

Document objectives.

This document describes application purpose, requirements, software architecture and user operations for pvqa_pcap command line utility from Sevana Oü.

Application purpose.

Application purpose is to calculate MOS for RTP streams directly from .pcap files; also it is possible to decode audio to .wav PCM files.

Hardware requirements.

Nothing special. Any desktop / laptop / RPi or another ARM based singleboard computer.

Software requirements.

Software requirements - Linux / macOS / OpenWRT. Installation is simple -just unpack archive with binary and license/configuration files.

Utility does not require database connection and does not use any database software itself.

Operation model.

In other words - how it works ?

pvqa_pcap is utility that parses .pcap files (and .pcapng also), extracts RTP streams, decode them to audio (optionally audio can be saved to files), calculates & prints PVQA MOS value + basic network statistics to console for all found audio streams. For now SIP/SDP parsing is not supported; it is work in progress yet.

Supported codecs are:

- G711
- G722
- G729
- Opus
- AMR narrowband / wideband
- iLBC

Copyright © Sevana Oü, 2018

Sevana Oü
Roosikrantsi tn 2
Tallinna linn, Harju maakond, 10119
Estonia
Phone: +3726170331

- GSM FR / HR

Parameters list.

Configuration of the utility is made from command line. Available parameters are listed in the table below:

<i>Parameter name</i>	<i>Parameter description</i>
--input	Path to input .pcap file. Only single file can be specified.
--save-audio	Decoded audio will be saved to files.
--json-output	Make output in json instead of plain text.
--opus-ptype	Specify Opus codec payload types as rate/channels/ptype string (ex. 16000/1/103).
--amr-nb-ptype	Specify AMR narrowband payload type (default one is 105).
--amr-wb-ptype	Specify AMR wideband payload type (default one is 106).
--help	Show help.

Here is example of command line:

```
./pvqa_pcap --input g711_single_stream.pcap
```

Output is:

```
Using PVQA RTP library build Library version: 1.4.9. Build number: 5569
RTP stream: src: IPv4 200.57.7.204:8000 dst: IPv4 200.57.7.204:8000 ssrc: 3e4ebdd2
Sevana MOS: 4
Network MOS: 4.1
RTP packets: 548
Lost packets: 0
Detector report:
Time; Average; Silent-Call-Detection; Dynamic-Clipping; Amplitude-Clipping; VAD-Clipping; Click; DeadAir-01;
DeadAir-00; SNR;
0.000 : 0.680; 0.016581; 0.066667; 0.000000; 0.000000; 0.000000; 0.017701; 0.000000; 0.000000; 0.000000; Ok
0.680 : 1.360; 0.030303; 0.181818; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok
1.360 : 2.040; 0.037762; 0.173913; 0.000000; 0.000000; 0.000000; 0.002660; 0.000000; 0.000000; 0.050000; Ok
2.040 : 2.720; 0.056306; 0.337838; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok
2.720 : 3.400; 0.051004; 0.300000; 0.000000; 0.000000; 0.000000; 0.006024; 0.000000; 0.000000; 0.000000; Ok
3.400 : 4.080; 0.068841; 0.413043; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok
```

Copyright © Sevana Oü, 2018

Sevana Oü
 Roosikrantsi tn 2
 Tallinna linn, Harju maakond, 10119
 Estonia
 Phone: +3726170331



4.080 : 4.760; 0.054167; 0.325000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok
4.760 : 5.440; 0.030296; 0.178571; 0.000000; 0.000000; 0.000000; 0.003205; 0.000000; 0.000000; 0.000000; Ok
5.440 : 6.120; 0.018336; 0.107143; 0.000000; 0.000000; 0.000000; 0.002874; 0.000000; 0.000000; 0.000000; Ok
6.120 : 6.800; 0.071237; 0.427419; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok
6.800 : 7.480; 0.043135; 0.250000; 0.000000; 0.000000; 0.000000; 0.008810; 0.000000; 0.000000; 0.000000; Ok
7.480 : 8.160; 0.068275; 0.400000; 0.000000; 0.000000; 0.000000; 0.009653; 0.000000; 0.000000; 0.000000; Ok
8.160 : 8.840; 0.070370; 0.422222; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok
8.840 : 9.520; 0.045604; 0.214286; 0.000000; 0.000000; 0.000000; 0.016484; 0.000000; 0.000000; 0.000000; Ok
9.520 : 10.200; 0.020687; 0.107143; 0.000000; 0.000000; 0.000000; 0.016976; 0.000000; 0.000000; 0.000000; Ok
10.200 : 10.880; 0.021505; 0.129032; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; 0.000000; Ok

Copyright © Sevana Oü, 2018

Sevana Oü
Roosikrantsi tn 2
Tallinna linn, Harju maakond, 10119
Estonia
Phone: +3726170331