

Working on the Irène machine

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Documentation under development

1. On-line users manual

- <https://www-tgcc.ccc.cea.fr/docs/irene.info.pdf> (you will need a TGCC login and password)

2. Job manager commands

- `ccc_msub job` -> submit a job
- `ccc_mdel ID` -> kill the job with the specified ID number
- `ccc_mstat -u login` -> display all jobs submitted by login
- `ccc_mpp` -> display all jobs submitted on the machine. `ccc_mpp -n` to avoid colors.
- `ccc_mpp -u $(whoami)` -> display your jobs.

3. Irene environment and files system

- Before working on Irène you need to prepare your environment

```
cd
cp /ccc/cont003/home/igcmg/igcmg/MachineEnvironment/irene/bashrc .bashrc
cp /ccc/cont003/home/igcmg/igcmg/MachineEnvironment/irene/bashrc_irene .bashrc_irene

after login or source .bashrc_irene:
module list
Currently Loaded Modulefiles:
1) ccc                                8) fortran/intel/17.0.4.196          15) feature/openmpi/mpi_compiler/intel(default)
2) datadir/drf                      9) feature/mkl/lp64                 16) feature/openmpi/net/mxm(default)
3) datadir/own(default)             10) feature/mkl/sequential          17) .tuning/openmpi/2.0(default)
4) dfldatadir/own(default)          11) mkl/17.0.4.196                 18) flavor/buildmpi/openmpi/2.0
5) licsrv/intel                     12) flavor/buildcompiler/intel/17(default) 19) mpi/openmpi/2.0.2
6) c++/intel/17.0.4.196             13) intel/17.0.4.196              20) flavor/hdf5/parallel
7) c/intel/17.0.4.196              14) hwloc/1.11.3(default)          21) netcdf-c/4.6.0(default)
```

--> Be carefull this environment can be update during next weeks according to TGCC recommendations

- On Irene you have a storidir, a workdir, a scratchdir by project. For example if you are working with project gen2201 and gen2212 you will have all these directories

```
/ccc/work/cont003/gen2201/login
/ccc/work/cont003/gen2212/login

/ccc/store/cont003/gen2201/login
/ccc/store/cont003/gen2212/login

/ccc/scratch/cont003/gen2201/login
/ccc/scratch/cont003/gen2212/login
```

Before working you need to know with which project you are, and load its environment (You can put this command in your `.bashrc_irene` file)

```
module load datadir/gen2201
```

You will have new environment variables to access working directories

```

GEN2201_ALL_CCCSCRATCHDIR=/ccc/scratch/cont003/gen2201/gen2201
GEN2201_CCCWORKDIR=/ccc/work/cont003/gen2201/login
GEN2201_ALL_HOME=/ccc/cont003/home/gen2201/gen2201
GEN2201_CCCSTOREDIR=/ccc/store/cont003/gen2201/login
GEN2201_CCCSCRATCHDIR=/ccc/scratch/cont003/gen2201/login
GEN2201_ALL_CCCWORKDIR=/ccc/work/cont003/gen2201/gen2201
GEN2201_HOME=/ccc/cont003/home/gen2201/login
GEN2201_ALL_CCCSTOREDIR=/ccc/store/cont003/gen2201/gen2201

```

If your previous work and cie directories were on /dsm/ directory, you will find your data in a specific new project file system "dsmipsl". We recommend to copy your data on your gencl project file system

- Default compiler is intel/17.0.6.256 with default library MPI mpi/openmpi/2.0.4. **WARNING** : there is a bug in the compiler intel-17.0.4.196
- Computing nodes: the nodes of partition skylake have 48 cores each, which is 3 times more than the computing nodes from the standard partition of Curie;
- Filesystem accesses MUST be explicit: from the login nodes, you will see the WORK, SCRATCH, STORE spaces as you probably are used to. However, when submitting any job through ccc_msub or ccc_mprun, you must specify -m work, -m scratch, -m store, or combine them like in -m work,scratch; this constraint has the advantage that your jobs won't be suspended if a filesystem you don't need becomes unavailable;
- Compute nodes are diskless, meaning that /tmp is not hosted on a local hard drive anymore, but on system memory instead. It offers up to 16 GB (compared to 64 GB on Curie). Please note that any data written to it reduces the size of the memory that remains available for computations. In our case it change the number of core use for post-treatment like pack_output.
- The default time limit for a job submission is 2hours (7200s) contrary to 24h (86400s) on curie
- **The SCRATCH space purge policy has been simplified: any file that stays 60 days without being read or modified will be purged**, as well as any directory that remains empty for 30 days; the purge policy does not depend on disk occupation threshold any longer

4. How working with last LMDZOR_v6 or last LMDZORINCA_v6 ?

- install your environment (see below)
- XIOS : After download :update arch XIOS for IRENE

```

cd modipsl/modeles/XIOS/arch
svn update

```

- then you can work as on curie

5. Use an old configuration from Curie

- you need to update files AA_make.gdef and w_h_i in util directory

```

cd modipsl/util
svn update AA_make.gdef
svn update w_h_i

```

--> if you receive an svn error with this specific command, extract a new modipsl and copy these two files from it

- you need to change your version of libIGCM

```

cd modipsl
mv libIGCM libIGCM_curie
svn co svn://forge.ipsl.jussieu.fr/libigcm/svn/trunk/libIGCM

```

- you need to download arch files for IRENE for LMDZ, ORCHIDEE, INCA

```

cd modipsl
mkdir modele_arch
cd modele_arch
svn co svn://forge.ipsl.jussieu.fr/orchidee/trunk/ORCHIDEE/arch/ ORCHIDEE_arch

```

```
svn co http://forge.ipsl.jussieu.fr/inca/svn/trunk/INCA5/arch/ INCA_arch
svn co http://svn.lmd.jussieu.fr/LMDZ/LMDZ6/branches/IPSLCM6.0.15/arch/ LMDZ_arch
svn co http://forge.ipsl.jussieu.fr/ioserver/svn/XIOS/branches/xios-2.5/arch/ XIOS_arch
mv ORCHIDEE_arch/*IRENE* ../modeles/ORCHIDEE/arch/.
mv INCA_arch/*IRENE* ../modeles/INCA/arch/.
mv LMDZ_arch/*IRENE* ../modeles/LMDZ/arch/.
mv XIOS_arch/*IRENE* ../modeles/XIOS/arch/.
```

- if you are working with INCA you need a file pre_proc_X64_Irene.x

```
cd modipsl/modeles/INCA
cp pre_proc_X64_CURIE.x pre_proc_X64_Irene.x
```

- create a new makefile

```
cd modipsl/config/**
mv Makefile Makefile_curie
../../util/ins_make
gmake clean
```

- now you can work as on Curie