

StoRM hands on session

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Scuola per utenti INFN della GRID

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Data Management: hands on session

In this session we will interact with an SRM installation:

- StoRM host at INFN CNAF:
`vgrid06.cnaf.infn.it` (is a virtual machine installed with Red Hat Enterprise Linux).
- User Interface:
`grid-ui.cnaf.infn.it` from which we submit SRM requests.

StoRM hands on session

Actions:

- Namespace operation, create, list , delete directories.
- Put and Get file to/from the Storage Element.
- Dynamic Space Reservation.
- Storage Area and Space Token description.

SRM v2.2 command line client

Together with StoRM a command line client for the SRM v 2.2 is available:

- `clientSRM -h`
- `clientSRM SRM_COMMAND -h`
- Compatible with every SRM v 2.2 implementation.
- Provides the SRM syntax in a classic UNIX style.
- Example and tutorial available on the StoRM site.
- Usage example:

```
clientSRM ptp -e httpg://ibm139.cnaf.infn.it:8444 -s  
srm://ibm139.cnaf.infn.it:8444/dteam/test111 -p
```

Ping the SRM service

Actions:

- `clientSRM ping -h`
- Ping command:
`clientSRM ping -e`
`http://vgrid06.cnaf.infn.it:8444`

Create directory

Use the infngrid workspace: /infngrid

- `clientSRM ls -h`
- **List the infngrid workspace:**
`clientSRM ls -e http://vgrid06.cnaf.infn.it:8444`
`-s srm://vgrid06.cnaf.infn.it:8444/infngrid`
- **Create directory** username: `clientSRM mkdir -e`
`http://vgrid06.cnaf.infn.it:8444 -s`
`srm://vgrid06.cnaf.infn.it:8444/infngrid/lucamag`
- **List infngrid workspace, as above.**
- List infngrid workspace, with the **detailed version**: `-l`

Put a file

Put a file into the SRM:

- `echo "Hello world" > hello.txt`
- **SrmPrepareToPut:** `clientSRM ptp -h`
`clientSRM ptp -e httpg://vgrid06.cnaf.infn.it:8444 -s`
`srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file.txt`
- **SrmStatusOfPrepareToPut:** `clientSRM sptp -h`
`clientSRM sptp -e httpg://vgrid06.cnaf.infn.it:8444 -s`
`srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file.txt`
`-t YOUR_REQUEST_TOKEN`

Put a file

- SrmLs

- **Data transfer using globus-url-copy:**

```
globus-url-copy file:///home/lucamag/hello.txt
```

```
gsiftp://vgrid06.cnaf.infn.it:2811/storage/infnguid/lucamag/
```

- SrmLs (please look at the file size)

- **SrmPutDone:**

```
clientSRM pd -e httpg://vgrid06.cnaf.infn.it:8444 -s
```

```
srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file.txt
```

```
-t YOUR_REQUEST_TOKEN
```

- SrmLs (please look at the file status)

Put a file with polling mode

Put a file into the SRM:

- **SrmPrepareToPut:**

```
clientSRM ptp -e http://vgrid06.cnaf.infn.it:8444 -s  
srm://vgrid06.cnaf.infn.it:8444/infngid/lucamag/file2.txt  
-p
```

- Data transfer using globus-url-copy
- SrmPutDone
- SrmLs

Remove a file

Remove a file:

- **SrmRm:** `clientSRM rm -h`
- `clientSRM rm -e httpg://vgrid06.cnaf.infn.it:8444 -s srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file2.txt`
- SrmLs

Get a file

Get a file from the SRM:

- Try to get the file:

```
globus-url-copy
```

```
gsiftp://vgrid06.cnaf.infn.it:2811/storage/infnguid/lucamag/
```

```
file:///home/lucamag/hello_copy.txt
```

- **SrmPrepareToGet in polling:** `clientSRM ptg -h`
`clientSRM ptg -e http://vgrid06.cnaf.infn.it:8444 -s`
`srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file.txt`
`-p`
- Data transfer using `globus-url-copy`
- `SrmLs`

Dynamic reserve space 1/2

Dynamic reserve space:

- `clientSRM rs -h`

- **Reserve Space:**

```
clientSRM rs -e httpg://vgrid06.cnaf.infn.it:8444  
-r0,0 -a 1000
```

- **GetSpaceMetaData**

```
clientSRM gsm -e  
httpg://vgrid06.cnaf.infn.it:8444 -s  
YOUR_SPACE_TOKEN
```

Dynamic reserve space 2/2

- **Put a file into the space reserved:** `clientSRM ptp -h`
`clientSRM ptp -e httpg://vgrid06.cnaf.infn.it:8444 -s`
`srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file3.txt,1`
`-t YOUR_SPACE_TOKEN -p`
- SrmLs (please look at the size)
- **GetSpace Metadata**
- Data transfer.
- SrmPutDone

Use Storage Classes: INFN_DISK

Storage Classes with space token description **INFN_DISK**:

- `clientSRM gst -h`
- **SrmGetSpaceToken:**
`clientSRM gst -e`
`httpg://vgrid06.cnaf.infn.it:8444 -d INFN_DISK`
- **SrmGetSpaceMetadata:**
`clientSRM gsm -e`
`httpg://vgrid06.cnaf.infn.it:8444 -s`
`2D2C8A7A-1A01-7635-839A-6413380AB094`
- Put a file into the space reserved.
- `SrmLs`

Copy a file

- SrmLs
- **SrmCopy a file:** `clientSRM copy -h`
- `clientSRM copy -e httpg://vgrid06.cnaf.infn.it:8444 -s srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/filetxt srm://vgrid06.cnaf.infn.it:8444/infnguid/lucamag/file2.txt -p`
- SrmLs