ILDG Use Cases

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First Things First

Initial set of use cases should:

- Cover essential functionality

- Elucidate required infrastructure

Use Cases
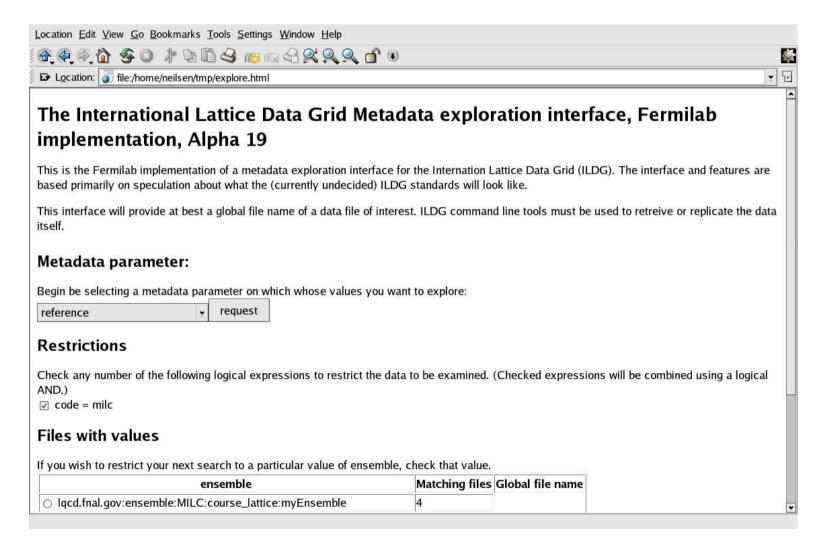
- Export
- Explore
- Discover
- Query
- Replicate

- Get
- Alter
- Withdraw
- Audit
- Revert

Export Use Case

The user must be able to make data available to other members of the ildg.

```
bash$ ildg add $HOME/myData/myEnsemble/new/myConfiguration-C.101.dat \\
> $HOME/myData/myEnsemble/new/myConfiguration-C.101.xml \\
> srm://fndca.fnal.gov:8443//pnfs/fnal.gov/usr/lqcd/test/myConfiguration-
C.101.dat
myEnsemble:C:101 added to metadata database
myEnsemble:C:101 inserted into replica catalog database at
srm://fndca.fnal.gov:8443//pnfs/fnal.gov/usr/lqcd/test/myConfiguration-C.101.dat
Connecting to https://fndca.fnal.gov:8443/srm/managerv1=
calling connect h - fndca.fnal.gov  p - 8443
inside client_auth_callback. Remote user is /
DC=org/DC=doegrids/OU=Services/CN=host/stkendca3a.fnal.gov
SRM copy return state is Pending
inside client_auth_callback. Remote user is /
DC=org/DC=doegrids/OU=Services/CN=host/stkendca3a.fnal.gov
gsiftp://neilsen@lqcd.fnal.gov:2812///home/neilsen/myData/myEnsemble/new/myConfig
uration-C.101.dat copied to
srm://fndca.fnal.gov:8443//pnfs/fnal.gov/usr/lqcd/test/myConfiguration-C.101.dat
bash$
```

Explore Use Case

Location Edit View Go Bookmarks Tools Settings Window Help

Location: file:/home/neilsen/tmp/explore.html

The International Lattice Data Grid Metadata exploration interface, Fermilab implementation, Alpha 19

This is the Fermilab implementation of a metadata exploration interface for the Internation Lattice Data Grid (ILDG). The interface and features are based primarily on speculation about what the (currently undecided) ILDG standards will look like.

This interface will provide at best a global file name of a data file of interest. ILDG command line tools must be used to retreive or replicate the data itself.

Metadata parameter:

Begin be selecting a metadata parameter on which whose values you want to explore:

reference   request

Restrictions

Check any number of the following logical expressions to restrict the data to be examined. (Checked expressions will be combined using a logical AND.)

☑ code = milc

Files with values

If you wish to restrict your next search to a particular value of ensemble, check that value.

ensemble	Matching files	Global file name
○ lqcd.fnal.gov:ensemble:MILC:course_lattice:myEnsemble	4	

Discover Use Case

A user must be able to list data whose metadata matches desired criteria. Tools must allow users to specify metadata criteria conveniently and intuitively whether the query is issued interactively or using scripts.

```
bash$ildg discover "ensemble = 'myEnsemble' AND series = 'C'"
myEnsemble:C:10
myEnsemble:C:20
myEnsemble:C:30
myEnsemble:C:101
bash$
```

Query Use Case

A user must be able retreive QCDML formatted metadata for files specified either by GFN's or metatdata conditions.

```
bash$ildg query "ensemble = 'myEnsemble' AND series = 'C'" \\
> '/tmp/%s-series%s-step%s.xml' 'ensemble series updates'
bash$
```

Get Use Case

A user must be able to copy a data file from a mass storage system onto local disk.

```
bash$ildg get "ensemble = 'myEnsemble' AND series = 'C'" \\
> '/tmp/%s-series%s-step%s.dat' 'ensemble series updates'
```
Connecting to https://fndca.fnal.gov:8443/srm/managerv1=
```
calling connect h - fndca.fnal.gov  p - 8443
inside client_auth_callback. Remote user is /
DC=org/DC=doegrids/OU=Services/CN=host/stkendca3a.fnal.gov
SRM copy return state is Pending
calling connect h - fndca.fnal.gov  p - 8443
inside client_auth_callback. Remote user is /
calling connect h - fndca.fnal.gov  p - 8443
inside client_auth_callback. Remote user is /
DC=org/DC=doegrids/OU=Services/CN=host/stkendca3a.fnal.gov
calling connect h - fndca.fnal.gov  p - 8443
inside client_auth_callback. Remote user is /
DC=org/DC=doegrids/OU=Services/CN=host/stkendca3a.fnal.gov
calling connect h - fndca.fnal.gov  p - 8443
inside client_auth_callback. Remote user is /
DC=org/DC=doegrids/OU=Services/CN=host/stkendca3a.fnal.gov
srm://fndca.fnal.gov:8443//pnfs/fnal.gov/usr/lqcd/test/myConfiguration-`C.101.dat copied to
gsiftp://neilsen@lqcd.fnal.gov:2812///tmp/myEnsemble-seriesC-step101.dat
…
```

Alter Use Case

A user should be able to place revisions to the metadata into the metadata catalogs. Because GFN's map uniquely to file content, the data itself should not be alterable; if data is found to be incorrect, it should be withdrawn and any new data should be added as a new entry.

```
bash$ildg alter "myEnsemble:C:10" myConfiguration-C.10a.xml
```

Revert Use Case

A user should be able to revert the metadata on the ildg to an earlier state.

```
bash$ildg revert "ensemble = 'myEnsemble' AND series = 'C'" 2004-04-27T18:04:14Z
```

Withdraw Use Case

A user should be able withdraw a file from the ildg. This operation will not make either the data or metadata unavailable, but it should prevent the file from being listed by metadata queries unless withdrawn data is specifically requested.

```
bash$ildg withdraw "ensemble = 'myEnsemble' AND series = 'C'"
```

Prototype Status

- Prototype includes all of these use cases.

    – Many are demonstrated here:

        - http://lqcd.fnal.gov/ffid.html

- Problems with current prototype:

    – Audit use case does not yet supply any useful information.

    – Qcdml format used needs to be updated.

    – Database needs reconfiguration to allow use of XPath expressions in the SQL queries.