

# BulkRequests

A tool to manage dCache file location and QoS in bulk

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Hepix Spring 2022 Online Workshop

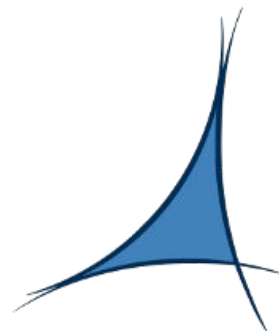
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I A T E



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# Who am I?

- I'm Dario Graña  
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# Motivation

There wasn't a tool to manage many files at a time. Particularly, to know QoS, location and eventually change it.

A workaround are the dCache dot commands, but they are not portable and the user needs NFSv4 access to the filesystem.

With dot commands it's too difficult to script a prestage or a release. They are also too slow.

# What is BulkRequests?

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- Tool written in python3 on top of dCache API REST
- It's based on dcacheclient (<https://github.com/neicnordic/dcacheclient>)
- It was created to allow users and administrators to manage many files and directories in a easier manner.

# Install BulkRequests

BulkRequests is available in PyPi, so to install it the user has execute:

```
- pip3 install --user  
  bulkrequests
```

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# Authentication

BulkRequests allows 3 types of authentication:

- User & Password
- OIDC
- X.509 Proxy

user & password is not recommended

We will see later that OIDC has a better performance, near 3x compared to user & password

X.509 Proxy is not measured yet

# Setup BulkRequests

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To setup BulkRequests:

- `$HOME/.bulkrequestsrc` as default configuration file or any file with the same format passed with the `-c` option
- Environment variables  
`BULKREQUESTS_{USER,PASS,OIDC_A  
GENT_ACC,X509_PROXY,URL}`
- CLI options



# Setup BulkRequests

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How a setup file look like? Here is an example.

```
[DEFAULT]  
url=https://yourendpoint.io:4648  
oidc-agent-account=dcache-client  
ca-directory=/etc/ssl/certs  
no-check-certificate=False
```

In this configuration file we can setup everything related to url, authentication and certificates.

By default BulkRequests looks for it in  
`$HOME/.bulkrequestsrc`

All the available options can be consulted using  
`bulkrequests -h`

# Capabilities

The main operations of BulkRequests are

- `--get-qos` get the QoS of a file
- `--get-locality` get the locality of a file
- `--set-qos QoS file` (where QoS can be tape or disk+tape)

For all operations, `-r` or `--recursive` option can be used to recurse over directories.

The minimum guaranteed QoS is the one returned in the moment of the query.

# Options

The options implemented are:

`-r, --recursive` navigate recursively into a directory

`-f, --file FILENAME` a file with paths

`-j N` concurrency, by default it uses one thread

`--quiet` get a summary of the status

`--size` get the size of every file

`--human` get the size in an human readable format

a path can be passed as positional argument





# Test 3: a more verbose output

```
[rgrana@ui04 ~]$ bulkrequests --get-qos -r /tape/dariog/test-2
/tape/dariog/test-2/100k.zero tape
/tape/dariog/test-2/10m.zero tape
/tape/dariog/test-2/1m.zero tape
/tape/dariog/test-2/sub/100k.zero tape
/tape/dariog/test-2/sub/1m.zero tape
/tape/dariog/test-2/sub/10m.zero tape
[rgrana@ui04 ~]$ bulkrequests --get-qos -r /tape/dariog/test-1
/tape/dariog/test-1/1m.zero disk+tape
/tape/dariog/test-1/10m.zero disk+tape
```

# Conclusions

- We developed a tool to do easier dCache prestage and release.
- It can be easily installed using `pip3`
- A better performance is obtained using OIDC authentication
- It scales good using concurrency

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# What's next?

- Profiles: We are planning to add profile management, so different urls and credentials can be used for different sites.
- Waiting on the impending implementation of dCache bulk REST API to make this work (and code) easier.



# Questions?

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# Thanks!