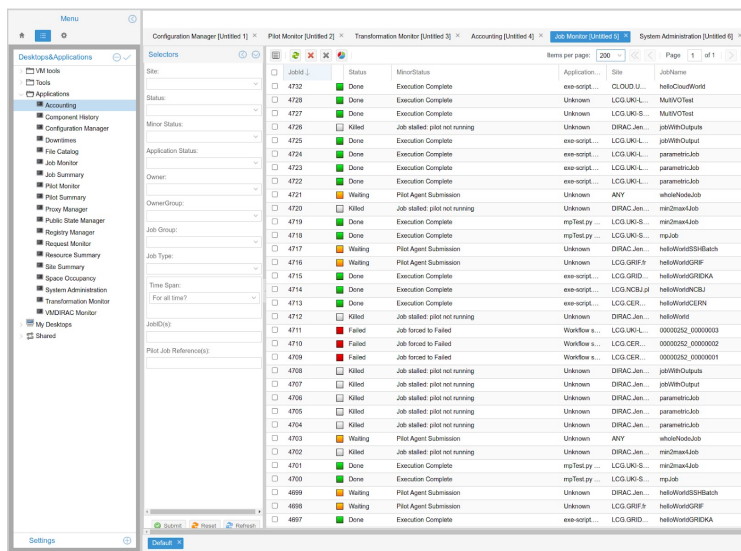# Interfaces: Web Portal, REST and COMDIRAC

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DIRAC
THE INTERWARE

- ▸ The DIRAC Web Portal provides a large number of applications

  - ▸ monitor jobs, files, productions, etc

  - ▸ Manage the system configuration and monitor status

- ▸ The portal applications are highly configurable and can be modified in DIRAC extensions

- Updated for Python3
- Updated for the deployment in the PyPi repository
  - Compliant with the DIRAC 8.0 installation procedures
  - Ready for the DIRAC 8.0 release
- The WebApp handlers are based on the Core TornadoREST class
  - Sharing the same framework as for the HTTPS based DIRAC service handlers
- Ready for Oauth tokens based authentication
  - E.g. running in production in dirac.egi.eu portal

DIRAC
THE INTERWARE

▸ The RESTDIRAC package provides a REST interface to a subset of the DIRAC functionality
  ▸ Job management
  ▸ Configuration access

▸ The interface can be used from any language
  ▸ E.g. used by OpenMole project with Scala as implementation language

▸ Based on an old Web Portal framework
  ▸ It was updated to work with v7r3 DIRAC services
  ▸ Needs an old version of Tornado framework – 4.X
  ▸ In production in the EGI DIRAC service

▸ The new DIRAC framework based on the HTTPS protocol contains also support for REST-like interfaces
  ▸ The RESTDIRAC can be reimplemented in this framework
  ▸ Alternatively an RPC-like access to DIRAC via HTTPS can be performed from any language as well
  ▸ Need for input from the DIRAC user's community

▸ 4

▸ A command line interface is close in syntax to shell and batch system commands

▸ COMDIRAC user configuration:

```
$ dconfig
[global]
default_profile = dirac_admin

[dirac_admin]
group_name = dirac_admin
home_dir = /
default_se = DIRAC-USER

[biomed_user]
home_dir = /biomed/user/a/atsareg
group_name = biomed_user
default_se = DIRAC-USER
```

COMDIRAC session

Initialization

```
$ dinit biomed_user
Enter Certificate password: ********
subject     : /O=GRID-FR/C=FR/O=CNRS/OU=CPPM/CN=Andrei Tsaregorodtsev/CN=1074846632
issuer      : /O=GRID-FR/C=FR/O=CNRS/OU=CPPM/CN=Andrei Tsaregorodtsev
identity     : /O=GRID-FR/C=FR/O=CNRS/OU=CPPM/CN=Andrei Tsaregorodtsev
timeleft     : 23:59:58
DIRAC group  : biomed_user
path         : /tmp/x509up_u1885
username     : atsareg
properties   : NormalUser
```

dinit generates proxy and starts a COMDIRAC session:

- Caches configuration data to speed up command execution

▸ Job submission commands are intuitive for users familiar with common batch systems:

```
bash-4.2# dsub /bin/echo "Hello world"
53917277
bash-4.2# dstat
JobID      Owner    JobName   OwnerGroup   JobGroup   Site            Status    MinorStatus   SubmissionTime
===============================================================================================================
53917277   atsareg  Unknown   wenmr_user   NoGroup    EGI.NIKHEF.nl   Running   Application   2020-10-22 19:06:24

bash-4.2# doutput 53917277
bash-4.2# ls -l 53917277
total 4
-rw-r--r-- 1 71139 2062 12 Oct 22 19:06 std.out
```

▸ Multiple options for bulk retrieval of the job results

  ▸ Grouping outputs in directories

  ▸ Getting output data together/instead of sandboxes

COMDIRAC

- ▸ Data management commands
  - ▸ Representing the logical DIRAC file namespace as a parallel shell
    - ▸ **dls, dcd, dpwd, dfind, ddu,** etc commands
  - ▸ Commands for file upload/download/replication
    - ▸ **dput, dget, drepl**

```
bash-4.2# dput test.jdl /enmr.eu/user/a/atsareg/test/test.jdl
bash-4.2# dls -L /enmr.eu/user/a/atsareg/test/test.jdl
-rwxrwxr-x 1 atsareg wenmr_user 256 2020-10-22 22:33:12 test.jdl
   CYFRONET-USER   dips://dirac-dms.egi.eu:9148/DataManagement/StorageElement/enmr.eu/user/a/atsareg/test/test.jdl
bash-4.2# rm test.jdl
bash-4.2# dget /enmr.eu/user/a/atsareg/test/test.jdl
bash-4.2# ls test.jdl
test.jdl
bash-4.2# drm /enmr.eu/user/a/atsareg/test/test.jdl

1 object(s) removed in total
```

- ▸ **dfind -** finding data by metadata

```
$ dfind /biomed/user/a/atsareg/116729 SE=DIRAC-USER
/biomed/user/a/atsareg/116729/116729510/man55.bmp
/biomed/user/a/atsareg/116729/116729467/man12.bmp
...
```

dsize - Getting storage usage reports

```
$ dsize –l /biomed
directory: /biomed
Logical Size: 10,663,014,857,397 Files: 308783 Directories: 19994

    StorageElement       Size              Replicas
==================================================
 1 NIKHEF–biomed–disk              332           1
 2 SBG-disk          4,146,943,940,118    117707
 3 DIRAC-USER            1,425,384,481       544
 4 NIKHEF-disk       2,066,214,190,985    122616
 5 CPPM-disk         2,275,114,062,625    106793
   Total             8,489,697,578,541    347661
--------------------------------------------------
```

▶ Recent developments

- ▶ The package was updated for Python3
- ▶ The commands are implemented using the new DIRACScript framework which encapsulates command arguments parsing, configuration initialization

```python
from DIRAC.Core.Utilities.DIRACScript import DIRACScript as Script

@Script()
def main():
    Script.setUsageMessage(
    …
    )

  … do the job …

if __name__ == "__main__":
    main()
```

- ▶ The package can now be installed from **PyPi** repository (together with the Python3 DIRAC client)
  - ▶ `pip install COMDIRAC`

▶ WebAppDIRAC portal framework is ready for release 8.0 with Python3 compliance and Oauth tokens readiness

▶ RESTDIRAC implementation is obsoleted. Users of the REST interface should use the HTTPS based services or express clearly interest in the updated REST interface implementation.

▶ COMDIRAC is a convenient alternative command line interface updated for Python3 and PyPi deployment ready to be used together with the 8.0 DIRAC clients