

Diva workshop 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 `divacompileall` 🍷

```
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 adapt 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` ☕

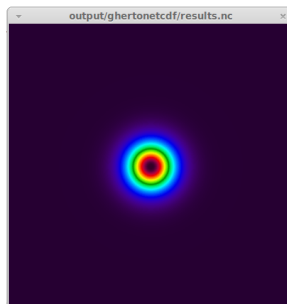
```
swatelet@gher ~/DIVA/diva-4.6.11/DIVA3D/divastripped $  
./divatest0
```

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`

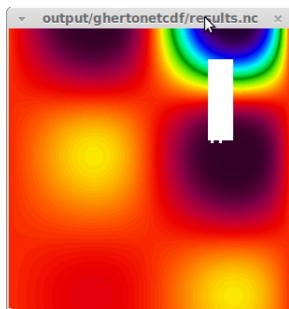
(test for large data files) ☕☕☕

```
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/* .
```

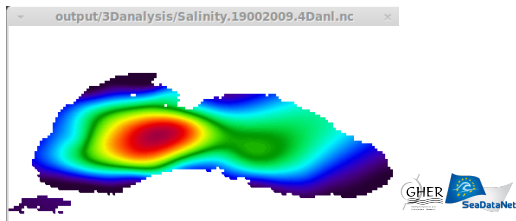
Run `divadoall` ☕☕

```
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 the virtual machine, create a shared folder in your host machine, called `Divaexchange_host` in your home directory.