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# XSEDE Genesis II Client Usage

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**XSEDE**

Extreme Science and Engineering  
Discovery Environment

# Agenda

- Prerequisites
  - Client installed
- Access grid via:
  - Cmd-line **grid shell**
  - **GUI** client
  - **FUSE** file system mount
- Learn access control basics

# Using the Grid Client

- Multiple access methods
  - Cmd-line *grid shell*
  - GUI *client-ui*
  - *FUSE* file system mount
- You will learn to:
  - Login
  - Navigate namespace
  - Use GUI
  - Manage access control
  - Setup FUSE mount

# Login via the CLI

- Note: All of the things we will talk about can also be done from the grid shell without using the GUI, it is just not as convenient
- Login using your grid credentials  
**login**
- Check grid credentials  
**whoami**

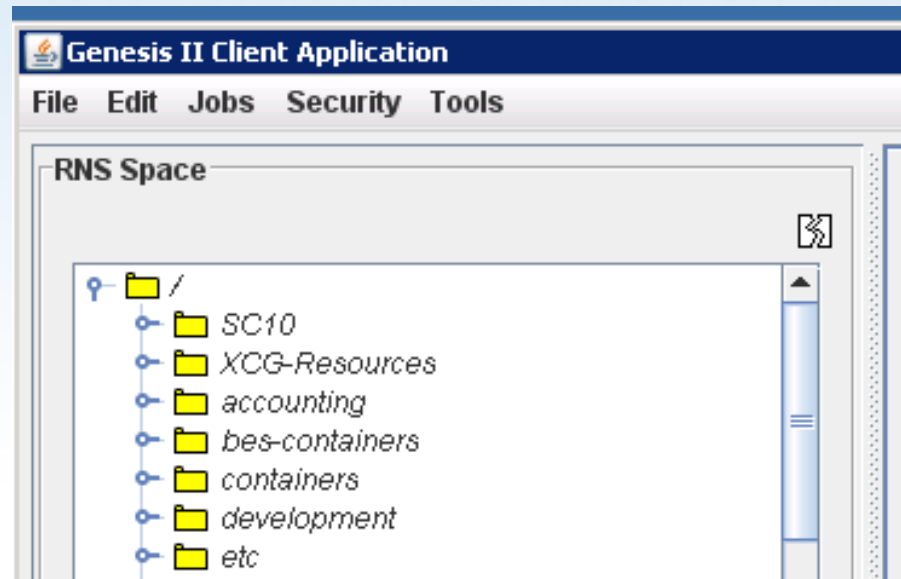
```
C:\> grid.exe
Current version is 2.3.0 Build 2203.
Genesis II:\$> whoami
Client Tool Identity:
    "Client Cert 0B2E3587-D651-1BD2-6CEC-9A8B176F284E"

Genesis II:\$> login
Genesis II:\$> whoami
Client Tool Identity:
    "Client Cert 0B2E3587-D651-1BD2-6CEC-9A8B176F284E"

Additional Credentials:
    "kas9ud" -> "Client Cert 0B2E3587-D651-1BD2-6CEC-9A8B176F284E"
    "sc10-demo-group" -> "Client Cert 0B2E3587-D651-1BD2-6CEC-9A8B176F284E"
    "uva-idp-group-2011" -> "Client Cert 0B2E3587-D651-1BD2-6CEC-9A8B176F284E"
E"
```

# Fire up the GUI

- Type “grid”
- At the command line type “client-ui”
- You should see something like this
- Let’s look around
  - /queus
  - /users
  - /home
  - /groups

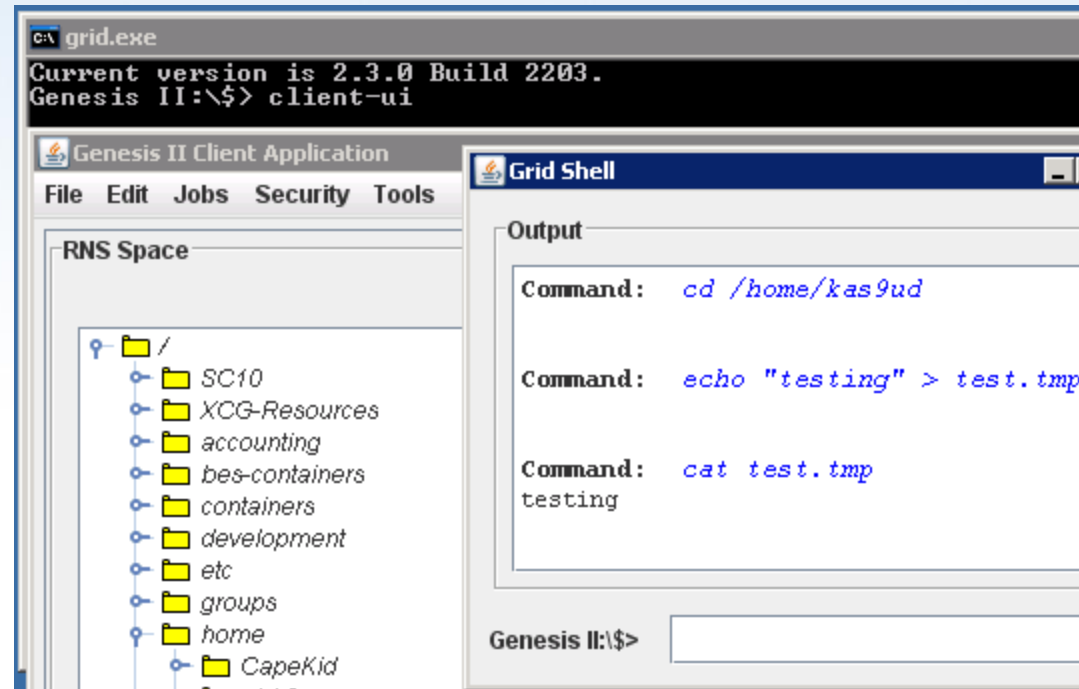


# /users versus /home

- /users is a directory of end user identities
  - Used to log in and to add people to access control lists, e.g., `chmod myfile +r /users/karolina`
- /home shows home directories in GFFS of users ... you can put files and directories there
  - E.g., `/home/grimshaw/data.txt`

# GUI Grid Client: Start-Up Basics

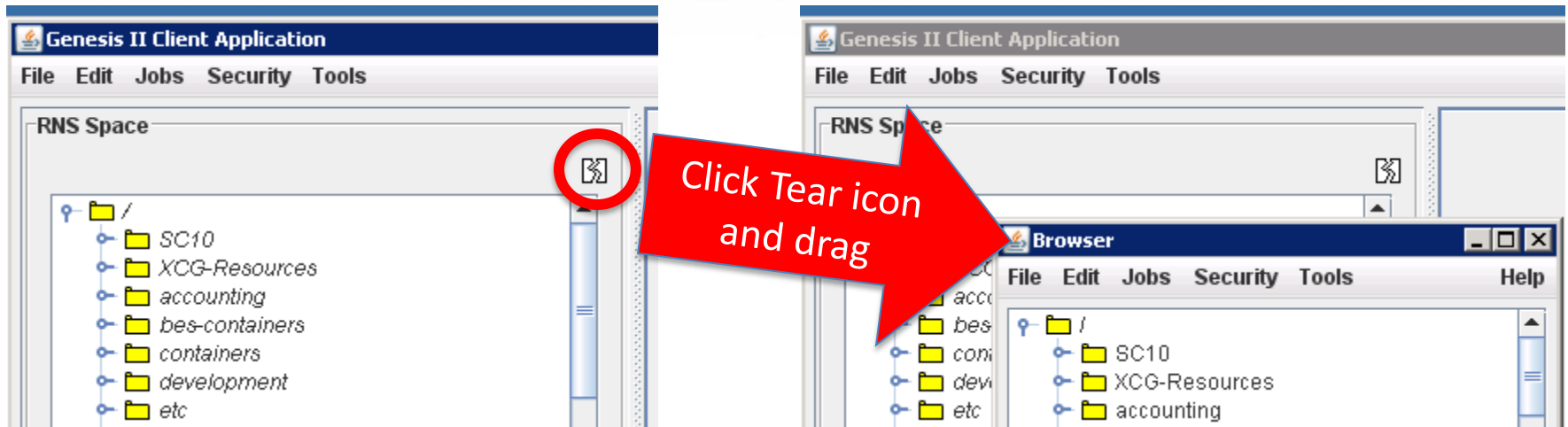
- Browse to */home*  
*Click on your directory icon*
- Open GUI sub shell
  - Select “Tools”, then “grid shell”
- Shell as tab completion, history, help, etc.



# GUI Grid Client: Tearing off a Browser

- Create additional GUI browser of grid global namespace by:

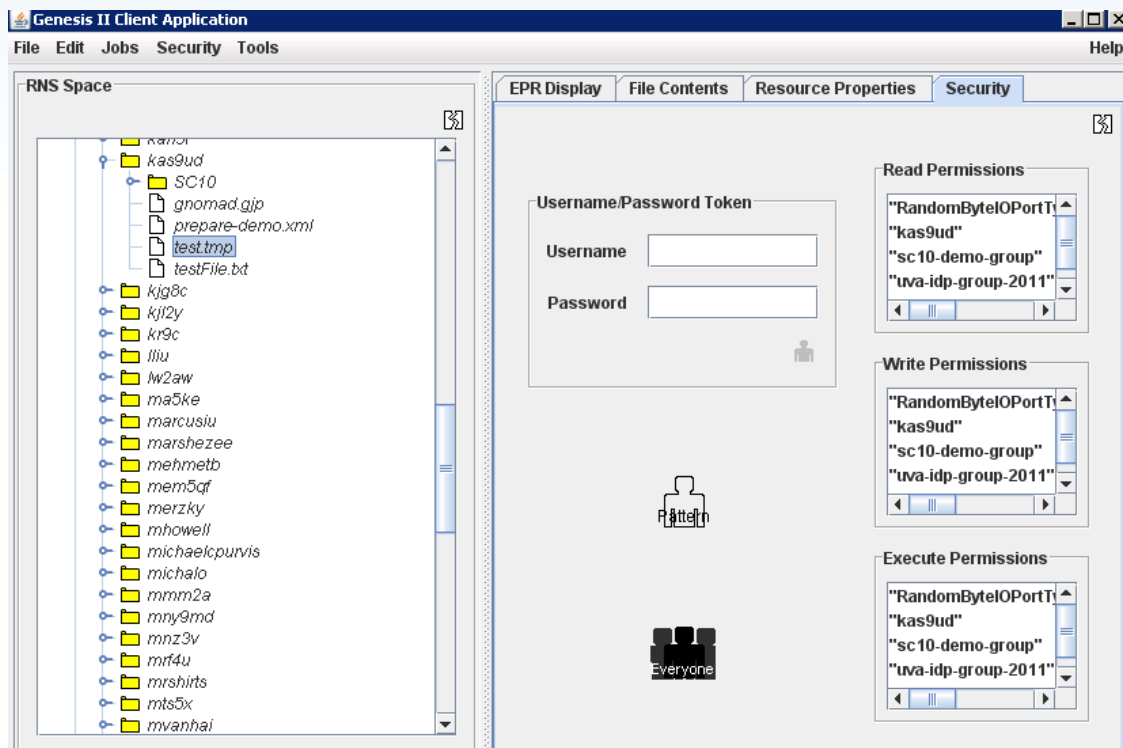
*Clicking **Tear** icon and dragging to tear off browser*





# GUI Grid Client: View Access Control

- To view access control information:
  - Browse to and highlight resource, then select Security tab

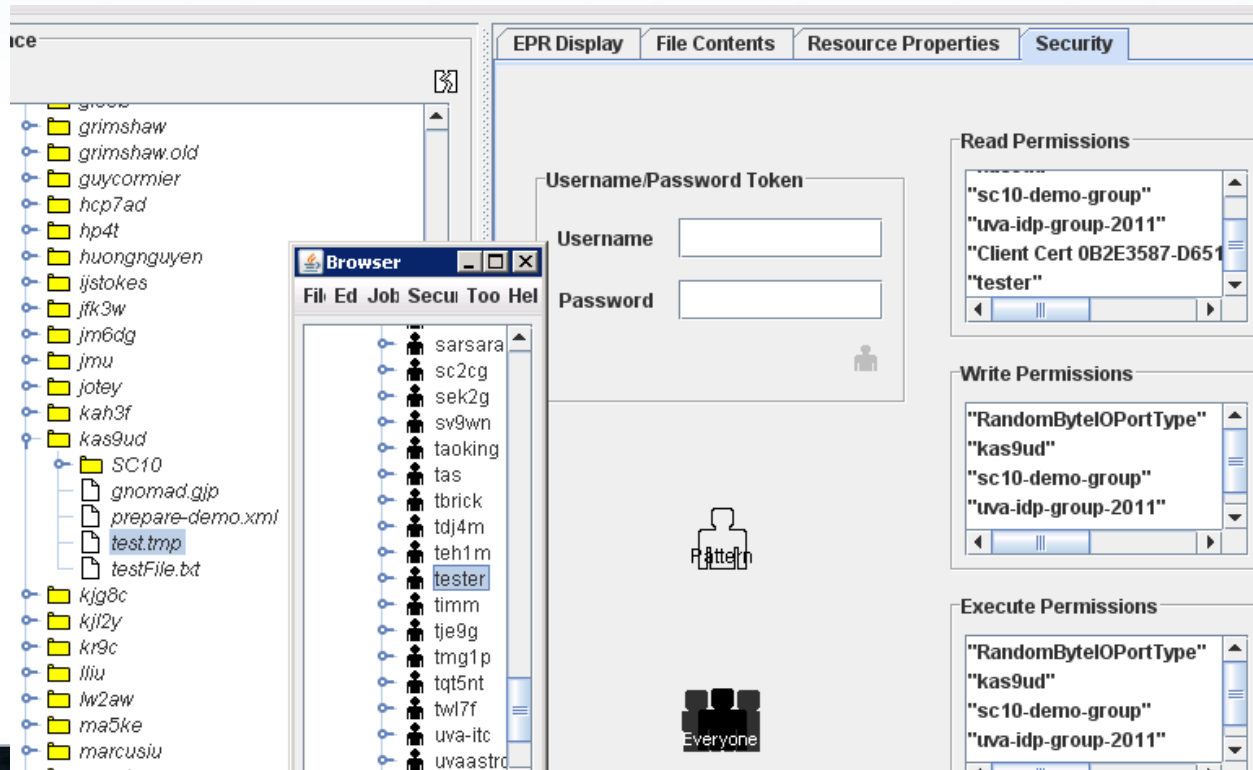


**Exercise:**

Give read access  
to your neighbor

# GUI Grid Client: Edit Access Control

- Select credential to be added
  - Add specific **user** by browsing to user identity under */users*
  - Add **everyone** by selecting *Everyone icon*
  - Add specific **username/password** token by filling in *dialog box* and selecting icon



- Drag and drop credential to add desired rwx permission

**That's it for the GUI for now**

**Let's look at mapping the  
directory structure into the local  
file system using FUSE**

# FUSE Mounting the Grid: Overview

- Filesystem in Userspace (FUSE) is a loadable kernel module for Unix-like computer operating systems that lets non-privileged users create their own file systems without editing kernel code
- We use FUSE to provide accesses to grid resources directly from your Linux file system via a directory mount point

# FUSE Mounting the Grid: Setup Basics

- Ensure you are logged into the grid  
**GenesisII/grid whoami**
- Create empty Unix directory to use as mount point  
**mkdir XSEDE**
- Mount grid at mount point  
**nohup GenesisII/grid fuse --mount local:XSEDE &**
  - Now you can access XSEDE via your file system

```
kas9ud@power4: ~/XSEDE # ls
accounting      containers      etc             home           SC10           users
bes-containers  development    groups         queues        uninitialized-containers  XCG-Resources
```

- Can add command to your Unix login dotfile to setup FUSE mount automatically on Unix login

# Result

- XSEDE resources regardless of location can be accessed via the file system
  - Files and directories can be accessed by programs and shell scripts as if they were local files
  - Jobs can be started by copying job descriptions into directories
  - One can see the jobs running or queued by doing an “ls”.
  - One can “cd” into a running job and access the working directory where the job is running directly
- More on this later

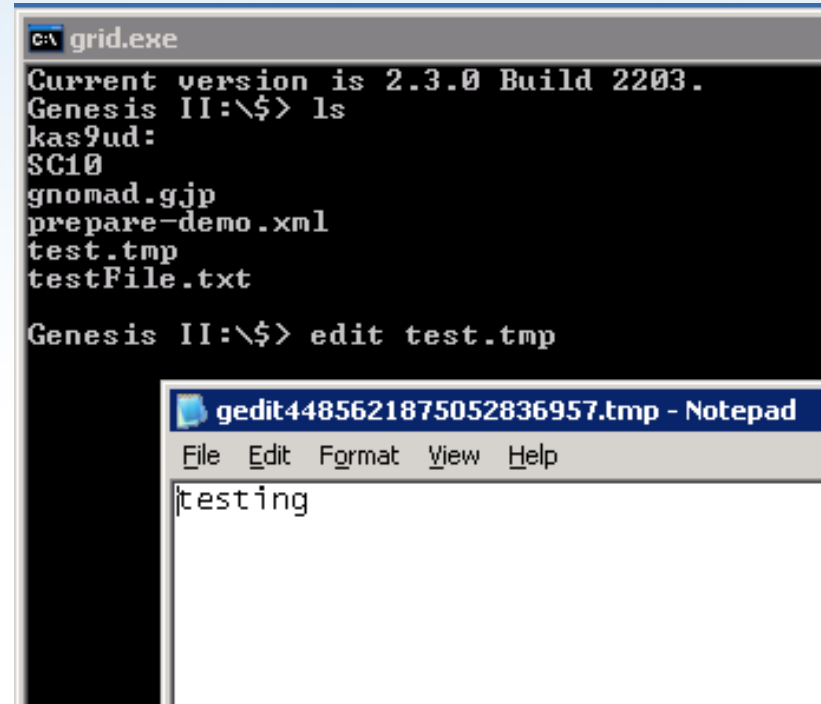
# GUI Grid Client: Editing Files

- Edit files in default editor (from client-ui sub-shell or grid shell)

**edit <filename>**

- In Linux, EDITOR environment variable needs to be set *before* running grid client; e.g.:

**export  
EDITOR=/usr/bin/vim**



```
C:\> grid.exe
Current version is 2.3.0 Build 2203.
Genesis II:\> ls
kas9ud:
SC10
gnomad.gjp
prepare-demo.xml
test.tmp
testFile.txt

Genesis II:\> edit test.tmp
```

gedit4485621875052836957.tmp - Notepad

File Edit Format View Help

testing

# GUI Grid Client: Configuring Preferences

- Select Preferences under File menu to configure:
  - Credential verbosity
  - Shell fonts
  - Default job history level
  - XML display mode

