



Linux Ubuntu 26.04 Manual Pages on command 'pw-top.1'

\$ man pw-top.1

pw-top(1) General Commands Manual pw-top(1)

NAME

pw-top - The PipeWire process viewer

SYNOPSIS

pw-top [options]

DESCRIPTION

The pw-top program provides a dynamic real-time view of the pipewire node and device statistics.

A hierarchical view is shown of Driver nodes and follower nodes. The Driver nodes are actively using a timer to schedule dataflow in the followers. The followers of a driver node are shown below their driver with a + sign (or = for async nodes) in a tree-like representation.

The columns presented are as follows:

S

Node status.

? E = ERROR

? C = CREATING

? S = SUSPENDED

? I = IDLE

? R = RUNNING

? t = RUNNING + transport starting

? T = RUNNING + transport running

ID

The ID of the pipewire node/device, as found in pw-dump and pw-cli

QUANT

The current quantum (for drivers) and the suggested quantum for follower nodes.

The quantum by itself needs to be divided by the RATE column to calculate the duration of a scheduling period in fractions of a second.

For a QUANT of 1024 and a RATE of 48000, the duration of one period in the graph is $1024/48000$ or 21.3 milliseconds.

Follower nodes can have a 0 QUANT field, which means that the node does not have a suggestion for the quantum and thus uses what the driver selected.

The driver will use the lowest quantum of any of the followers. If none of the followers select a quantum, the default quantum in the pipewire configuration file will be used.

The QUANT on the drivers usually translates directly into the number of audio samples processed per processing cycle of the graph.

See also <https://gitlab.freedesktop.org/pipewire/pipewire/-/wikis/FAQ#pipewire-buffering-explained>

RATE

The current rate (for drivers) and the suggested rate for follower nodes.

This is the rate at which the graph processes data and needs to be combined with the QUANT value to derive the duration of a processing cycle in the graph.

Some nodes can have a 0 RATE, which means that they don't have any rate suggestion for the graph. Nodes that suggest a rate can make the graph switch rates if the graph is otherwise idle and the new rate is allowed as a possible graph rate (see the pipewire configuration file).

The RATE on (audio) driver nodes usually also translates directly to the samplerate used by the device. Although some devices might not be able to operate at the given samplerate, in which case resampling will need to be done. The negotiated samplerate with the device and stream can be found in the FORMAT column.

WAIT

The waiting time of a node is the elapsed time between when the node is ready to start processing and when it actually started processing.

For Driver nodes, this is the time between when the node wakes up to start processing the graph and when the driver (and thus also the graph) completes a cycle. The WAIT time for driver is thus the elapsed time processing the graph.

For follower nodes, it is the time spent between being woken up (when all dependencies of the node are satisfied) and when processing starts. The WAIT time for follower nodes is thus mostly caused by context switching.

A value of --- means that the node was not signaled. A value of +++ means that the node was signaled but not awake.

BUSY

The processing time is started when the node starts processing until it completes and wakes up the next nodes in the graph.

A value of --- means that the node was not started. A value of +++ means that the node was started but did not complete.

W/Q

Ratio of WAIT / QUANT.

The W/Q time of the driver node is a good measure of the graph load. The running averages of the driver W/Q ratios are used as the DSP load in other (JACK) tools.

Values of --- and +++ are copied from the WAIT column.

B/Q

Ratio of BUSY / QUANT

This is a good measure of the load of a particular driver or follower node.

Values of --- and +++ are copied from the BUSY column.

ERR

Total of Xruns and Errors

Xruns for drivers are when the graph did not complete a cycle. This can be because a node in the graph also has an Xrun. It can also be caused when scheduling delays cause a deadline to be missed, causing a hardware Xrun.

Xruns for followers are incremented when the node started processing but did not complete before the end of the graph cycle deadline.

FORMAT

The format used by the driver node or the stream. This is the hardware format negotiated with the device or stream.

If the stream of driver has a different rate than the graph, resampling will be done.

For raw audio formats, the layout is <sampleformat> <channels> <samplerate>.

For IEC958 passthrough audio formats, the layout is IEC958 <codec> <samplerate>.

For DSD formats, the layout is <dsd-rate> <channels>.

For Video formats, the layout is <pixelformat> <width>x<height>.

NAME

Name assigned to the device/node, as found in pw-dump node.name

Names are prefixed by +/*=* when they are linked to a driver (entry above with no +/=)

COMMANDS

The following keys can be used in the interactive mode:

q

Quit

c

Clear the ERR counters. This does not clear the counters globally, it will only reset the counters in this instance of pw-top.

OPTIONS

-h | --help

Show help.

-b | --batch-mode

Run in non-interactive batch mode, similar to top's batch mode.

-n | --iterations=NUMBER

Exit after NUMBER of batch iterations. Only used in batch mode.

-r | --remote=NAME

The name the remote instance to monitor. If left unspecified, a connection is made to the default PipeWire instance.

-V | --version

Show version information.

AUTHORS

The PipeWire Developers <<https://gitlab.freedesktop.org/pipewire/pipewire/issues>>; PipeWire is available from <<https://pipewire.org>>

SEE ALSO

pipewire(1), pw-dump(1), pw-cli(1), pw-profiler(1)

PipeWire

1.6.2

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