

Joachim Heintz

Live Csound in CsoundQt

Workshop in 5. Tehran International Electronic Music Festival (online)

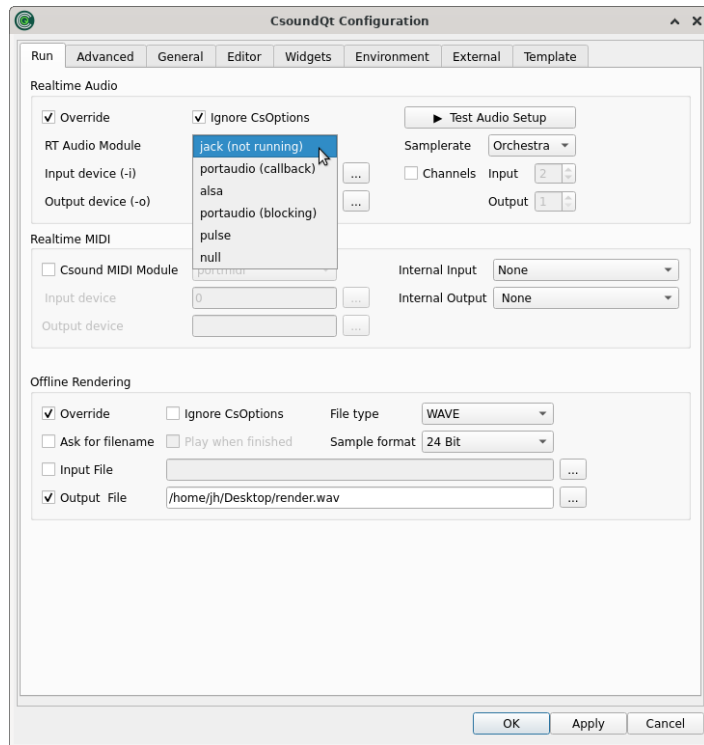
24 Feb 2022

Overview

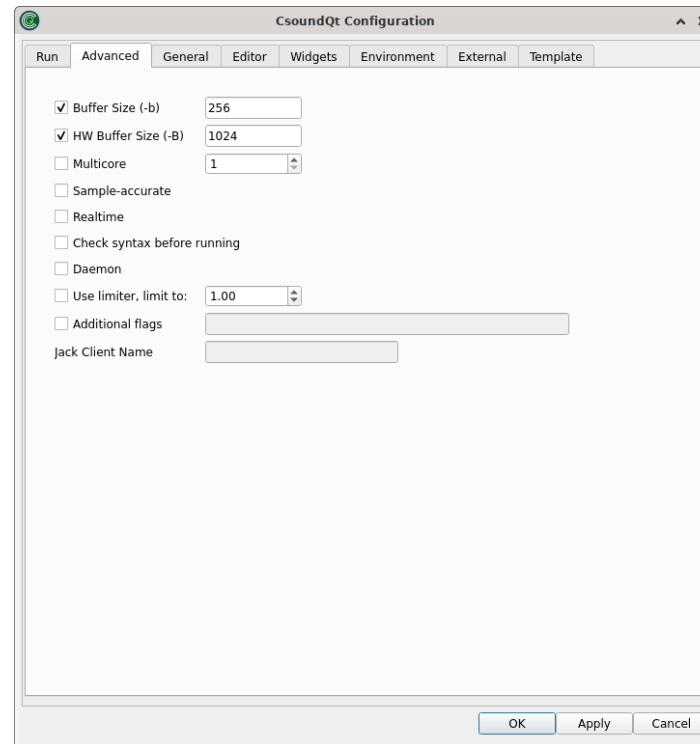
- 1 Basic settings to optimize real-time performance
- 2 Display audio signals
- 3 Use computer keys
- 4 Use MIDI (keys, controllers, foot pedal)
- 5 Record and play buffer
- 6 Write and perform a cue list
- 7 If you like ...

1 Basic settings to optimize real-time performance

a) Select "RT Audio Module"



b) Select buffer sizes



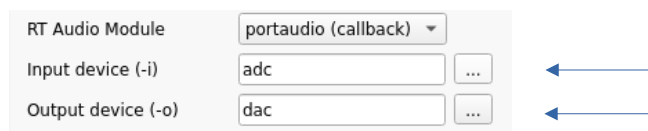
c) Set ksmps

```
<CsInstruments>
sr = 44100
ksmps = 32
nchnls = 8
odbfs = 1
seed 0
```

Test [1b_buffer_size.csd](#) with 8192 versus 1024 and see (hear) the effect on the latency.

Always use power-of-two values for ksmps and for buffer sizes!

If you use an external audio interface: Set it as system default and then simply use *adc* as input device and *dac* as output device.



2 Display audio signals

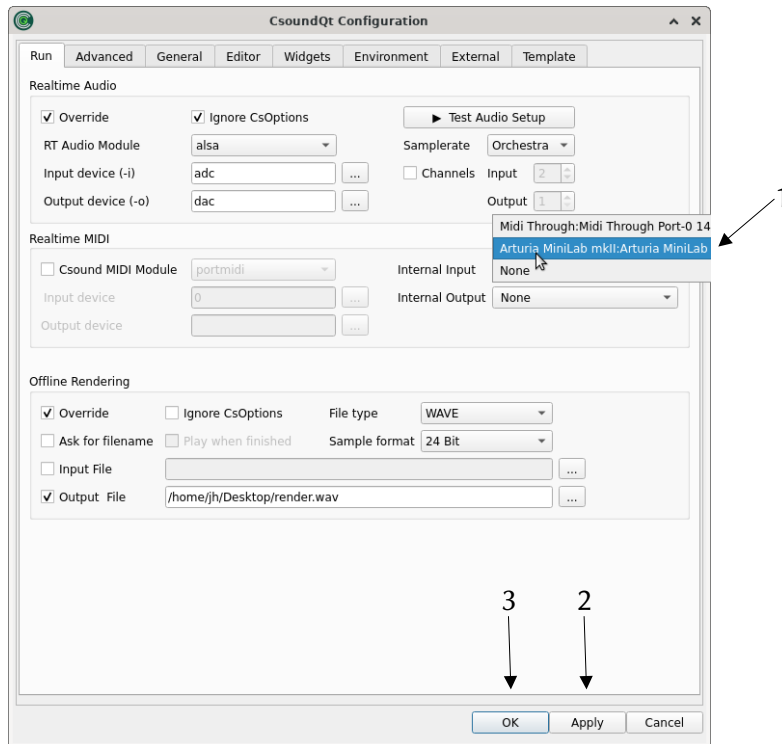
- a) Use my UDO (User Defined Opcode) <https://github.com/csudo/csudo/blob/master/csqt/CsQtMeter.csd>
- b) Download and understand [2b_show_output.csd](#).
- c) Receive microphone input and show it: [2c_show_input.csd](#).

3 Use computer keys

- a) In general: [3a_keys_simple.csd](#)
- b) Trigger events: [3b_keys_trigger.csd](#)
- c) To trigger a list of cues: [3c_keys_cues.csd](#)
- d) Some improvements: [3d_keys_cues_with_comfort.csd](#)

4 Use MIDI

a) Connect MIDI device and select it in the *Configuration* panel (tab "Run"). Then press "Apply", and then "OK".



b) In the CsoundQt Examples, run the *MIDI_IO_Test*

c) Insert the pedal with the same functionality as the space bar computer key: [4c_MIDI_pedal.csd](#)

5 Record and play buffer

- a) Basic functionality: [5a_record_play_buffer.csd](#)
- b) Use phasor for playback: [5b_play_buffer_phasor.csd](#)
- c) Use an #include file for some static cod: [5c_include_file.csd](#)

6 Write and perform a cue list

Cue	What to do
1	Start writing buffer
2	Play samples "one", "two" ... in random order
3	Play five random snippets from the buffer
4	Play a burst of impulses
5	Stop writing buffer Play all what has been written backwards

7 If you like ...

... read the code for my piece [Y](#) for oud and live electronics:

csound file: https://joachimheintz.de/stuecke/code/y_220110.csd

included UDOs: https://joachimheintz.de/stuecke/code/y_udos.inc