Working on TGCC

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■http://www-hpc.cea.fr/en/complexe/tgcc.htm

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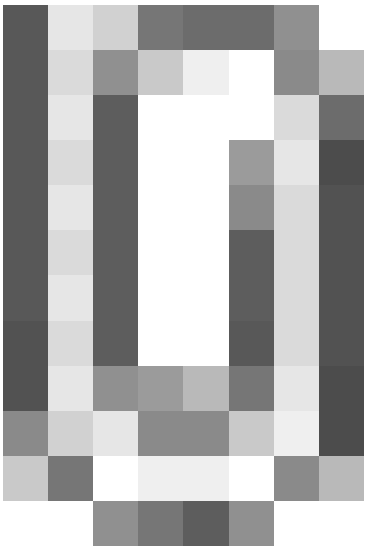

3. How to install your environment on TGCC

- More information on the open-access website: ■http://www-hpc.cea.fr/en/complexe/tgcc.htm
  Online access to the machines' users manual (you will need a TGCC login and password): ■https://www-tgcc.ccc.cea.fr/ .
  - Online access to technical issues and news : ■https://www-tgcc.ccc.cea.fr/en/news/index.html
- TGCC's machine is Irène (Bull Skylake)
- Note: the **$HOME/.snapshot** directory contains hourly, daily, and weekly backups of your $HOME files.

It is important to take the time to install a comfortable and efficient environment.

We suggest the user to use the igcmg environment (in bash) with a copy of the bashrc in his HOME.

```
ryyy999@irene: cp ~igcmg/MachineEnvironment/irene/bashrc  ~/.bashrc
```

Additionnaly, you can copy and complete the example of bashrc_irene file to create your favorite environment (alias, module load ...). Don't forget to use it in .bashrc.

```
ryyy999@irene: cp ~igcmg/MachineEnvironment/irene/bashrc_irene ~/.bashrc_irene
ryyy999@irene: vi  ~/.bashrc  # to point your own .bashrc_irene
```

WARNING : if you have a ~/.profile file, it's better to remove it to avoid any problem during the execution of a simulation with libIGCM

In this environment is specified:

the path to the compiler tool `fcm` and to the `rebuild` tool which recombines output files from a parallel model:

```
export PATH=$(ccc_home -u igcmg)/Tools/fcm/bin:$(ccc_home -u igcmg)/Tools/irene/bin:$PATH
```

- the load of modules giving access to computing or post processing libraries and tools needed on our platform (done in `ccc_home -u igcmg`/MachineEnvironment/irene/env_atlas_irene).

4. Project and computing needs

- To find out the computing time used by the projects you are involved in (daily update):

```
ryyy999@irene: ccc_myproject
```

- When you will create a job you need to specify in the header the project from which you will use computing time:

```
#MSUB -A genxxx
```

5. About file systems

5.1. Quotas

To check the available and used storage capacities of `HOME`, `CCCSCRATCHDIR`, `CCCWORKDIR` and `CCCSTOREDIR`:

```
ryyy999@irene: ccc_quota
```

On the Irene machine this command will also return the space used by scratch (a specificity of the Irene machine).

This command has been improved and gives a lot of information : quotas and usage of shared space, type and duration of exception.

5.2. CCCSCRATCHDIR

The `$CCCSCRATCHDIR`directory is often cleaned and only files that are less than 40 days are stored.

5.3. CCCWORKDIR

The `$CCCWORKDIR` directory corresponds to the `$WORKDIR` directory on Irene. It is large but its content is not backed up. Don't forget to do a backup (tar) for important directories.

5.4. CCCSTOREDIR

To manipulate the files in /ccc/store a few commands are useful:

```
# Demigrate a list of files on CCCSTOREDIR, see also "ccc_hsm -h"
ccc_hsm get $CCCSTOREDIR/FILE1 $CCCSTOREDIR/FILE2 ...

# Demigrate recursively the files from a CCCSTOREDIR directory, see also "ccc_hsm -h"
ccc_hsm get -r $CCCSTOREDIR/DIRECTORY

# Find out the used space on CCCSTOREDIR
cd $CCCSTOREDIR ; find . -printf "%y %s %p \n"  | \
    awk '{ SUM+=$2 } END {print "SUM " SUM/1000000 " Mo " SUM/1000000000 " Go" }'

# or use --apparent-size with du :
du -sh --apparent-size
```

5.5. ccc_home command to know directory complete pathname

ccc_home could help you to find directory complete pathname for an other user or for you .

```
>ccc_home -h
ccc_home: Print the path of a user directory (default: home directory).
usage: ccc_home [ -H | -s | -t | -W | -x | -A | -a | -n] [-u user] [-d datadir]
               [-h, --help]

-H, --home            :  (default) print the home directory path ($HOME)
-s, -t, --cccscratch  :  print the CCC scratch directory path   ($CCCSCRATCHDIR)
```

```
-X, --ccchome         :  print the CCC nfs directory path ($CCCHOMEDIR)
-W, --cccwork         :  print the CCC work directory path  ($CCCWORKDIR)
-A, --cccstore        :  print the CCC store directory path ($CCCSTOREDIR)
-a, --all             :  print all paths
-u user               :  show paths for the specified user instead of the current user
-d datadir            :  show paths for the specified datadir
-n, --no-env          :  do not load user env to report paths
-h, --help            :  display this help and exit

> ccc_home -A -u ryyy999
/ccc/store/cont003/genXXX/ryyy999
```

5.6. Storage spaces available from ESGF/THREDDS

To store a file for the first time on esgf/thredds, you must ask for esgf/thredds write access by mail to the TGCC hotline access : `hotline.tgcc@cea.fr`. On Irene, files available on $CCCWORKDIR are candidates to be available from ESGF/THREDDS :

- use `thredds_cp`command
- files will be hardlinked here : /ccc/work/cont003/thredds/login

From a server web, files are available : ■https://vesg.ipsl.upmc.fr/thredds/catalog/work_thredds/catalog.html

More information about output data available from ESGF/THREDDS here.

6. Specific directories for projects

3 different spaces are available for each project : HOMEDIR, WORKDIR, SCRATCHDIR, STOREDIR. More information here.

7. Specific file systems for CMIP6

For gencmip6 project, and only for it, 3 more file systems and 4 more directories are available. Phase 1 have been installed in april 2016. Phase 2 and Phase 3 will come later in 2017 and 2018.

To use them, in interactive mode, you have to do : `module load datadir/gencmip6`.

Since libIGCM_v2.8.1, if you set your project to gencmip6/devcmip6, they are automatically used in place of usual HOME, CCCWORKDIR, CCCSTOREDIR and CCCSCRATCHDIR : `module switch dfldatadir dfldatadir/gencmip6` called from libIGCM.

7.1. GENCMIP6_HOME

- 50 TB
- gencmip6 group quota
- dedicated to sources and scripts
- strongly recommanded for CMIP6 sources and simulations scripts
- regular snapshot are taken by the system. See $GENCMIP6_HOME/.snapshot Attention : you need an interactive connexion on a compute node :

```
> ccc_mprun -s -p standard -A devcmip6 -T 1800 -Q test
> cd
> . .bash_login
> cd .snapshot
> ls -l
total 44
drwxr-sr-x. 13 xxx gencmip6 4096 Dec 17 09:47 daily.2017-02-07_0010
drwxr-sr-x. 13 xxx gencmip6 4096 Dec 17 09:47 daily.2017-02-08_0010
...
```

7.2. GENCMIP6_CCCWORKDIR

- 2.5 PB in phase 1, 5 PB in phase 2
- gencmip6 group quota
- dedicated to small output files (ATLAS, MONITORING)
- available through ■https://esgf.extra.cea.fr following work_thredds
- no backup

7.3. GENCMIP6_CCCSTOREDIR

- 2.5 PB in phase 1, 5 PB in phase 2 and 14 PB on tape in phase 3
- gencmip6 group quota
- dedicated to large (more than 1GB) output files (Output, Analyse)
- available through ■https://esgf.extra.cea.fr following store_thredds
- linked with HSM (tapes)

7.4. GENCMIP6_SCRATCHDIR

- same file system as GENCMIP6_CCCWORKDIR
- used during batch execution (RUN_DIR) and erased at the end of the execution
- regular cleaning after 40 days

8. End-of-job messages

To receive the end-of-job messages sent by the job itself: end of simulation, error,... you must specify your address in the `$HOME/.forward` file.

News in June 2018 : On Irene you have to duplicate a .forward for each project HOME.

9. Simulation outputs

Final simulation outputs are stored in `$CCCSTOREDIR/IGCM_OUT` and on `$CCCWORKDIR/IGCM_OUT` regarding the `ATLAS` and `MONITORING` directories.

The esgf/thredd server on TGCC are available via:

- ■https://vesg.ipsl.upmc.fr/thredds/catalog/catalog.html, click on store, click on your login or directly : ■https://vesg.ipsl.upmc.fr/thredds/catalog/store/YOURLOGIN/catalog.html and ATM (or an other component) for `Analyse` files (TS or SE)
- ■https://vesg.ipsl.upmc.fr/thredds/catalog/catalog.html, click on work, click on your login or directly : ■https://vesg.ipsl.upmc.fr/thredds/catalog/work/YOURLOGIN/catalog.html for `ATLAS` and `MONITORING`

10. About password

ccc_password_expiration helps you to know expiration date of your password. Currently password have to be changed one time per year.

```
 > ccc_password_expiration
Password for xxxxx@USERS-CCRT.CCC.CEA.FR: PPPPPPPPPP
Your password will expire in 70 days on Fri Nov 22 08:42:59 2013
> ccc_password_expiration -h
Usage: ccc_password_expiration [username[@realm]]
```

11. The TGCC's machines

11.1. Irene

See the documentation for Irene.