

VRE for regional Interdisciplinary communities in Southeast Europe and the Eastern Mediterranean

VI-SEEM iRODS



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- ❑ What is iRODS
- ❑ iRODS installation at IPB
- ❑ Usage example
- ❑ GridFTP access

- ❑ Integrated Rule-Oriented Data System
 - ❑ data management middleware
- ❑ Integrates heterogeneous, possibly distributed, storage systems.
- ❑ Provides a file catalogue with attached metadata, access control and search.
- ❑ Has a mechanism for automating tasks on data, initiated through a defined set of triggers.
- ❑ Handles data replication.

`/ipbZone/home/demouser`
(an example path in the file system)

- ❑ iRODS Zones are at the root.
 - ❑ `home` contains home directories for each user.
- ❑ iRODS Zone is a deployed installation of iRODS
 - ❑ it contains a catalog server (iCAT) and optionally a number of resource servers which host the actual data storage.

- ❑ Setup your environment in `~/.irods/irods_environment.json`:

- ❑ `iinit`

- ❑ Example environment file:

```
{  
    "irods_host": "irods.ipb.ac.rs",  
    "irods_user_name": "demouser",  
    "irods_port": 1247,  
    "irods_zone_name": "ipbZone",  
    "default_resource_name": "demoResc"  
}
```

- ❑ Listing the current directory:
 - ❑ `ils`
- ❑ Showing the current directory:
 - ❑ `ipwd`
- ❑ Changing the current directory:
 - ❑ `icd target/dir`
- ❑ Storing a file to iRODS:
 - ❑ `iput some_file`
 - ❑ *This will upload the file to the current directory on the default resource (as set in `irods_environment.json`).*
 - ❑ `iput -r some/directory`
 - ❑ *This uploads an entire directory.*
 - ❑ `iput -R newResource some_file`
 - ❑ *Puts `some_file` on the current directory, stored on the `newResource` resource server.*

- ❑ **Fetching a file from iRODS:**
 - ❑ `iget /theZone/home/user/some/path/the_file`
- ❑ **Changing file access permissions:**
 - ❑ `ichmod write some_other_user some_file`
 - ❑ `ichmod -r read some_user some_directory`
- ❑ **Removing a file:**
 - ❑ `irm some_file`
- ❑ **Moving/Renaming a file:**
 - ❑ `imv original_file_name new_file_name`
- ❑ **Making collections (i.e. directories):**
 - ❑ `imkdir some/path/some/directory`
- ❑ **Removing directories:**
 - ❑ `irm -r some/path/some/dir`

- ❑ Can be setup to execute automatically via rules, but that is administrator's responsibility.
- ❑ Manual replication:
 - ❑ `irepl -R targetResource some/path/some_file`
- ❑ To see the replicas:
 - ❑ `ils -L some/path/some/file`
- ❑ To remove a replica:
 - ❑ `itrim -N 1 -S someResource some/path/some_file`
 - ❑ N parameter is the number of replicas to keep (default is 2).
 - ❑ S parameter is the resource of the replica to be removed.

- ❑ Metadata = data about data
 - ❑ Describes the actual data in some structured way.
- ❑ Types of metadata¹:
 - ❑ Descriptive
 - ❑ Structural
 - ❑ Administrative
- ❑ AVU format
 - ❑ attribute-value-unit triplet format used by iRODS
 - ❑ example: size, 485, MB
 - ❑ unit is optional

[1] <https://www.library.cornell.edu/preservation/tutorial/metadata/table5-1.html>

- ❑ **Adding metadata:**
 - ❑ **to a collection:** `imeta add -C some/path attribute value unit`
 - ❑ **to a file:** `imeta add -d some_file attribute value unit`
 - ❑ **to resources:** `imeta add -R someResource attribute value unit`
 - ❑ **to users:** `imeta add -u someuser attribute value unit`
- ❑ **Reading metadata:**
 - ❑ `imeta ls -d some_file`
 - ❑ `-d/-C/-R/-u` flags apply in the same way as in the previous command.
- ❑ **Searching by metadata:**
 - ❑ `imeta qu -d attribute = 'some value'`
 - ❑ `imeta qu -d attribute like '%'`
 - ❑ % is a wildcard
- ❑ **Modifying metadata:**
 - ❑ `imeta mod -d some_file attribute oldValue v:newValue`

Thank you for your attention.