Elk Workshop ADC 19

Turn a JUCE plugin into a hardware instrument with Elk Audio OS

Stefano Zambon   CTO
Ilias Bergström   Senior Sw Engineer
Gustav Andersson   Senior Sw Engineer

Steps of Workshop

1   Running and controlling plugins

2   Making a JUCE example plugin work on Elk

3   Glue app example for the above plugin

4   Advanced Topics / Experimentation

5   Q & A

Ensure that you have

1   JUCE 5.4.5 and Projucer built.

2   Terminal with SSH.

3   Headphones with 3.5mm plug.

If not, let us know and we will help

Running and controlling plugin: power

Power on boards, connect ROLI USB MIDI keyboard.

Running and controlling plugin: connect

Connect to board over our WiFi:

Connect your PC

    WiFi: Elk_Workshop

    PW: elk_at_adc

On your board, there is a sticker with a name, e.g. elkpi-3.

```
>$ ssh mind@elkpi-3.local
```

Pw: elk

Sharing a Board (Linux / OSX)

Two can connect to the same board with ssh, following the previous slide instructions.

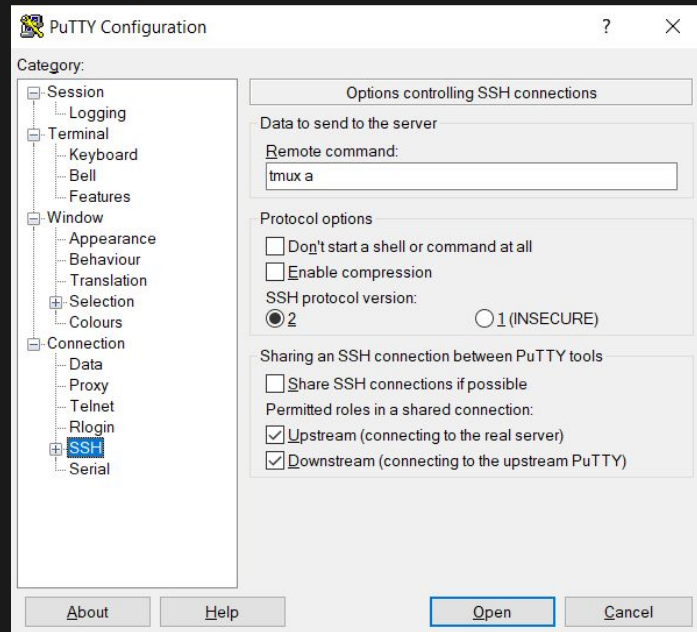Then, to both share it, one types:

```
>$ tmux
```

The other types:

```
>$ ssh mind@elkpi-xx.local -t tmux a
```

...Unless you are on Windows - then read next slide:

Sharing a Board (Windows)

With PuTTY, one connects over SSH, then types '`tmux`'.

The other, has to change the custom command to '`tmux  a`' in the SSH tab as in the picture, before opening their SSH connection.

Running and controlling plugin: file transfer

OSX: connect to samba folder with shortcut cmd-K from Finder.
Ubuntu: "Files" window, "Other Locations", and in "Connect to Server"
field, enter: `smb://elkpi-3.local/`
Win 10: right-click this PC. "Add a network location". ... in field
"//elkpi-3.local".

For all: User: mind PW: elk

If Samba doesn't work:
`>$ scp yourfile.so mind@elkpi-3.local:/udata`

Elk

Running and controlling plugin: Sushi

```
>$ cd /udata/adc_workshop_files/adc_sequencer
>$ sushi -r -c sushi_config.json --osc-send-port=23023 -m2&

>$ aconnect -l
>$ aconnect sourceNumber(ROLI) destinationNumber(Sushi)
```

If you get the error "Connection failed (Invalid argument)" this is likely because the soundfont being loaded is large. Wait a few seconds and try again. Otherwise ask for help.

Running and controlling plugin: Sensei & Python

```
>$ sensei -f sensei_config.json &
```

Start python program
```
>$ ./main_app
```

Ctrl-C to kill main app when done playing.
```
>$ killall -2 sushi
>$ killall -2 sensei
```

Compiling a JUCE Plugin

Build and run JUCE VST example on your local computer:

Download from here - or ask us for files:

https://github.com/elk-audio/elk-adc-workshop-material

That repository contains all the material for the workshop.

Build `elk_juce_example_projucer_project`, using Projucer.

Sensei and creating a simple Glue App

We show the configuration files, discussing their content on the projector.

For Sushi, Sensei, Python

Editing the Main App

On laptop, to get local IP address

```
>$ ifconfig
```

Put this IP in local main app on the board in the GUI_APP_ADDRESS constant.

Run JUCE Plugin on board

Run the example on the board:

```
>$ cd /udata/adc_workshop_files/elk_juce_example
>$ ./run_example
>$ ./stop_example
```

Cross-Compilation

If you modify the example plugin, zip the `Source` folder contents, and upload it to this page: `http://elkbuild.local:5000/`
Add your board address and target path
`root@elkpi-nn.local:/target/path`
That server will cross-compile it, and directly place it on your board in the location you've selected.

Advanced Topics / Experimentation

Set OSC callbacks to the Programming Example's GUI.

Monitoring a plugin's performance, detecting mode switches, and removing them.

Sequencer example:
- Edit the Python glue program.
- Install Open Stage Control, and interact with the synth over it.

Thank you!

Website	elk.audio
Forum	forum.elk.audio
Code	github.com/elk-audio