Policy-Based Data Management
INLS 624
Module 24 - iCommands

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iCommands

- The most powerful interface to the data grid is a set of Unix shell commands, called iCommands.
- These emulate standard Unix shell commands, but operate on files in the data grid:
  - cd   change directory   icd
  - chmod change access controls   ichmod
  - cp   copy files between directories   icp
  - ls   list files   ils
  - mv   move files between directories   imv
  - pwd   list current working directory   ipwd
  - rm   remove a file   irm

Augmented Commands

- The data grid supports a wide variety of additional operations on files:
  - ichksum   Create a checksum
  - iexecmd   Execute a remote application
  - iget   Get a file from the data grid
  - ihelp   List icommands
  - iinit   Authenticate to a data grid
  - ilsresc   List resources
  - imeta   Manipulate metadata (add, remove, list)
  - iput   Put a file into the data grid
  - iquest   Issue a query to the metadata catalog
  - irepl   Replicate a file
  - irule   Execute a rule
  - ixmsg   Send/receive messages

iCommands Installation

- The iCommands have been packaged in a Docker image

- Information about the installation of the Docker engine is available at
    https://hub.docker.com

- The images are on Docker hub at
    https://hub.docker.com/r/irods/icommands/

Installing Docker Engine

- Go to the Docker Toolbox page, https://www.docker.com/docker-toolbox
- Click download for either the Mac or Windows
  - Install Docker Toolbox by double-clicking the package or by right-clicking and choosing "Open" from the pop-up menu.
  - The installer launches the "Install Docker Toolbox" dialog.
- Press "Continue" to install the toolbox.
  - The installer presents you with options to customize the standard installation.
- By default, the standard Docker Toolbox installation:
  - installs binaries for the Docker tools in /usr/local/bin
  - makes these binaries available to all users
  - updates any existing VirtualBox installation
- Change these defaults by pressing "Customize" or "Change Install Location."
- Press "Install" to perform the standard installation.
  - The system prompts you for your laptop password.
  - Provide your password to continue with the installation.
  - When it completes, the installer provides you with some information you can use to complete some common tasks.
- Press "Close" to exit.

Installing iCommands Docker Image

- Installation commands

docker pull irods/icommands:4.0.3
     This downloads the iCommand image from the Docker site.
docker run --name irods –v /Users/*your-laptop-account*:/ltl -ti irods/icommands:4.0.3
     This mounts your laptop files under the name "ltl" and names the container "irods".
Adduser --system –u 1000 guest (Will need to reenter the container. See below for command)
     This enables write access to your laptop from the Docker engine
iinit   and respond to the prompts with
Enter the host name (DNS) of the server to connect to: diamond.ils.unc.edu
Enter the port number: 2247
Enter your irods user name: your-user-name
Enter your irods zone: lifelibZone
Enter your current iRODS password: your-password

The system will create an irods_environment.json file in a subdirectory called ".irods" in your home directory. This will save the data grid variables for future use. You still have to enter your user-name and password each session.

(Enter docker container if you already have a working one: `docker exec -it [container-id] bash`)
(Remove old or messed up containers if you have any, | See old containers: docker ps –all | Remove a container: docker rm (container code) | Start the container if not running Docker start container-id)

Docker Commands

The Docker container starts up the Docker image that was downloaded. You exit from the container by typing "exit". The container is not deleted, and can be restarted and attached.

docker images	to list the available images.
docker ps –a	to list the available containers.
exit	to exit from a container.
docker restart irods	to restart the irods container.
docker attach irods	to connect to the irods container. Hit a return to see a prompt.
docker rm *container*	to remove a container.
docker rmi *image*	to remove an image.