

SOUNDLAB GUIDE

10.10.2024

Konstantin Frey

TABLE OF CONTENT

<u>- Term Explanation</u>	4
- Routing	
- DAW	
- Microphonetypes	
- MIDI	
- 2.0, 2.1, 5.1	
<u>- Checklist Start</u>	6
<u>- Checklist End</u>	9
<u>In-depht Guide</u>	10
- Available hardware with short expalantion	10
- Installed software	13

- Hardware Guides

14

- Auratone
- Neumann Mic.
- Shure Mic.
- Talkback Mic.
- Akai mpk mini
- TB-03
- ART Pro Channel II
- spl sourround monitor controller

20

- Troubleshooting

- No sound at all
- Talkback / cue function not working
- No signal from the booth or any other instrument
- Displays / screen not working

Term Explanation:

- Routing

Normally a device sends all audio to the devices internal speaker (or headphone jack - if you plug in). With a professional audio-interface, this gets a bit more complicated on the first sight. Now you not only want signal to come out of the interface, but also want signal to go in to the interface. Therefore you have to rout all outgoing and incoming signals through your interface. Also you need to tell your device where to send and receive which signals, based on the routing of your interface and the ins and outs you are actually using.

- DAW

DAW stands for digital audio workstation and contains basically all music production software out there.

- Microphonetypes

The most common type of microphones you will come across are condenser microphones and dynamic microphones.

Condenser microphones work with a condenser, that is pretty sensible to soundwaves. Due to the very small deflections a condenser is capable of, the outgoing gain is very small. Too small to actually work with. To properly receive a analog signal of a condenser mic you need to crank the signal up by using phantom voltage (+48V).

When using a dynamic microphone the soundwaves hit a membrane that sets a small magnet inside a coil in movement. This membrane needs a lot more sound pressure to react, but therefore puts out way more gain. With a dynamic mic you don't need any phantom voltage, in return it is a bit less sensitive to quiet details.

If you want to simply record a good sounding voice, without lots of postproduction, its recommended to use a dynamic microphone. Its way less unforgiving than a condenser microphone, where you can basically hear grass growing.

If you want to have the best possible recording containing every detail of the soundsource, use a condenser mic. But be aware it takes a lot more experience to master. (And a lot more postproduction)

Choose wisely.

- MIDI

MIDI is a signal for communication between a computer and instruments. Or even communicate between instruments. MIDI is way older than computers itself. Even inside your DAW you communicating with MIDI when you play virtual instruments.

- 2.0, 2.1, 5.1

2.0 means you have a simple stereo speaker system containing a right and left speaker. 2.1 is basically the same, but additionally you have a subwoofer. 5.1 - you guessed it - means you have five speakers (Left, right, rear left, rear right, center + subwoofer) and its mostly used for films, since u have the opportunity to place sound and fx even more immersive. Therefore mixing gets way more advanced since you suddenly have to deal with six channels simultaneously instead of two.

Checklists Start:

How to start if you want to work with the Mac installed in the studio:

1. Switch on the grey powerstrips in the order as labeled.
 2. Make sure that the power adapter in the rack is switched on (lowest unit in the rack).
 3. Make sure the audio interface is switched on (RME Fireface 802 FS, silver / blue unit).
 4. Switch on the Mac. (Mac is mounted BACKWARDS in the top unit of the rack)
 5. (If you executed all steps correctly, the software RME Totalmix and RME Fireface USB Settings should run automatically. If not switch on the interface and restart the Mac.)
 6. Set the Table to a height u like (Tap the screen, hold „M“ until digits appear on the right and change height with the arrows).
 7. **!! IMPORTANT !!** Decide if you want to work in stereo or 5.1.
The System is set to stereo on default. If u need a 5.1 listening environment follow the following steps (and make sure to redo if finished).
 - 7.1 Open RME's Total Mix
 - 7.2 Load the /5.1_NUENDO(measured) snapshot
 - 7.3 Open the Software „SoundID Reference“ and choose the „5.1 studio - 2024-09-18“ profile
 - 7.4 Go to the subwoofer and unplug the „LEFT IN“ XLR-cable and plug it in the left Speaker (after unplugging the cable in the speaker) do the same with the right side.
- !! BE CAREFUL NOT TO KNOCK OVER ONE OF THE SPEAKERS !!**
!! REDO IF FINISHED !!
8. Start ur desired software.
(If u want to start with a template, where all the routing of the respective software is already set up, go the the templates folder on the desktop, **!! COPY YOUR CHOOSEN TEMPLATE TO THE DESKTOP !!**, open and start - so you don't accidentally overwrite the template file during your session.)
 9. Set the output to „SoundID Reference“

10. Make sure to check the settings on the monitor controller on the table, beneath the screens. (For normal stereo projects, the buttons „L“ & „R“ should be enabled, „Mute All“ & „Dim“ must be disabled, all the other Buttons can be disabled too. For further informations go to: „Hardware guides“ / „spl surround monitor controller“)

11. START!

How to start if you want to work with your own computer:

1. Make sure you have RME Totalmix ready to run on your device.
(If not, navigate to the RME website and download the latest version for your operating system. The interface is called: RME Fireface 802FS)
2. Switch on the grey powerstrips in the order as labeled.
3. Make sure that the power adapter in the rack is switched on (lowest unit in the rack).
4. Make sure the audio interface is switched on (RME Fireface 802 FS, silver / blue unit).
5. Start Totalmix on your computer and connect the Interface to your Computer. On Macs Totalmix should open automatically when you plug the interface. (Unplug the cable on the mac and connect it to your computer. make sure the Studio-Mac is switched off. DISCLAIMER: you can't close Totalmix as long as the interface is connected to your computer. There is basically nothing you have to do in Totalmix, if you have a problem the reason is probably somewhere else. For further informations go to: „Troubleshooting“).
6. If your computer detects the interface correctly, a window pops up, asking if you want to take over the settings (routing) saved on the interface. Do so.
7. When u open a software now, it should be possible to select the Fireface as audio device for the output as for the input. Also u can set the system audio output to the fireface interface, to route every audiosignal of your computer to the soundsystem in the Studio.
8. Make sure to check the settings on the monitor controller on the table, beneath the screens. (For normal stereo projects, the buttons „L“ & „R“ should be enabled, „Mute All“

How to start if you want to use your own computer with your own interface:

- Just don't. The RME Fireface 802FS is one of the best interfaces u can buy right now, there is basically no reason to use another.

- PLEASE DONT UNPLUG ANY CABLES WITHOUT KNOWING FOR A 100% SURE WHY AND IF NECESSARY REMIND TO UNDO!!!

Checklist Finish:

1. Copy all data to your storage device. Make sure to collect all files properly, so you won't face any „missing files“ errors when opening again.
2. Delete from the Mac - every then and now the Mac gets cleaned.
3. Shut down the computer and wait till it shut down completely.
4. Switch off the power adapter in the rack.
5. Switch off the powerstrips in order as labeled.
6. Close the window in the ceilings.
7. Don't forget anything.
8. Bye - until next time!

In-depth guide:

(The following part is work in progress - if u stumble across any mistakes or ambiguities, or have any ideas what is still missing - feel free to contact me or the digipool directly. schlimmemusik@gmail.com. Every now and then the guide will be updated)

List of all available hardware:

- Mac mini

A powerful Mac mini with Apple silicon is the centerpiece of the Studio. (The Mac is mounted BACKWARDS in the top unit of the rack! Powerbutton on the left)

- 5.1 Genelec Soundsystem (With Subwoofer)

A powerful Genelec soundsystem provides a very good acoustic environment to work with. The system meets professional demands if used correctly. But as in every audiovisual environment its mandatory to get used to a particular room and its sound. If u want to get the most out of a Studio, u have to spend time in it to get used to it.

- 2.0 Auratone System

Basically really good shitty one way speakers. These Speakers emulate the way most people will listen to your audio. If something sounds as good on these speakers as on the Genelec system (despite missing highs and bass) u can mostly be sure it will sound good on any system.

- RME Fireface 802FS

One of the best Interfaces out there. RME is known a long time for extremely precise resolving interfaces. If used correctly, there aren't many better options to record and reproduce sound of any kind. Don't be fooled by the dryness and sharpness of these interfaces - this interface reveals information many other interfaces simply aren't able to. If something sounding bad thru this interface, the problem is most likely in the source.

- spl Sourround Monitor Controller

The most touched device when working with sound. A monitor controller is basically a remote to change the overall volume of the speakers and also switch between different channels or systems. (e.g. when working with 5.1 u can enabel and disable every speaker individually or A / B switch to the Auratones for comparison.)

- ART Pro Channel II

The ART Pro Channel II is an amplified channel-strip for voice recording. This unit contains a microphone preamp, an equalizer and a compressor. The use of this unit is really advanced and only recommended for those who know how to use it properly. If not used in a correct way, you most likely destroy your recordings or alter them in not a good way. Good and safe knowledge about the types of processing listed above is mandatory to work with this unit.

- Big Flatscreen

Behind the curtains on the left you find a big moveable screen. If u want you can move the screen to a suitable position and connect the screen to the Mac or another device to display any visual information on a big screen. (Sometimes the Screen isn't in the lab)

- Treated Recording Booth/Neumann TML 103 condenser microphone/ Shure SM58

On the right side you find a small room with a window to the control room you can enter thru a door in the back. Inside of the recording booth you find two microphones routed to the Fireface interface. The Neumann TML 103 is a really good and precise condenser microphone. Make sure nobody is working in the wood-workshop or any other sound sources are hearable during recording. This mic will record everything. Also inform yourself how to use a microphone that sensible properly to avoid unwanted noises and smacks during recording. In 99% of all cases u dont speak directly in to the mic. Test different positions before recording a final take. The sweetspot is most likely different for every voice. The more time you spend finding the right position to speak, the less time u need fixing avoidable mistakes. Always remember: Audio recording is like baking - once you finished it is hard to remove some sugar.

If u not trained in working with a microphone that sensitive use the Shure SM58. The SM58 is a legendary dynamic vocal microphone that in most cases will do the job perfectly with much better results. Its much more forgiving than the Neumann.

On the rear-wall of the booth you find a headphone-amplifier with Sennheiser HD-25 connected to. Switch on if u want to use the talkback function in Nuendo or Ableton for example.

CLOSE ALL DOORS WHEN RECORDING!!

- Height adjustable table

Tap the display of the table until it switches on. Hold „M“ until digits on the right appear. Now you can adjust the height with the up & down arrows as u like

- Gooseneck microphone on the table

A simple dynamic microphone to talk to someone in the recording booth when using talkback.

- Roland TB-03 Bass Line (Boutique) Synthesizer

A partly digital reissue of the legendary monophonic 303 synthesizer. If you know you know. Connect properly, switch on and produce som filthy chirping acid.

- AKAI MPK mini (Small black keyboard)

A two octave midi-controller with eight drumpads and eight customizable potis. Connect to a computer and play any midi-controllable software as u please.

List of installed software:

- Ableton 11 & 12 Suite (with all inclusive packs)

One of the most popular softwares for producing music. Capable of writing music, mixing & mastering music, creating and performing live-sets and recording. (If you are interested in working with ableton, check if there are courses upcoming. There are beginner courses and advanced courses available from time to time. Otherwise send a mail to konstantinfrey@gmail.com to get yourself on the waiting-list.)

- Nuendo 13

One of the most dedicated and advanced software options for postproducing and writing film-scores. Capable of writing scores, mixing & mastering scores and recording in 2.0 - 7.1. (If you are interested in learning the basics of Nuendo, take part in a course via digipool)

- Davinci Resolve (Studio) 18

A very advanced editing suite for moving picture.

- RME Totalmix

The mandatory RME software to operate every RME audio interface. Its always running in the back, and further u don't have to acknowledge.

- Sonarworks SoundID Reference Measuring System

SoundID Reference is one of the leading digital measuring solutions for studio-speakers and headphones. The software measures the room and creates an inverted equalizer that flattens the room-response. If you correctly chose „SoundID Reference“ as output-device, you will hear a way more flattened signal compared to directly routing your DAW to the interface. Especially during mixing and mastering this will make an immense difference.

Specific Hardware Guides:

- Auratone

If you want to use the Auratone system during ur session follow the following steps:

1. Go behind the Rack and unplug the two jacks in output 7 & 8 (red cables) from the Fireface.
2. Plug the two jacks (with orange cables) in.
The Orange cables are labeled with 7 & 8 - Plug respectively in output 7 & 8.
3. Turn on the Denon amp. (Silver unit in the Rack).
4. Enable the „Stereo Monitors“ button on the monitor controller while disabling the all other „Surround Monitors“ buttons.
5. Turn up the volume of the Denon amp & of the monitor controller to set to desired volume.
6. REMIND TO UNDO THE CABLES WHEN FINISHED!!!

- Neumann Mic (+ Recording Booth)

If you want to use the recording booth to record, follow the following steps:

1. Open your chosen software. (If you work with a template it should be ready to go immediately.)
2. [Otherwise] open the audio settings of your software and make sure the Fireface is selected as audio device for input.
3. Arm an audiotrack and select channel 9 as input. (As you can see on the front of the interface, the cable from the Neumann microphone is plugged into input 9 (red cable))
4. Do a soundcheck and see if u get signal when talking in to the mic.
5. Play around with the gain knob on the interface, right next to the jack, to set a suitable gain. A good rule of thumb: make sure that the highest deflection peaks around -6db or

even less. Make it louder during postproduction is way easier than dealing with clippings and distortions of too much gain in the end.

6. Find a suitable position for the speaker. In most cases don't talk directly into the microphone! Talk past the side or above - play around until u get a clean recording. Every voice is different and so is the best position for every voice. Make sure u provide enough to drink - dry mouths smack a lot. Try to never fully close ur lips between words - every time you open your mouth it smacks. Make a short break after taking a breath, so it's easier in the end to cut out the breathing. Good microphone recordings take some practice.

7. Record!

- Shure SM58

If you want to use the recording booth to record, follow the following steps:

1. Open your chosen software. (If you work with a template it should be ready to go immediately.)

2. [Otherwise] open the audio settings of your software and make sure the Fireface is selected as audio device for input.

3. Arm an audiotrack and select channel 10 as input. (As you can see on the front of the interface, the cable from the Shure microphone is plugged into input 10 (blue cable))

4. Do a soundcheck and see if u get signal when talking in to the mic.

5. Play around with the gain knob on the interface, right next to the jack, to set a suitable gain. A good rule of thumb: make sure that the highest deflection peaks around -6db or even less. Make it louder during postproduction is way easier than dealing with clippings and distortions of too much gain in the end.

6. Find a suitable position for the speaker.

7. Record!

- Talkback Microphone

If you want to use the talkback microphone in the controlroom to talk to people in the recording booth (or let them hear the score or the music to sing to for example), follow the following steps:

1. The gooseneck-mic on the tabel is plugged into input 12 of the interface. (on the front (black cable))
2. In any music-software you using you get the signal of the mic when u choose besaid input 12. Use the gain next to the input to find a suitable volume.

The goal: the signal of the microphone (or any other signal/track you want) needs to be routed to the headphone amp in the booth. The amp is plugged into output 7 & 8 of the Fireface - therefore u have to route any signal you want to be-said outputs. (past the main output, since u dont want to hear ur voice on the speakers because that would lead to a harsh feedback.)

TEST ON LOW VOLUME TO SAVE UR EARS - WHEN YOU MESSED UP AND GET A FEEDBACK THE PERSON WITH THE HEADPHONES ON CAN GET SERIOUS HEARING DAMAGE)

If u work with Nuendo use the 2.1 recording template in the folder on the desktop. everything is already routed correctly and should work immediately. In the virtual controlroom you can select on the right (CR) you can enable or disable „Talkback“ In the Mixer setting you can also send different other channels to the cue out. If u then enable „Cue“ in the controlroom you send every track routed to cue to the amp / headphones in the booth.

If you work with Ableton use „RECORDING + TALKBACK“ template in the folder on the desktop. Every track in the „CUE“ group gets routed to the cue out. (to the headphone amp)

If you want the person in the booth to hear your whole project while still being able to hear in the studio, simply group all tracks of your project and send the group (with the send parameter) to the „CUE RETURN“ return-track. The „CUE RETURN“ return-track is routet past the master out directly to outputs 7 & 8 - so directly to the booth.

If u want to use the talkback function in your own ableton project, or on your own device, simply use the template as a reference and rebuild on your own.

As long as you set up everything correctly in the beginning this should work fine.

- AKAI mpk mini

1. Plug the controller to the Mac or any other device.
2. In most cases this controller should work plug and play. Otherwise navigate to the homepage and download any necessary drivers or mapping files.
3. Open any music software.
4. Choose „Akai mpk mini“ as any midi-input on an instrument youd like to play. Or route any other parameters to the pots or pads. (e.g. in Ableton u simply push „CMD“ + „M“ to enter the midi map mode. If activated every parameter should be colored blue. Now choose any parameter and turn a poti you want to connect to the chosen parameter. Exit midi map mode by pushing „CMD“ + „M“ again.)
5. Now the mapped parameter should change by turning the knob.

(PRO TIP: If you enter the midi map mode u can see all mapped parameters in the chart opening on the left. In this chart you can also set min. and max values for every parameter if wished.)

When u open a drum rack the drum pads should be mapped correct immediately. Also if u having and instrument, that gets played by a piano roll, the keys mapped automatically.

- TB-03

1. Connect the unit with a mini-usb cable to any powersource.
2. Switch on.
3. Check on which midi-channel the unit is operating - if you want to control it with the computer, navigate (online) to the manual or watch a youtube tutorial to find out how to set the midi-channel.
4. Connect the audio output of the unit to an input (on the front) of the interface.

5. (Ableton) Create a new midi track with an „External instrument“ instrument. Choose „USB MIDI Device“ and the channel the unit is operating on. Chose the audio input where you plugged in the unit.

6. Write a clip in the track and push play. If everything is set up correctly the unit should start playing and you should get signal.

7. Set a suitable gain on the fireface - as always not too loud, the peaks should not be louder than -6db.

8. Play around and start recording if you feel like.

(If you want to use the sequencer on the unit you still have to connect the midicable, since you most likely want the unit to automatically play in the same tempo as your project. To use the sequencer in stand-alone mode - use youtube tutorials to learn how it works. The sequencer is basically working like the sequencer on the original units and known for its difficulty. You can find a lot of sweet spots you cant find when playing the unit with the computer, but to fully understand the sequencer you need to spend a lot of time to get usable results. Its a really user unfriendly and complicated sequencer.)

- ART Pro Channel II

To use the channelstrip for a recording follow the following steps:

1. Unplug the microphone cable from input 9.

2. Plug the microphone cable in the XLR-input behind the unit.

3. Connect the output of the unit (also on the back) to input 9 on the front of the interface (You need an extra XLR-cable)

4. Switch on the unit.

5. Set parameters to suitable values during a soundcheck (e.g. set gain, tweak the eq in a fitting way and find a sweetspot for the compressor. Aim for 4 - 6db of Gain reduction max. The ART Pro Channel II is a very transparent unit, that aims to simply push the signal in the ballpark before even entering the computer. But keep in mind: if you are not using this unit properly or talk with different loudness during ur recording the unit will

react differently. This rather destroys the quality of the recording instead of improve it. So before working with this unit some practice, in-depth understanding and a trained hearing is recommended.)

DONT USE A PROCESSOR LIKE THIS IF YOU DONT EXACTLY KNOW WHY!!

(If you are interested in learning more about compression, equalizing, etc. and how to use a unit like this, contact the digipool or inform your prof. that you want to learn more about that. If there are enough interested students, Konstantin Frey can hold a workshop)

- spl Sourround Monitor Controller

To understand the spl Monitor Controller, here are some helpful tips:

- In general: on the controller you find a bunch of knobs and a big poti. The big poti is to control the master volume. The buttons „L“, „C“, „R“, „LS“, „RS“ and „LFE“ enable or disable different speakers - as labeled. („LS“ and „RS“ enable the rear speakers when working in 5.1; „LFE“ enables or disables the subwoofer when working in 5.1) Pushed in means enabled. The „Stereo Monitors“ button is there to enable the Auratone System, if you connected it properly to the interface (See: „Hardware guides“ / „Auratone“) With the two „Mono“ buttons you can mono your stereo signal (or your rear stereo signal if working in 5.1) „Mute All“ is self-explanatory to mute everything. The three buttons in the „Sourround Stereo“ section you can ignore.

- A monitor controller is a useful tool and pretty much the most touched object in a soundstudio. With a monitor controller you are able to quickly change the master volume or switch between different channels (speakers) or soundsystems. All without having to change something in the routing of the interface. That way your are able to A / B compare your audio on different systems - since different systems tell you different things.

- To create proper mixes consistently its mandatory to try to work always on the same levels in your DAW. Only change the volume by using the controller.

DON'T REDLINE YOUR MASTER BUS!!

- e.g switch between the Auratone system and the Genelec system - get a fast impression of ur mix is still working on a one way speaker system, or if u got any phase issues and your mix is completely falling apart as soon as you listen to it on another „shitty“ system.

Troubleshooting

If you have any problems, the following mistakes could be your problem:

1. No sound at all:

- Is the volume turned up?
- Is the software and/or the computer you workin with correctly routed to the Fireface?
(If working on the Mac in the studio make sure your DAW is routed to „SoundID Reference“ see „List of Installed Software“ for more informations)
- Is every instance powered? (Speakers, Fireface, headphones amp, Denon amp)
- Is the Fireface properly connected to the Mac? (or your own device)
- Is the computer you working on running Totalmix/are you even using the latest RME software? (Totalmix should open automatically as soon you connect the interface.)
- (When using your own device) Did you accidentally not overtake the routing saved on the Fireface when connecting the interface for the first time? (On the studio Macs desktop you find a template folder with a .tmss file with the correct routing of the Fireface. Transfer a copy of the file to your device and open it in Totalmix.)
- Still no sound? Open the correct .tmss file (depending on whats needed) in the template folder on the desktop in Totalmix - maybe someone changed something accidentally in the routing.
- STILL NO SOUND? you should maybe contact the digipool or schlimmemusik@gmail.com and describe your problem.

2. NO SUB

- If you work in 5.1 make sure you set up the routing correctly (see „Checklist Start“)
- If you work in stereo check if everything is routet correctly. The system is in stereo on default. Maybe someone who worked in 5.1 before you forgot to replug and reroute the System. (see „Checklist Start“ and follow the steps 7.1 - 7.4 in reverse. Don' forget to

load the /DEFAULT_2.1 snapshot in RME's Total Mix and the „2.0 (Stereo) studio 2024-09-18“ profile in SoundID Reference)

2. Talback/Cue function is not working.

- Is the headphone amp powered?
- Is the headphone amp volume of the channel the headphones plugged in turned up?
- Is the talkback microphone correctly plugged in input 12? (On the front of the Fireface)
And is the volume set to a suitable level?
- Did u set the correct input (12) on your talkback-mic-track? Are you getting Signal if you talk in the mic?
- (Nuendo) Did u arm the talkback-toggle in the CR? Did you arm the cue-toggle in the CR?
- Is the cue/talkback bus (in your software) correctly routed thru the interface? (Channels 7 & 8 is the [stereo] cue/talkback out)
- Are the cables correctly plugged? (see: „Hardware Guides“ / „Auratone“) The RED CABLES must be connected to the interface (Output 7 & 8) if the ORANGE CABLES are plugged to these outputs, switch!

(ON DEFAULT THE RED CABLES SHOULD BE CONNECTED, NOT THE ORANGE CABLES - DONT UNDO IF YOU PLUGGED THE RED CABLES)

- Still no signal in the booth? - A correct cue/talkback-routing is a bit more advanced, than a normal main-out routing. Contact the digipool or schlimmemusik@gmail.com and describe your problem.

3. You receive no signal from the booth/any other instrument

- Is the Neumann/Shure mic/instrument properly connected? (The Neumann mic-cable needs to be plugged in input 9, the Shure mic-cable in 10 on the front of the Fireface, any other instrument in 11 or 12)
- Is the volume of the input set to a suitable amount? (the poti right next to the input)
- Is the input device in your software correctly set to Fireface?
- Did u choose the right input channel on your track?
- Still no Signal? Contact the digipool or schlimmemusik@gmail.com and describe your problem.

4. Displays/screen not working properly

- Is the display (or both or the screen) properly connected to the studio Mac or your own device? (If you want to use two displays on is directly plugged to the hdmi-out, the other one via a usb-c to hdmi adapter to a usb-c jack)
- Are the displays you want to use powered?
- Is the correct input selected on the screen?
- Still not working? Contact the digipool.

