

Using a Yamaha MOX6/8 VST3 Editor with Presonus Studio One

By Andy McDonough

Presonus said it was impossible, but I've proved them wrong. After all, Studio One supports VST3 so why shouldn't it work?

Well it does work, and here's how.

Download and install the YAMAHA STEINBERG USB DRIVER.

Not the USB MIDI Driver, or USB Audio Driver, or any other USB driver from Yamaha or Suzuki or BMW or anyone else.

Download and install the YAMAHA MOX6/8 VST EDITOR.

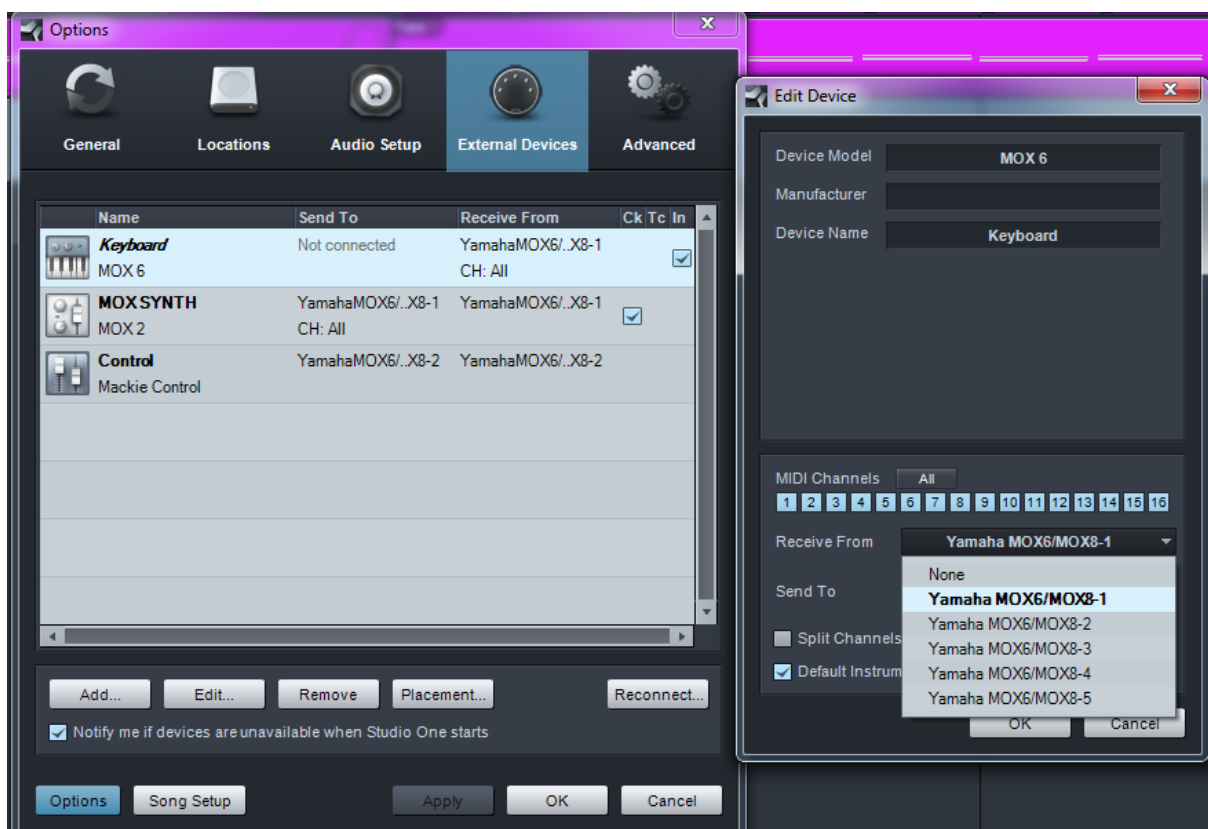
Once you've installed them, open Studio One and go to...

"Studio One / Options / Audio Setup"

Then select "Yamaha Steinberg USB ASIO" from the drop-down list where it says "Audio Device".

Once you have the correct driver installed and selected in Studio One's setup, and you follow these instructions EXACTLY, then it will work.

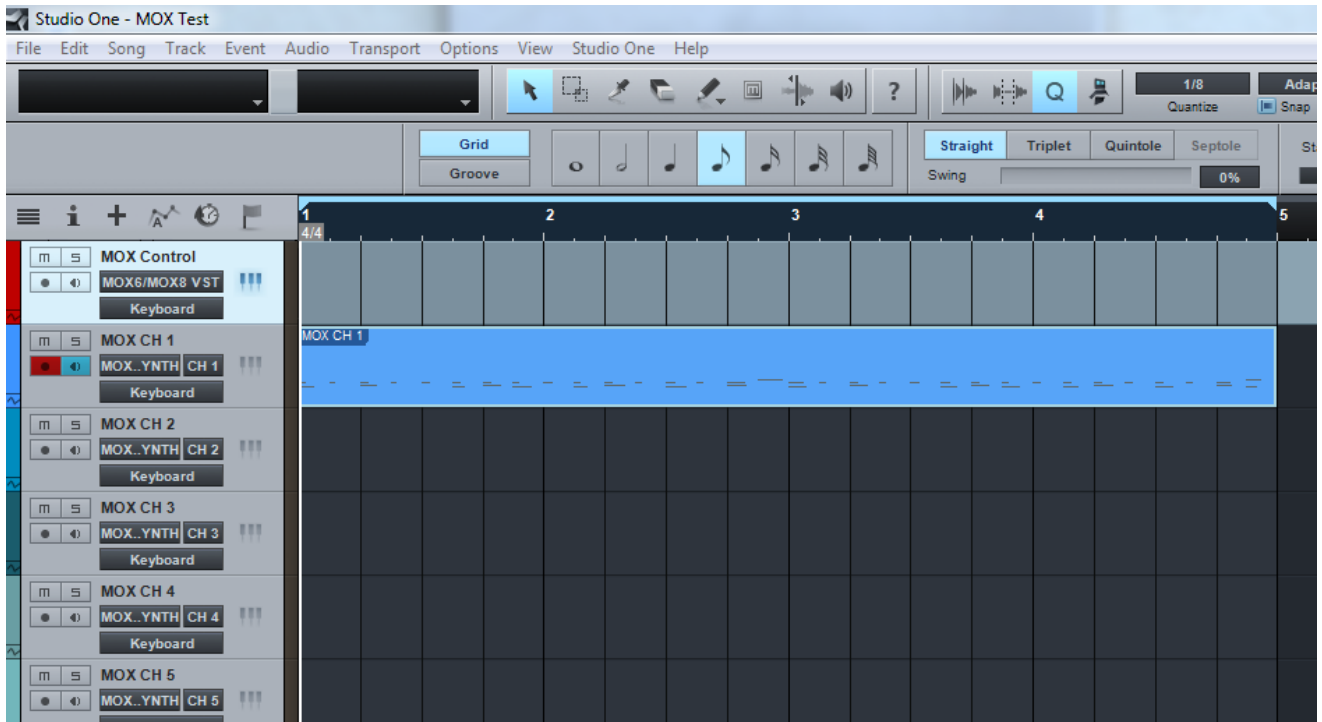
1. Start a New Song in S1 and open the "External Devices" menu (Studio One / Options / External Devices)
2. Click the "New" button and create a "New Keyboard"
3. Name it "MOX Keyboard" - Select "All MIDI Channels" - Receive From "Yamaha MOX6/MOX8-1" - Send To "None" - Check "Default Instrument Input" and click "OK"
4. Now create a "New Instrument" from the same menu - Name it "MOX Synth" - Receive From "Yamaha MOX6/MOX8-1" (you might get a warning about shared MIDI ports here, just OK it) - Send to "Yamaha MOX6/MOX8-1" - Select "All MIDI Channels" - check "Send MIDI Clock" if you want the Arpeggios to sync to S1 - Click OK and close the menu.



5. Create two "Instrument Tracks" and drag the MOX VST on to the first one. If the VST says "Offline", just click it and it will sync and change to "Online". Also, change the MOX VST Editor to "Song" or "Pattern" mode. This will give you access to all 16 MIDI channels.

6. Name this track “MOX Control”. **You will not be using this track to record MIDI.**
7. On the **second Instrument Track**, set the Input to “MOX Keyboard”, and the Output to “MOX Synth (The two devices you just created)”. Name the track “MOX CH 1” and set its MIDI Channel to 1.
8. Record some MIDI on the second Instrument Track (MOX CH 1).

You can use the VST (MOX Control) track to edit the MOX and change sounds etc. To create more Instrument tracks, follow step 7 above for other MIDI channels. Here you can see I’ve created a few more MIDI tracks.



I need to explain what’s going under-the-hood in Studio One. Firstly, there are two types of track – Audio Tracks & Instrument Tracks. Audio Tracks are self-explanatory: They record and playback audio. An Audio track contains an audio file and has an associated Mixer Channel.

Instrument Tracks are a little confusing at first, but the most important thing to bear in mind is, they don’t contain any audio data. In other words; you won’t ever hear audio directly from an instrument track. This is evident from the absence of an associated audio channel.

So how does it work..?

Basically, the MIDI output from an instrument track needs to be routed to either a soft-synth (VSTi), or an External Device. Routing it directly to the MOX VST Editor simply won’t work and you won’t hear any audio. Why..? Because the VST Editor does not produce any audio..!

The signal from the MOX VST Editor goes out on a different MIDI Port (Port 4), so your recorded MIDI isn’t getting to the MOX Sound Engine anyway, which is set to MIDI Port 1.

As I pointed out earlier, you need to set up an External Instrument Device in Studio One (“New Instrument” Send To MIDI Port 1), then route the instrument track to that device - NOT THE MOX VST EDITOR..!

When you think about it, it’s exactly the same as Cubase, except Cubase’s MIDI tracks have an associated channel strip in the mixer with MIDI volume, pan etc.

Although Studio One doesn’t have MIDI volume faders in the mixer, it doesn’t matter because the MOX VST Editor (which is on its own separate Instrument Track) is only a click away, and that’s where you set up your MIDI mix.

Do you know how to record or convert the instrument-recording as audio?

The answer is - yes, I do. It's easy.

Firstly, Studio One's "Transform To Audio Track" command only works for software instruments (VSTi), and it's there for a good reason.

Let's say you're using something like Studio One's "Presence" instrument with an electric piano patch loaded. Then you pile a bunch of insert effects on to that track (compressor, EQ, flanger, delay, reverb or whatever). You're giving your computer a lot of work to do (CPU Load) - just take a look at the performance meter in Studio One at the bottom.

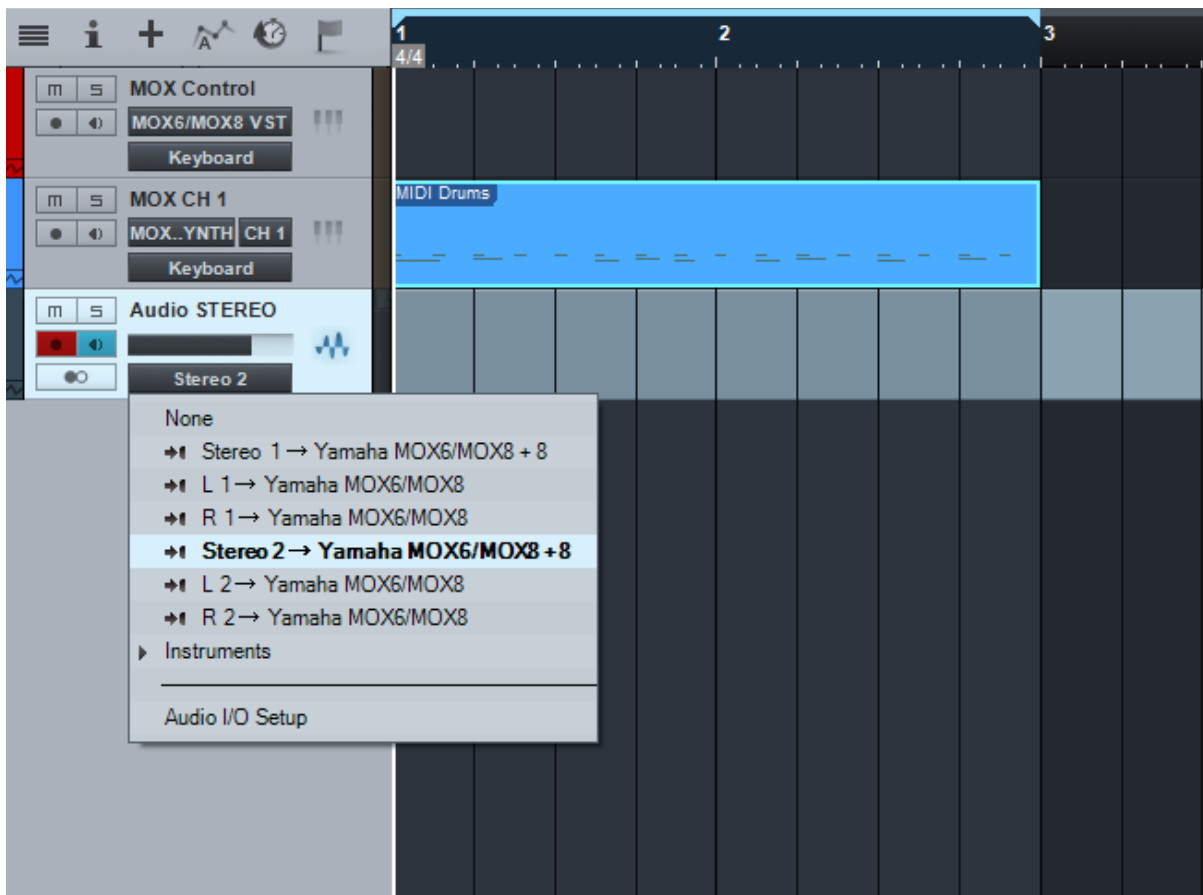
If your project only uses a few tracks, this CPU load won't be a problem - most computers these days are powerful enough. However, if you've got A LOT of tracks, the computer will begin sweating and you might get audio glitches.

Converting CPU intensive Instrument Tracks to Audio Tracks means that all those plugins are no longer needed and the computer's work-load is reduced. The effects get "printed" onto the audio part.

External Instruments - like the MOX - don't use any of your computer's CPU to make great sounds. But then you can't directly use any software effects on those sounds because they're not coming from the computer.

To get the MOX's audio into the computer, you need to actually record it in real-time. There's no other way. Here's how...

1. Once you're happy with the MIDI part, un-tick the record arm button on that track. Then create an audio track and make sure it's input is set to receive the MOX audio (see screenshot "S1 MIDI MOX"). You can use stereo or mono inputs here; it just depends on what you want. For something like a bass or lead sound, you might use a mono input. But for a pad sound, you'll probably want stereo. It's up to you. By default, the MOX sends its audio output on USB channels 3 & 4, but this can be changed in the Utility Menu.



2. Arm the Audio Track and hit record. WARNING..! Any and all sounds you hear from the MOX will be recorded onto that track at this point. So if you've already created a few Instrument Tracks that use the MOX (bass, drums & piano), then you need to record them to audio tracks one-at-a-time. Do this by muting the ones you don't want to record. Then create a new Audio Track for the next part, and so on...
3. Once your MOX Instrument tracks are recorded into S1, you can edit & mix normally using any plugins in Studio One. You will no longer need the Instrument (MIDI) Tracks, so mute them all and pack them into a folder. You can delete them if you want to, but I wouldn't recommend it - you might need them again at some point.

Something else to consider...

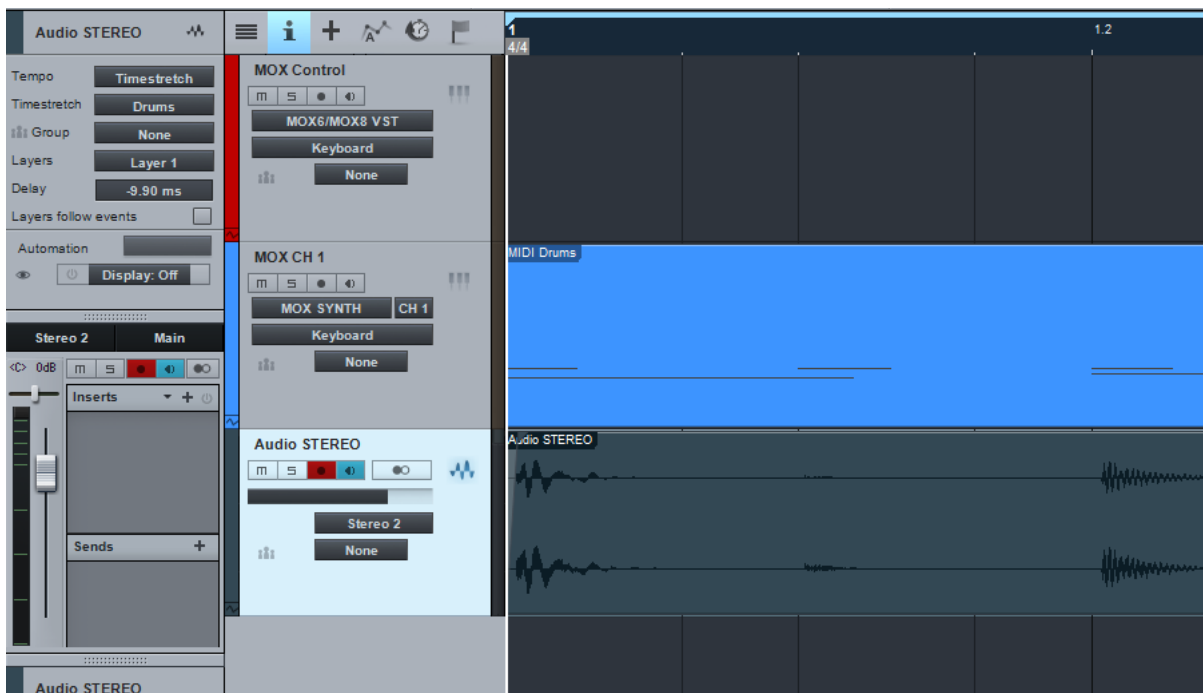
LATENCY

Latency here means the time it takes from starting an action to its completion.

When you press a note on a keyboard, the information goes into the computer via MIDI, and then it's sent back to the MOX, again via MIDI. This takes time, and the time it takes depends on your computer setup.

It also means that when you record an Audio Track from an Instrument track, the recorded audio will be late.

Look closely at this image. You'll notice that the audio peaks for this recorded drum part don't line up exactly with the corresponding MIDI notes. They're a bit late.



On my computer they're 9.9 milliseconds late. You can find out your computer's latency by opening the Yamaha/Steinberg ASIO Driver Control Panel (Studio One / Options / Audio Setup / Control Panel). Look for "Output Latency".

There are a few ways to fix this. You can physically drag the recorded audio part backwards until it lines up, or you can use the "Delay" parameter in the "Inspector" for that track.

In the above screenshot, I've set the Audio Track's Delay parameter to -9.9 milliseconds. Now when I play back the two tracks, there's no delay - they're perfectly in-sync – even though the audio peaks still appear late.

However, If I had entered -9.9 into the Instrument Track's delay parameter **BEFORE** recording the audio, then the resulting audio file would have been perfectly in sync to begin with and the audio peaks would have reflected this too. That's the better way, but I chose to do it this way so you could SEE the delay.

To be honest, 9.9 milliseconds is hardly noticeable, and for a lot of material I won't bother correcting it - pad sounds for example. But for percussive sounds, especially if the song tempo is fast, it's worth doing. What you should do is create a Studio One Template Song with a few Instrument Tracks assigned to "MOX Synth" and their "Delay" parameters set to minus whatever your Output Latency is. Then just use this template for any new songs you create with the MOX.

Can I record a MOX Performance with arpeggiators into Studio One?

Yes, you can, but it 'aint easy.

When you set up your MOX Instrument at the beginning of this guide, you hopefully checked "Send MIDI Clock". This setting will enable the MOX to slave to Studio One's clock. That means anything on the MOX that uses MIDI clock (songs, patterns, arpeggios, tempo-synced effects etc) will synchronise to Studio One. In theory, you should be able to set it up so that when you hit Play or Record, Stop & Rewind in Studio One, your beloved MOX will respond in perfect sync. However, those bright boys at Presonus have royally screwed this up because it doesn't work properly at all. For example, hitting Play in Studio One will indeed start the MOX's sequencer and it will run at the tempo set in Studio One - fine - but (and this is a BIG BUTT) hitting Stop, Rewind or anything else won't stop the MOX. This makes it a nightmare to work with external sequencers or drum machines.

It is still possible however to record sequences in sync with Studio One, but I would recommend using another DAW if you're really going to do a lot of this - Cubase for example works perfectly with external hardware. If you're determined to try, follow these steps.

On the MOX

1. Record your performance into a Song or Pattern
2. Press the UTILITY button, then F6 MIDI - SF3 SYNC and set MIDI Sync to "auto"
3. Store this and return to the song that contains your recorded performance
4. Make a note of the song's tempo and open Studio One

In Studio One

5. Open your MOX Template Song with the MOX VST loaded
6. Set Studio One's tempo to that of the sequence - it doesn't have to be the same now as it can be changed later.
7. Arm the Channel 1 track but DISABLE THE MONITOR - this is important to avoid MIDI Mayhem

Back to the MOX

8. On the far right of the MOX you'll see a button called "SOLO". Press that followed by track one. The LED on that button should now be blinking
9. Hit Record in Studio One and the MIDI sent out from the MOX sequencer's track one will be recorded.

You'll have to repeat this process for every sequencer track - soloing and recording them one-by-one - just like in the audio example above.

I hope this brief guide helps to dispel the myth that Studio One and the MOX are incompatible. Once Presonus get the MIDI Clock thing fixed, it will be even better.

Feel free to contact me with any questions:

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