

CLI

wrf4g is a WRF4G's Command Line Interface (CLI) for managing WRF experiments.

Available commands

Type `--help` option obtain information about all commands:

```
$ wrf4g --help
WRF4G is a framework for the execution and monitoring of the WRF Modelling System
in distributed computing resources. For additional information,
see http://meteo.unican.es/trac/wiki/WRF4G .

Usage: wrf4g [ --version ] [ -h | --help ] [ --dbg ]
        <command> [ <args>... ]

Options:
  -h --help  Show help.
  --version  Show version.
  --dbg      Debug mode.

wrf4g commands are:
  start      Start DRM4G daemon, database and ssh-agent
  stop       Stop  DRM4G daemon, database and ssh-agent
  status     Check DRM4G daemon, database and ssh-agent
  conf       Configure DRM4G daemon, scheduler, database and logger parameters
  exp        Manage WRF4G experiments
  rea        Manage WRF4G realizations
  resource   Manage computing resources
  id         Manage reosource identities
  host       Print information about the hosts
  job        Submit, get status and history and cancel jobs

See 'wrf4g <command> --help' for more information on a specific command.
```

start:

```
Start DRM4G and MySQL daemons and ssh-agent.

Usage:
  wrf4g start [ --dbg ] [ --clear-conf ] [ --disc-jobs ]
             [ --ext-db ] [ --db-port=port ] [ --db-host=hostname ]

Options:
  --dbg          Debug mode.
  --clear-conf   Clear WRF4G's settings stored in .wrf4g directory.
  --disc-jobs    All available jobs on WRF4G will be discarded.
  --ext-db       It will be used an external MySQL database.
  --db-port=port Port number to use for MySQL connection [default: 25000].
  --db-host=hostname Hostname for MySQL connection.
```

stop:

```
Stop DRM4G and MySQL daemons and ssh-agent.

Usage:
  wrf4g stop [ --dbg ]

Options:
```

```
--dbg    Debug mode.
```

status:

Check DRM4G and MySQL daemons and ssh-agent.

Usage:

```
wrf4g status [ --dbg ]
```

Options:

```
--dbg    Debug mode
```

conf:

Configure DRM4G daemon, scheduler, database and logging parameters.

Usage:

```
wrf4g conf ( daemon | sched | logger | database ) [ --dbg ]
```

Options:

```
--dbg    Debug mode
```

exp:

Manage WRF4G experiments.

Usage:

```
wrf4g exp list                [ --pattern=<name> ]
wrf4g exp <name> define       [ --dbg ] [ --force ] [ --from-template=<name> ] [ --dir=<directory> ]
wrf4g exp <name> edit        [ --dbg ]
wrf4g exp <name> create       [ --dbg ] [ --dry-run ] [ --dir=<directory> ]
wrf4g exp <name> update       [ --dbg ] [ --dry-run ]
wrf4g exp <name> submit       [ --dbg ] [ --dry-run ] [ --priority=<value> ] [ --pattern=<name> ] [ --rea-state=<state> ]
wrf4g exp <name> status       [ --dbg ] [ --pattern=<name> ] [ --rea-state=<state> ] [ --delay=<seconds> ]
wrf4g exp <name> cancel       [ --dbg ] [ --dry-run ] [ --pattern=<name> ] [ --rea-state=<state> ] [ --hard ]
wrf4g exp <name> set-priority [ --dbg ] [ --dry-run ] [ --pattern=<name> ] <priority>
wrf4g exp <name> delete       [ --dbg ] [ --dry-run ]
```

Options:

```
--dbg                Debug mode.
-n --dry-run          Dry run.
-f --force            Force to remove if it exists.
-P --priority=<value> Fix-priority for scheduling [default: 0].
-p --pattern=<name>   Pattern to find experiments and realizations.
-s --rea-state=<state> Select only realizations in the indicated state. Available states :
                    PREPARED, SUBMITTED, RUNNING, PENDING, FAILED and FINISHED
-t --from-template=<name> Experiment template, available templates are default, single, physics.
-d --dir=<directory>  Directory to create or start an experiment [default: ./].
--delay=<seconds>    Refresh experiment information every delay seconds.
--rerun              Force to run although this realization or experiment has finished.
--hard               Remove jobs from without synchronizing.
```

Commands:

```
list                Show all the experiments available.
define              Create the files needed to define a WRF4G experiment.
edit                Edit experiment.wrf4g file.
create              Given experiment.wrf4g file, prepare the experiment creating
                    the realizations and chunks needed.
update              Update the experiment configuration.
submit              Submit the experiment.
```

```

status          Check the status of realizations and chunks showing computing resources,
                job identifier and exit codes (SEE EXIT CODES)
cancel          Cancel the active realizations by killing their jobs.
set-priority    Change the scheduling priority of any job related to a realization.
                The priority must be in range [0,20], and the default value is 0.
                When a job gets a priority of 20, it becomes an urgent job. This job
                is dispatched as soon as possible passing all the scheduling policies.
delete         Remove the experiment from the database.

```

EXIT CODES

```

1  : Error creating directory to simulate
2  : Error creating log directory
3  : Error copying apps
4  : Error app type does not exist
5  : Error executing source script
6  : Job already executed
7  : Error copying restart files
8  : There is a mismatch in the restart date
9  : Error copying namelist.wps
10 : Error downloading WPS files
11 : Error copying boundaries
12 : Error modifying namelist
13 : Error executing PREPROCESSOR
14 : Error linking GRIB files
15 : Error executing UNGRIB
16 : Error executing METGRID
17 : Error executing REAL
18 : Error uploading WPS files
19 : Error executing WRF
20 : Error executing POSTPROCESSOR
21 : Error copying output file
22 : Job killed by the system
255: Unexpected error

```

rea:

Manage WRF4G realizations.

Usage:

```

wrf4g rea <name> submit      [ --dbg ] [ --dry-run ] [ --priority=<value> ] [ --rerun ] [ <first_ch> [ <last_ch> ] ]
wrf4g rea <name> status      [ --dbg ] [ --delay=<seconds> ]
wrf4g rea <name> log         [ --dbg ] [ --dir=<directory> ] <chunk_id>
wrf4g rea <name> set-priority [ --dbg ] [ --dry-run ] <priority>
wrf4g rea <name> cancel      [ --dbg ] [ --dry-run ] [ --hard ]

```

Options:

```

--dbg           Debug mode.
-n --dry-run    Dry run.
--rerun        Force to run although the realization has finished.
-P --priority=<value> Fix-priority for scheduling [default: 0].
--delay=<seconds> Refresh experiment information every delay seconds.
-d --dir=<directory> Directory to unpack log files [default: ./].
--hard         Remove jobs from without synchronizing.

```

Commands:

```

submit          Submit the realization.
status          Check the status of a realization showing computing resources,
                job identifier and exit codes (SEE EXIT CODES).
log             Get log files from a chunk.
set-priority    Change the scheduling priority of any job related to the realization.
                The priority must be in range [0,20], and the default value is 0.

```

cancel When a job gets a priority of 20, it becomes an urgent job, and it is dispatched as soon as possible passing all the scheduling policies.
 Cancel the realization by killing its jobs.

EXIT CODES

1 : Error creating directory to simulate
 2 : Error creating log directory
 3 : Error copying apps
 4 : Error app type does not exist
 5 : Error executing source script
 6 : Job already executed
 7 : Error copying restart files
 8 : There is a mismatch in the restart date
 9 : Error copying namelist.wps
 10 : Error downloading WPS files
 11 : Error copying boundaries
 12 : Error modifying namelist
 13 : Error executing PREPROCESSOR
 14 : Error linking GRIB files
 15 : Error executing UNGRIB
 16 : Error executing METGRID
 17 : Error executing REAL
 18 : Error uploading WPS files
 19 : Error executing WRF
 20 : Error executing POSTPROCESSOR
 21 : Error copying output file
 22 : Job killed by the system
 255: Unexpected error

job:

Submit, get status and history and cancel jobs.

Usage:

```
wrf4g job submit [ --dbg ] [ --dep <job_id> ... ] <template>
wrf4g job list [ --dbg ] [ --delay=<seconds> ] [ <job_id> ]
wrf4g job cancel [ --dbg ] [ --hard ] <job_id>
wrf4g job log [ --dbg ] <job_id>
wrf4g job history [ --dbg ] <job_id>
```

Arguments:

```
<job_id>                Job identifier.
<template>             Job template.
```

Options:

```
--dbg                    Debug mode.
--dep=<job_id> ...        Define the job dependency list of the job.
--delay=<seconds>        Refresh experiment information every delay seconds.
--hard                    Remove jobs from without synchronizing.
```

Commands:

```
submit                    Command for submitting jobs.
list                      Monitor jobs previously submitted.
cancel                    Cancel jobs.
log                        Keep track of a job.
history                    Get information about the execution history of a job.
```

Job field information:

```
JID                      Job identification.
DM                        Dispatch Manager state, one of:
                          pend, hold, prol, prew, wrap, epil, canl, stop, migr, done, fail.
```

EM	Execution Manager state: pend, susp, actv, fail, done.
START	The time the job entered the system.
END	The time the job reached a final state (fail or done).
EXEC	Total execution time, includes suspension time in the remote queue system.
XFER	Total file transfer time, includes stage-in and stage-out phases.
EXIT	Job exit code.
TEMPLATE	Filename of the job template used for this job.
HOST	Hostname where the job is being executed.
HID	Host identification.
PROLOG	Total prolog (file stage-in phase) time.
WRAPPER	Total wrapper (execution phase) time.
EPILOG	Total epilog (file stage-out esphase) time.
MIGR	Total migration time.
REASON	The reason why the job left this host.
QUEUE	Queue name.

vcp:

Virtual copy a command to copy files using different protocols.

Usage:

```
wrf4g vcp [ --dbg ] [ --overwrite ] <source> <dest>
```

Arguments:

Options:

```
--dbg          Debug mode.
-o --overwrite If the destination already exists, it will be overwritten.
```

Supported protocols:

```
LFN            lfn:///grid/VO/file
GRIDFTP        gridftp://computer:2812/grid/VO/user/file
RSYNC          rsync://user@computer:34/grid/VO/user/file
SYMBOLIC LINK  ln:/home/user/file
FILE           file:/home/user/file file:/home/user/file2
HTTPS          https://www.meteo.unican.es/work/WRF4G.tar.gz
HTTP           http://www.meteo.unican.es/work/WRF4G.tar.gz
FTP            ftp://www.meteo.unican.es/work/WRF4G.tar.gz
SFTP           sftp://www.meteo.unican.es/work/WRF4G.tar.gz
```

resource:

Manage computing resources on WRF4G.

Usage:

```
wrf4g resource [ --dbg ] [ list | edit | check ]
```

Options:

```
--dbg          Debug mode.
```

Commands:

```
list          Show resources available.
edit          Configure resouces.
check         Check out if configured resources are accessible.
```

host:

Print information about the hosts available on WRF4G.

Usage:

```
wrf4g host [ --dbg ] [ list ] [ <hid> ]
```

Arguments:

```
<hid>      Host identifier.
```

Options:

```
--dbg      Debug mode.
```

Host field information:

```
HID        Host identifier.
ARCH       Architecture.
JOBS(R/T)  Number of jobs: R = running, T = total.
LRMS       Local Resource Management System.
HOSTNAME   Host name.
QUEUENAME  Queue name.
WALLT      Queue wall time.
CPUT       Queue cpu time.
MAXR       Max. running jobs.
MAXQ       Max. queued jobs.
```

id:

Manage identities for resources configuring private/public keys and grid credentials.

Usage:

```
wrf4g id <resource> init  [ --dbg ] [ --lifetime=<hours> ]
wrf4g id <resource> info  [ --dbg ]
wrf4g id <resource> delete [ --dbg ]
```

Options:

```
-l --lifetime=<hours>  Duration of the identity's lifetime [default: 168].
--dbg                  Debug mode.
```

Commands:

```
init                  Create an identity for a while, by default 168 hours
                       (1 week). Use the option --lifetime to modify this
                       value. It adds the configured private key to a ssh-agent
                       and creates a grid proxy using myproxy server.
                       Append the public key to the remote user's
                       ~/.ssh/authorized_keys file (creating the file, and
                       directory, if necessary). It tries to load the public
                       key obtained by appending *.pub to the name of the
                       configured private key file. Alternative the public
                       key can be given by public_key variable.
                       It also configures the user's grid certificate
                       under ~/.globus directory (creating directory,
                       if necessary) if grid_cert variable is defined.

info                  It gives some information about the identity status.

delete                The identity is removed from the ssh-agent and the
                       myproxy server.
```