NAME

hwloc-ps − List currently-running processes or threads that are bound

SYNOPSIS

hwloc-ps [*options*]

OPTIONS

−a List all processes, even those that are not bound to any specific part of the machine.

−−pid <pid>
Only show process of PID <*pid*>, even if it is not bound to any specific part of the machine.

−−name <name>
Only show processes whose name contains <*name*>, even if they are not bound to any specific part of the machine. This is not supported on all operating systems.

−−uid <uid>
Only show processes of the user whose UID is <*uid*>, or processes of all users if *all* is given. By default, only processes of the current user are displayed. This is currently only supported on Linux.

−p −−physical
Report OS/physical indexes instead of logical indexes

−l −−logical
Report logical indexes instead of physical/OS indexes (default)

−c −−cpuset
Show process bindings as cpusets instead of objects.

−t −−threads
Show threads inside processes. If **−a** is given as well, list all threads within each process. Otherwise, show all threads inside each process where at least one thread is bound. This is currently only supported on Linux.

−−single−ancestor
When the object is bound to different objects, report their common ancestor (even if it may be larger than the actual binding).

−e −−get−last−cpu−location
Report the last processors where the process/thread ran. Note that the result may already be outdated when reported since the operating system may move the tasks to other processors at any time according to the binding.

−−disallowed
Include objects disallowed by administrative limitations.

−−pid−cmd <cmd>
Append the output of the given command to each PID line. For each displayed process ID, execute the command <*cmd*> <*pid*> and append **the first line** of its output to the regular hwloc-ps line.

−−pid−cmd env=<name>
On Linux, try to read the value of environment variable *name* in each process and display it at the end of the line.

−−pid−cmd mpirank
On Linux, try to find the process MPI rank (by querying some widespread environment variables) and display it at the end of the line.

−−json−server
Run the tool as a JSON server that waits for other process' requests on a port and sends back binding information. See contrib/hwloc-ps.www/ for details.

−−json−port <port>
Use the given port number instead of the default 8888.

−v −−verbose
Increase verbosity of the JSON server.

−−short−name
Show only the process short name instead of the path.

−−version Report version and exit.

−h −−help Display help message and exit.

DESCRIPTION

By default, hwloc-ps lists only those currently-running processes that are bound. If **-t** is given, processes that are not bound but contain at least one bound thread are also displayed, as well as all their threads.

hwloc-ps displays process identifier, command-line and binding. The binding may be reported as objects or cpusets.

By default, process bindings are restricted to the currently available topology. If some processes are bound to processors that are not available to the current process, they are ignored unless **−−disallowed** is given.

The output is a plain list. If you wish to annotate the hierarchical topology with processes so as to see how they are actual distributed on the machine, you might want to use lstopo --ps instead (which also only shows processes that are bound).

The *-a* switch can be used to show *all* processes, if desired.

EXAMPLES

If a process is bound, it appears in the default output:

```
$ hwloc-ps
4759  Core:0            myprogram
```

If a process is bound on two cores of a larger package, the output will show these cores. Option −−single−ancestor will rather return the package even if it is actually larger than the binding here (the process is not bound to Core:0 of Package:0):

```
$ hwloc-ps
4863      Core:1 Core:2   myprogram
$ hwloc-ps --single-ancestor
4863      Package:0       myprogram
```

If a process is not bound but 3 of his 4 threads are bound, it only appears in the thread-aware output (or if explicitly selected):

```
$ hwloc-ps

$ hwloc-ps -t
4759  Machine:0                 myprogram
 4759 Machine:0
 4761 PU:0
 4762 PU:2
 4765 PU:1

$ hwloc-ps --pid 4759
4759  Machine:0                 myprogram
```

On Linux, hwloc-ps may also display some process specific environment variable at the end of the line.

This is for instance useful for identify MPI ranks among processes:

```
$ hwloc-ps --pid-cmd env=OMPI_COMM_WORLD_RANK
29093 PU:0    myprogram    OMPI_COMM_WORLD_RANK=0
29094 PU:2    myprogram    OMPI_COMM_WORLD_RANK=1
29095 PU:1    myprogram    OMPI_COMM_WORLD_RANK=2
29096 PU:3    myprogram    OMPI_COMM_WORLD_RANK=3
```

Some widespread MPI specific environment variables (OMPI_COMM_WORLD_RANK, PMIX_RANK, PMI_RANK and SLURM_PROCID) are actually directly recognized by hwloc-ps when requesting the *mpirank* command:

```
$ hwloc-ps --pid-cmd mpirank
29093 PU:0    myprogram    PMIX_RANK=0
29094 PU:2    myprogram    PMIX_RANK=1
29095 PU:1    myprogram    PMIX_RANK=2
29096 PU:3    myprogram    PMIX_RANK=3
```

Beside reading environment variables, hwloc-ps may also append the output of a custom program. Again, for reading the Open MPI process rank:

```
$ hwloc-ps --pid-cmd myscript
29093 PU:0    myprogram    OMPI_COMM_WORLD_RANK=0
29094 PU:2    myprogram    OMPI_COMM_WORLD_RANK=1
29095 PU:1    myprogram    OMPI_COMM_WORLD_RANK=2
29096 PU:3    myprogram    OMPI_COMM_WORLD_RANK=3
```

where **myscript** is a shell script doing:

```
#!/bin/sh
cat /proc/$1/environ 2>/dev/null | xargs --null --max-args=1 echo | grep OMPI_COMM_WORLD_RANK
```

SEE ALSO

hwloc(7), lstopo(1), hwloc-calc(1), hwloc-distrib(1), and hwloc-ps.www/README