Diva Lecce 2016

Installation and tests

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Download and extract the code

Create directory and download Diva archive

```
[swatelet@gher ~]$ mkdir DIVA
[swatelet@gher ~]$ cd DIVA/
[swatelet@gher DIVA]$ wget http://modb.oce.ulg.ac.be/
    mediawiki/upload/DIVA/releases/diva-4.6.11.tgz
```

Extract the archive and go in the main directory:

```
[swatelet@gher DIVA]$ tar -xzf diva-4.6.11.tgz
[swatelet@gher DIVA]$ cd diva-4.6.11/
```

If you already have a running older version, retrieve your `divacompile_options` and put it in place of the default in DIVA3D/src/Fortran/

Compilation

Go to source directory

```
swatelet@gher ~/DIVA/diva-4.6.11 $ cd DIVA3D/src/Fortran
    /
```

Run divacompilall ☕

```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/src/Fortran $ ./
    divacompileall
```

You should get:

```
You have compiled 112 programs
out of 112
Writing log file...
--> written in compilation.log
...
```

Otherwise: edit `divacompile_options`

Alternative installation: virtual box

- Image `DIVA_Clone.tgz` on USB stick (Sylvain)
- Installation description `http://modb.oce.ulg.ac.be/mediawiki/upload/DIVA/notes/virtualbox.pdf`

1. Installation of virtualbox (4.3.12 or later)
2. Extract virtual machine `DIVA_Clone/vdi` (time consuming unzip)
3. Configuration of VirtualBox (New, Name : DIVA, Type : Linux Ubuntu 32, select 2500 Mb RAM, search existing hard drive to locate `DIVA_CLONE.vdi` and create virtual machine)
4. Ready to run tests as divauser with pw divauser in a terminal of the DIVA virtual machine

Mandatory softwares

1. bc
2. dos2unix

for ubuntu-like OS :

```
swatelet@gher ~/DIVA/diva-4.6.11 $ sudo apt-
   get install bc
```

```
swatelet@gher ~/DIVA/diva-4.6.11 $ sudo apt-
   get install dos2unix
```

for cygwin :

```
swatelet@gher ~ $ lynx -source rawgit.com/
   transcode-open/apt-cyg/master/apt-cyg > apt
   -cyg
swatelet@gher ~ $ chmod +x apt-cyg
swatelet@gher ~ $ mv apt-cyg /usr/local/bin/
swatelet@gher ~ $ apt-cyg install bc
swatelet@gher ~ $ apt-cyg install dos2unix
```

Configuration of the PATH

In order to run diva correctly, you need to adapth your PATH variable.

```
swatelet@gher ~ $ ge .bashrc
```

then add these lines :

```
# personal PATH
PATH="$PATH:."
PATH="$PATH:/home/sylvain/DIVA/diva-4.6.11/DIVA3D/divastripped"
```

Tests: 2D

Go to directory `divastripped` (main directory for 2D runs)

```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/src/Fortran $ cd
    ../../divastripped/
```

Run `divatest0`

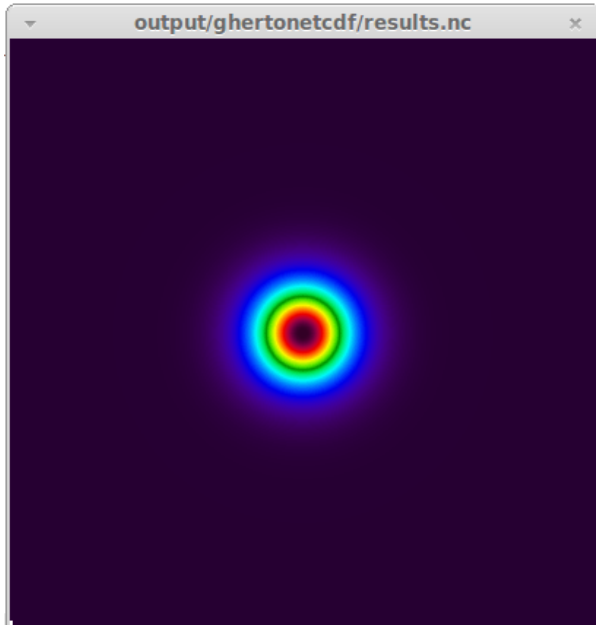
```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/divastripped $
    ./divatest0
```

You should get:

```
Check the results in
./ouput/ghertonetcdf/results.nc (netcdf)

Field value at origin =  0.49961258873206416
```

With ncview:



Tests: 2D

Run `divatest` (test for pipes)

```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/divastripped $
    ./divatest
```

If you get:

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
 Pipe does not work
 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

then follow instructions on screen

Tests: 2D

Run `divabigtest` (test for large data files) ☕☕☕

```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/divastripped $
    ./divabigtest 100000
```

You should get:

```
...
Check the results in
./ouput/ghertonetcdf/results.nc (netcdf)
Time for mesh creation:   0.830351  s
Time for calculation:     87.1226  s
Total time for analysis:  87.953  s
```

otherwise: decrease number of data

Tests: 4D

Go to directory `Climatology` (main directory for 4D runs)

```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/divastripped $
    cd ../../JRA4/Climatology/
```

Copy the input files from the `Example4D`

```
swatelet@gher ~/DIVA/diva-4.6.11/JRA4/Climatology $ cp -
    r ../../Example4D/* .
```

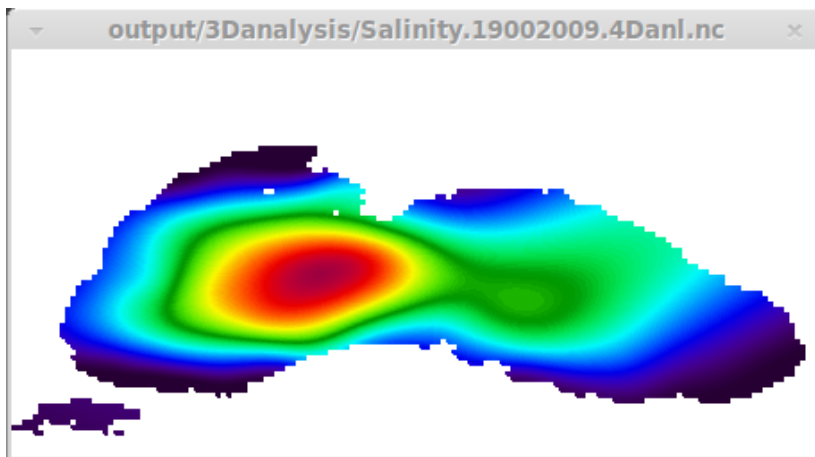
Run `divadoall`

```
swatelet@gher ~/DIVA/diva-4.6.11/JRA4/Climatology $ ./
    divadoall > runtest.log
```

You should get:

```
...
check-list of errors :
no error, you are lucky
divadoall: ==================
divadoall: Finished  Salinity
divadoall: ==================
```

and results in `output/3Danalysis/`



Alternative installation in a virtual box

Some optimisations can be used as explained in
http://www.howtogeek.com/124796/
the-htg-guide-to-speeding-up-your-virtual-machines/

- You might need to activate hardware virtualisation in your BIOS and then get access to multiprocessors
- 3D video acceleration activation can also increase performance

Then you need to find a way to share files with your host machine: done for you already via a shared folder called `Divaexchange_guest` which is mounted automatically. Before launching th virtual machine, create a shared folder in your host machine, called `Divaexchange_host` in your home directory.