

How to add Neptuno facilities to WRF4G

WRF4G uses [DRM4G](#) to access to different Distributed Resource Managements (DRM) such as:

- PBS/Torque
- SGE
- FORK
- LoadLeveler
- **SLURM**

In order to add new resources, you need to edit [Computing Resources](#) section in the [framework4g.conf](#) file, which is located under `$HOME/WRF4G/etc` directory. The file has to contain one resource per line with the format:

```
resource_name = attributes
...
resource_name = attributes
```

where:

- **resource_name**: It is the name of the CR.
- **attributes**: They are the static attributes of the CR. The syntax is:

```
<scheme>://<username>@<host:port>?<query>
```

scheme: URL schemes available are "ssh" and "local".

- **ssh**: In order to connect to remote resource via SSH
- **local**: In order to use a local resource
- **username**: user name on the resource
- **host**: host name
- **port**: host port. By DEFAULT it is 22

query: contains additional information of computing resources. The query string syntax is:

- `key1=value1;key2=value2;key3=value3`

The keys available are:

- **LRMS_TYPE**(mandatory): Type of LRMS system (**neptuno**)
- **NODECOUNT**(mandatory): Maximum number of job slots for a resource.
- **SSH_KEY_FILE**(optional): It defines the key file for "ssh" connection. By DEFAULT it is `~/.ssh/id_rsa`.
- **TEMP_DIR**(optional): Temporary directory on the resource to store data. By DEFAULT it is `$HOME`. `TEMP_DIR` path must be absolute.
- **RUN_DIR**(optional): Temporary directory used to run WRF Model on the resource. By DEFAULT it is `$HOME`. `RUN_DIR` path must be absolute.

Example of configuration:

```
neptuno = ssh://userid@193.144.213.182?LRMS_TYPE=neptuno;NODECOUNT=1500
```

If you want to configure Neptuno facilities using **ssh** protocol, you need to set up SSH login without *password* (see [Appendix B](#)) between **MACC cluster** and **Neptuno**, and **vice-versa**.

After modifying `ComputingResources` section, WRF4G takes few seconds in order to update the changes

In addition, you need to update `WRF4G_BASEPATH`, `WRF4G_DOMAINPATH`, `WRF4G_INPUT` and `WRF4G_APPS` variables, which are defined in [resources.wrf4g](#) file. Due to the fact that these variables may point to other machines. See [running environment](#) for more information.

Example of configuration:

```
WRF4G_BASEPATH="rsync://userid_macc@193.144.213.182/home/users/user_neptuno/output"
WRF4G_DOMAINPATH="rsync://userid_macc@193.144.184.31/work/gihc/repository/domains"
WRF4G_INPUT="rsync://userid_macc@193.144.184.31/work/gihc/repository/input"
WRF4G_APPS="rsync://userid_macc@193.144.184.31/work/gihc/repository/apps"
```

Neptuno Running Options

NP

Number of processors requested in a parallel job. Note that it has to be enough resources to run. For example, if we only configure 1 processor (NODECOUNT=1) of a computer in framework4g.conf, WRF4G can not submit an experiment demanding NP=2.

If you are going to use PBS/Torque or SLURM resources, it is also highly recommendable to use PPN variable in order to indicate the number of processors available per node. For example, NP = 4 and REQUIREMENTS = 'PPN = 4' which means 4 processors on one node

REQUIREMENTS

Requirements asked to the CRs where the experiment is going to run (for more information see advanced configuration). For example, REQUIREMENTS = 'HOSTNAME = "mycomputer"'.

ENVIRONMENT

Experiment environment variables are configuration options for the jobs (for more information see advanced configuration). For example, ENVIRONMENT = 'WALLTIME = 01:00:00' (one hour of max walltime).