

EMI

EMI User's Guide

WMS COMMAND LINE INTERFACE GUIDE

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Abstract: This user's guide explains how to configure and use the client commands for performing job submission and control through the WMS Service included in gLite 3.2.0 or later.

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1 INTRODUCTION

The WMPProxy (Workload Manager Proxy) is a simple service providing access to the WMS (Workload Management System) functionality through a Web Services based interface the user can interact with by mean of the WMS Command Line Interface (WMS CLI or WMS UI).

WMPProxy accepts job submission requests described with the job description language (JDL) whose specification is available at [R1] and other job management and control requests such as job cancellation, job file perusal, job output retrieval etc.

This service replaces with a Web Services based interface the legacy interface to the WMS represented by the Network Server described in [R4] and provides additional functionality such as bulk submission and support for shared and compressed sandboxes.

The WMPProxy can be either accessed directly through the published WSDL available at [?] or through the provided client tools that are:

- a C++ command line interface (Sect. 5).
- an API providing C++, Java and Python bindings (Sect. 6).

Further information about the WMPProxy Service can be found at [?].

2 SECURITY

For the Grid to be an effective framework for largely distributed computation, users, user processes and Grid services must work in a secure environment.

Due to this, the communication between the client and the WMProxy service is authenticated. Depending on the specific interaction, an entity authenticates itself to the other peer using either its own credential or a delegated user credential or both. For example when the WMProxy user interface passes a job to the WMProxy service, the client authenticates using a proxy user credential (a proxy certificate) whereas WMProxy uses its own service credential.

The WMProxy user interface uses a proxy user credential to limit the risk of compromising the original credential in the hands of the user.

The user or service identity and their public key are included in a X.509 certificate signed by a trusted Certification Authority (CA), whose purpose is to guarantee the association between that public key and its owner.

According to what just premised, the user has to possess a valid X.509 certificate on the submitting machine, consisting of two files: the certificate file and the private key file. The location of the two mentioned files is assumed to be either pointed to respectively "*\$X509_USER_CERT*" and "*\$X509_USER_KEY*" or by "*\$HOME/.globus/usercert.pem*" and "*\$HOME/.globus/userkey.pem*" if the X509 environment variables are not set.

How to extract *userkey.pem* and *usercert.pem* from your certificate

Usually X.509 Certificates are downloaded using a browser and managed by the browser itself. Anyway it is possible to export your certificate in a file PKCS12 (which will probably have the extension .p12 or .pfx).

The procedure to export the certificate vary from browser to browser, for example Internet Explorer starts with "Tools -> Internet Options -> Content"; Netscape Communicator has a "Security" button on the top menu bar; Mozilla starts with "Edit -> Preferences -> Privacy and Security -> Certificates" and Firefox has "Edit -> Preferences -> Advanced -> Certificates -> manage certificates -> backup".

PKCS12 format is not accepted by the Grid Security Infrastructure, but you can easily convert it into the supported standard (PEM). This operation will split your *.p12 file in two files: the certificate (*usercert.pm*) and the private key (*userkey.pm*). The conversion can be performed with openssl tool:

```
$ openssl pkcs12 -nocerts -in mycert.p12 -out userkey.pem
$ openssl pkcs12 -clcerts -nokeys -in mycert.p12 -out usercert.pem
$ chmod 0400 userkey.pem
$ chmod 0600 usercert.pem
```

Permission must be set as shown not only for security reasons: *voms-proxy-init* and *grid-proxy-init* commands will fail if your private key is not protected as listed above.

Actually the user certificate and private key files are not mandatory on the WMProxy client machine; indeed they are only needed for the creation of the proxy user credentials through the *grid-proxy-init* or *voms-proxy-init* commands. Please refer to the VOMS User's Guide [R3] for detailed information about the VOMS client commands.

Alternatively you can download the proxy credentials from a trusted site and work with it without having the cert and key available locally.

All WMPProxy client commands, when started, check for the existence and expiration date of a user proxy credentials in the location pointed to by "\$X509_USER_PROXY" or in "/tmp/x509up_u<UID>" (where <UID> is the user identifier in the submitting machine OS) if the X509 environment variable is not set. If the proxy certificate does not exist or has expired, the issued WMPProxy client command returns an error message to the user and exits.

It is important to note that besides authentication, proxy credential issued by VOMS, i.e. containing FQANs (Fully Qualified Attribute Names [R3]), are used by WMPProxy to get the VO the user is currently working for. If a given proxy credential contains attributes for more than one VO, than the default one (i.e. the one first position) is considered.

2.1 AUTHORIZATION

The client must be properly authorized when interacting with the WMPProxy service. As the AuthZ is implemented in WMPProxy via an allow-deny *gacl* file, this means that either the FQAN or the DN (in case of globus-style proxies) of the client must be properly listed and authorized in the *glite_wms_wmproxy.gacl* file on the WMPProxy service machine.

2.1.1 AUTHORIZATION ON JOB MANAGEMENT OPERATIONS

As a general rule, a user can manage only her own jobs (i.e. the ones she submitted). So, for example, a user can't cancel or retrieve the output of jobs submitted by other users.

2.2 PROXY CREDENTIAL DELEGATION

Each job submitted to the WMPProxy service has to be associated with a credential previously delegated by the user who submitted it. This credential is then used by the service to perform job related operations requiring interaction with other services (e.g. submission to the CE, a GridFTP file transfer etc.).

As described in Sects. 5.1, 5.2 and 5.3, it is possible to ask either the "automatic" delegation of the credentials during the submission (or list-match) operation, or to explicitly delegate credentials, and then ask to rely on these previously delegated credentials. It is recommended to rely on this latter mechanism, using the same delegated proxy for multiple job submissions, instead of delegating each time a proxy. Delegating a proxy, in fact, is an operation that can require a non negligible time. Be aware that using "automatic" delegation heavily reduces the overall submission rate of the WMS to the CREAM-based CEs.

3 QUICK-START GUIDE

This section briefly explains the sequence of operations, to be performed by a user in order to submit, cancel, retrieve output etc. of any kind of request through the WMProxy C++ command line interface.

3.1 BEFORE STARTING: GET YOUR USER PROXY

Before using any of the WMProxy client commands it is necessary to have a valid proxy credential available on the client machine. You can create it using the `voms-proxy-init` command or alternatively the `grid-proxy-init` one. If you already have a valid proxy available on your machine just make the `X509_USER_PROXY` environment variable point to it.

In order to get a proxy certificates issued by VOMS you should have in your home directory the file `$HOME/.glite/vomses` containing a line as follows:

```
"EGEE" "kuiken.nikhef.nl" "15001" "/O=dutchgrid/O=hosts/OU=nikhef.nl/CN=kuiken.nikhef.nl" "EGEE" "22"
```

or the corresponding line for your VO (ask your VO admin for that).

Make moreover sure you have in the directory `$HOME/.globus` your certificate/key pair, i.e. the following files:

```
usercert.pem  
userkey.pem
```

Note that file permissions are important: the two files must have respectively 0600 and 0400 permissions.

Then you can issue the VOMS client command (you will be prompted for the pass-phrase):

```
> voms-proxy-init -userconf vomses -voms EGEE  
Your identity: /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Massimo Sgaravatto/Email=massimo.sgaravatto@pd.infn.it  
Enter GRID pass phrase:  
Creating temporary proxy ..... Done  
Contacting kuiken.nikhef.nl:15001 [/O=dutchgrid/O=hosts/OU=nikhef.nl/CN=kuiken.nikhef.nl] ``EGEE`` Done  
Creating proxy ..... Done  
Your proxy is valid until Thu Jul 28 23:11:01 2005  
  
> voms-proxy-info  
subject   : /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Massimo Sgaravatto/Email=massimo.sgaravatto@pd.infn.it/CN=proxy  
issuer    : /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Massimo Sgaravatto/Email=massimo.sgaravatto@pd.infn.it  
identity  : /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Massimo Sgaravatto/Email=massimo.sgaravatto@pd.infn.it  
type      : proxy  
strength  : 512 bits  
path      : /tmp/x509up_u756  
timeleft  : 11:59:25
```

3.2 WMPROXY CLIENT COMMANDS

The commands to interact with WMProxy Service are:

- `glite-wms-job-submit <jdlfile>`
- `glite-wms-delegate-proxy <delegationId>`

- `glite-wms-job-list-match <jdlfile>`
- `glite-wms-job-cancel <jobIds>`
- `glite-wms-job-output <jobIds>`
- `glite-wms-job-perusal <jobId>`
- `glite-wms-job-info <jobId>`

You can then access information about the usage of each command by issuing:

```
<command> --help
```

glite-wms-job-submit submits a job to a WMPProxy Service. It requires a JDL file as input and returns a WMS job identifier.

glite-wms-delegate-proxy allows the user to delegate her proxy credential to the WMPProxy service. This delegated credential can then be used for job submissions.

glite-wms-job-list-match displays the list of identifiers of the resources on which the user issuing the command is authorized and satisfying the job requirements

glite-wms-job-cancel cancels one or more jobs previously submitted to WMPProxy Service.

glite-wms-job-output retrieves output files of a job, when finished. After this operation the job itself is purged and no more operation can be done on it

glite-wms-job-perusal manages the perusal functionality for a certain job such as:

- Enabling perusal for one (or more) file(s)
- Allowing perusal file retrieval
- Disabling perusal functionality

glite-wms-job-info retrieves information about a submitted Job, its delegated credential, the JDL submitted to WMPProxy...

glite-wms-job-logging-info queries the LB persistent database for logging information about jobs previously submitted using `glite-wms-job-submit`.

glite-wms-job-status prints the status of a job previously submitted using `glite-wms-job-submit`.

All these commands, whose use and purpose is briefly described in the following subsections, are described in more detail in the following section

3.3 CONFIGURATION FILE

Each command needs a configuration file to be properly executed. This file depends on the VirtualOrganisation name the user is currently working for.

The following precedence rule is followed for determining the user's VO:

1. the default VO from the user proxy (if it contains VOMS extensions)
2. the VO specified through the --vo option (supported by all commands)
3. the VO specified --config option (supported by all commands)
4. the VO specified in the configuration file pointed by the GLITE_WMS_CLIENT_CONFIG environment variable
5. when provided, the VirtualOrganisation attribute in the JDL (if the user proxy contains VOMS extensions this value is overridden as above)

If none of them is found, an error is returned and the command is aborted.

In cases 1), 2) and 6) the path of the user configuration file will be: \$HOME/.glite/<VO name (in lower case)>/glite_wms.conf

Moreover, the default configuration file path is the following:

<WMPProxy installation path>/etc/<VO name (in lower case)>/glite_wms.conf

Once the VirtualOrganisation has been properly evaluated, both files (user and default one) are parsed, at least one of them must be found (an error is raised otherwise). If both are found, the attributes in the user configuration files will override the attributes with the same name in the default configuration file. The resulting merged configuration instance is therefore used by the requested command

3.4 SUBMITTING JOBS TO WMPROXY SERVICE

To submit jobs to WMPProxy Service, the command glite-wms-job-submit must be used. The glite-wms-job-submit command requires as input a job description file, which describes the job characteristics and requirements through the JDL (Job Description Language).

A typical example of a JDL job description file is:

```
[
  Type = "Job";
  JobType = "Normal";
  Executable = "myexe";
  StdInput = "myinput.txt";
  StdOutput = "message.txt";
  StdError = "error.txt";
  InputSandbox = {"myinput.txt", "/home/user/example/myexe"};
  OutputSandbox = {"message.txt", "error.txt"};
]
```

Such a JDL would make the myexe executable be transferred on the remote WMPProxy server and be run taking the myinput.txt file (also copied from the client node) as input. The standard streams of the job are redirected to file message.txt and error.txt .

Each job submitted to a WMPProxy Service is given the delegated credentials of the user who submitted it. These credentials can then be used when operations requiring security support have to be performed by the job.

There are two possible options to deal with proxy delegation:

- asking the “automatic” delegation of the credentials during the submission operation;
- explicitly delegating credentials, and then asking to rely on these previously delegated credentials on the actual submission operations.

It is highly suggested to rely on this latter mechanism, using the same delegated proxy for multiple job submissions, instead of delegating each time a proxy. Delegating a proxy, in fact, is an operation that can require a non negligible time.

The command `glite-wms-job-delegate-proxy` (described in Sect. 5.1) is the command to use to explicitly delegate the user credentials to a WMPProxy server.

In the following we provide a brief description (including examples) for each WMPProxy client command

The endpoint URL of the WMPProxy service to contact is read from the configuration by all commands not taking a `jobId` as input. The value in the configuration can be overridden using the `--endpoint` option. The commands taking a `jobId` as input get the WMPProxy endpoint URL from the LB server.

glite-wms-job-delegate-proxy

This command allows delegating a user proxy to the WMPProxy service. The user can either specify the `delegationId` to be associated with the delegated proxy by using the `--delegationid` option:

```
[trinity] /home/dorigoa > glite-wms-job-delegate-proxy -d myfirstdelegationID
```

or make the command automatically generate an ID by using the `--autm-delegation` option:

```
[trinity] /home/dorigoa > glite-wms-job-delegate-proxy -a
```

The `delegationId` is needed for performing job submission later. In particular `glite-wms-job-submit` and `glite-wms-job-list-match` are the only commands needing proxy delegation.

glite-wms-job-submit

This command allows submitting a job, DAG or collection to the WMPProxy. The request to be submitted has to be described by a JDL file as specified by document <https://edms.cern.ch/document/590869/1>. Submission can be performed either by using a previously delegated proxy (advised option), e.g.:

```
[trinity] /home/dorigoa > glite-wms-job-delegate-proxy -d myfirstdelegationID
```

or delegating a new proxy at each new submission, e.g.:

```
[trinity] /home/dorigoa > glite-wms-job-submit --autm-delegation -o myids JDL/mydag.jdl
```

To submit complex requests such as DAGs and Collections there is no change in the command syntax; it suffices passing a JDL file describing such requests to the job as shown above.

For job collections there is a further way to perform submission. The `--collection` option allows indeed to specify the path to a directory containing all the single JDL files of the jobs you want the collection is made of. The `glite-wms-job-submit` will generate the corresponding collection JDL and submit it. E.g.:

```
[trinity] /home/dorigoa > glite-wms-job-submit -d myfirstdelegationID -o myids --collection /home/dorigoa/KOLL/
```

where `/home/dorigoa/KOLL/` is the directory containing all the JDL files.

It is important to note that files that are shared from the sandboxes of different jobs will be transferred only once to the WMS node.

In all cases, upon success, the command returns an ID to the user that can be used as the handle to follow up the progress of the request itself.

glite-wms-job-list-match

This command provides the list of CEs matching the requirements of the job specified in the JDL. If the `--rank` option is specified it also prints the rank corresponding to each listed CE. E.g.:

```
[trinity] /home/dorigoa > glite-wms-job-list-match -d myfirstdlegationID --rank JDL/tt.jdl

Connecting to the service https://tigerman.cnaf.infn.it:7443/glite_wms_wmproxy_server

=====
                        COMPUTING ELEMENT IDs LIST
The following CE(s) matching your job requirements have been found:

      *CEId*                               *Rank*
- atlfarm006.mi.infn.it:2119/blah-pbs-infinite      0
- atlfarm006.mi.infn.it:2119/blah-pbs-long          0
- atlfarm006.mi.infn.it:2119/blah-pbs-short        0
- lxb2077.cern.ch:2119/blah-pbs-short              0
- lxde01.pd.infn.it:2119/blah-lsf-grid01           0
- lxde01.pd.infn.it:2119/blah-lsf-grid03           0
- lxde01.pd.infn.it:2119/blah-lsf-grid04           0
- lxb2077.cern.ch:2119/blah-pbs-infinite          -624999
- lxb2077.cern.ch:2119/blah-pbs-long              -624999
=====
```

This command does not support complex requests such as DAGs and collections.

glite-wms-job-cancel

This command allows canceling a previously submitted job. It takes as input a request ID (or job ID), e.g.:

```
[trinity] /home/dorigoa > glite-wms-job-cancel https://tigerman.cnaf.infn.it:9000/K4Tsz4jkgiAqZ1fcWU-pBQ
```

or a list of request IDs either on the command line or from an input file, e.g.:

```
[trinity] /home/dorigoa > glite-wms-job-cancel -i myids
```

It is important to note that nodes of a DAG cannot be canceled singularly as this could break dependencies.

glite-wms-job-output

This command performs the retrieval of the output sandbox files of a previously submitted request. Of course file retrieval is only allowed when the job has finished its execution (either succeeding or failing). For complex requests the command retrieves recursively all the output sandboxes of the request sub-jobs.

The user can specify the location on the local file system where the files have to be stored using the `--dir` option, and she can specify a single job ID or more than one, e.g.:

```
[trinity] /home/dorigoa > glite-wms-job-output --dir /home/dorigoa/myout https://tigerman.cnaf.infn.it:9000/6WBIXoTt1kk1SSHJc5h
```

```
[trinity] /home/dorigoa > glite-wms-job-output --dir /home/dorigoa/myout -i myids
```

then a subdir (named `<user name>_<jobId unique string>`) is created for each job specified on the command line and/or in `/home/dorigoa/myout` for containing the files for the given jobs. The same applies if the specified handle is the ID of a complex request.

The `--list-only` option allows listing the files of the output sandbox of a job without retrieving them.

Commands Sequence:

We report here an example of the sequence of steps that have to be performed to submit a job and to monitor its progress.

- Create a valid VOMS proxy as follows:

```
dorigoa@lxgrid05 10:53:26 ~->voms-proxy-init -voms dteam
Your identity: /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Alvise Dorigo
Creating temporary proxy ..... Done
Contacting voms.hellasgrid.gr:15004 [/C=GR/O=HellasGrid/OU=hellasgrid.gr/CN=voms.hellasgrid.gr] "dteam" Done
Creating proxy ..... Done
Your proxy is valid until Mon Jul 25 22:53:31 2011
```

- Delegate your proxy to the WMProxy service:

```
[trinity] /home/dorigoa > glite-wms-job-delegate-proxy -d delID1234

Delegating Credential to the service https://tigerman.cnaf.infn.it:7443/glite_wms_wmproxy_server

===== glite-wms-job-delegate-proxy Success =====

Your proxy has been successfully delegated to the WMProxy:
https://tigerman.cnaf.infn.it:7443/glite_wms_wmproxy_server

with the delegation identifier: delID1234

=====
```

- Submit a job to the WMProxy associating the previously delegated proxy to it:

```
[trinity] /home/dorigoa > glite-wms-job-submit -d delID1234 -o ids JDL/tt.jdl

Connecting to the service https://tigerman.cnaf.infn.it:7443/glite_wms_wmproxy_server

===== glite-wms-job-submit Success =====

The job has been successfully submitted to the WMProxy
Your job identifier is:

https://tigerman.cnaf.infn.it:9000/NEs1GSI8uYDE33SaobBIyA

The job identifier has been saved in the following file:
/home/dorigoa/ids

=====
```

- Submit a collection to the WMProxy associating the same delegated proxy to it:

```
[trinity] /home/dorigoa > glite-wms-job-submit -d delID1234 -o ids --collection /home/dorigoa/JDLS

Connecting to the service https://tigerman.cnaf.infn.it:7443/glite_wms_wmproxy_server

===== glite-wms-job-submit Success =====

The job has been successfully submitted to the WMProxy
Your job identifier is:

https://tigerman.cnaf.infn.it:9000/stshjZvp-yPdn7jGVX64Ag

The job identifier has been saved in the following file:
/home/dorigoa/ids

=====
```

- Monitor the status of the job (using the glite-wms-job-status command):

```
[trinity] /home/dorigoa > glite-wms-job-status -i ids

-----
1 : https://tigerman.cnaf.infn.it:9000/NEs1GSI8uYDE33SaobBIyA
2 : https://tigerman.cnaf.infn.it:9000/stshjZvp-yPdn7jGVX64Ag
a : all
```

```
q : quit
```

```
-----  
Choose one or more jobId(s) in the list - [1-2]all:1
```

```
*****  
BOOKKEEPING INFORMATION:
```

```
Status info for the Job : https://tigerman.cnaf.infn.it:9000/NEs1GSI8uYDE33SaobBIyA  
Current Status:      Ready  
Status Reason:      unavailable  
Destination:        lxde01.pd.infn.it:2119/blah-lsf-grid03  
Submitted:          Mon Jul 11 19:48:38 2005 CEST  
*****
```

- Retrieve the output for the collection:

```
[trinity] /home/dorigoa > glite-wms-job-output --dir /home/dorigoa/coll_output -i ids
```

```
-----  
1 : https://tigerman.cnaf.infn.it:9000/NEs1GSI8uYDE33SaobBIyA  
2 : https://tigerman.cnaf.infn.it:9000/stshjZvp-yPdn7jGVX64Ag  
a : all  
q : quit
```

```
-----  
Choose one or more jobId(s) in the list - [1-2]all (use , as separator or - for a range): 2
```

```
=====
```

```
                JOB GET OUTPUT OUTCOME  
Output files for the job:  
https://tigerman.cnaf.infn.it:9000/stshjZvp-yPdn7jGVX64Ag  
are stored in the directory: /home/dorigoa/coll_output
```

```
=====
```

```
[trinity] /home/dorigoa > ll /home/dorigoa/coll_output  
total 12  
drwxr-xr-x  2 dorigoa  grid          4096 Jul 11 20:03 dorigoa_FxBa61Ws4g4Z0wa3k28ckA  
drwxr-xr-x  2 dorigoa  grid          4096 Jul 11 20:02 dorigoa_vWDkzyzNOU6GG_ENPk-QEQ  
drwxr-xr-x  2 dorigoa  grid          4096 Jul 11 20:03 dorigoa_ZKpwNUXXyrbbUjDZd5B0dQ
```

- Check the status of the Collection and its nodes:

```
[trinity] /home/dorigoa > glite-wms-job-status -v 0 -i ids
```

```
-----  
1 : https://tigerman.cnaf.infn.it:9000/NEs1GSI8uYDE33SaobBIyA  
2 : https://tigerman.cnaf.infn.it:9000/stshjZvp-yPdn7jGVX64Ag  
a : all  
q : quit
```

```
-----  
Choose one or more jobId(s) in the list - [1-4]all:2
```

```
*****  
BOOKKEEPING INFORMATION:
```

```
Status info for the Job : https://tigerman.cnaf.infn.it:9000/stshjZvp-yPdn7jGVX64Ag  
Current Status:      Done (Success)
```

- Nodes information for:

```
Status info for the Job : https://tigerman.cnaf.infn.it:9000/vWDkzyzNOU6GG_ENPk-QEQ  
Current Status:      Done (Success)  
Status info for the Job : https://tigerman.cnaf.infn.it:9000/FxBa61Ws4g4Z0wa3k28ckA  
Current Status:      Done (Success)  
Status info for the Job : https://tigerman.cnaf.infn.it:9000/ZKpwNUXXyrbbUjDZd5B0dQ  
Current Status:      Done (Success)
```

```
*****
```

4 COMMANDLINE CONFIGURATION

This section provides a detailed description of the WMPProxy client commands configuration files, describing where they are supposed to be stored, which attributes they may contain, and which is the meaning of each attribute. It is basically the same configuration file (i.e. same structure and same set of admitted attributes) that can be located in multiple, different locations thus assuming slightly different meanings. Eventually is reported an example of a configuration file.

4.1 CONFIGURATION FILES

Configuration of the WMPProxy client commands is accomplished via two possible configuration files:

1. A VO-specific configuration file named `glite_wmsui.conf`, that is looked for in the directory `/etc/glite-wms/<VO_name_lowercase>/`
2. A user-specific configuration file that is looked for in the following order:
 - The file specified with the `--config` option made available by each WMPProxy client command.
 - `$HOME/.glite/<VO name-lowercase>/glite_wms.conf` otherwise. VO name must be specified by either using a proxy credential issued by VOMS [R3] or specifying the `--vo` option of the WMPProxy client commands. For those commands taking as input a JDL description (i.e. `glite-wms-job-submit` and `glite-wms-job-list-match`), the VO name can be read inside the JDL (VirtualOrganisation attribute) if not specified elsewhere.

Each of the above mentioned files is a classad containing definitions for the set of supported attributes (see Sect. 4.2).

Please note that:

- If the same attribute is defined in more than a configuration file, the definition in the user-specific configuration file (if any) is considered.
- At least one configuration file must be present on the client machine, in the above listed locations: this is enough for the commands to work.
- All non-mandatory attributes for which no default value is mentioned below are simply ignored by the commands.
- All string attributes set to empty string will be ignored by the commands (therefore possible previously found values will not be taken into account): this is the way a user has for 'disabling' features 'enabled' in the general or VO-specific configuration files (e.g. `MyProxyServer`, `HLR-Location`, `JobProvenance` etc.)

4.2 CONFIGURATION ATTRIBUTES

Here below are listed together, with a brief description, the attributes that can be specified in the configuration files; note that some of them must be inserted inside the `JdlDefaultAttributes` section (indicated by an asterisk before the attribute name in the following list) as shown in the example at page (16):

- **ErrorStorage**: the path where error and debug log files are stored. The default is `/var/tmp`.

- **OutputStorage:** the path where to copy retrieved job output and perusal files. This attribute is only read by `glite-wms-job-output` and `glite-wms-job-perusal`. The default is `/tmp`.
- **ListenerStorage:** the path where to create listener input/output pipes when submitting an interactive job. The default is `/tmp`.
- ***VirtualOrganisation:** the value of the Virtual Organization the file is related to. This attribute is mandatory.
- ***Rank:** the default value for Rank attribute, if not specified in the JDL being submitted. This attribute is only read by `glite-wms-job-submit` and `glite-wms-job-list-match`.
- ***Requirements:** the default value for Requirements attribute, if not specified in the JDL being submitted. Notice that when original job's JDL already contains this attribute, the final requirements will be a logical AND between the two expressions. This attribute is only read by `glite-wms-job-submit` and `glite-wms-job-list-match`.
- ***RetryCount:** the default value of RetryCount attribute, if not specified in the JDL being submitted. This attribute is only read by `glite-wms-job-submit` and `glite-wms-job-list-match`. The default value is 3.
- ***ShallowRetryCount:** the default value of ShallowRetryCount attribute, if not specified in the JDL being submitted. This attribute is only read by `glite-wms-job-submit` and `glite-wms-job-list-match`. The default value is 3.
- **WMProxyEndpoints:** the WMProxy Service endpoint where to send requests. Multiple service endpoints can be specified through this attribute by means of a list of strings. In this case the `glite-wms-job-submit` and `glite-wms-job-list-match` commands choose the endpoint randomly in the list. This attribute is mandatory.
- ***MyProxyServer:** the default value of MyProxyServer attribute (i.e. the address of the MyProxy server), if not specified in the JDL being submitted. The presence of this attribute activates the proxy renewal support in the WMS: if needed, the job user proxy will be renewed by WMS via the MyProxy server during job execution.
- **HLRLocation:** the default value of HLRLocation attribute (i.e. the address of the HLR for the given VO in the format `<hostname>:<port>:<X509contact string>`), if not specified in the JDL being submitted. HLR is the service responsible for managing the economic transactions and the accounts of user and resources. The presence of this attribute enables accounting for the submitted job.
- ***JobProvenance:** the default value of JobProvenance attribute (i.e. the address of the JobProvenance server), if not specified in the JDL being submitted. The presence of this attribute activates Job Provenance support: WMS will upload job sandbox files on the specified server.
- ***PerusalFileEnable:** Determines, for the job being submitted, whether the job file perusal support has to be enabled or not. This attribute is only read by `glite-wms-job-submit`. The default is *false*.
- ***AllowZippedISB:** When set to true, makes the `glite-wms-job-submit` command upload the job's input sandbox files to the WMProxy service node through a single tar-zipped file. This attribute is only read by `glite-wms-job-submit`. The default is *false*.

4.3 CONFIGURATION FILE EXAMPLE

This is an example of a WMPProxy client configuration file:

```
[
  JdlDefaultAttributes = [

    virtualorganisation="dteam";
    RetryCount = 3;
    ShallowRetryCount = 5;
    rank =-other.GlueCEStateEstimatedResponseTime;
    requirements = other.GlueCEStateStatus == "Production";
    MyProxyServer="myproxy.cern.ch";
    JobProvenance = "skurut.ics.muni.cz:8901";
    PerusalFileEnable = true ;
    AllowZippedISB      = true ;
  ];

  ErrorStorage="/var/log";
  OutputStorage="/tmp";
  ListenerStorage="/tmp";
  WMPProxyEndPoints = {
    "https://cream-44.pd.infn.it:7443/glite_wms_wmproxy_server",
    "https://devel09.cnaf.infn.it:7443/glite_wms_wmproxy_server"
  };

  HLRLocation = "skurut.ics.muni.cz:8901";
]
```

5 COMMANDLINE REFERENCE GUIDE

In this section we describe syntax and behavior of the commands made available by the WMProxy client to allow jobs, DAGs and Collections submission. Jobs in turn can be batch, interactive, MPI-based, checkpointable, partitionable and parametric. Besides requests submission, the WMProxy client also exposes additional functionality for request management and control such as cancellation, job files perusal and output retrieval. Requests status follow-up can be instead achieved through the functionality exposed by the Logging & Bookkeeping (LB) service described in [R2].

5.1 GLITE-WMS-JOB-DELEGATE-PROXY

glite-wms-job-delegate-proxy

SYNOPSIS

glite-wms-job-delegate-proxy <delegation-opts> [options]

delegation-opts:

```
--delegationid, -d <idstring>  
--autm-delegation, -a
```

options:

```
--version  
--help  
--config, -c <filepath>  
--vo <voname>  
--debug  
--logfile <filepath>  
--noint  
--endpoint, -e <serviceURL>  
--output, -o <filepath>  
--all
```

DESCRIPTION

glite-wms-job-delegate-proxy allows delegating a user proxy to the WMProxy service. The user can either specify the delegationid to be associated with the delegated proxy by using the --delegationid option:

```
glite-wms-job-delegate-proxy -d mydelegationid
```

or make the command automatically generate an ID by using the --autm-delegation option.

One of these two options is mandatory and they're mutually exclusive. If a delegation with the same id and belonging to the same user already exists in the WMProxy service, the new proxy will overwrite the one associated to that delegation id. Credential delegation with the same id used for a proxy belonging to another user is possible.

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by `<configfile>` is used. This option is meaningless when used together with `--vo` option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the `/var/tmp` directory or in the log file specified with `--logfile` option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is `<filepath>`) is created.

--noint

if this option is specified, every interactive question to the user is skipped ('yes' is assumed as user's answer) and the operation is continued (when possible)

--delegationid, -d <idstring>

if this option is specified, the proxy that will be delegated is identified by `<idstring>`. This proxy can be therefore used for operations like job registration, job submission and job list matching until its expiration specifying the `<idstring>`. It must be used in place of `--autm-delegation` option.

--autm-delegation, -a

this option is specified to make automatic generation of the identifier string (`delegationid`) that will be associated to the delegated proxy. It must be used in place of the `--delegationid` (`-d`) option.

--endpoint, -e <serviceURL>

when this option is specified, the operations are performed contacting the WMPProxy service represented by the given `serviceURL`. If it is not used, the endpoint contacted is that one specified by the `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If none of these options is specified and the environment variable is not set, the service request will be sent to one of the endpoints listed in the `WMPProxyEndPoints` attribute in the user configuration file (randomly chosen among the URLs of the attribute list). If the chosen service is not available, a succession of attempts are performed on the other specified services until the connection with one of these endpoints can be established or all services have

been contacted without success. In this latter case the operation can not be obviously performed and the execution of the command is stopped with an error message.

--all

when this option is specified, delegation is performed on all the endpoints

--output, -o <filepath>

if this option is specified, the following information is saved in the file specified by <filepath>: date and time the delegation operation was performed; WMProxy service URL; idstring associated to the delegated proxy. filepath can be either a simple name or an absolute path (on the submitting machine). In the former case the file is created in the current working directory.

EXAMPLES

1. delegates the user credential with "exID" identifier :

```
glite-wms-job-delegate -d exID
```

2. delegates the user credential with "exID" identifier to the WMProxy service specified with the -e option:

```
glite-wms-job-delegate -d exID \  
-e https://wmpoxy.glite.it:7443/glite_wms_wmproxy_server
```

3. delegates the user credential automatically generating the id string :

```
glite-wms-job-delegate -a
```

4. delegates the user credential to the WMProxy service specified with the -e option automatically generating the id string :

```
glite-wms-job-delegate -a \  
-e https://wmpoxy.glite.it:7443/glite_wms_wmproxy_server
```

When --endpoint (-e) is not specified, the search of an available WMProxy service is performed according to the modality reported in the description of the --endpoint option.

FILES

voName/glite_wms.conf: The user configuration file. The standard path location is /etc/glite-wms.
/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

ENVIRONMENT

- GLITE_WMS_WM_PROXY_ENDPOINT: This variable may be set to specify the endpoint URL
- GLOBUS_LOCATION: This variable must be set when the Globus installation is not located in the default path /opt/globus.
- GLOBUS_TCP_PORT_RANGE="*<val min> <val max>*": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context

- **X509_CERT_DIR:** This variable may be set to override the default location of the trusted certificates directory, which is normally `/etc/grid-security/certificates`.
- **X509_USER_PROXY:** This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- **GLITE_SD_PLUGIN:** If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- **LCG_GFAL_INFOSYS:** If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.2 GLITE-WMS-JOB-SUBMIT

glite-wms-job-submit

SYNOPSIS

glite-wms-job-submit <delegation-opts> [options] <jdl_file>

delegation-opts:

```
--delegationid, -d <id_string>
--autm-delegation, -a
```

options:

```
--version
--help
--endpoint, -e      <service_URL>
--config, -c        <configfile>
--vo                <voname>
--debug
--logfile           <filepath>
--noint
--input, -i         <filepath>
--resource, -r      <ceid>
--nodes-resource   <ceid>
--nolisten
--nomsg
--lrms              <lrms type>
--to                <[MM:DD:]hh:mm[:[CC]YY]>
--valid, -v         <hh:mm>
--register-only
--transfer-files
--proto            <protocol>
--start            <jobid>
--output, -o       <filepath>
--collection, -c   <dirpath>
--dag              <dirpath>
--default-jdl      <filepath>
--jsdl             <filepath>
--json
--pretty-print
```

DESCRIPTION

glite-wms-job-submit is the command for submitting simple jobs, DAGs, collections and parametric jobs to the WMPProxy service: hence allows the user to run these jobs at one or several remote resources. It requires as input a job description file in which job characteristics and requirements are expressed by means of Condor class-ad-like expressions. While it does not matter the order of the other arguments, the job description file has to be the last argument of this command.

Submission can be performed either by using a proxy previously delegated to the WMPProxy (for example with the glite-wms-job-delegate-proxy command) or delegating a new proxy at each new submission

("automatic delegation"). In the former case the the `--delegationid (-d)` option must be used, specifying the id string associated with the delegated proxy.

E.g.:

1. `glite-wms-job-delegate-proxy --delegationid <mydelegID>`
2. `glite-wms-job-submit --delegationid mydelegID <myjob ID>`

For automatic delegation the `--autm-delegation (-a)` option must be used. Only one of these two options must be specified. For job collections there is a further way to perform submission. The `--collection` option allows indeed to specify the path to a directory containing all the single JDL files of the jobs you want the collection is made of. The `glite-wms-job-submit` will generate the corresponding collection JDL and submit it.

E.g.:

```
glite-wms-job-submit -d mydelegID --collection /home/glite/KOLL/
```

where `/home/glite/KOLL/` is the directory containing all the JDL files.

In all cases, upon success, the command returns an ID to the user that can be used as the handle to follow up the progress of the request itself.

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by `<configfile>` is used. This option is meaningless when used together with `--vo` option

--vo <vname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the /var/tmp directory or in the log file specified with --logfile option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is <filepath>) is created.

--endpoint, -e <serviceURL>

when this option is specified, the operations are performed contacting the WMPProxy service represented by the given <serviceURL>. If it is not used, the endpoint contacted is that one specified by the GLITE_WMS_WM_PROXY_ENDPOINT environment variable. If none of these options is specified and the environment variable is not set, the service request will be sent to one of the endpoints listed in the WMPProxyEndPoints attribute in the user configuration file (randomly chosen among the URLs of the attribute list). If the chosen service is not available, a succession of attempts are performed on the other specified services until the connection with one of these endpoints can be established or all services have been contacted without success. In this latter case the operation can not be obviously performed and the execution of the command is stopped with an error message.

--noint

If this option is specified, every interactive question to the user is skipped and the operation is continued (when possible)

--delegationid, -d <idstring>

If this option is specified, the proxy that will be delegated is identified by <idstring>. This proxy can be therefore used for operations like job registration, job submission and job list matching until its expiration specifying the <idstring>. It must be used in place of --autm-delegation option.

--autm-delegation, -a

This option is specified to make automatic generation of the identifier string (delegationid) that will be associated to the delegated proxy. It must be used in place of the --delegationid (-d) option.

--input, -i <filepath>

If this option is specified, the user will be asked to choose a CEId from a list of CEs contained in the <filepath>. Once a CEId has been selected the command behaves as explained for the resource option. If this option is used together with the --noint one and the input file contains more than one CEId, then the first CEId in the list is taken into account for submitting the job.

--resource, -r <ceid>

This option is available only for jobs. If it is specified, the job-ad sent to the WMPProxy service contains a line of the type "SubmitTo = <ceid>" and the job is submitted by the WMS to the resource identified by <ceid> without going through the match-making process.

--nodes-resource <ceid>

This option is available only for DAGs. If it option is specified, the job-ad sent to the WMPProxy service contains a line of the type "SubmitTo = <ceid>" and the DAG is submitted by the WMS to the resource identified by <ceid> without going through the match-making process for each of its nodes.

--nolisten

This option can be used only for interactive jobs. It makes the command forward the job standard streams coming from the WN to named pipes on the client machine whose names are returned to the user together with the OS id of the listener process. This allows the user to interact with the job through her/his own tools. It is important to note that when this option is specified, the command has no more control over the launched listener process that has hence to be killed by the user (through the returned process id) once the job is finished.

--nomsg

This option makes the command print on the standard output only the jobId generated for the job if submission was successful; the location of the log file containing messages and diagnostics is printed otherwise.

--lrms <lrms>

This option is only for MPICH jobs and must be used together with either --resource or --input option; it specifies the type of the lrms of the resource the user is submitting to. When the batch system type of the specified CE resource given is not known, the lrms must be provided while submitting. For non-MPICH jobs this option will be ignored.

--to <[MM:DD:]hh:mm[:[CC]YY]>

A job for which no compatible CEs have been found during the matchmaking phase is hold in the WMS Task Queue for a certain time so that it can be subjected again to matchmaking from time to time until a compatible CE is found. The JDL ExpiryTime attribute is an integer representing the date and time (in seconds since epoch) until the job request has to be considered valid by the WMS. This option sets the value for the ExpiryTime attribute to the submitted JDL converting appropriately the absolute timestamp provided as input. It overrides, if present, the current value. If the specified value exceeds one day from job submission then it is not taken into account by the WMS.

--valid, -v <hh:mm>

A job for which no compatible CEs have been found during the matchmaking phase is hold in the WMS Task Queue for a certain time so that it can be subjected again to matchmaking from time to time until a compatible CE is found. The JDL ExpiryTime attribute is an integer representing the date and time (in seconds since epoch) until the job request has to be considered valid by the WMS. This option allows to specify the validity in hours and minutes from submission time of the submitted JDL. When this option is used the command sets the value for the ExpiryTime attribute converting appropriately the relative timestamp provided as input. It overrides, if present, the current value. If the specified value exceeds one day from job submission then it is not taken into account by the WMS.

--register-only

If this option is specified, the job is only registered to the WMPProxy service. Local files that could be in the JDL InputSandbox attribute are not transferred unless the --transfer-files is also specified; and the job is not started. If the --transfer-files option is not specified, the command displays the list of the local files to be transferred before starting the job. In this list each local file is matched to the corresponding Destination URI where it has to be transferred. The URIs are referred to either the default protocol (gsiftp) or another protocol specified by --proto. Not using the --transfer-files option, users can transfer these files by low level commands like either globus-url-copy or curl. After having transferred all files, the job can be started launching again this command with the --start option:

```
glite-wms-job-submit --start <jobid>
```

--transfer-files

This option must be only used with the --register-only option. It enables transferring operation for files in the JDL InputSandbox attribute located on the submitting machine. These files are transferred to the WMPProxy machine.

--proto <protocol>

This option specifies the protocol to be used for file transferring. It will be ignored when the specified protocol is not found among WMPProxy service available protocols: in this case the default one (generally gsiftp) will be used instead.

--start <jobid>

This option allows starting a job (specified by JobId) previously registered and whose InputSandbox files on the submitting machine have been already transferred to the WMProxy machine.

--output, -o <filepath>

Writes the generated jobId assigned to the submitted job in the file specified by <filepath>, which can be either a simple name or an absolute path (on the submitting machine). In the former case the file is created in the current working directory.

--collection, -c <dirpath>

This option allows specifying the directory pointed by <dirpath> containing all the single JDL files of the jobs that the collection will be made of. The corresponding collection JDL will be generated and submitted. Using this option the jdl_file (the last argument) must not be specified. Please note that the directory specified through the --collection option MUST only contain JDL files describing simple jobs (i.e. no DAGs, no collections). All job types are admitted but "partitionable" and "parametric". Please note that this option cannot be used with --default-jdl.

--dag <dirpath>

This option allows specifying the directory pointed by <dirpath> containing all the single JDL files of the jobs that the DAG will be made of. The corresponding DAG JDL will be generated and submitted. Using this option the jdl_file (the last argument) must not be specified. This option is only available from glite version ≥ 3.1 .

--default-jdl <filepath>

This option Allows specifying a further jdl file whose attributes will be merged into the submitting (if not yet present). This option is only available from glite version ≥ 3.1 . Please note that this option cannot be used with --collection

--json

This option makes the command produce its output in JSON-compliant format, that can be parsed by proper json libraries for python/perl and other script languages. Please note that --json and --output options are mutually exclusive.

--pretty-print

This option should be used with --json. Without it the JSON format is machine-oriented (no carriage returns, no indentations). --pretty-print makes the JSON output easily readable by a human. Using this option without --json has no effect.

--jsdl <filepath>

This option must not be used with the last argument <jdl_file> (they're mutually exclusive). It is needed when the job description language used by the user is JSDL instead of standard JDL. Please refer to this document [R8] for documentation about JSDL language.

EXAMPLES

Upon successful submission, this command returns the identifier (JobId) assigned to the job

1. submission with automatic credential delegation:

```
glite-wms-job-submit -a ./job.jdl
```

2. submission with a proxy previously delegated with "exID" id-string; request for displays CE rank numbers:

```
glite-wms-job-submit -d exID ./job.jdl
```

3. sends the request to the WMProxy service whose URL is specified with the -e option (where a proxy has been previously delegated with "exID" id-string)

```
glite-wms-job-submit -d exID \  
-e https://wmproxy.glite.it:7443/glite_wms_wmproxy_server \  
./job.jdl
```

4. saves the returned JobId in a file:

```
glite-wms-job-submit -a --output jobid.out ./job.jdl
```

5. submits a collection whose JDL files are located in \$HOME/collection_ex:

```
glite-wms-job-submit -d exID --collection $HOME/collection_ex
```

6. forces the submission to the resource specified with the -r option:

```
glite-wms-job-submit -d exID -r lxb1111.glite.it:2119/blah-lsf-jra1_low \  
./job.jdl
```

7. forces the submission of the DAG (the parent and all child nodes) to the resource specified with the --nodes-resources option:

```
glite-wms-job-submit -d exID \  
--nodes-resources lxb1111.glite.it:2119/blah-lsf-jra1_low \  
./dag.jdl
```

When --endpoint (-e) is not specified, the search of an available WMProxy service is performed according to the modality reported in the description of the --endpoint option.

FILES

voName/glite_wms.conf: The user configuration file. The standard path location is /etc/glite-wms.
/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

JDL: The file containing the description of the job in the JDL language located in the path specified by jdl_file (the last argument of this command); multiple jdl files can be used with the --collection option

ENVIRONMENT

- **GLITE_WMS_WM_PROXY_ENDPOINT**: This variable may be set to specify the endpoint URL
- **GLOBUS_LOCATION**: This variable must be set when the Globus installation is not located in the default path `/opt/globus`.
- **GLOBUS_TCP_PORT_RANGE**="`<val min> <val max>`": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- **X509_CERT_DIR**: This variable may be set to override the default location of the trusted certificates directory, which is normally `/etc/grid-security/certificates`.
- **X509_USER_PROXY**: This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- **GLITE_SD_PLUGIN**: If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- **LCG_GFAL_INFOSYS**: If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.3 GLITE-WMS-JOB-LIST-MATCH

glite-wms-job-list-match

SYNOPSIS

glite-wms-job-list-match [options] <jdl_file>

delegation-opts:

```
--delegationid, -d <id_string>  
--autm-delegation, -a
```

options:

```
--version  
--help  
--config, -c <configfile>  
--vo <voname>  
--debug  
--logfile <filepath>  
--noint  
--endpoint, -e <serviceURL>  
--rank  
--output, -o <filepath>  
--json  
--pretty-print
```

DESCRIPTION

displays the list of identifiers of the resources on which the user is authorized and satisfying the job requirements included in the job description file. The CE identifiers are returned either on the standard output or in a file according to the chosen command options, and are strings universally identifying the CEs published in the IS. The returned CEIDs are listed in decreasing order of rank, i.e. the one with the best (greater) rank is in the first place and so forth.

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by <configfile> is used. This option is meaningless when used together with `--vo` option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the `/var/tmp` directory or in the log file specified with `--logfile` option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is `<filepath>`) is created.

--noint

if this option is specified, every interactive question to the user is skipped (yes is assumed as answer) and the operation is continued (when possible)

--delegationid, -d <idstring>

if this option is specified, the proxy that will be delegated is identified by `<idstring>`. This proxy can be therefore used for operations like job registration, job submission and job list matching until its expiration specifying the `<idstring>`. It must be used in place of `--autm-delegation` option.

--autm-delegation, -a

this option is specified to make automatic generation of the identifier string (delegationid) that will be associated to the delegated proxy. It must be used in place of the `--delegationid (-d)` option.

--endpoint, -e <serviceURL>

when this option is specified, the operations are performed contacting the WMPProxy service represented by the given `<serviceURL>`. If it is not used, the endpoint contacted is that one specified by the `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If none of these options is specified and the environment variable is not set, the service request will be sent to one of the endpoints listed in the `WMPProxyEndPoints` attribute in the user configuration file (randomly chosen among the URLs of the attribute list). If the chosen service is not available, a succession of attempts are performed on the other specified services until the connection with one of these endpoints can be established or all services have been contacted without success. In this latter case the operation can not be obviously performed and the execution of the command is stopped with an error message.

--rank

displays the "matching" CEIDs and the associated ranking values.

output, -o <filepath>

returns the CEIDs list in the file specified by `filepath`. `<filepath>` can be either a simple name or an absolute path (on the submitting machine). In the former case the file `<filepath>` is created in the current working directory.

--json

This option makes the command produce its output in JSON-compliant format, that can be parsed by proper json libraries for python/perl and other script languages. Please note that `--json` and `--output` options are mutually exclusive.

--pretty-print

This option should be used with `--json`. Without it the JSON format is machine-oriented (no carriage returns, no indentations). `--pretty-print` makes the JSON output easily readable by a human. Using this option without `--json` has no effect.

EXAMPLES

1. request with automatic credential delegation:

```
glite-wms-job-list-match -a ./match.jdl
```

If the operation succeeds, the output will be a list of CEs

2. request with a proxy previously delegated with "exID" id-string; request for displays CE rank numbers:

```
glite-wms-job-list-match -d exID --rank ./match.jdl
```

If the operation succeeds, a list of CEs with their rank numbers is displayed on the standard output

3. saves the result in a file:

```
glite-wms-job-list-match -a --output match.out ./match.jdl
```

If the operation succeeds, a list of CEs is saved in the file `match.out` in the current working directory

4. sends the request to the WMPProxy service whose URL is specified with the `-e` (where a proxy has been previously delegated with "exID" id-string)

```
glite-wms-job-list-match -d exID \  
-e https://wmpoxy.glite.it:7443/glite_wms_wmpoxy_server \  
$HOME/match.jdl
```

If the operation succeeds, a list of CEs is displayed on the standard output

When `--endpoint (-e)` is not specified, the search of an available WMPProxy service is performed according to the modality reported in the description of the `--endpoint` option.

FILES

`voName/glite_wms.conf`: The user configuration file. The standard path location is `/etc/glite-wms`.

`/tmp/x509up_u<uid>`: A valid X509 user proxy; use the `X509_USER_PROXY` environment variable to override the default location

ENVIRONMENT

- `GLITE_WMS_WM_PROXY_ENDPOINT`: This variable may be set to specify the endpoint URL
- `GLOBUS_LOCATION`: This variable must be set when the Globus installation is not located in the default path `/opt/globus`.

- **GLOBUS_TCP_PORT_RANGE**="`<val min> <val max>`": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- **X509_CERT_DIR**: This variable may be set to override the default location of the trusted certificates directory, which is normally `/etc/grid-security/certificates`.
- **X509_USER_PROXY**: This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- **GLITE_SD_PLUGIN**: If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- **LCG_GFAL_INFOSYS**: If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.4 GLITE-WMS-JOB-CANCEL

glite-wms-job-cancel

SYNOPSIS

glite-wms-job-cancel [options] <jobID1> <jobID2> ...

options:

```
--version
--help
--confab, -c <configfile>
--vo <voname>
--debug
--logfile <filepath>
--noint
--input, -i <filepath>
--output, -o <filepath>
--json
--pretty-print
```

DESCRIPTION

glite-wms-job-cancel cancels a job previously submitted using glite-wms-job-submit. Before cancellation, it prompts the user for confirmation. The cancel request is sent to the WMProxy that forwards it to the WM that fulfills it. glite-wms-job-cancel can remove one or more jobs: the jobs to be removed are identified by their job identifiers (jobIDs returned by glite-wms-job-submit) provided as arguments to the command and separated by a blank space. The result of the cancel operation is reported to the user for each specified jobId.

OPTIONS

--version

displays WMProxy client and servers version numbers. If the --endpoint option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with GLITE_WMS_WM_PROXY_ENDPOINT environment variable. If the option is not specified and the environment variable is not set, all servers listed in the WMProxyEndPoints attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by <configfile> is used. This option is meaningless when used together with --vo option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default

VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the `/var/tmp` directory or in the log file specified with `--logfile` option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is `<filepath>`) is created.

--noint

if this option is specified, every interactive question to the user is skipped and the operation is continued (when possible)

--input, -i <filepath>

Cancels jobs whose jobIds are contained in the file located in `filepath`. This option cannot be used if one or more jobIds have been specified. If the `--noint` is not specified, the list of jobIds contained in the file is displayed and the user is prompted for a choice. Single jobs can be selected specifying the numbers associated to the job identifiers separated by commas. E.g. selects the first, the third and the fifth jobId in the list. Ranges can also be selected specifying ends separated by a dash. E.g. selects jobIds in the list from third position (included) to sixth position (included). It is worth mentioning that it is possible to select at the same time ranges and single jobs. E.g. selects the first job id in the list, the ids from the third to the fifth (ends included) and finally the eighth one.

--output, -o <filepath>

writes the cancellation results in the file specified by `<filepath>` instead of the standard output. `<filepath>` can be either a simple name or an absolute path (on the submitting machine). In the former case the file `<filepath>` is created in the current working directory.

--json

This option makes the command produce its output in JSON-compliant format, that can be parsed by proper json libraries for python/perl and other script languages. Please note that `--json` and `--output` options are mutually exclusive.

--pretty-print

This option should be used with `--json`. Without it the JSON format is machine-oriented (no carriage returns, no indentations). `--pretty-print` makes the JSON output easily readable by a human. Using this option without `--json` has no effect.

EXAMPLES

1. request for canceling only one job:

```
glite-wms-job-cancel https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg
```

2. request for canceling multiple jobs:

```
glite-wms-job-cancel https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg \  
https://wmpoxy.glite.it:9000/wqikja_-de83jdd \  
https://wmpoxy.glite.it:9000/wugrfja-de91jxxd
```

3. the myids.in input file contains the jobid(s)

```
glite-wms-job-cancel --input myids.in
```

A message with the result of the operation is displayed on the standard output

FILES

voName/glite_wms.conf: The user configuration file. The standard path location is /etc/glite-wms.
/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

ENVIRONMENT

- **GLITE_WMS_WMPROXY_ENDPOINT**: This variable may be set to specify the endpoint URL
- **GLOBUS_LOCATION**: This variable must be set when the Globus installation is not located in the default path /opt/globus.
- **GLOBUS_TCP_PORT_RANGE**="**<val min> <val max>**": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- **X509_CERT_DIR**: This variable may be set to override the default location of the trusted certificates directory, which is normally /etc/grid-security/certificates.
- **X509_USER_PROXY**: This variable may be set to override the default location of the user proxy credentials, which is normally /tmp/x509up_u<uid>.
- **GLITE_SD_PLUGIN**: If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally bdii, rgma (or both, separated by comma)
- **LCG_GFAL_INFOSYS**: If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.5 GLITE-WMS-JOB-OUTPUT

glite-wms-job-output

SYNOPSIS

glite-wms-job-output [options] <job ID 1> <job ID 2> ...

options:

```
--version
--help
--config, -c <configfile>
--vo <voname>
--debug
--logfile <filepath>
--noint
--input, -i <filepath>
--dir <directorypath>
--nosubdir
--nopurge
--proto <protocol>
--list-only
--json
--pretty-print
```

DESCRIPTION

glite-wms-job-output retrieves the output files of a job that has been submitted through the glite-wms-job-submit command with a job description file including the OutputSandbox attribute. After the submission, when the job has terminated its execution, the user can download the files generated by the job and temporarily stored on the WMS machine as specified by the OutputSandbox attribute, issuing the glite-wms-job-output with as input the jobId returned by the glite-wms-job-submit.

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the --endpoint option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with GLITE_WMS_WM_PROXY_ENDPOINT environment variable. If the option is not specified and the environment variable is not set, all servers listed in the WMPProxyEndPoints attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by <configfile> is used. This option is meaningless when used together with --vo option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the `/var/tmp` directory or in the log file specified with `--logfile` option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is `<filepath>`) is created.

--noint

if this option is specified, every interactive question to the user is skipped and the operation is continued (when possible)

--input, -i <filepath>

this option makes the command return the `OutputSandbox` files for each `jobId` contained in the `<filepath>`. This option can't be used if one (or more) `jobIds` have been already specified. The format of the input file must be as follows: one `jobId` for each line and comment lines must begin with a '#' or a '*' character. When this option is used, the list of `jobIds` contained in the file is displayed and the user is prompted for a choice. Single jobs can be selected specifying the numbers associated to the job identifiers separated by commas. E.g. selects the first, the third and the fifth `jobId` in the list. Ranges can also be selected specifying ends separated by a dash. E.g. "3-6" selects `jobIds` in the list from third position (included) to sixth position (included). It is worth mentioning that it is possible to select at the same time ranges and single jobs. E.g. selects the first `job id` in the list, the ids from the third to the fifth (ends included) and finally the eighth one.

--dir <directory_path>

if this option is specified, the retrieved files (previously listed by the user through the `OutputSandbox` attribute of the job description file) are stored in a directory whose name is `username_<JOB_Identifier>`; this directory, in turn, is located in the location indicated by `directory_path`. If `--dir` is not specified, the directory containing the job's output files will be put in the destination folder specified as value of the JDL attribute `OutputStorage` (see section 4.2 at page 14).

--nosubdir

job's output files are located in the destination folder (specified with `--dir` option or through the `OutputStorage` JDL parameter) without creating any subdirectory.

--nopurge

if this option is specified, the output sandbox on WMS node is not purged, and the command can be repeated (the job's output can be retrieved again).

--proto <protocol>

this option specifies the protocol to be used for file transferring. It will be ignored when the specified protocol is not found among `WMProxy` service available protocols: in this case the default one (generally `gsiftp`) will be used instead. This option is only available from `glite` version `>= 3.1`.

--list-only

when this option is specified, the output files (previously listed by the user through the OutputSandbox attribute of the job description file) are not retrieved. The command only displays the list of URIs indicating where they are currently located.

--json

This option makes the command produce its output in JSON-compliant format, that can be parsed by proper json libraries for python/perl and other script languages.

--pretty-print

This option should be used with --json. Without it the JSON format is machine-oriented (no carriage returns, no indentations). --pretty-print makes the JSON output easily readable by a human. Using this option without --json has no effect.

EXAMPLES

1. `glite-wms-job-output https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg`
if the operation succeeds, the `/tmp/<jobId-UniqueString>` directory contains the retrieved files

2. `glite-wms-job-output --dir $HOME/my_dir \
https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg`
if the operation succeeds, the `$HOME/my_dir` directory contains the retrieved files

3. request for output of multiple jobs:

```
glite-wms-job-output https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg \  
https://wmpoxy.glite.it:9000/wqikja_-de83jddq \  
https://wmpoxy.glite.it:9000/jdh_wpwkd134ywhq6p
```

if the operation succeeds, each `/tmp/<jobId-UniqueString>` directory contains the retrieved files for the corresponding job

4. the `myids.in` input file contains the `jobid(s)`

```
glite-wms-job-output --input myids.in
```

if the operation succeeds, each `/tmp/<jobId-UniqueString>` directory contains the retrieved files for the corresponding job

FILES

`voName/glite_wms.conf`: The user configuration file. The standard path location is `/etc/glite-wms`.

`/tmp/x509up_u<uid>`: A valid X509 user proxy; use the `X509_USER_PROXY` environment variable to override the default location

ENVIRONMENT

- `GLITE_WMS_WMPROXY_ENDPOINT`: This variable may be set to specify the endpoint URL
- `GLOBUS_LOCATION`: This variable must be set when the Globus installation is not located in the default path `/opt/globus`.

- `GLOBUS_TCP_PORT_RANGE=<val min> <val max>`: This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- `X509_CERT_DIR`: This variable may be set to override the default location of the trusted certificates directory, which is normally `/etc/grid-security/certificates`.
- `X509_USER_PROXY`: This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- `GLITE_SD_PLUGIN`: If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- `LCG_GFAL_INFOSYS`: If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.6 GLITE-WMS-JOB-PERUSAL

glite-wms-job-perusal

SYNOPSIS

glite-wms-job-perusal <operation options> <file options> [options] <jobId>

operation options (mandatory):

```
--get  
--set  
--unset
```

file options: (mandatory for set and get operations)

```
--filename, -f <filename> (*)  
--input-file <file_path>
```

other options:

```
--help  
--version  
--config, -c <file_path>  
--vo <vo_name>  
--input, -i <file_path>  
--dir <directory_path>  
--proto <protocol>  
--all (**)  
--output, -o <file_path>  
--nodisplay  
--debug  
--logfile <file_path>
```

(*) With --set multiple files can be specified by repeating the option several times

(**) only with --get to returns all chunks of the given file

DESCRIPTION

Allows handling files perusal functionality for a submitted job identified by the jobId. This can be done only when files perusal support has been enabled while submitting/registering the job. This is accomplished via the 'PerusalFileEnable' JDL attribute.

Three different operations can be performed for a given job:

- Job's file perusal set (--set option): it allows enabling the perusal functionality for one or more specified files.

This option requires the user to specify the file(s) to be perused: this can be done by using either the --filename (multiple files can be specified by repeating the option several times) or the --input option (the user will be prompted to select one or more files).

- Job's file perusal get (--get option): it allows retrieving chunks of one specified job's file previously set for perusal by means of the --set option.

This option requires the user to specify the file to be retrieved: this can be done by using either the `--filename` (no multiple files support available) or the `--input` option (the user will be prompted to select one file). The specified file is therefore downloaded on the local machine and it can be viewed on the user shell. User can specify a custom directory where to download the files by using the `--dir` option. The retrieval of files to be perused is available as soon as the job has started running: the command will retrieve the content of the generated file up to the time of the call. By default, any further call on the same file, retrieves back only the last chunks of the file, that means only the information stored after the last call. To retrieve all chunks of a given file (even those that might have been previously retrieved), the `--all` option must be specified.

- Job's file perusal unset (`--unset` option): it disables perusal for all job's files (no further option required)

All Perusal functionality are available for simple jobs and for nodes of compound jobs (like DAGs, collections and parametric jobs) but not for compound jobs as a whole. Moreover the WMPProxy service version must be greater than or equal to 2.0.0 (the service version can be retrieved by using the `--version` option of the client commands).

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by `<configfile>` is used. This option is meaningless when used together with `--vo` option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the `/var/tmp` directory or in the log file specified with `--logfile` option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is `<filepath>`) is created.

--input-file <filepath>

this option can be used only when --set or --get option are specified too. It allows the user to specify respectively the job's file(s) to be perused or retrieved. The list of files contained in <filepath> is displayed and the user is prompted for a choice. With the --set option multiple files can be specified by selecting more items from the list. Instead, multiple files cannot be specified with --get.

This option is ignored if used with the --unset option.

--set

if this option is specified, files perusal is enabled for the job (indicated by JobId) for the file(s) specified through the --filename option. Multiple files can be specified by repeating the option several times (e.g.: --filename <file1> --filename <file2> --filename <file3> ..etc). This option cannot be specified together with --get and --unset.

--get

if this option is specified, the file specified with the --filename option is downloaded on the local machine. Multiple files can not be specified. This option cannot be specified together with --set and --unset.

--unset

if this option is specified, files perusal is disabled for the given job. This option cannot be specified together with --set and --get.

--filename, -f <filename>

this option can be used only when --set or --get option are specified too. It allows the user to specify the job's file(s) to be perused or retrieved. With the --set option multiple files can be specified by repeating the option several times. Instead, multiple files cannot be specified with --get.

e.g.:

```
--filename <file1> --filename <file2> --filename <file3> ...
```

This option is ignored if used with the --unset option.

--all

This option can only be specified together with --get: all chunks of the specified file will be downloaded (even those that might have been previously retrieved)

--dir <directorypath>

if this option is specified, the retrieved files are stored in the location pointed by directory_path instead of the default location /tmp/<jobIdunique string> . This option is ignored if used with either the --set or the --get options.

--proto <protocol>

this option specifies the protocol to be used for file transferring. It will be ignored when the specified protocol is not found among WMPProxy service available protocols: in this case the default one (generally gsiftp) will be used instead. This option is only available from glite version >= 3.1.

--output, -o <filepath>

this option can only be used together with either the --set or with the --get option. Information about these two operations are saved in the file specified by <filepath> at the end of the execution: for --set the filename(s) for which perusal has been enabled; for --get the local pathnames to the retrieved files. <filepath> can be either a simple name or an absolute path (on the local machine). In the former case the file is created in the current working directory.

--nodisplay

this option can only be specified together with the --get one; it ends the execution of the command without displaying the content of the downloaded files. This option is ignored if used with --set or --unset.

EXAMPLES

1. enable perusal for several job's files:

```
glite-wms-job-perusal --set --filename file1.pr --filename file2.txt \  
--filename file3.a \  
https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg
```

A message with the result of the operation is displayed on the standard output

2. file retrieval:

- download the last chunk of a file in the default directory (/tmp/<jobId_UniqueStr> unless otherwise specified in the command config file):

```
glite-wms-job-perusal --get --filename file1.pr \  
https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg
```

- download the last chunk of a file in a custom directory:

```
glite-wms-job-perusal --get --filename file2.txt --dir /tmp/my_dir \  
https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg
```

- download the whole file (generated so far) in the default directory: already retrieved chunks (if any) are downloaded again:

```
glite-wms-job-perusal --get --filename file2.txt --all \  
https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg
```

3. disable files perusal for the given job:

```
glite-wms-job-perusal --unset https://wmpoxy.glite.it:9000/700j4Fequpg7M6SRJ-NvLg
```

A message with the result of the operation is always displayed on the standard output.

FILES

voName/glite_wms.conf: The user configuration file. The standard path location is /etc/glite-wms.

/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

ENVIRONMENT

- GLITE_WMS_WMPROXY_ENDPOINT: This variable may be set to specify the endpoint URL
- GLOBUS_LOCATION: This variable must be set when the Globus installation is not located in the default path /opt/globus.
- GLOBUS_TCP_PORT_RANGE="*<val min> <val max>*": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context

- **X509_CERT_DIR:** This variable may be set to override the default location of the trusted certificates directory, which is normally `/etc/grid-security/certificates`.
- **X509_USER_PROXY:** This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- **GLITE_SD_PLUGIN:** If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- **LCG_GFAL_INFOSYS:** If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.7 GLITE-WMS-JOB-INFO

glite-wms-job-info

SYNOPSIS

glite-wms-job-info [options] <operation options> <job ID>

operation options (mandatory):

```
--jdl
--jdl-original, -j
--proxy, -p
--delegationid, -d <id_string> (*)
```

options:

```
--help
--endpoint, -e <service_URL>
--config, -c <file_path>
--vo <vo_name>
--input, -i <file_path> (*)
--output, -o <file_path>
--noint
--debug
--logfile <file_path>
```

(*) argument <job Id> is not required

DESCRIPTION

This command is only available for glite version ≥ 3.1 .

Allow retrieving useful information about the user delegated proxy, the delegated identification details of the user, the JDL of a previously submitted job, etc. Each piece of information has to be queried through the proper option. E.g.:

1. `glite-wms-job-info --delegationid myDelegationID`
2. `glite-wms-job-info --jdl mySubmittedJobID`
3. `glite-wms-job-info --proxy mySubmittedJobID`

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by <configfile> is used. This option is meaningless when used together with --vo option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with --config-vo option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the /var/tmp directory or in the log file specified with --logfile option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is <filepath>) is created.

--noint

if this option is specified, every interactive question to the user is skipped and the operation is continued (when possible)

--input, -i <filepath>

Allow the user to select the desired job among the ones contained in the file located in <filepath>. This option cannot be used if the jobId has been specified. A job has to be selected specifying the numbers associated to the job identifier

--delegationid, -d <idstring>

if this option is specified, the user proxy associated to the id delegated previously will be displayed.

--proxy, -p <JobID>

Retrieves and displays information for the proxy delegated with the specified JobId: the WMProxy service where the job was submitted is contacted and asked for needed information.

--jdl <jobid>

Retrieves and displays the JDL registered to the LB service for the specified JobId: the WMProxy service where the job was submitted is contacted and asked for needed information. This option is only available from glite version >= 3.1.

--jdl-original, -j <jobid>

Retrieves and displays the original JDL submitted by the user to the WMProxy service. This information might be quite different from the registered JDL, mostly for parametric and collection of jobs. This option is only available from glite version >= 3.1.

--endpoint, -e <serviceURL>

when this option is specified, the operations are performed contacting the WMProxy service repre-

sented by the given <serviceURL>. If it is not used, the endpoint contacted is that one specified by the GLITE_WMS_WM_PROXY_ENDPOINT environment variable. If both this option is not specified and the environment variable is not set, the service request will be sent to one of the endpoints listed in the WMPProxyEndPoints attribute in the user configuration file (randomly chosen among the URLs of the attribute list). If the chosen service is not available, a succession of attempts are performed on the other specified services until the connection with one of these endpoints can be established or all services have been contacted without success. In this latter case the operation can not be obviously performed and the execution of the command is stopped with an error message.

--output, -o <filename>

Stores the retrieved information into the specified file instead of the standard output. The specified file path can be either a simple name or an absolute path (on the submitting machine). In the former case the file <filepath> is created in the current working directory. This option is only available from glite version >= 3.1.

EXAMPLES

1. Display information for the proxy delegated to the WMPProxy service with the specified identifier:

```
glite-wms-job-info -d <delegationid>
```

2. Display information for the proxy delegated with a previously submitted Job:

```
glite-wms-job-info -p <JobId>
```

3. Display the submission string registered to LB server for a previously submitted Job:

```
glite-wms-job-info --jdl <JobId> -o <OutputFile>
```

4. Display the original submission string sent to the WMPProxy service for a previously submitted Job

```
glite-wms-job-info -j <JobId>
```

5. Send the request to the WMPProxy service whose URL is specified with the -e option

```
glite-wms-job-info -d <delegationid> -e \  
https://wmpproxy.glite.it:7443/glite_wms_wmproxy_server
```

6. Store into a file the submission string registered to LB server for a previously submitted Job:

```
glite-wms-job-info --jdl <JobId> -o <OutputFile>
```

When --endpoint (-e) is not specified, the search of an available WMPProxy service is performed according to the modality reported in the description of the --endpoint option.

FILES

voName/glite_wms.conf: The user configuration file. The standard path location is /etc/glite-wms.
/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

JDL: The file containing the description of the job in the JDL language located in the path specified by JDL_file (the last argument of this command); multiple jdl files can be used with the --collection option

ENVIRONMENT

- **GLITE_WMS_WM_PROXY_ENDPOINT**: This variable may be set to specify the endpoint URL
- **GLOBUS_LOCATION**: This variable must be set when the Globus installation is not located in the default path `/opt/globus`.
- **GLOBUS_TCP_PORT_RANGE**="`<val min> <val max>`": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- **X509_CERT_DIR**: This variable may be set to override the default location of the trusted certificates directory, which is normally `/etc/grid-security/certificates`.
- **X509_USER_PROXY**: This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- **GLITE_SD_PLUGIN**: If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- **LCG_GFAL_INFOSYS**: If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

5.8 GLITE-WMS-JOB-LOGGING-INFO

glite-wms-job-logging-info

SYNOPSIS

glite-wms-job-logging-info [options] <job ID1> <job ID 2> ...

options:

```
--version
--help
--config, -c    <configfile>
--debug
--logfile       <filepath>
--noint
--input, -i    <filepath>
--output, -o   <filepath>
--verbosity, -v <level>
--from         <[MM:DD:]hh:mm[:[CC]YY]>
--to          <[MM:DD:]hh:mm[:[CC]YY]>
--user-tag     <tag name>=<tag value>
--event       <event code>
--exclude, -e <event code>
```

DESCRIPTION

This command queries the LB persistent DB for logging information about jobs previously submitted using `glite-wms-job-submit`. The job logging information are stored permanently by the LB service and can be retrieved also after the job has terminated its life-cycle, differently from the bookkeeping information that are in some way "consumed" by the user during the job existence.

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WM_PROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by `<configfile>` is used. This option is meaningless when used together with `--vo` option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default

VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with `--config-vo` option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the `/var/tmp` directory or in the log file specified with `--logfile` option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is `<filepath>`) is created.

--noint

if this option is specified, every interactive question to the user is skipped and the operation is continued (when possible)

input, -i <filepath>

Allow the user to select the JobId(s) from an input file located in `<filepath>`. The list of jobIds contained in the file is displayed and the user is prompted for a choice. Single jobs can be selected specifying the numbers associated to the job identifiers separated by commas. E.g. selects the first, the third and the fifth jobId in the list. Ranges can also be selected specifying ends separated by a dash. E.g. selects jobIds in the list from third position (included) to sixth position (included). It is worth mentioning that it is possible to select at the same time ranges and single jobs. E.g. selects the first job id in the list, the ids from the third to the fifth (ends included) and finally the eighth one. When specified together with `'--noint'`, all available JobId are selected. This option cannot be used when one or more jobIds have been specified as extra command argument.

--output, -o <filepath>

writes the results of the operation in the file specified by `<filepath>` instead of the standard output. `<filepath>` can be either a simple name or an absolute path (on the submitting machine). In the former case the file `<filepath>` is created in the current working directory.

--verbosity, -v <level>

sets the detail level of information about the job displayed to the user. Possible values for level are 0 (only JobId and status/event displayed), 1 (timestamp and source information added), 2 (all information but jdl strings displayed), 3 (complete information containing all Jdl strings)

--from <[MM:DD:]hh:mm[:[CC]YY]>

makes the command query LB for jobs that have been submitted (more precisely entered the "Submitted" status) after the specified date/time. If only hours and minutes are specified then the current day is taken into account. If the year is not specified then the current year is taken into account.

--to <[MM:DD:]hh:mm[:[CC]YY]>

makes the command query LB for jobs that have been submitted (more precisely entered the "Submitted" status) before the specified date/time. If only hours and minutes are specified then the current day is taken into account. If the year is not specified then the current year is taken into account.

--user-tag <tag name>=<tag value>

makes the command include only jobs that have defined specified usertag name and value

--event <event code>

makes the command query specified events for requested jobid(s) The event code can be either an integer or a (case insensitive) string; the following possible values are allowed: UNDEF, TRANSFER, ACCEPTED, REFUSED, ENQUEUED, DEQUEUED, HELPERCALL, HELPERRETURN, RUNNING, RESUBMISSION, DONE, CANCEL, ABORT, CLEAR, PURGE, MATCH, PENDING, REGJOB, CHKPT, LISTENER, CURDESCR, USERTAG, CHANGEACL, NOTIFICATION, RESOURCEUSAGE, REALLYRUNNING This option can be repeated several times, all event conditions will be considered as in a logical OR operation

(i.e. --event PURGE --event 4 will query, for specified jobid(s), all PURGE and ENQUEUED events)

--exclude -e <event code>

makes the command exclude specified events for requested jobid(s) The event code can be either an integer or a (case insensitive) string; the following possible values are allowed: UNDEF, TRANSFER, ACCEPTED, REFUSED, ENQUEUED, DEQUEUED, HELPERCALL, HELPERRETURN, RUNNING, RESUBMISSION, DONE, CANCEL, ABORT, CLEAR, PURGE, MATCH, PENDING, REGJOB, CHKPT, LISTENER, CURDESCR, USERTAG, CHANGEACL, NOTIFICATION, RESOURCEUSAGE, REALLYRUNNING This option can be repeated several times, all event conditions will be considered as in a logical AND operation

(i.e. -e PURGE --exclude 4 will query, for specified jobid(s), all events BUT PURGE and ENQUEUED)

FILES

The path /etc must contain the following UI configuration files:

- glite_wmsui_cmd_var.conf
- glite_wmsui_cmd_err.conf
- glite_wmsui_cmd_help.conf

glite_wmsui_cmd_var.conf will contain custom configuration default values. A different configuration file may be specified either by using the --config option or by setting the GLITE_WMSUI_COMMANDS_CONFIG environment variable. Here follows a possible example:

```
[
  RetryCount = 3 ;
  ErrorStorage= "/tmp" ;
  OutputStorage="/tmp";
  ListenerStorage = "/tmp" ;
  LoggingTimeout = 30 ;
  LoggingSyncTimeout = 30 ;
  NSLoggerLevel = 0;
  DefaultStatusLevel = 1 ;
  DefaultLogInfoLevel = 1;
]
```

glite_wmsui_cmd_err.conf will contain UI exception mapping between error codes and error messages (no relocation possible)

glite_wmsui_cmd_help.conf will contain UI long-help information (no relocation possible)

<voName>/glite_wmsui.conf: The user interface configuration file; the standard path location is /etc/glite-wms:

here follows a possible example:

```
[
  JdlDefaultAttributes = [
    virtualorganisation="infngrid";
    requirements = other.GlueCEStateStatus == "Production";
    retryCount = 3;
    rank = -other.GlueCEStateEstimatedResponseTime;
    MyProxyServer="myproxy.cern.ch";
  ];

  DelegationId = "luca";
  ErrorStorage="\${GLITE\_LOCATION\_LOG}";
  OutputStorage="/tmp";
  ListenerStorage="\${GLITE\_LOCATION\_TMP}";
  WMPProxyEndpoints = {"https://ghemon.cnaf.infn.it:7443/glite\_wms\_wmproxy\_server"};
  LBAddress = "ghemon.cnaf.infn.it:9000";
  LBServiceDiscoveryType = "org.glite.lb.server";
  WMPProxyServiceDiscoveryType="org.glite.wms.wmproxy";
]
```

/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

ENVIRONMENT

- **GLITE_WMS_WM_PROXY_ENDPOINT**: This variable may be set to specify the endpoint URL
- **GLOBUS_LOCATION**: This variable must be set when the Globus installation is not located in the default path /opt/globus.
- **GLOBUS_TCP_PORT_RANGE**="<val min> <val max>": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- **X509_CERT_DIR**: This variable may be set to override the default location of the trusted certificates directory, which is normally /etc/grid-security/certificates.
- **X509_USER_PROXY**: This variable may be set to override the default location of the user proxy credentials, which is normally /tmp/x509up_u<uid>.
- **GLITE_SD_PLUGIN**: If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally bdii, rgma (or both, separated by comma)
- **LCG_GFAL_INFOSYS**: If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'

5.9 GLITE-WMS-JOB-STATUS

glite-wms-job-status

SYNOPSIS

glite-wms-job-status [options] <jobId 1> <jobId 2> ...

options:

```
--version
--help
--config, -c    <configfile>
--vo <voname>
--debug
--logfile      <filepath>
--noint
--input, -i    <filepath>
--output, -o   <filepath>
--all
--verbosity, -v <level>
--from         <[MM:DD:]hh:mm[:[CC]YY]>
--to          <[MM:DD:]hh:mm[:[CC]YY]>
--user-tag     <tag name>=<tag value>
--status, -s   <status code>
--exclude, -e  <status code>
--nonodes
```

DESCRIPTION

This command prints the status of a job previously submitted using `glite-wms-job-submit`. The job status request is sent to the LB that provides the requested information. This can be done during the whole job life. `glite-wms-job-status` can monitor one or more jobs: the jobs to be checked are identified by one or more job identifiers (jobIds returned by `glite-wms-job-submit`) provided as arguments to the command and separated by a blank space.

OPTIONS

--version

displays WMPProxy client and servers version numbers. If the `--endpoint` option is specified only this service is contacted to retrieve its version. If it is not used, the endpoint contacted is that one specified with `GLITE_WMS_WMPROXY_ENDPOINT` environment variable. If the option is not specified and the environment variable is not set, all servers listed in the `WMPProxyEndPoints` attribute of the user configuration file are contacted. For each of these service, the returned result will be displayed on the standard output (the version numbers in case of success; otherwise the error message).

--help

displays command usage

--config, -c <configfile>

if the command is launched with this option, the configuration file pointed by `<configfile>` is used. This option is meaningless when used together with `--vo` option

--vo <voname>

this option allows the user to specify the Virtual Organization she/he is currently working for. If the user proxy contains VOMS extensions then the VO specified through this option is overridden by the default VO contained in the proxy (i.e. this option is only useful when working with non-VOMS proxies). This option is meaningless when used together with --config-vo option.

--debug

when this option is specified, debugging information is displayed on the standard output and written also either into the default log file:

```
glite-wms-job-<command_name>_<uid>_<pid>_<time>.log
```

located under the /var/tmp directory or in the log file specified with --logfile option.

--logfile <filepath>

When this option is specified, a command log file (whose pathname is <filepath>) is created.

--noint

if this option is specified, every interactive question to the user is skipped and the operation is continued (when possible)

--input, -i <filepath>

Allow the user to select the JobId(s) from an input file located in <filepath>. The list of jobIds contained in the file is displayed and the user is prompted for a choice. Single jobs can be selected specifying the numbers associated to the job identifiers separated by commas. E.g. selects the first, the third and the fifth jobId in the list. Ranges can also be selected specifying ends separated by a dash. E.g. selects jobIds in the list from third position (included) to sixth position (included). It is worth mentioning that it is possible to select at the same time ranges and single jobs. E.g. selects the first job id in the list, the ids from the third to the fifth (ends included) and finally the eighth one. When specified together with --noint, all available JobId are selected. This option cannot be used when one or more jobIds have been specified as extra command argument

--output, -o <filepath>

writes the results of the operation in the file specified by <filepath> instead of the standard output. <filepath> can be either a simple name or an absolute path (on the submitting machine). In the former case the file <filepath> is created in the current working directory.

--all

displays status information about all job owned by the user submitting the command. This option can't be used either if one or more jobIds have been specified or if the --input option has been specified. All LBs listed in the vo-specific UI configuration file

```
$GLITE_WMS_LOCATION/etc/<vo_name>/glite_wmsui.conf
```

are contacted to fulfill this request.

--verbosity, -v <level>

sets the detail level of information about the job displayed to the user. Possible values for <level> are 0 (only JobId and status/event displayed), 1 (timestamp and source information added), 2 (all information but JDLs displayed), 3 (complete information containing all JDL strings)

--from <[MM:DD:]hh:mm:[CC]YY>

makes the command query LB for jobs that have been submitted (more precisely entered the "Submitted" status) after the specified date/time. If only hours and minutes are specified then the current day is taken into account. If the year is not specified then the current year is taken into account.

--to <[MM:DD:]hh:mm[:[CC]YY]>

makes the command query LB for jobs that have been submitted (more precisely entered the "Submitted" status) before the specified date/time. If only hours and minutes are specified then the current day is taken into account. If the year is not specified then the current year is taken into account.

--user-tag <tag name>=<tag value>

makes the command include only jobs that have defined specified usertag name and value

--status, -s <status code>

makes the command query LB for jobs that are in the specified status. The status value can be either an integer or a (case insensitive) string; the following possible values are allowed: UNDEF (0), SUBMITTED(1), WAITING(2), READY(3), SCHEDULED(4), RUNNING(5), DONE(6), CLEARED(7), ABORTED(8), CANCELLED(9), UNKNOWN(10), PURGED(11). This option can be repeated several times, all status conditions will be considered as in a logical OR operation

(i.e. -s SUBMITTED --status 3 will query all jobs that are either in SUBMITTED or in READY status)

--exclude, -e <status code>

makes the command query LB for jobs that are NOT in the specified status. The status value can be either an integer or a (case insensitive) string; the following possible values are allowed: UNDEF (0), SUBMITTED(1), WAITING(2), READY(3), SCHEDULED(4), RUNNING(5), DONE(6), CLEARED(7), ABORTED(8), CANCELLED(9), UNKNOWN(10), PURGED(11). This option can be repeated several times, all status conditions will be considered as in a logical AND operation

(i.e. -e SUBMITTED --exclude 3 will query all jobs that are neither in SUBMITTED nor in READY status)

--nonodes

This option will not display any information of (if present) sub jobs of any dag, only requested JobId(s) info will be taken into account

FILES

The path /etc/must contain the following UI configuration files:

- glite_wmsui_cmd_var.conf
- glite_wmsui_cmd_err.conf
- glite_wmsui_cmd_help.conf

glite_wmsui_cmd_var.conf will contain custom configuration default values. A different configuration file may be specified either by using the --config option or by setting the GLITE_WMSUI_COMMANDS_CONFIG environment variable. Here follows a possible example:

```
[
  RetryCount = 3 ;
  ErrorStorage= "/tmp" ;
  OutputStorage="/tmp";
```

```
ListenerStorage = "/tmp" ;
LoggingTimeout = 30 ;
LoggingSyncTimeout = 30 ;
NSLoggerLevel = 0;
DefaultStatusLevel = 1 ;
DefaultLogInfoLevel = 1;
]
```

glite_wmsui_cmd_err.conf will contain UI exception mapping between error codes and error messages (no relocation possible)

glite_wmsui_cmd_help.conf will contain UI long-help information (no relocation possible)

<voName>/glite_wmsui.conf: The user interface configuration file; the standard path location is /etc/glite-wms:

here follows a possible example:

```
[
  JdlDefaultAttributes = [
    virtualorganisation="infngrid";
    requirements = other.GlueCEStateStatus == "Production";
    retryCount = 3;
    rank = -other.GlueCEStateEstimatedResponseTime;
    MyProxyServer="myproxy.cern.ch";
  ];

  DelegationId = "luca";
  ErrorStorage="\${GLITE\_LOCATION\_LOG}";
  OutputStorage="/tmp";
  ListenerStorage="\${GLITE\_LOCATION\_TMP}";
  WMProxyEndpoints = {"https://ghemon.cnaf.infn.it:7443/glite\_wms\_wmproxy\_server"};
  LBAddress = "ghemon.cnaf.infn.it:9000";
  LBServiceDiscoveryType = "org.glite.lb.server";
  WMProxyServiceDiscoveryType="org.glite.wms.wmproxy";
]
```

/tmp/x509up_u<uid>: A valid X509 user proxy; use the X509_USER_PROXY environment variable to override the default location

ENVIRONMENT

- **GLITE_WMS_WM_PROXY_ENDPOINT**: This variable may be set to specify the endpoint URL
- **GLOBUS_LOCATION**: This variable must be set when the Globus installation is not located in the default path /opt/globus.
- **GLOBUS_TCP_PORT_RANGE**="<val min> <val max>": This variable must be set to define a range of ports to be used for inbound connections in the interactivity context
- **X509_CERT_DIR**: This variable may be set to override the default location of the trusted certificates directory, which is normally /etc/grid-security/certificates.

- **X509_USER_PROXY:** This variable may be set to override the default location of the user proxy credentials, which is normally `/tmp/x509up_u<uid>`.
- **GLITE_SD_PLUGIN:** If Service Discovery querying is needed, this variable can be used in order to set a specific (or more) plugin, normally `bdii, rgma` (or both, separated by comma)
- **LCG_GFAL_INFOSYS:** If Service Discovery querying is needed, this variable can be used in order to set a specific Server where to perform the queries: for instance `LCG_GFAL_INFOSYS='gridit-bdii-01.cnaf.infn.it:2170'`

6 WMPROXY CLIENT API DESCRIPTION

The WMPProxy client API supplies the client applications with a set of interfaces over the job submission and control services made available by the gLite WMS through a web service based interface. The API provides the corresponding method for each operation published in the WSDL description of the WMPProxy Service [?].

The request types supported by the WMPProxy Service are:

- Job: a simple application
- DAG: a direct acyclic graph of dependent jobs
- Collection: a set of independent jobs

Jobs in turn can be batch, interactive, MPI-based, checkpointable, partitionable and parametric. The specification of the JDL for describing the mentioned request types is available at [R1]. Besides requests submission, the WMPProxy also exposes additional functionality for request management and control such as cancellation, job files perusal and output retrieval. Requests status follow-up can be instead achieved through the functionality exposed by the Logging & Bookkeeping (LB) service [R2].

The documentation describing the WMPProxy Client API providing C++, Java and Python bindings can be found at <http://egee-jra1-wm.mi.infn.it/egee-jra1-wm/glite-wmproxy-api-index.shtml>. Pointers to usage examples are provided in the above mentioned web page.

7 KNOWN PROBLEMS AND CAVEATS

- Since the gridftp protocol (the protocol used for the InputSanbox files staging) in general doesn't preserve the x flag, the script specified as *Executable* in the JDL, should perform a *chmod +x* for all the files needing execution permission, that are transferred within the InputSanbox of the job.
- The *Arguments* attribute in the JDL allows the user to specify all the command line arguments needed to start the job They have to be specified as a single string, e.g. the job sum that is started with:

```
$ sum N1 N2 -out result.out
```

is described by:

```
Executable = ``sum``;  
Arguments = ``N1 N2 -out result.out``;
```

If you want to specify a quoted string inside the *Arguments* then you have to escape quotes with the `\` character. e.g. when describing a job like:

```
$ grep -i ``my name`` *.txt you will have to specify:
```

```
Executable = ``/bin/grep``;  
Arguments = ``-i ``my name`` *.txt``;
```

REFERENCES

- [R1] *JDL Attributes Specification*, EGEE-JRA1-TEC-590869-JDL-Attributes-v0-4 ,
<https://edms.cern.ch/document/590869/1>.
- [R2] *LB Service User's Guide*, EGEE-JRA1-TEC-571273 ,
<https://edms.cern.ch/file/571273/1/LB-guide.pdf>.
- [R3] *VOMS User's Guide*, EGEE-JRA1-TEC-571991 ,
<https://edms.cern.ch/file/571991/1/voms-guide.pdf>.
- [R4] *WMS User's Guide*, EGEE-JRA1-TEC-572489 ,
<https://edms.cern.ch/document/572489/1>.
- [R5] *Design of the EGEE Middleware Grid Services*, EGEE-DJRA1.5-606574-v1.0 ,
<https://edms.cern.ch/document/606574/1.0>.
- [R8] *JSDL Attributes Specification*,
<http://technical.eu-egee.org/index.php?id=725>.