
NAME

sem - semaphore for executing shell command lines in parallel

SYNOPSIS

sem [--fg] [--id <id>] [--semaphorettimeout <secs>] [-j <num>] [--wait] *command*

DESCRIPTION

GNU **sem** is an alias for GNU **parallel --semaphore**.

It works as a tool for executing shell commands in parallel. GNU **sem** acts as a counting semaphore. When GNU **sem** is called with *command* it will start the command in the background. When *num* number of commands are running in the background, GNU **sem** will wait for one of these to complete before starting another command.

Before looking at the options you may want to check out the examples after the list of options. That will give you an idea of what GNU **sem** is capable of.

OPTIONS

command

Command to execute. The command may be followed by arguments for the command.

--bg

Run command in background thus GNU **parallel** will not wait for completion of the command before exiting. This is the default.

See also: **--fg**

-j N

Run up to N commands in parallel. Default is 1 thus acting like a mutex.

--jobs N

-j N

--max-procs N

-P N

Run up to N commands in parallel. Default is 1 thus acting like a mutex.

--jobs +N

-j +N

--max-procs +N

-P +N

Add N to the number of CPU cores. Run up to this many jobs in parallel. For compute intensive jobs **-j +0** is useful as it will run number-of-cpu-cores jobs simultaneously.

--jobs -N

-j -N

--max-procs -N

-P -N

Subtract N from the number of CPU cores. Run up to this many jobs in parallel. If the evaluated number is less than 1 then 1 will be used. See also

--use-cpus-instead-of-cores.

--jobs N%

-j N%

--max-procs *N%*

-P *N%*

Multiply *N%* with the number of CPU cores. Run up to this many jobs in parallel. If the evaluated number is less than 1 then 1 will be used. See also **--use-cpus-instead-of-cores**.

--jobs *procfile*

-j *procfile*

--max-procs *procfile*

-P *procfile*

Read parameter from file. Use the content of *procfile* as parameter for **-j**. E.g. *procfile* could contain the string 100% or +2 or 10.

--semaphorename *name*

--id *name*

Use **name** as the name of the semaphore. Default is the name of the controlling tty (output from **tty**).

The default normally works as expected when used interactively, but when used in a script *name* should be set. *\$\$* or *my_task_name* are often a good value.

The semaphore is stored in *~/.parallel/semaphores/*

--fg

Do not put command in background.

--semaphoretimeout *secs* (alpha testing)

--st *secs* (alpha testing)

If *secs* > 0: If the semaphore is not released within *secs* seconds, take it anyway.

If *secs* < 0: If the semaphore is not released within *secs* seconds, exit.

--wait

-w

Wait for all commands to complete.

EXAMPLE: Gzipping *.log

Run one gzip process per CPU core. Block until a CPU core becomes available.

```
for i in *.log ; do
    echo $i
    sem -j+0 gzip $i ";" echo done
done
sem --wait
```

EXAMPLE: Protecting pod2html from itself

pod2html creates two files: pod2htmd.tmp and pod2htmi.tmp which it does not clean up. It uses these two files for a short time. But if you run multiple pod2html in parallel (e.g. in a Makefile with **make -j**) you need to protect pod2html from running twice at the same time. **sem** running as a mutex will do just that:

```
sem --fg --id pod2html pod2html foo.pod > foo.html
sem --fg --id pod2html rm -f pod2htmd.tmp pod2htmi.tmp
```

BUGS

None known.

REPORTING BUGS

Report bugs to <bug-parallel@gnu.org>.

AUTHOR

Copyright (C) 2010,2011,2012,2013 Ole Tange, <http://ole.tange.dk> and Free Software Foundation, Inc.

LICENSE

Copyright (C) 2010,2011,2012,2013 Free Software Foundation, Inc.

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation; either version 3 of the License, or at your option any later version.

This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.

You should have received a copy of the GNU General Public License along with this program. If not, see <<http://www.gnu.org/licenses/>>.

Documentation license I

Permission is granted to copy, distribute and/or modify this documentation under the terms of the GNU Free Documentation License, Version 1.3 or any later version published by the Free Software Foundation; with no Invariant Sections, with no Front-Cover Texts, and with no Back-Cover Texts. A copy of the license is included in the file fdl.txt.

Documentation license II

You are free:

to Share

to copy, distribute and transmit the work

to Remix

to adapt the work

Under the following conditions:

Attribution

You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).

Share Alike

If you alter, transform, or build upon this work, you may distribute the resulting work only under the same, similar or a compatible license.

With the understanding that:

Waiver

Any of the above conditions can be waived if you get permission from the copyright holder.

Public Domain

Where the work or any of its elements is in the public domain under applicable law, that status is in no way affected by the license.

Other Rights

In no way are any of the following rights affected by the license:

- Your fair dealing or fair use rights, or other applicable copyright exceptions and limitations;
- The author's moral rights;
- Rights other persons may have either in the work itself or in how the work is used, such as publicity or privacy rights.

Notice

For any reuse or distribution, you must make clear to others the license terms of this work.

A copy of the full license is included in the file as cc-by-sa.txt.

DEPENDENCIES

GNU **sem** uses Perl, and the Perl modules Getopt::Long, Symbol, Fcntl.

SEE ALSO

parallel(1)