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Required Software

WRF4G need the following software preinstalled:

- **Python**, version ≥ 2.4 and < 3.0 .
- **MySQLdb**: Ubuntu: `sudo apt-get install MySQL-python`. Centos, RHEL: `yum install MySQL-python`

Platform Notes

WRF4G has been run only in 64bits platforms. Currently has been tested under the following O.S.:

- **Ubuntu 10.04 and 11.04**: No known issues.
- **Centos 5**: No known issues.
- **Debian 6.0**: No known issues.

Installation

Download and unpack the distribution file [?WRF4G.tar.gz](#) to the installation directory, for example your \$HOME directory.

```
cd $install_path (i.e cd $HOME)
wget http://meteo.macc.unican.es/work/WRF4G.tar.gz
tar xzvf WRF4G.tar.gz
```

- Set up the WRF4G user environment. (To avoid typing the export command everytime you want to use WRF4G, it is advisable to copy this line in \$HOME/.bashrc)

```
export WRF4G_LOCATION=$install_path/WRF4G
export GW_LOCATION=$WRF4G_LOCATION/opt/drm4g_gridway-5.7
export PATH=$WRF4G_LOCATION/bin:$GW_LOCATION/bin:$PATH
```

Quickstart Guide

- A video with the main steps can be downloaded from [?here](#)
- Start the WRF4G Framework:

```
wrf4g_framework start
```

- Launch an example in the local machine:

```
cd $WRF4G_LOCATION/experiments/single/testc
wrf4g_submitter.sh
```

- Run `wrf4g_ps` to see the jobs' status

```
valva@sipc18:~/pruebasWRF/WRF4G/experiments/single/testc$ wrf4g_ps
Realization Status  Chunks  Comp.Res  WN  Run.Sta  ext  %
testc      Done    3/3      mycomputer sipc18  Finished  0 100.00
```

- `wrf4g_ps` returns the following information:
 - **Realization**: Realization name. It is taken from the field `experiment_name` in `experiment.wrf4g`.
 - **Status**: It can be take the following values: Prepared, Submitted, Running, Failed and Done).
 - **Chunks [Chunk running/Total Chunks]**: A realization is split into chunks. Each chunk is sent as a job.
 - **Computer resource**: Resource (cluster) where the job is running.
 - **WN**: Computing node where the job is running.
 - **Run.Sta**: Job status in the WN (Downloading data, running ungrib, real, wrf, ...)
 - **ext**: Exit Code. If exit code is different from 0, there has been an error. Error codes are explained in `$WRF4G_LOCATION/lib/bash/wrf4g_exit_codes.sh`

- % : percentage of simulation finished.
- Check the simulation output and log files in \$WRF4G_LOCATION/repository/output

To run a different experiment, you only need to modify the following files according to your needs:

- experiment.wrf4g: Experiment configuration: type of experiment, simulation dates, restarts, physics,...
- resources.wrf4g: With this file the resources used by a WRF experiment are configured: data repository, number of processes for MPI, version of WRF to run,.. By default there is a file that stores a configuration that affects to every experiment (\$WRF4G_LOCATION/etc/resources.wrf4g). If a file with this name (resources.wrf4g) is found in the folder where experiment.wrf4g is stored, this file will be used instead of the application one (\$WRF4G_LOCATION/etc/resources.wrf4g)
- \$WRF4G_LOCATION/etc/framework4g.conf: Database and computing resources configuration. After modifying this file, **wrf4g_framework restart** must be run.

For example, to add a new PBS cluster to run jobs:

First modify the file \$WRF4G_LOCATION/etc/framework4g.conf to add more resources ([?More information about how to add resources](#)):

```
mycomputer      local://localhost?LRMS_TYPE=fork;NODECOUNT=1
ui01            local://localhost?LRMS_TYPE=pbs;QUEUE_NAME=estadistica
```

- Change the following fields in \$WRF4G_LOCATION/etc/resources.wrf4g or copy \$WRF4G_LOCATION/etc/resources.wrf4g where experiment.wrf4g is located:
 - The repository data if the cluster do not access them directly.
 - NP to the number of MPI processes you want to use
 - REQUIREMENTS if you want to choose the resource that will run the experiment. REQUIREMENTS ='HOSTNAME = "*ui01*";'
- Restart the wrf4g_framework: **wrf4g_framework restart**
- Submit the experiment with a different name (change the name in experiment.wrf4g)

```
cd $WRF4G_LOCATION/experiments/single/snd50c
wrf4g_submitter.sh
```

Verifying installation

- List the computing resources available for running jobs.

```
$ ~/wrf4g$ gwhost
HID PRIO OS          ARCH  MHZ  %CPU  MEM(F/T)  DISK(F/T)  N(U/F/T) LRMS  HOSTNAME
0   1   GNU/Linux2.6.32  unkno 1000   0   1822/3270  2139/8662   0/1/1  FORK  mycomputer
```

Problems

If you find any problem, please [?submit us a ticket!!](#)