

Jacktrip Basics, Part I:

Overview, installation and making a 2-way connection

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Overview and installation

Important Notes:

- May not work on home networks or wifi. Requires open UDP ports.
- OS 10.7 and 10.8 users: Routing in Jack Pilot may not work yet, so you need to use Qjacktl for that instead. (See handout/video #2)

JACK

- <http://jackaudio.org>
- Open source server software for routing audio
- Can be used to route audio among different applications on a single computer, or (with a plugin like JackTrip) to route audio across the internet among multiple computers
- GUI (graphical user interface) is called Jack Pilot

Installing JACK

- <http://jackaudio.org/download>
- Mac users: Install the Binary for Jack 2 for your operating system

JackTrip

- Open source software developed at Stanford University's CCRMA:
<https://ccrma.stanford.edu/groups/soundwire/software/jacktrip>
- A plugin for use with JACK server
- Definition: "A Linux and Mac OS X-based system used for multi-machine network performance over the Internet. It supports any number of channels... of bidirectional, high quality, uncompressed audio signal steaming."

Installing JackTrip

- <http://code.google.com/p/jacktrip/downloads/list>
- Download the .zip file, unstuff it and place the "jacktrip-1.0.5" folder in Applications
- Open Terminal (Applications/Utilities), open new window
- Type cd (as in "change directory) then drag jacktrip folder on top of Terminal window to insert path to that folder
- Type cd /bin to move into /bin directory
- Type the commands explained in the file "INSTALL.txt" within the jacktrip folder.
- To test if it installed: Open a new Terminal window and enter "jacktrip": It should return info and commands list.

**Making a 2-channel,
2-site connection**

Step 1: Preparation

- Make sure you are on ethernet, not wireless
- Establish a text chat with your remote partner
- Open Jack Pilot app. Open Prefs and check:
 - Sample rate and buffer size must be the same as your remote partner's settings. (Recommended for our seminar: 44100 sample rate, 128 buffer).
 - Make sure your audio interface is selected as the audio device
 - Use defaults for other preference settings
- Click "start" in Jack Pilot to start Jack Server

Step 2: Connect

- Open new Terminal window and use these commands:
 - If you are the host: `jacktrip -s`
 - If you are the client: `jacktrip -c xxx.xxx...`
(where "xxx.xxx..." is the host's IP address)
- When both sites run their commands, you should see a "received connection" message in the Terminal window. If not, see Troubleshooting checklist.

Step 3: Routing

- *Note:* For Mac OS 10.7 or later, if steps below fail, you may need to use Qjacktl for routing (see next video)
- In Jack Pilot. open Connections Manager ("routing window")
- Suggested usage: Click ONCE to select an item in the left column, then DOUBLE click any item in the right column to connect/disconnect it. If you select an item on the left, connected items on the right should turn red
- "Capture/playback" = inputs/outputs on the interface you selected in Jack Pilot preferences.
- "JackTrip Receive/Send" = channels you are receiving/sending with the remote partner.

Troubleshooting

Troubleshooting: If you DO NOT get a successful "connection received" message:

- Any error messages in Terminal window? (e.g. host and client have different buffer size, etc.)
- Power PC (PPC) Macs not supported - there is a bug that may cause errors if you are not using an Intel machine
- Make sure you are on ethernet, not wireless
- Re-check for IP number and command typos in Terminal
- To test for firewall problems, try to "ping" from each site to the other: Open Terminal window and type "ping" followed by space then the IP number of remote site. If you do not get successful ping results (listing travel time in ms), it is likely that their UDP ports are not open. Contact a systems administrator.

Troubleshooting: If you DO get a successful "connection received" message," but don't hear anything:

- Re-check your routing to make sure it is correct
- Is your interface properly selected in Jack Pilot Prefs? To check, you will need to cancel (control-C) the JackTrip session in the Terminal window and then click "Stop" in Jack Pilot to be able to open the Prefs window.
- Do a local audio check to make sure you can route audio from your local mics to your own playback system and hear it properly (i.e. to test your own interace-to-mixer connection)
- Re-start the JackTrip session: In the Terminal window, use "control-C to cancel the session, then re-do the command to restart it (tip: use the up arrow key to recall the last command)
- Cancel JackTrip session, stop Jack Server (Jack Pilot) and restart from that stage (i.e. restart Jack Pilot and redo the Terminal command)
- Reboot computers and start from scratch