

modipsl and how to install a configuration

Download a model configuration to a specific machine using the **modipsl** tool.

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1. Description

modipsl is a suite of scripts which allow you to

- obtain a model configuration from a computing center;
- to [compile](#) the model components of a model configuration on a specific machine.

modipsl is also the architecture hosting the models and tools of a chosen model configuration. **modipsl** is developed at IPSL.

2. Downloading modipsl

```
svn co http://forge.ipsl.jussieu.fr/igcmg/svn/modipsl/trunk modipsl
```

To avoid typing this command line for every new **modipsl** retrieval, we recommend to create an alias :

```
alias svn_ano='svn co http://forge.ipsl.jussieu.fr/igcmg/svn/modipsl/trunk modipsl'
```

The retrieval command then becomes

```
svn_ano
```

To learn more about SVN and other useful scripts, [click here](#).

3. How to use modipsl

3.1. The modipsl directories

After downloading **modipsl**, you should have the following directory structure:

- **util** contains information and scripts necessary to setup the different versions of the IPSL models;
- **doc** contains the CECILL's license (license of the IPSL models)

modipsl also contains the following directories (empty at the beginning) :

- **modeles**: directories containing the model source codes (filled once the model configuration has been downloaded and unpacked)
- **config**: directories containing the experiment directories (filled once the model configuration has been downloaded and unpacked: with command: `./model config_name`)
- **bin**: directory containing the executables (filled after compiling)
- **lib** and **tmp**: directories containing temporary files created during the compilation. Those directories will not be used by all models.

Main scripts in the directory *util*

- **model** --> Downloading script for available model configurations. This script also provides information on the available model configurations.
- **mod.def** --> File containing the information on the available model configurations : components, tags, svn servers
- **ins_make** --> Install Makefiles for the computing machine

3.2. Available configurations via modipsl

Using **modipsl** will give you access to a large number of model configurations, each of them uses one or more IPSL models. To list the available model configurations, use the following script:

```
cd modipsl/util
./model -h
```

To obtain information on the models used (tags, versions,...) in a specific configuration, use the following script:

```
./model -h config_name
```

Example with LMDZOR_v6.1.10 :

```
./model -h LMDZOR_v6.1.10

model : LMDZOR_v6.1.10

LMDZ and ORCHIDEE model configuration
Configuration corresponding to the coupled modele IPSLCM6.1.10-LR

model manager email address : Josefine.Ghattas@ipsl.fr

Component 1 : IOIPSL/tags/v2_2_4/src
Revision 1 : HEAD
System 1 : svn
Server 1 : http://forge.ipsl.jussieu.fr/igcmg/svn
Directory 1 : IOIPSL/src
Local Dir 1 : modeles
Component 2 : tags/ORCHIDEE_2_0/ORCHIDEE
Revision 2 : 5661
System 2 : svn
Server 2 : svn://forge.ipsl.jussieu.fr/orchidee
Directory 2 : ORCHIDEE
Local Dir 2 : modeles
Component 3 : LMDZ6/branches/IPSLCM6.0.15
Revision 3 : 3554
System 3 : svn
Server 3 : http://svn.lmd.jussieu.fr/LMDZ
Directory 3 : LMDZ
Local Dir 3 : modeles
Component 4 : XIOS/branches/xios-2.5
Revision 4 : 1550
System 4 : svn
Server 4 : http://forge.ipsl.jussieu.fr/ioserver/svn
Directory 4 : XIOS
Local Dir 4 : modeles
Component 5 : CONFIG/UNIFORM/v6/LMDZOR_v6
Revision 5 : 4691
System 5 : svn
Server 5 : http://forge.ipsl.jussieu.fr/igcmg/svn
Directory 5 : LMDZOR_v6
Local Dir 5 : config
Component 6 : tags/ORCHIDEE_2_0/ORCHIDEE_OL
Revision 6 : 5626
System 6 : svn
Server 6 : svn://forge.ipsl.jussieu.fr/orchidee
Directory 6 : ORCHIDEE_OL
Local Dir 6 : config
Component 7 : trunk/libIGCM
Revision 7 : 1487
System 7 : svn
Server 7 : http://forge.ipsl.jussieu.fr/libigcm/svn
Directory 7 : libIGCM
Local Dir 7 : .
```

If the requested model configuration does not exist :

```
./model -h Ornithorynque
Model Ornithorynque unknown
```

```
Try "model -h"
```

3.3. How to download and use a selected model configuration

Downloading is the recovery of the source codes of the model components of a specific model configuration from different SVN servers. The download can be done with this script:

```
./model config_name
```

When you try to access to the component servers, some of them request a login and a password: ORCHIDEE, NEMO, INCA and REPROBUS. To do so, you must contact the person in charge of the [model configuration](#) (see above the list of [special cases](#); model managers email addresses is available via the command **model -h**)

Example :

```
cd modipsl/util
# see all the available configurations
./model -h
# extract the LMDZOR_v6.1.10 configuration
./model LMDZOR_v6.1.10
```

The source codes of the downloaded models are in the **modipsl/modeles/** directory.

For the previous example you will obtain the following directories :

- modipsl/modeles/IOIPSL
- modipsl/modeles/LMDZ
- modipsl/modeles/ORCHIDEE
- modipsl/modeles/XIOS

Coupled configuration will download the coupler directyl in `modipsl/oasic-mct`

modipsl also installs a model **configuration**. It is installed in the directory **modipsl/config** (here `modipsl/config/LMDZOR_v6`). Each model will be compiled and the simulation will be run in the **config** directory.

The log files of the installation are stored in the `modipsl/util/log` file.

3.4. Syntax in mod.def

When launching `./model config_name`, in `mod.def` lines starting with

- **#-H- config_name** only text information
- **#-M- config_name** an email will be sent to the given address only at first extraction at a new machine for a specific login
- **#-C- config_name** code extraction

The code extraction line has the following syntax :

```
#-C- config_name versionOnServer revisionNumber depotNumber modelName dirInModipsl
```

- `depotNumber` is the reference of the repository address for the given code. The full address is set in the beginning of `mod.def` where all repository addresses are listed starting with **#-S- number**.
- `versionOnServer` is directory to extract find on the current depository address
- `revisionNumber` is the revision to extract. If `revisionNumber` is HEAD, the latest revision on the `versionOnServer` will be extracted.
- `dirInModipsl` is the directory in `modipsl` where the code will be installed
- `modelName` is the name of the installed directory. The code will be find in `modipsl/dirInModipsl/modelName`

As an example see here an extract from `mod.def`:

```

...
#-S- 8 svn http://forge.ipsl.jussieu.fr/igcmg/svn
#-S- 9 svn --username inca http://forge.ipsl.jussieu.fr/inca/svn
#-S- 10 svn http://forge.ipsl.jussieu.fr/libigcm/svn
#-S- 11 svn http://svn.lmd.jussieu.fr/LMDZ
#-S- 12 svn http://forge.ipsl.jussieu.fr/ioserver/svn
#-S- 13 svn http://forge.ipsl.jussieu.fr/fcm/svn
#-S- 14 svn svn://forge.ipsl.jussieu.fr/orchidee
...
#---- LMDZOR configurations

#-H- LMDZOR_v6.1.10 LMDZ and ORCHIDEE model configuration
#-H- LMDZOR_v6.1.10 Configuration corresponding to the coupled modele IPSLCM6.1.10-LR
#-M- LMDZOR_v6.1.10 Josefine.Ghattas@ipsl.fr
#-C- LMDZOR_v6.1.10 IOIPSL/tags/v2_2_4/src HEAD 8 IOIPSL/src modeles
#-C- LMDZOR_v6.1.10 tags/ORCHIDEE_2_0/ORCHIDEE 5661 14 ORCHIDEE modeles
#-C- LMDZOR_v6.1.10 LMDZ6/branches/IPSLCM6.0.15 3554 11 LMDZ modeles
#-C- LMDZOR_v6.1.10 XIOS/branchs/xios-2.5 1550 12 XIOS modeles
#-C- LMDZOR_v6.1.10 CONFIG/UNIFORM/v6/LMDZOR_v6 4691 8 LMDZOR_v6 config
#-C- LMDZOR_v6.1.10 tags/ORCHIDEE_2_0/ORCHIDEE_OL 5626 14 ORCHIDEE_OL config
#-C- LMDZOR_v6.1.10 trunk/libIGCM 1487 10 libIGCM .
...

```

By launching `./model LMDZOR_v6.1.10`, you'll install in directory

- `modipsl/modeles/IOIPSL/src` : the latest revision (=HEAD) of `IOIPSL/tags/v2_2_4/src`
- `modipsl/modeles/ORCHIDEE` : revision number 5661 of tag `ORCHIDEE_2_0`
- `modipsl/modeles/LMDZ` : revision number 3554 of `LMDZ6/branches/IPSLCM6.0.15`
- `modipsl/modeles/XIOS` : revision number 1550 of `XIOS/branchs/xios-2.5`
- `modipsl/config/LMDZOR_v6` : revision number 4691 of `CONFIG/UNIFORM/v6/LMDZOR_v6`
- `modipsl/config/ORCHIDEE_OL` : revision number 5626 of `tags/ORCHIDEE_2_0/ORCHIDEE_OL` (ORCHIDEE Off Line)
- `modipsl/libIGCM` : revision number 1487 of `trunk/libIGCM`

3.5. Change a model version

By default the available model configurations use specific model versions. But different versions of a given model can be used with a specific configuration. This is the case for the LMDZ version in the "_v6" configurations. You might want to use the latest version on an `LMDZ6/branches/IPSLCM6.0.15` branch (used for CMIP6 simulations). To find out which model version to use, please contact the model development team directly.

If you already know which model version to use, you just have to change the section about the model configuration you selected in **`modipsl/util/mod.def`**.

For example with `LMDZOR_v6.1.10`, in `mod.def` you have the following lines:

```
#-C- LMDZOR_v6.1.10 IOIPSL/tags/v2_2_4/src HEAD 8 IOIPSL/src modeles
```

The second column tells the version and third column the revision for this version. If it says HEAD, this means the latest revision. This means that you'll extract IOIPSL version **`IOIPSL/tags/v2_2_4/src`**, latest revision.

For example, to extract the `LMDZOR_v6.1.10` configuration with the latest revision (HEAD) of LMDZ6, change **`mod.def`** to obtain :

```
#-C- LMDZOR_v6.1.10 LMDZ6/trunk HEAD 11 LMDZ modeles
```

or for `LMDZ6/trunk` revision 3563 :

```
#-C- LMDZOR_v6.1.10 LMDZ6/trunk 3563 11 LMDZ modeles
```

4. Special cases

- **Reprobus** : this model has restricted access via svn+ssh. Click [here](#) for more information.
 - **ORCHIDEE** : this model needs a password. Click [here](#) for more information
 - **NEMO** : this model needs to get an account on [NEMO website](#). Required only the first time.
 - **INCA** : this model needs a password. Click [here](#) for more information.
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