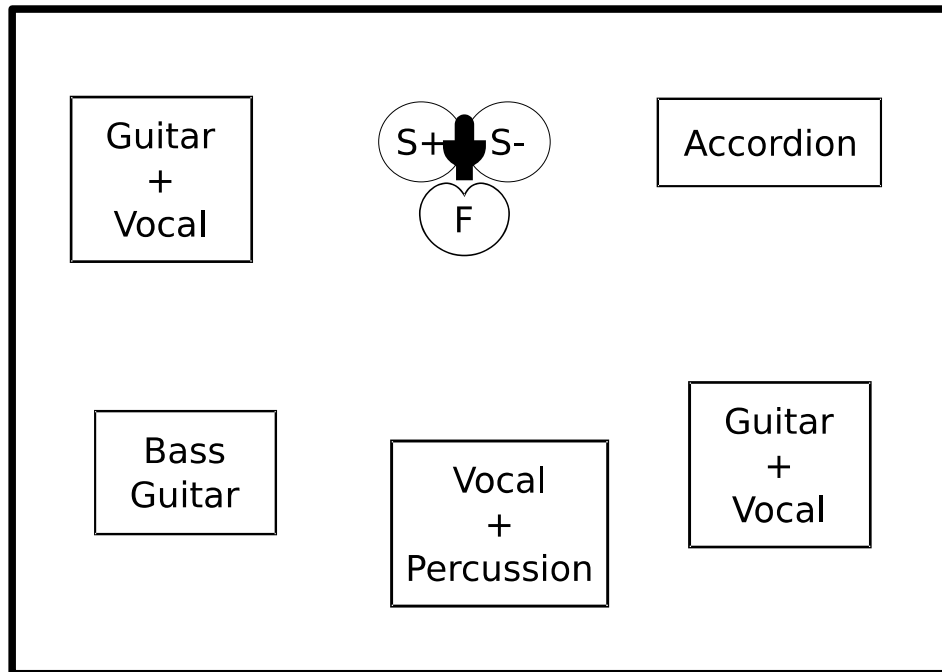


# Work recordings of acoustic band

# Work recordings of acoustic band

- 2 channel setup
- To give musicians a feedback of their performance
- To give musicians accompaniment for their home practice

# Acoustic setup



- S: Bidirectional microphone (8)
- F: Unidirectional microphone (Cardioid)

# Hardware setup

- Sound card
  - 2 inputs
  - 48 kHz / 24 bit
- Laptop
  - Dual core
  - 2.4 Ghz
  - 2 GB RAM
  - 7200 RPM HDD

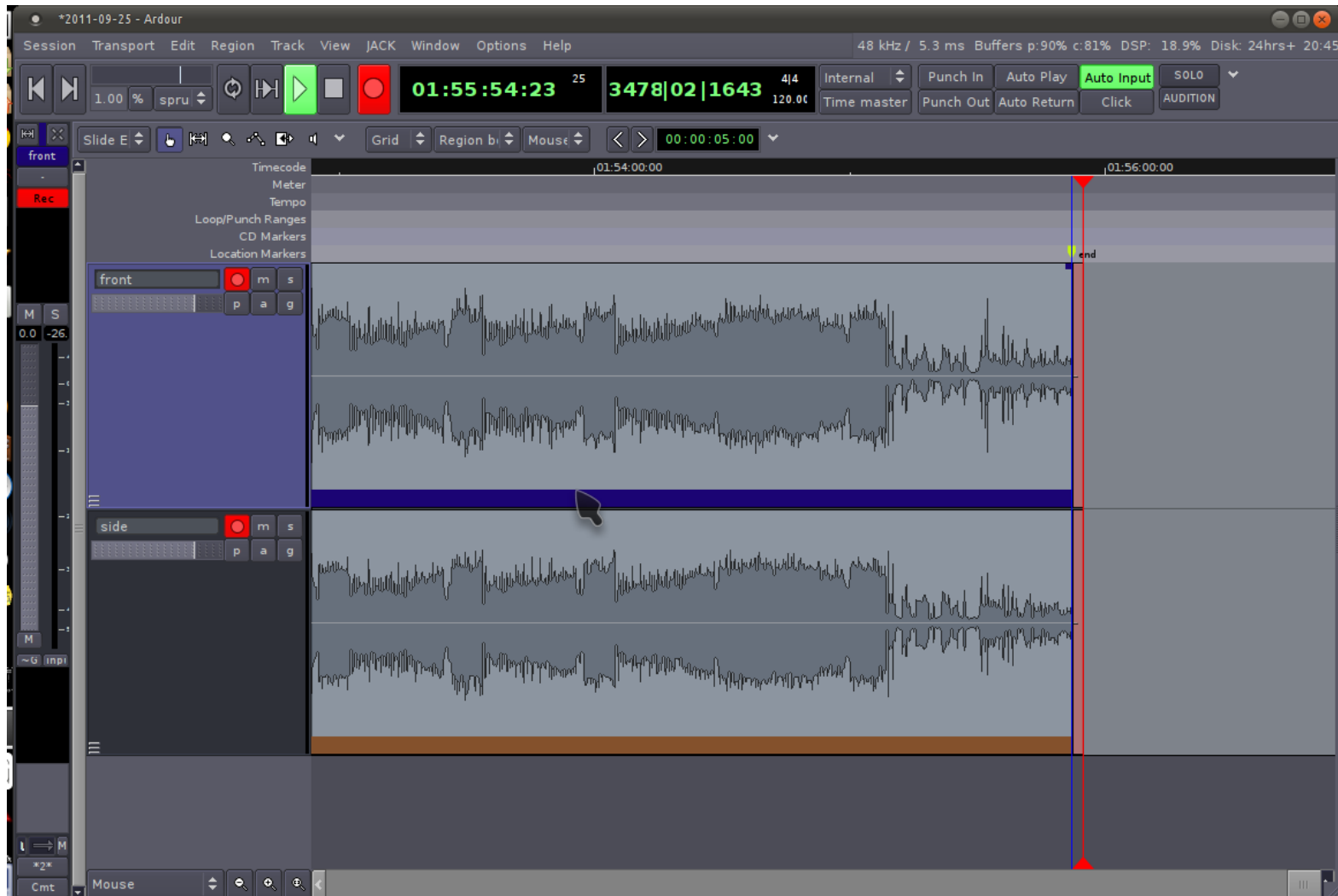
# Software setup

- Ubuntu Studio 11.04
- Jack 1.9.7
- Ardour 2.8.11
- LADSPA plugins
  - Calf 0.0.18.6
  - SWH 0.4.15
  - TAP 0.7.1

# Recording

- 2 channels
  - Front
  - Side
- Whole performance at once

# Recording

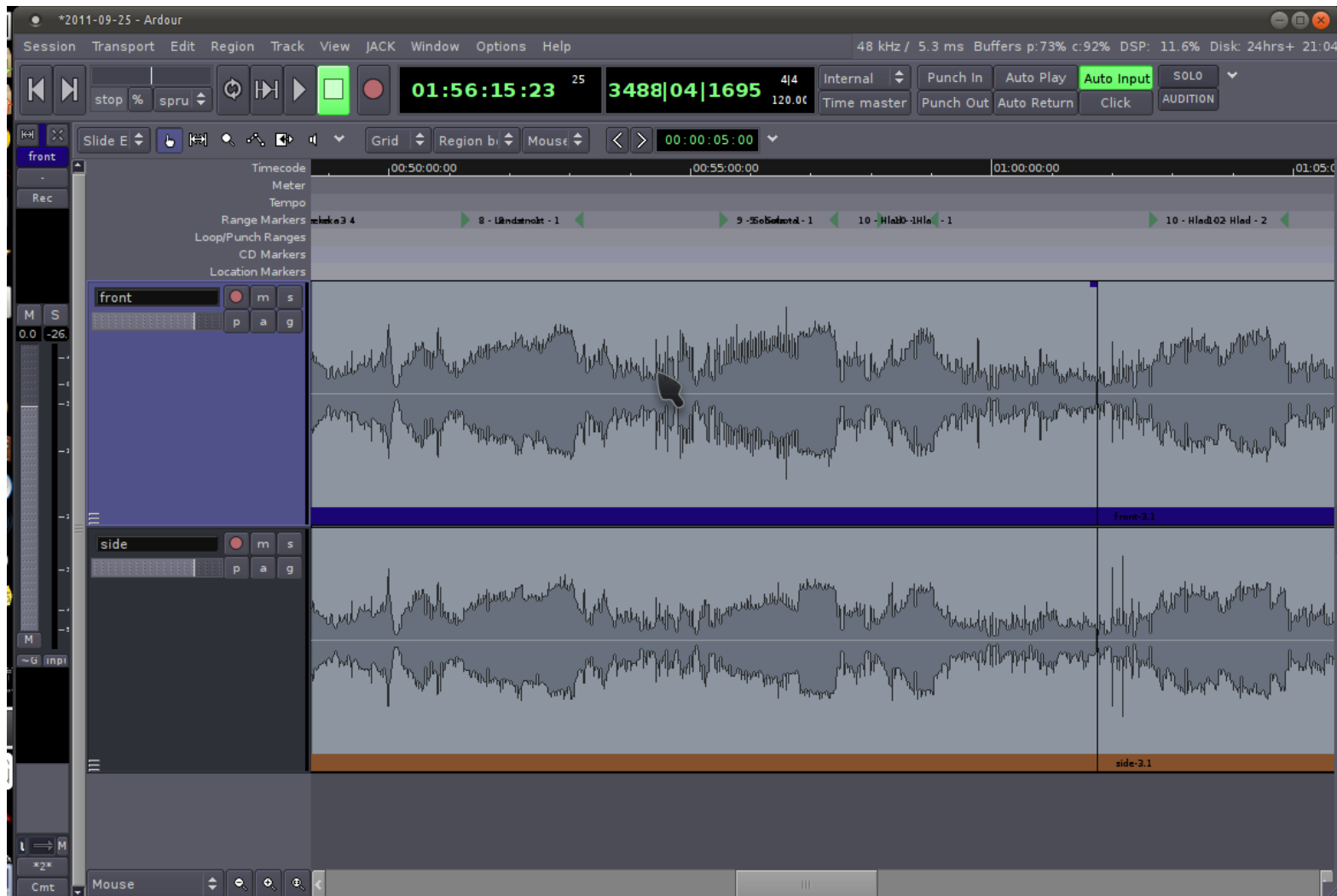


# Cutting

- Create ranges for each individual songs / parts
  - To separate songs from each other
  - To leave out talk / beer pouring / insults
- No sound editing at the moment
  - Not even normalization



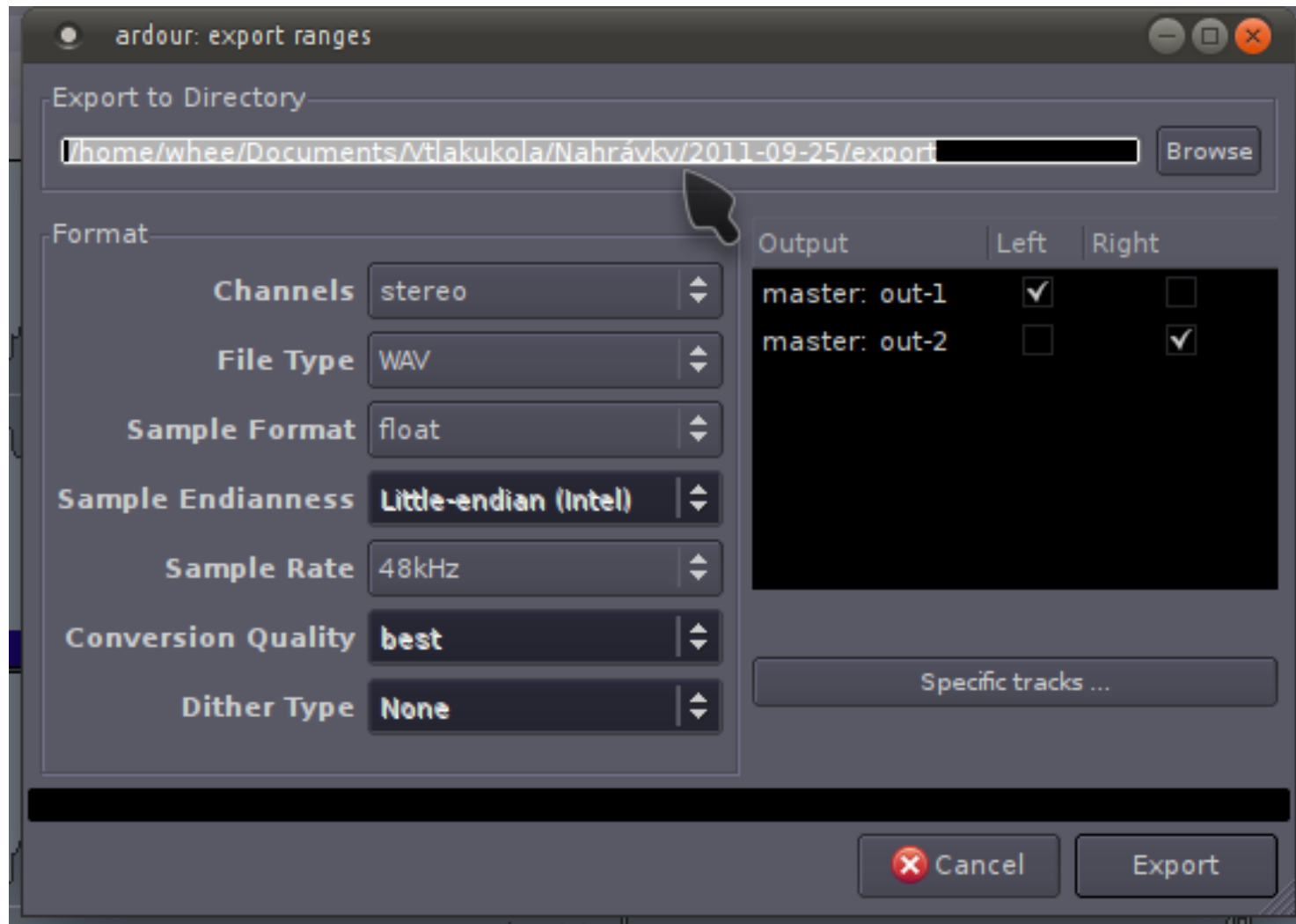
# Cutting



# Export

- Export ranges as individual files
  - Stereo
    - Front channel as Left
    - Side channel as Right
  - Wav
    - floating point
    - 48 kHz

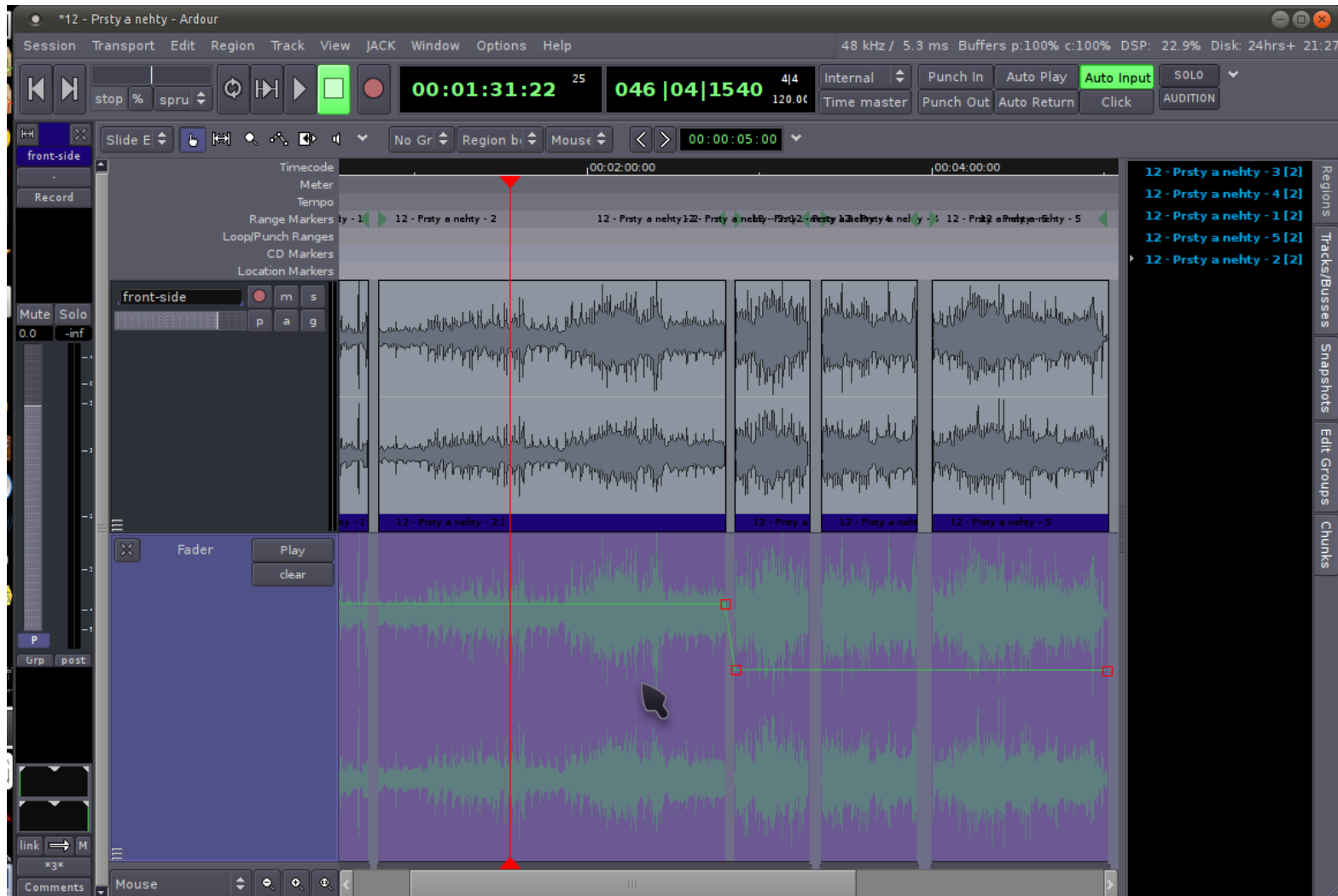
# Export



# Per-song session

- Create new Ardour session for a song
  - From prepared Per-song template
- Import all takes of the song as regions
- Place them into front-side track
- Normalize all regions
- Create track fader automation
  - So that the loudest parts of the takes have roughly the same level
  - Think RMS, not Peak

# Per-song session



# Multi-band compressor

- Octave bands
- Settings (each band)
  - Fast attack and release
  - Peak response
  - Ratio 1:20
  - The reduction along the song should vary between 0 and 10 dB

# Multi-band compressor

The image shows the Ardour digital audio workstation interface. At the top, the title bar reads "12 - Prsty a nehty - Mixer - Ardour". The main window displays a mixer strip with multiple tracks. The tracks are labeled with frequencies: -55, 55, 110, 220, 440, 880, 1760, 3520, 7040, 14080, and 14080+. Each track has a gain knob, a solo button, and a mute button. The 110 Hz track is highlighted with a red border. A multi-band compressor plugin window is open over the 110 Hz track, titled "110: SC4 (by Steve Harris)". The plugin window has a "Presets" dropdown menu with "Save" and "Bypass" buttons. The "Controls" section includes the following parameters:

- RMS/peak: 1.000
- Attack time (ms): 3.000
- Release time (ms): 10.000
- Threshold level (dB): -22.423
- Ratio (1:n): 20.000
- Knee radius (dB): 10.000
- Makeup gain (dB): 0.000

On the right side of the plugin window, there is a vertical slider for "Amplitude (dB)" and "Gain reduction (dB)", with a scale from -21 to -2. The background shows the mixer strip with various controls like "P", "M", "Solo", "Mute", "Grp", and "post" for each track. The bottom of the interface shows a "Cmt" (comment) field for each track.

# Multi-band compressor

- Adjust band levels to suppress/emphasize instruments
  - -55, 55, 110 bands for Bass guitar
  - 220 band for guitar body
  - 440 band for voice body
  - 1760 band for voice melody
  - 3520 band for voice clarity / text understanding
  - 7040 band for voice breath / guitar brightness
  - Higher bands for maracas



# Multi-band compressor

The screenshot displays the multi-band compressor interface in Ardour. The interface is organized into several rows and columns for each of the 13 frequency bands. The top row shows the frequency range for each band, with values: -55, 55, 110, 220, 440, 880, 1760, 3520, 7040, 14080, and 14080+. The second row indicates the filter type for each band, all set to 'Calf Filter LA SC4'. The third row contains gain parameters, with values ranging from -inf to 5.8. The fourth row shows threshold parameters, with values ranging from -inf to 1.6. The fifth row displays attack and release times, with values ranging from 0.0 to 2.8. The sixth row features a series of vertical meters for each band, with a mouse cursor pointing to the 110-220 Hz band. The seventh row contains solo and mute buttons for each band. The eighth row shows a series of 'link' buttons, with some set to 'M' (Master) and others to '1/2'. The bottom row contains a series of 'Comments' buttons. The right side of the interface shows a master channel with a gain of -0.0 and a solo button.

Band	Frequency Range	Filter	Gain	Threshold	Attack	Release	Solo	Mute	Link	Comments
1	-55	Calf Filter LA SC4	-inf	-inf	0.0	0.0				*3*
2	55	Calf Filter LA SC4	5.8	-inf	0.0	0.0				*22*
3	110	Calf Filter LA SC4	-inf	-inf	0.0	0.0				*11*
4	220	Calf Filter LA SC4	-inf	-inf	0.0	0.0				*11*
5	440	Calf Filter LA SC4	-inf	-inf	0.0	0.0				master
6	880	Calf Filter LA SC4	1.3	-inf	1.3	1.4				master
7	1760	Calf Filter LA SC4	1.4	-inf	1.8	1.8				master
8	3520	Calf Filter LA SC4	1.6	-inf	1.6	1.6				master
9	7040	Calf Filter LA SC4	-0.0	-inf	2.3	2.3				master
10	14080	Calf Filter LA SC4	2.8	-inf	2.8	2.8				master
11	14080+	Calf Filter LA SC4	1.6	-inf	1.6	1.6				master
12	14080+	Calf Filter LA SC4	-5.7	-inf	-5.7	-5.7				master
13	14080+	Calf Filter LA SC4	-12.2	-inf	-12.2	-12.2				master

# Master compressor

- Master channel
- Settings
  - Slow attack and release
  - RMS response
  - Ratio 1:20
  - The reduction along the song should vary between 10 and 20 dB
  - The makeup should compensate for reduction such that the peaks are around +1 dB

# Master compressor

The image shows the Ardour mixer interface with a master compressor plugin window open. The mixer has 16 channels, each with a fader and a solo/mute button. The master channel is labeled 'master' and has a fader set to -0.0. The compressor window is titled 'master: SC4 (by Steve Harris)' and contains the following controls:

- Presets: A dropdown menu with 'Save' and 'Bypass' buttons.
- Controls:
  - RMS/peak: 0.000
  - Attack time (ms): 30.000
  - Release time (ms): 150.000
  - Threshold level (dB): -30.000
  - Ratio (1:n): 20.000
  - Knee radius (dB): 10.000
  - Makeup gain (dB): 16.000
- Amplitude (dB) and Gain reduction (dB) meters: A vertical scale from -18 to 10 dB.

The mixer interface also shows various buttons like 'Solo', 'Mute', 'Grp', 'post', and 'link' for each channel. The master channel has a 'TAP Scaling' button and a '1/2' button.

# Limiter

- Just before output engage a limiter
  - To prevent digital clipping
  - Use scaling limiter to reduce limiting artifacts

# Limiter

The screenshot displays the Ardour mixer interface for a project titled "12 - Prsty a nehty - Mixer - Ardour". The mixer has 16 channels, each with a fader and a solo/mute button. The channels are labeled with frequencies: 110, 220, 440, 880, 1760, 3520, 7040, 14080, and 14080+. The master channel is labeled "master".

A "master: TAP Scaling Limiter (by Tom Szilagyi)" window is open, showing the following controls:

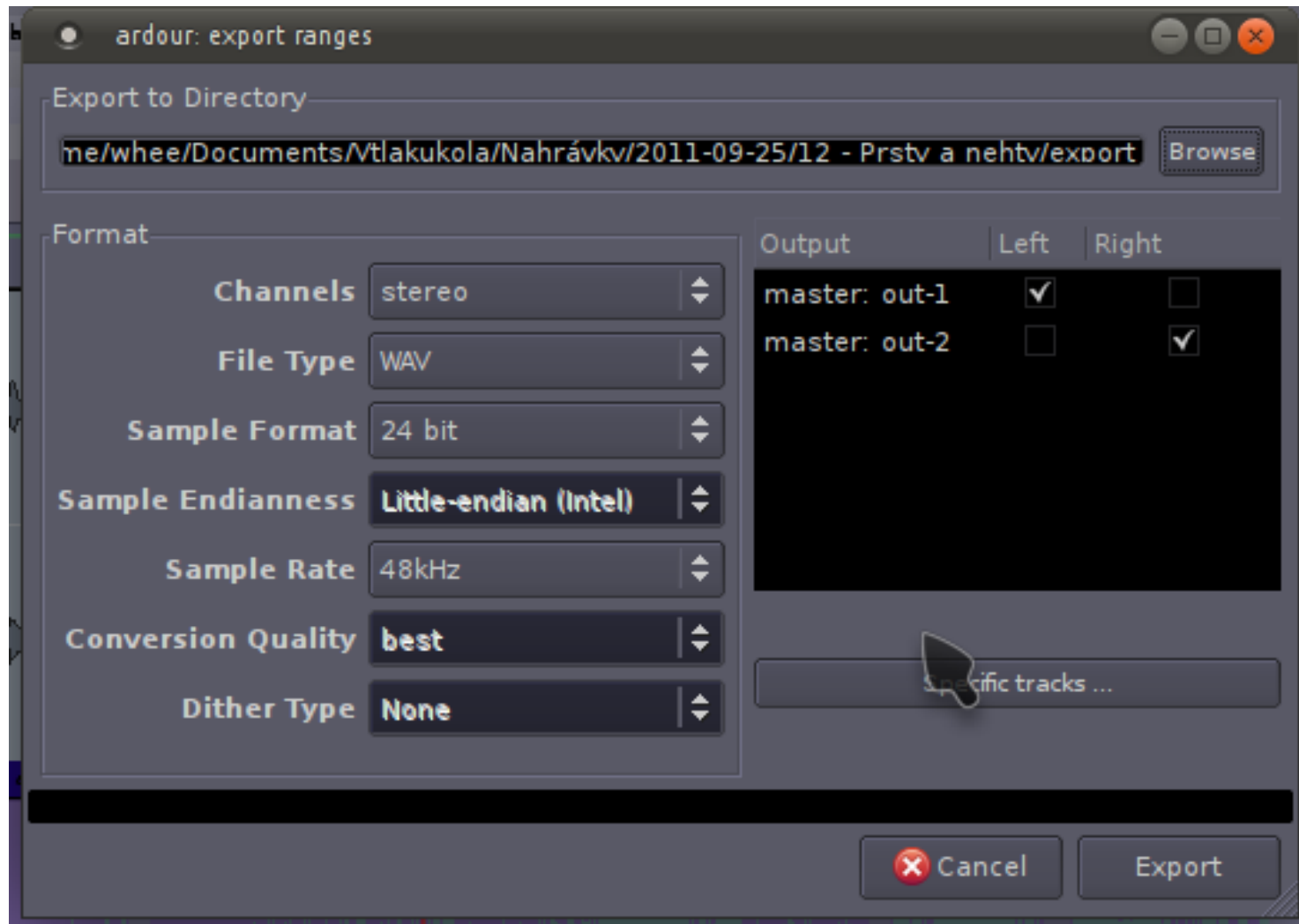
- Presets: [Dropdown menu]
- Save: [Button]
- Bypass: [Button]
- Limit Level [dB]: 0.000 [Manual]
- Output Volume [dB]: 0.000 [Manual]

The limiter window is positioned over the 1760 Hz channel fader. The mixer interface also shows various other controls like "Calf Filter LA SC4" and "Mute Solo" buttons for each channel.

# Export

- Export ranges as individual files
  - Stereo
  - Wav
    - 24 bit
    - 48 kHz

# Export



# Encode

- Convert the exported wavs to MP3



# Encode

```
whee@irrational: ~/Desktop/Vtlakukola/Nahrávky/2011-09-25/12 - Prsty a nehty/export
whee@irrational:~/Desktop/Vtlakukola/Nahrávky/2011-09-25/12 - Prsty a nehty/expo
rt$ for i in *wav; do lame -V0 "$i"& done
```

```
whee@irrational: ~/Desktop/Vtlakukola/Nahrávky/2011-09-25/12 - Prsty a nehty/export
1079/1079 (100%)| 0:01/ 0:01| 0:02/ 0:02| 22.716x| 0:00
32 [ 0]
40 [ 0]
1769/1769 (100%)| 0:01/ 0:01| 0:03/ 0:03| 23.074x| 0:00
32 [ 2] *
40 [ 0]
1500/2548 (59%)| 0:01/ 0:02| 0:03/ 0:06| 22.785x| 0:02
32 [ 26] ***
40 [ 1] *
48 [ 0]
56 [ 0]
64 [ 0]
80 [ 0]
96 [ 0]
112 [ 0]
128 [ 0]
160 [ 4] %
192 [ 165] %%%%%%%%%%%%%%%%%%%%%%%%%*
224 [ 737] %%%%%%%%%%%%%%%%%%%%%%%%%*****
256 [ 277] %%%%%%%%%%%%%%%%%%%%%%%%%*****
320 [ 290] %%%%%%%%%%%%%%%%%%%%%%%%%*
-----00:25-----
kbps LR MS % long switch short %
241.3 88.7 11.3 93.1 3.7 3.3
```

Thank you!

# Contact

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