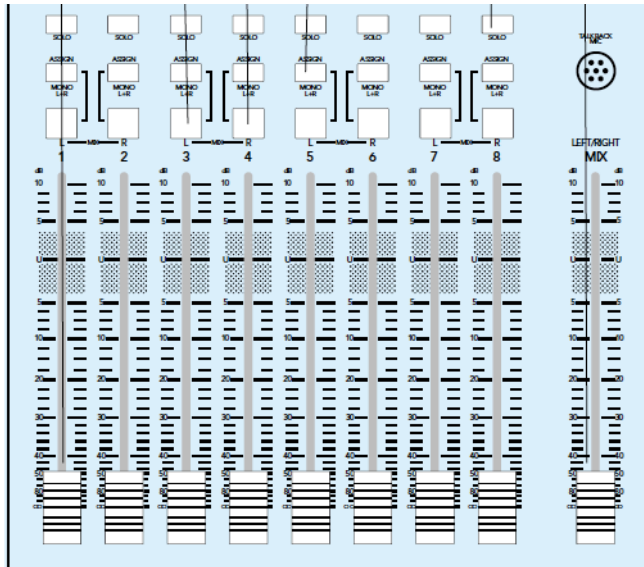


Now, we need to send the signal to outputs of the console that are connected to Pro Tools. This is where the buttons to the right of each fader come in; they route to the **BUSSES**, the eight faders on the right hand side of the console, which are directly connected to Pro Tools inputs 1-8. Since we have one mic and would like to go to Pro Tools input #1, we'll engage the **1-2** routing button. Now the only problem with this is that our routing buttons are in pairs and we only have one channel to send and only want to create one audio track.

The routing buttons are in **stereo pairs** – that is, #1 is left, #2 is right; #3 is left, #4 is right, and so on. So, to send to Bus #1 only, we need to send this signal to the "left side" of 1-2.

We do this through the **PAN** knob. Turning it to the left will send to Bus #1 only.

Make certain that NO other routing buttons are engaged – especially not L/R mix. We don't want to be hearing this, just yet.



Our only necessary step left to route to Pro Tools is to look to our right and raise the fader for Bus #1 to Unity. It's a common misconception but none of the other buttons on this section need to be pushed to route. Make sure none of these are engaged.

#### PRO TOOLS:

Under "Applications" in Finder, find the "Digidesign" folder and open up Pro Tools. A loading window will appear onscreen and then, not much else!

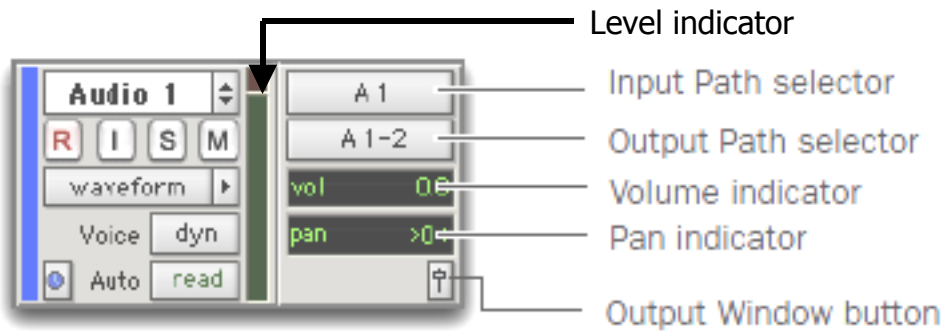
To start, we need to create a new session. To do so, go to FILE> New Session and select the sample rate, file type and bit rate you wish to use. Broadcast Wave files are probably most useful (.BWF) and we generally default to CD quality audio – 44.1Khz, 16-bit.

Also, give your session a proper title and make sure you know where you're saving it. Every computer in the KU has its own "Work In Progress" drives – these are not one networked drive and they are on occasion wiped clean. Your best bet is to transfer this session to a drive of your own or copy it to CD / DVD at the conclusion of your session.


Once Pro Tools is open, a couple blank looking screens will appear. Consider this your canvas. You need to add tracks to make something happen here. Go to the **TRACKS** menu and select "New" – this will give you a few selectable options. For now, all we need to do is make a single mono track. Do this and you'll see a track open up on Pro Tools' two main interfaces – the **EDIT** Window and the **MIX** window. The latter looks very similar to the console.

In Pro Tools, we need to view the I/O (input/output) section so that we're certain our signal is coming and going to the right place. If we go to the **VIEW**

menu up top, we can select **VIEW EDIT WINDOW SHOWS > I/O VIEW**.  
Now we see something like this in our new track:



As we can see from the helpful labels to the right here, the top right box indicates where we're getting the signal from (A1, Mic Line 1, etc are pretty analogous and we should be getting the first input by default). Below we see where the signal is going to – A 1-2 is the first set of stereo outputs. For most general work that we want to hear on our stereo loudspeakers this is fine.

Now that everything's routed correctly, we have a few minor steps before being in record mode. First, the  button that we notice to the top left of the track must be engaged so that it is in "record-ready" mode. Then, the recorder itself must be engaged. Notice a transport window up top or onscreen. Either will function. Like any recorder, we need to put it into record, and when we hit play we'll actually start recording.

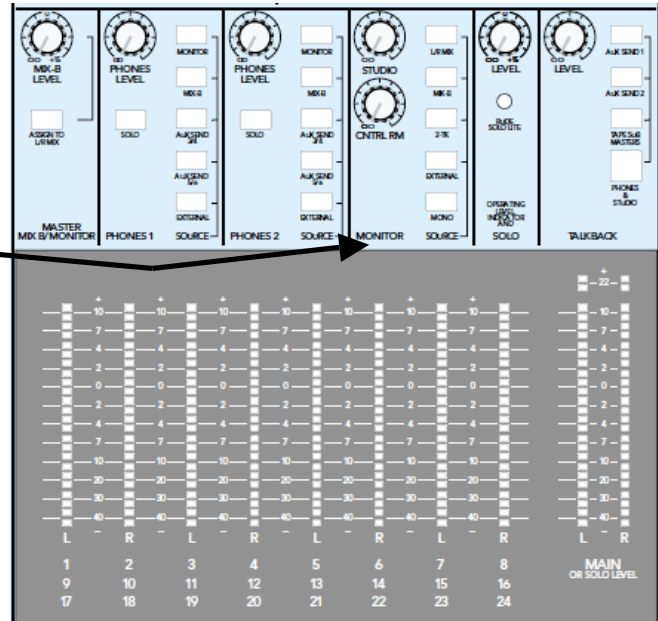
You may notice by now that the level indicator is showing something – or not if you haven't adjusted the preamp – but we're not hearing anything. This is because we're not **monitoring** the recording. So, we need to follow a new signal flow of what happens after Pro Tools. If we look at the patchbay we can see that Pro Tools outputs 1-8 are over Line Inputs 9-16. The Mackie console is normalled to the Pro Tools outputs, so that without patching, our returns from Pro Tools will come up on Channels 9 and 10.

So let's bring those channels up to unity and pan them left (for 9) and right (for 10), accordingly, as we are returning a stereo pair (even if we're not *hearing* stereo). Remembering the routing buttons to the right of each fader, our new problem is that we want to hear these faders (not route them to Pro Tools). To avoid feedback make 100% sure the 1-8 buttons are NOT engaged, and press **L/R Mix** on both of these.

Back to the Bus section (diagram on p.4) you can see there is a corresponding L/R Mix fader. Let's, of course, bring this to Unity.

Now we just need to engage a few more buttons to make this heard.

Note this section above the bus and master fader section. This is where we choose what's being monitored and where. Our main go-to for choosing what we're listening to is the **MONITOR** section.



We'd like to hear – you guessed it – L/R mix, so we'll engage that button and make sure no others are pressed. **CONTROL ROOM** level will adjust the levels to our speakers. Do not bring up the STUDIO levels as sending this signal to the live room with a live mic will almost certainly mean feedback.

Once we're set here with a reasonable level (I usually start between 9 and 12 o'clock), we're pretty much ready to adjust the GAIN TRIM again on the microphone input channel (#1). After we've looked at Pro Tools to make sure this level is not too low (never approaching the upper half of the meter) and not too high (if you see red, turn it down!), we've got a signal that should be suitable for recording.

Other important notes: Set up a headphone cue in the live room so you can communicate with your talent. A cue box already exists in the room – plug in headphones, turn both levels for left and right to 12 o'clock, and then adjust the level on your end from PHONES 1, selecting MONITOR (whatever you're listening to, preferably L/R mix) as the SOURCE. Do make sure not to kill your talent's ears!

And test ALL OF THIS BEFORE your talent arrives!

Record and Play on the Pro Tools transport and, once you see a pink screen drawing in the track, you'll be certain the recording is working. Afterwards, you can of course save the project and be ready to add to it or edit it at a later date.