# Oph_Term
# The Ophidia shell

## Part II : Advanced Concepts

# Oph_Term : sessionid, cwd & cube

To improve the Oph_Term UX, the environment variables OPH_SESSIONID, OPH_CWD and OPH_DATACUBE are automatically filled with the most useful information and appended to the submission string.

**OPH_SESSIONID** will always point to the current session, grouping all related jobs.

If the user leaves it empty, a new session will be created with the first request and all subsequent requests will be grouped in that session. By default, no user interaction is needed.

```
[ OPH_TERM ] >> env
OPH_SESSIONID=
[...]
[ OPH_TERM ] >> oph_operator
[Request]:
operator=oph_operator;exec_mode=async;
[JobID]:
http://oph_server/sessions/SESSIONCODE/experiment?1#1
[ OPH_TERM ] >> env
OPH_SESSIONID=http://oph_server/sessions/SESSIONCODE/experiment
[...]
[ OPH_TERM ] >> oph_operator
[Request]:
operator=oph_operator;exec_mode=async;sessionid=http://oph_server/sessions/SESSIONCODE/
experiment;
[...]
```

# Oph_Term : sessionid, cwd & cube

To improve the Oph_Term UX, the environment variables OPH_SESSIONID, OPH_CWD and OPH_DATACUBE are automatically filled with the most useful information and appended to the submission string.

**OPH_CWD** will always point to the current working directory, with respect to the Ophidia Virtual Filesystem. Its default value corresponds to "/" (session root folder). Similarly to bash, a user can change directory with the command oph_folder command=cd;path=folder/path;

```
[ OPH_TERM ] >> env
OPH_CWD=/
[...]
[ OPH_TERM ] >> oph_folder command=cd;path=folder/path;
[Request]:
operator=oph_folder;command=cd;path=folder/path;cwd=/;exec_mode=sync;
[Response]:
Current Working Directory is : /folder/path
[...]
[ OPH_TERM ] >> env
OPH_CWD=/folder/path
[...]
```

# Oph_Term : sessionid, cwd & cube

To improve the Oph_Term UX, the environment variables OPH_SESSIONID, OPH_CWD and OPH_DATACUBE are automatically filled with the most useful information and appended to the submission string.

**OPH_DATACUBE** will always contain the DOI of the last produced datacube.

In case of a pure sequential transformation starting from a cube and originating a cube at each step, this will result in a dramatically decrease of user input to be typed.

```
[ OPH_TERM ] >> oph_importnc [...]
[Response]:
DOI of output datacube is : http://oph_server/1/1
[ OPH_TERM ] >> oph_subset subset_dims=[...];subset_filter=[...]
[Response]:
DOI of output datacube is : http://oph_server/1/2
[ OPH_TERM ] >> oph_duplicate
[Response]:
DOI of output datacube is : http://oph_server/1/3
```

# Oph_Term Features : variable substitution

**$varname or ${varname}**

- With the commands resume and view and with remote operators Oph_Term will try to substitute the value of <varname> if present or the empty string "" into the submission string.
- Without braces the first character that is not a letter, a number or an underscore will be used as end of the variable name (excluded).
- Variable substitution is recursive until all $s are expanded, so if the value of a variable is another "$varname", Oph_Term will recursively substitute the other value.
- With all the other commands there is no variable substitution, so that it is possible to do for example <setenv var1=$var2> to dynamically bind a variable to another one and always use the most recent value of var2.

# Oph_Term Features : aliases

**[OPH_TERM] >>setalias my_alias="command param1=val1;param2=$1;"**
**[OPH_TERM] >>my_alias val2**

- An alias is a particular command that encapsulates other commands.
- It is possible to specify only 1 alias per submission string.
- Oph_Term will look at the first word of the submission string and if it finds it is an alias it will try to substitute specified arguments into the alias definition string where $1,$2 etc. are located.
- After the alias substitution, Oph_Term will recursively perform the variable substitution according to the resulting command.

# Oph_Term Features : response viewer

### 1) OPH_TERM_VIEWER=dump

Print received output as is (as JSON).


```
{
   "response": [
      {
         "objclass": "grid",
         "objkey": "cubesize",
         "objcontent": [
            {
               "rowvalues": [ ["3.821625","MB"] ],
               "rowfieldtypes": ["double","string"],
               "title": "Cube Size",
               "rowkeys": ["CUBE SIZE","UNIT" ]
            }
         ]
      },
      {
         "objclass": "text",
         "objkey": "status",
         "objcontent": [{"title": "SUCCESS"}]
      }
   ],
   "responseKeyset": ["cubesize","status"],
   "source": {
      "srckey": "oph",
      "srcname": "Ophidia",
      "producer": "oph-dev",
      "keys": [ "Session Code","Marker","JobID" ],
      "description": "Ophidia Data Source",
      "values": ["4290205","3","http://127.0.0.1/sessions/4290205/document#3"]
   },
   "consumers": [  "oph-dev" ]
}
```


# Oph_Term Features : response viewer

**2) OPH_TERM_VIEWER=basic or OPH_TERM_VIEWER=coloured**

- basic : pretty print output in tabular format (default behaviour);
- coloured : the same as basic but with colors (same color as prompt).

```
Hierarchy List
--------------

+================+
| HIERARCHY NAME |
+================+
| oph_base       |
|----------------|
| oph_time       |
+================+

Useful Tip
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To get additional information about a hierarchy defined above use the following:
 OPH_TERM: oph_hierarchy hierarchy=HIERARCHYNAME;
 SUBMISSION STRING: "operator=oph_hierarchy;hierarchy=HIERARCHYNAME;"
```

Response with a GRID object
and a TEXT object

# Oph_Term Features : response viewer

### 3) OPH_TERM_VIEWER=extended or OPH_TERM_VIEWER=extended_coloured

- extended : the same as basic with information regarding data sources, producers, consumers etc.;
- extended_coloured : the same as extended but with colors (same color as prompt).

Response with a GRID object

```
| OBJKEY : list |

Ophidia Filesystem

+===+============================+
| T | PATH                       |
+===+============================+
| f | /home/oph-dev/testfolder/  |
|---|----------------------------|
| f | /home/oph-dev/folder2/     |
|---|----------------------------|
| f | /home/oph-dev/newfolder/   |
|---|----------------------------|
| c | /home/oph-dev/container1   |
|---|----------------------------|
| c | /home/oph-dev/cont1        |
|---|----------------------------|
| c | /home/oph-dev/ecmwf        |
+===+============================+

| SOURCE |

Source Key : oph
Source Name : Ophidia
Source URL : -
Source Description : Ophidia Data Source
Producer : oph-dev
Session Code : 99105255323881097814007770505183 94
Marker : 2
JobID : http://127.0.0.1/sessions/99105255323881097814007770505183 94/document#2

| CONSUMERS |

oph-dev
```

Objkey for the GRID object

Data Source

Consumers

# Oph_Term Features : grid auto-size/auto-fit

[Response]:
Function Name and Version

oph_time v1.0

Hierarchy Attributes

| LONG NAME | SHORT NAME | AGGREGATION FIELD | AGGREGATION SET | AGGREGATION FUNCTIONS |
|---|---|---|---|---|
| ALL | A | y | 0 | max\|avg\|min\|sum |
| year | y | q | 4 | max\|avg\|min\|sum |
| quarter | q | M | 3 | max\|avg\|min\|sum |
| month | M | d | 30 | max\|avg\|min\|sum |
| day | d | Q | 4 | max\|avg\|min\|sum |
| day_quarter | Q | h | 6 | max\|avg\|min\|sum |
| hour | h | m | 60 | max\|avg\|min\|sum |
| minute | m | s | 60 | max\|avg\|min\|sum |
| second | s | s | 1 | none |

Same request but different window size

[Response]:
Function Name and Version

oph_time v1.0

Hierarchy Attributes

| LONG NAME | SHORT NAME | AGGREGATION FIELD | AGGREGATION SET | AGGREGATION FUNCTIONS |
|---|---|---|---|---|
| ALL | A | y | 0 | max\|avg\|min\|sum |
| year | y | q | 4 | max\|avg\|min\|sum |
| quarter | q | M | 3 | max\|avg\|min\|sum |
| month | M | d | 30 | max\|avg\|min\|sum |
| day | d | Q | 4 | max\|avg\|min\|sum |
| day_quarter | Q | h | 6 | max\|avg\|min\|sum |
| hour | h | m | 60 | max\|avg\|min\|sum |
| minute | m | s | 60 | max\|avg\|min\|sum |
| second | s | s | 1 | none |

# Oph_Term Features : graphs

## OPH_TERM_IMGS environment variable

In case of non-dump viewer, with “save” eventually save JPEG image files when possible (as for trees/ graphs outputs) into the same directory from which the user launched Oph_Term.

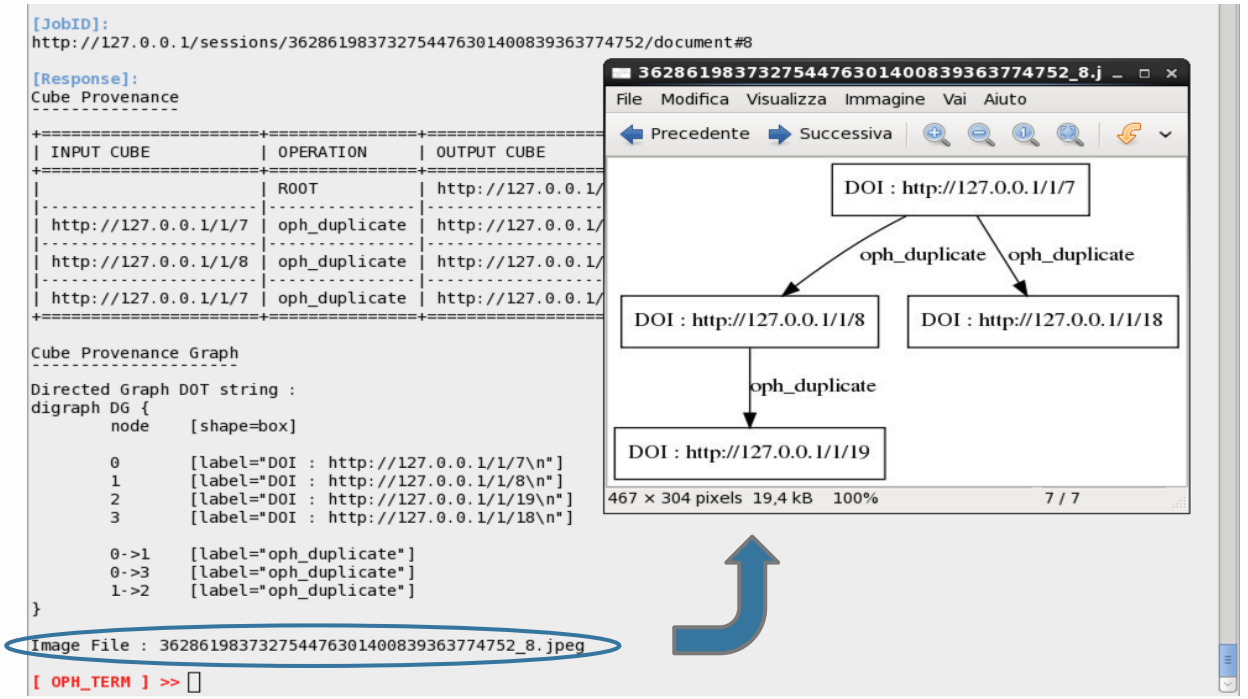
With “open” automatically open JPEG image files in a separate window and save them to disk.

"no_op" is the default value for not saving nor opening images.

**open**

**Useful only with a Desktop Environment !**

**Auto-open saved image file**



# Oph_Term : config & install

- Simple “no-config” installation procedure with a relocatable RPM package for 64-bit CentOS 6.5
- *rpm –ivh oph-term.rpm –prefix=/my/prefix*