

21M.380 · MUSIC AND TECHNOLOGY
 RECORDING TECHNIQUES & AUDIO PRODUCTION

WORKSHOP: HEADPHONE MONITORING

SESSION 12 · WEDNESDAY, OCTOBER 19, 2016

1 Schedule

| | Group A | Group B | Group C | Group D | Group E |
|---------|---|----------------------|----------------------|----------------------|----------------------|
| | ████ ████ ████ | ████ ████ ████ | ████ ████ ████ | ████ ████ ████ | ████ ████ ████ |
| 12:25pm | Equipment pickup (████, █████) | | | | |
| 12:35pm | Announcements (all groups) | | | | |
| 12:40pm | Session prep | Session prep | DAW task | Monitor task | Mic task |
| 12:53pm | Mic task | | Session prep | DAW task | Monitor task |
| 1:06pm | Monitor task | Mic task | | Session prep | DAW task |
| 1:19pm | DAW task | Monitor task | Mic task | | Session prep |
| 1:32pm | Session prep | DAW task | Monitor task | Mic task | |
| 1:45pm | Packing up equipment (all groups) | | | | |
| 1:55pm | End of class & return of equipment (████, █████, █████) | | | | |

TABLE 1. Schedule

2 Session preparation

- The groups for today’s workshop already represent the sound engineering teams for the upcoming recording sessions
- Each team is expected to:
 1. autonomously prepare their recording session, and
 2. present a session plan in class on the due date of the SR1 assignment.
- Sit down together as a team right now to start this process.
- Use the SR1 assignment instructions as a guideline.

3 Mic task

Note that the DAW team and monitoring team both rely on you!

1. Set up one dynamic mic (Shure Beta 58A, Shure SM57, or Blue Encore 200) for each of you. A stand is not required, but you can set one up if you feel you need more practice.
2. Each of you should then identify a suitable preamp such that you could conveniently compress and EQ the mic signal while recording.
3. Do not power up the preamp yet, but connect the mic to the preamp first. Use the MOSS patchbay schematics to determine which input on the Switchcraft XLR patchbay you need to use in order to avoid any additional patching.
4. Identify on the MOSS patchbay schematics where the preamp's outputs will be routed to by default. How will the signal eventually reach the DAW session? Which devices will it pass through? Try to identify those in the rack.
5. Power up the preamp, apply phantom power if needed, and adjust the preamp's gain. Verify by eye on the preamp's level meter that you are actually getting a signal.
6. Once the DAW team is ready, verify that they are getting a signal from all your mics.

4 Monitor task

Set up headphone monitoring for two performers.

1. Identify the Hear Back Hub in the small MOSS road case and the four accompanying headphone mixers in the large road case.
2. Ensure the Hear Back Hub's front panel is set to ANALOG (not ADAT or HEARBUS).
3. Connect two headphone mixers to the hub. Which kind of cables do you need for the purpose? Identify and connect them.
4. In an actual recording session, how would you make sure that the musicians can comfortably operate the headphone mixers?
5. Connect one pair of Direct Sound EX-29 headphones to each of the two headphone mixers.
6. On the main patchbay, route all 4 outputs of the two twinQ preamps sequentially to inputs 3–6 on the Hear Back Hub.
7. Once the mic team is ready, verify that you receive two mic signals on each of the headphone mixers.



FIGURE 1. RME ADI-8 DS settings to be used for recording sessions (D/A clock settings irrelevant) (© RME Audio. With edits. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <http://ocw.mit.edu/help/faq-fair-use/>)

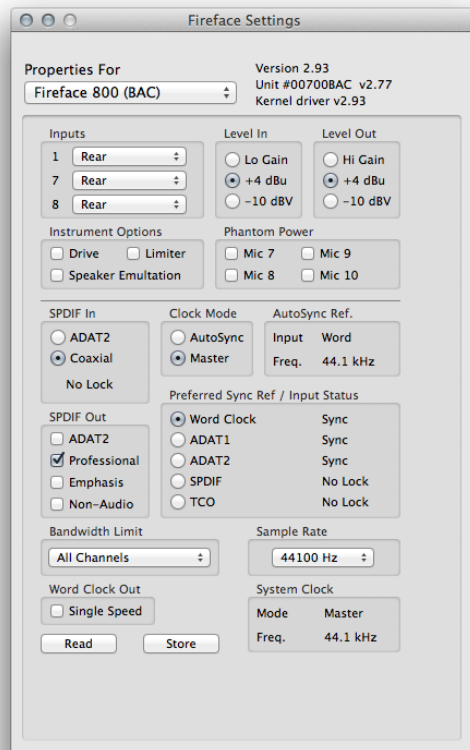
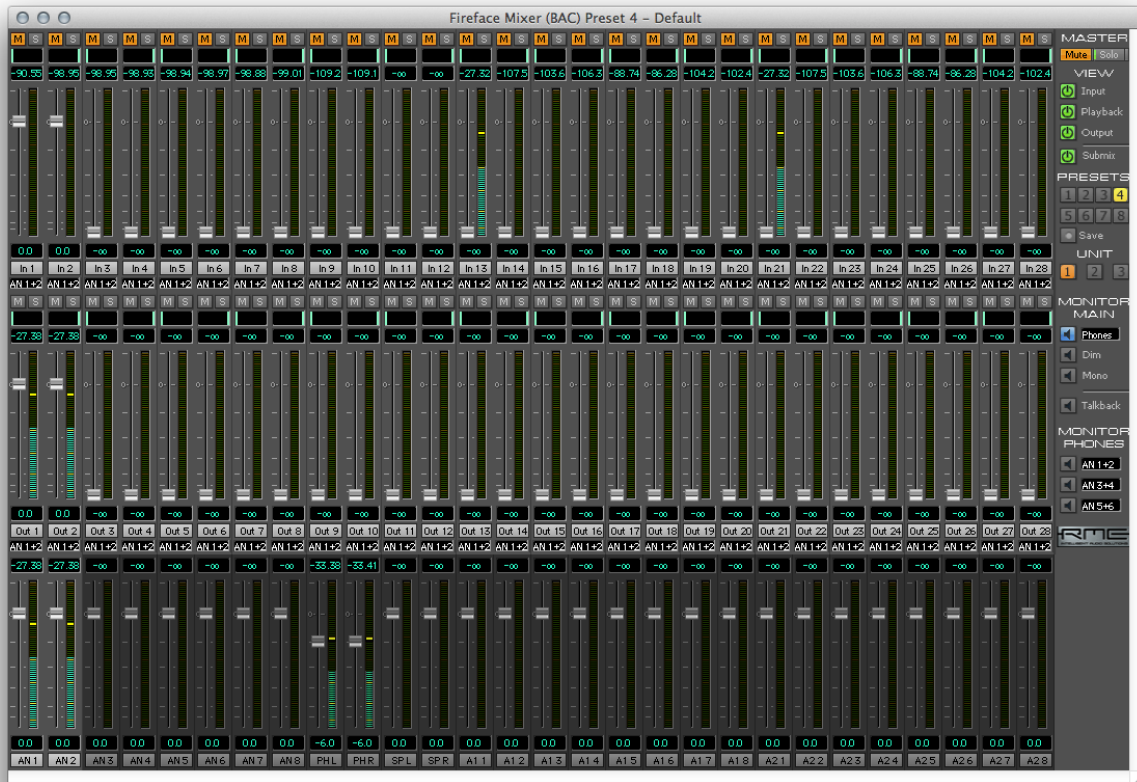


FIGURE 2. RME Fireface 800 settings to be used for recording sessions (© RME Audio. With edits. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <http://ocw.mit.edu/help/faq-fair-use/>)



| XLR | Preamp | Fireface | Logic |
|-----|------------------|----------|-------|
| 1 | Precision, ch. 1 | 1 | 1 |
| 2 | Precision, ch. 2 | 2 | 2 |
| 3 | Precision, ch. 3 | 3 | 3 |
| 4 | Precision, ch. 4 | 4 | 4 |
| 5 | Precision, ch. 5 | 5 | 5 |
| 6 | Precision, ch. 6 | 6 | 6 |
| 7 | Precision, ch. 7 | 7 | 7 |
| 8 | Precision, ch. 8 | 8 | 8 |
| 9 | TwinQ A, ch. 1 | 13(+21) | 9 |
| 10 | TwinQ A, ch. 2 | 14(+22) | 10 |
| 11 | TwinQ B, ch. 1 | 15(+23) | 11 |
| 12 | TwinQ B, ch. 2 | 16(+24) | 12 |
| 13 | Vintech, ch. 1 | 17(+25) | 13 |
| 14 | Vintech, ch. 2 | 18(+26) | 14 |
| 15 | JDK, ch. 1 | 19(+27) | 15 |
| 16 | JDK, ch. 2 | 20(+28) | 16 |

FIGURE 3. Monitoring signals on the Fireface Mixer

TABLE 2. Default routings for primary (half-normalled) moss patchbay without patch cables, using Fireface preset №4, and record16 Logic session template

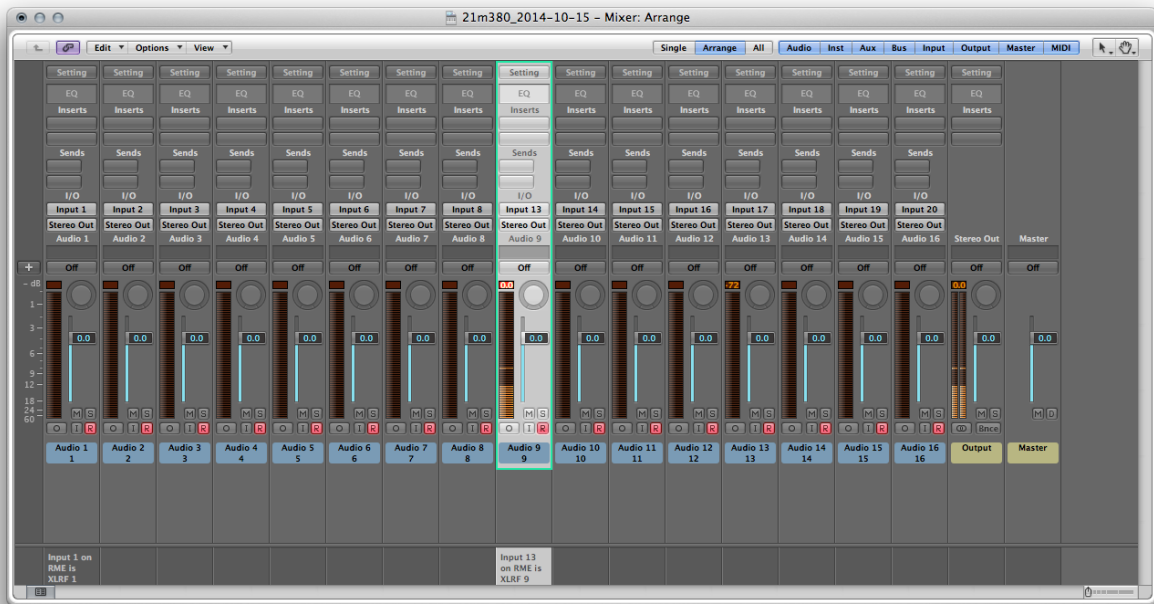


FIGURE 4. Monitoring signals on the Logic Mixer

5 DAW task¹

Set up a DAW session in Logic for a 16-channel recording.

1. Power up in the following sequence:
 - (a) RME ADI-8 DS (AD/DA converter)
 - (b) RME Fireface 800 (audio interface)
 - (c) Macbook Pro (login password: md421)
2. Set the RME ADI-8 DS front panel settings to those shown in figure 1.
3. Open the *Fireface Settings* application from the dock (at the bottom of the desktop). Compare the settings to figure 2 to make sure the device is running as Master at 44.1 kHz.
4. Open the *Fireface Mixer* application from the dock, set it to preset 4 (with inputs muted; cf., figure 3), and leave it running.
5. Open up *Logic Pro* from the dock and create a new 16-channel-input Logic session: `File >> New... >> My Templates >> record16`
6. Save the session to a new folder on the scratch harddrive (*not* to the Desktop or Home folder): `⌘ scratch > 2016-10-19 > 2016-10-19.logic`
7. Cannot see the Logic mixer (cf., figure 4)? Try `Window >> Mixer`.
8. Arm all tracks for recording by clicking on the little R symbol on each input channel, so you can monitor the inputs on the meters.
9. Import test file: `File >> Import Audio File... >> Desktop >> test.wav`.² Play it back in a loop as a test signal for you and the monitoring team.
10. Patch the Fireface's first two outputs into the Headamp 6 Pro headphone amplifier. Are they connected by default?
11. Connect one Audio-Technica ATH-M40 headphone pair for each of you to the headphone amp's front panel (starting at channel 1).
12. Once the mic team is ready, verify that you are getting a signal from their mics. Monitor the signals throughout their journey:³
 - (a) Visually on the ADI-8 DS front panel (cf., figure 1)
 - (b) On the Fireface Mixer application's input meters (cf., figure 3)⁴
 - (c) On the input channel meters in the Logic session (cf., figure 4)
 - (d) On all the headphone amplifier's input channel meters
 - (e) By ear on all the headphone amplifier's outputs.

¹ This section will be useful as a reference for setting up the DAW in our upcoming recording sessions.

² Note that this is a different option than `File >> Import...`

³ If the mic team is not ready yet, use the `test.wav` file as a substitute and monitor that signal by eye and ear on the headphone amp.

⁴ Note that XLR patchbay input channels 1–16 correspond directly to Logic's input channels 1–16, but not to the Fireface mixer's input channels 1–16. See table 2 for details.

References & further reading

- Ariza, Christopher (2012a). *Moss inventory*. Available at: MIt Learning Modules > Materials.
- (2012b). *Moss schematics*. Available at: MIt Learning Modules > Materials.

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