Using OSC OpenOnDemand portal

UM Spring HPC Workshop

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University of Manitoba

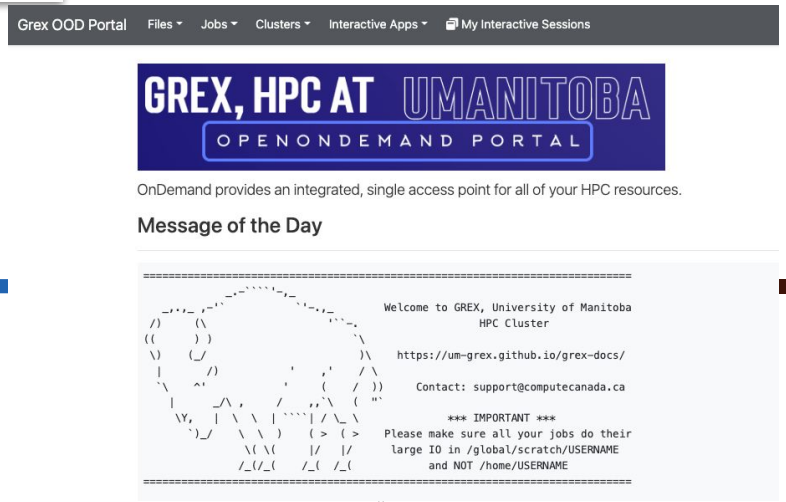
Goals of OSC OnDemand Portal

- **Making HPC easier for new users**
  - Command line interface is powerful but hard to learn
  - SSH may be not accessible, so a Web UI is useful
- **Interactive, Graphical access and Viz.**
  - Remote desktops for interactive work
  - Remote Servers like JupyterHub

Photo of Grex by Jin Michael Uy, ECE , 2022

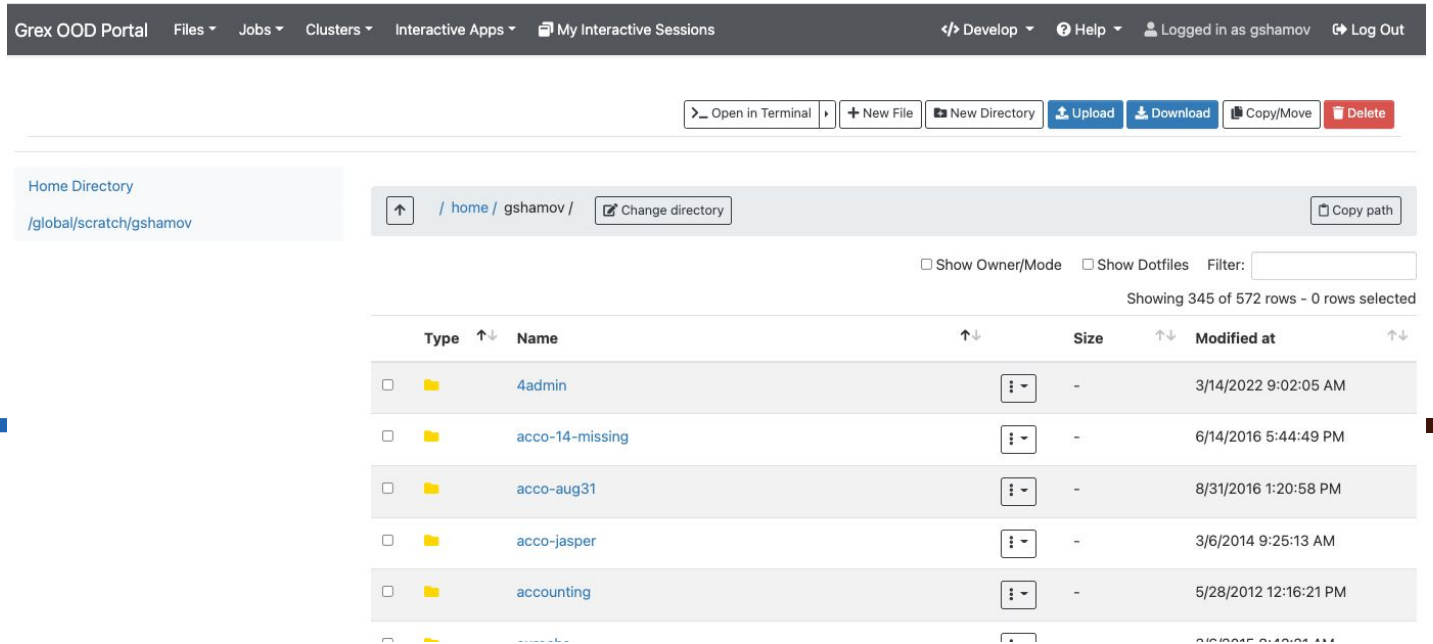
- https://openondemand.org/ is an HPC Web portal, or a browser GUI for HPC systems
  - File management
  - Command-line shell access
  - Job management and monitoring across different batch servers and resource managers
  - Graphical desktop environments and desktop applications
- On Grex:
  - https://aurochs.hpc.umanitoba.ca
  - Aurohs CCDB user IDs, not UMNetID !
  - Available from within Campus network, or when on UM VPN

https://umanitoba.ca/computing/ist/connect/virtualpn.html



Working with Files and Directories

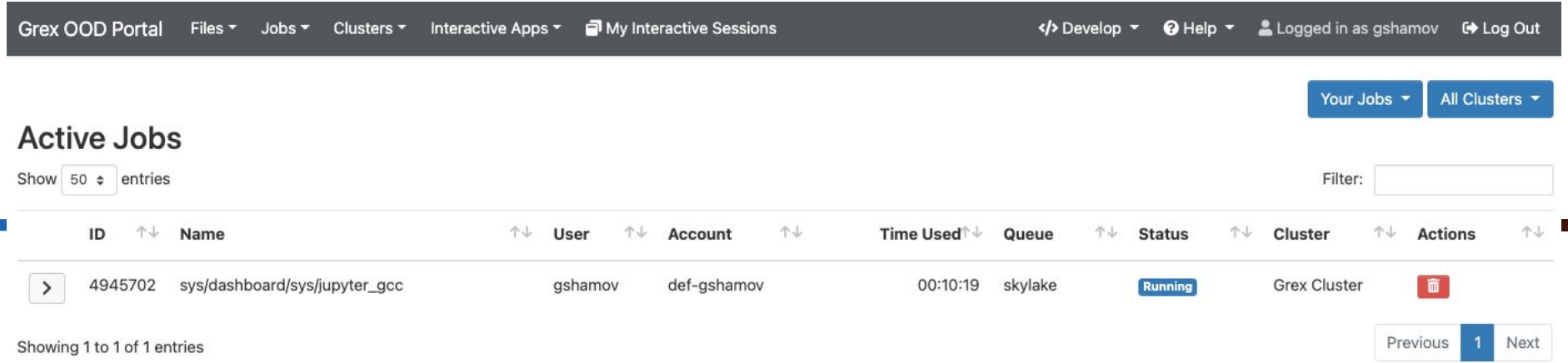
- File browser in Web browser
- Upload, download and edit files
- Navigate various filesystems (Home, Project, Scratch)



Browsing Queue status, submitting jobs

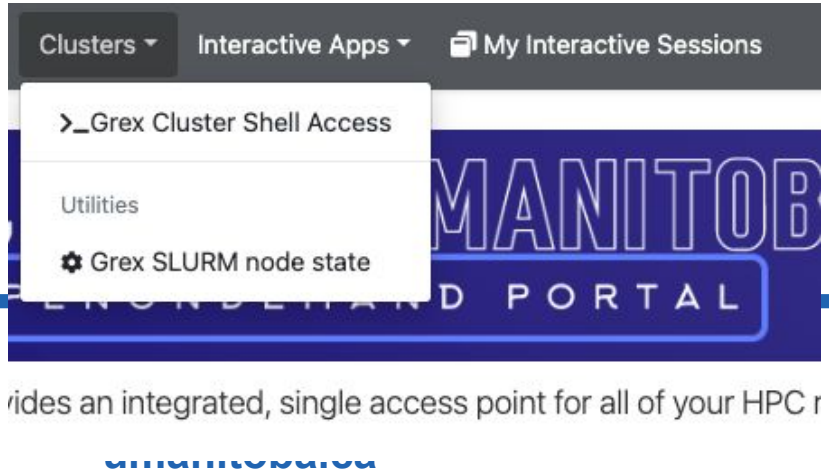
https://aurochs.hpc.umanitoba.ca is an HPC Web portal, or a browser GUI for Grex

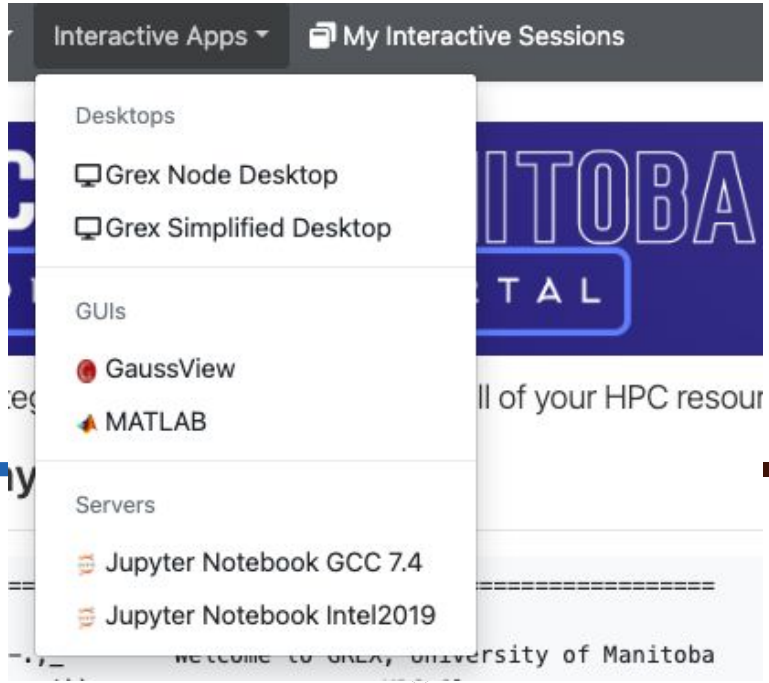
- Browser for the jobs in queue
- Allows for submitting SLURM job scripts from Web browser.
  - OOD Dashboard Apps are better for specific cases
- (local add-on on Grex) Summaries of local Queue and Partition status



Desktops, Shells and Apps

- Simple SSH shell in-browser, on a login node
- Desktops
  - On compute nodes (Lightweight GUIs, OpenBOX, IceWM)
  - On special test node (adds Xfce 4 Desktop)
  - On user-contrib nodes for contributors
- Apps: GV, Matlab, Jupyter Notebooks

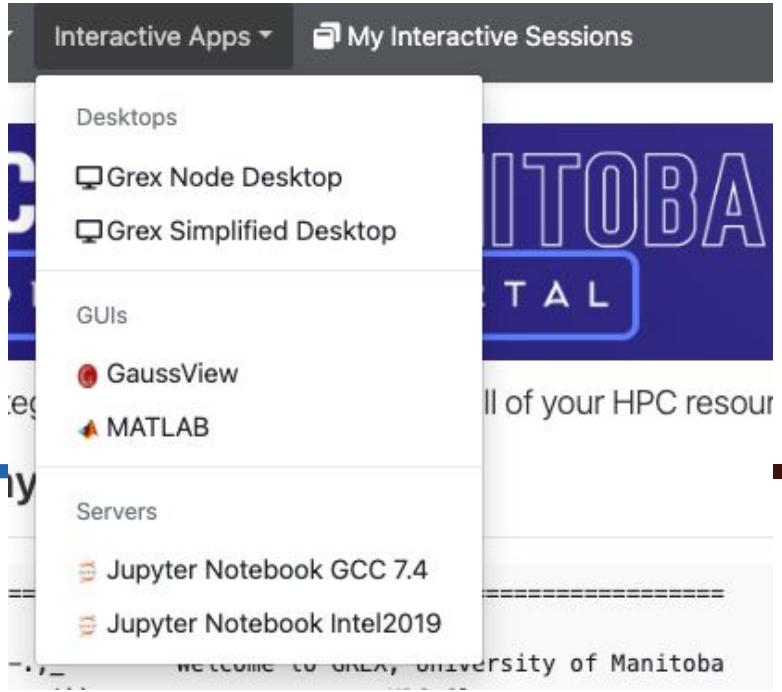




Desktops, Shells and Apps

- https://aurochs.hpc.umanitoba.ca is an HPC Web portal, or a browser GUI for Grex

- Desktops for contributed partitions
  - For Research groups that contribute hardware
  - Only visible for the group members
  - Presently, work as Simplified GPU desktop App



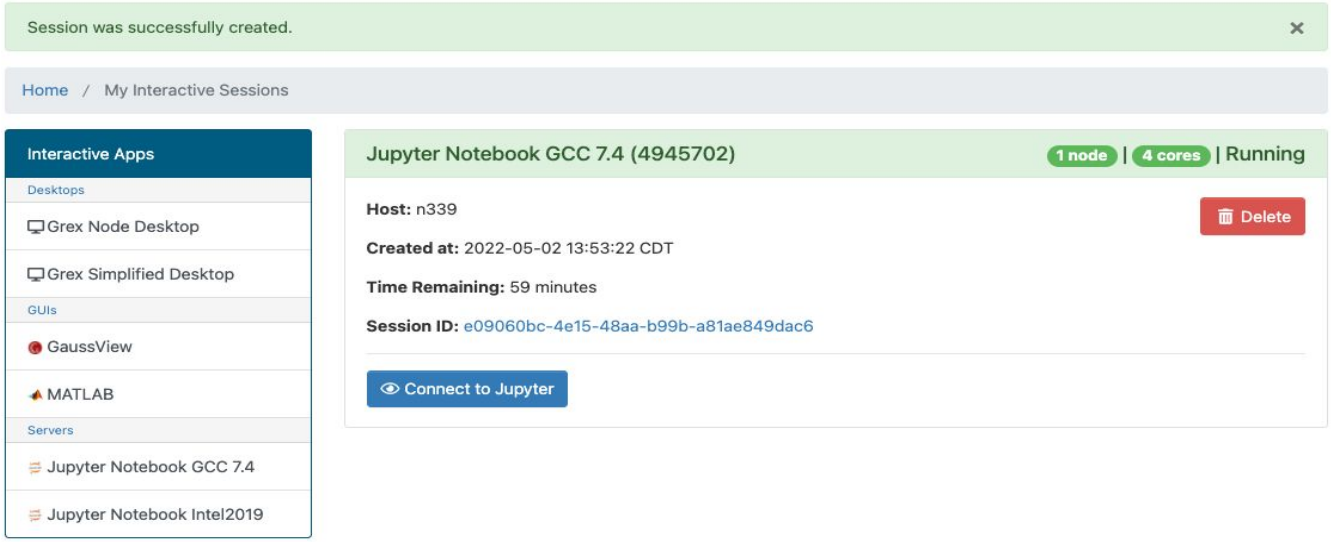
Interactive Sessions, Desktops, Apps

- Apps and Desktops are running as SLURM jobs
  - Start the jobs with the “Interactive Apps” tab
- These jobs create Interactive Sessions when start.
  - Monitor and manage the running Sessions in “”My Interactive Sessions” tab

- Desktop Sessions (like, Matlab or GaussView) talk to OOD Portal via NoVNC protocol. You can re-connect to Sessions, terminate them etc.

Interactive Sessions example, JupyterLab

- Apps and Desktops are running as SLURM jobs
- JuPyteR is an example of a server application
- JuPyteR Web notebook/sessions are forwarded via OOD's proxy mechanism
- Some "Kernels" (R, Julia, etc.) need to be user-installed first!
- https://docs.alliancecan.ca/wiki/JupyterNotebook#Adding_kernels



FAQ, Issues etc.

- https://aurochs.hpc.umanitoba.ca/ gives a Bad Request message to the left:
  - Old Dex session it kept in browser cache; clean cache, restart browser
  - Re-type aurochs.hpc.umanitoba.ca w/o the session key parameter
- Timeout messages when loading Desktop Apps or starting jobs
  - Keep hitting Reload
  - Use “test” partition for simple Desktop
- No /home and /global/scratch for new Grex users
  - Connect first time via command line SSH; a script creates them on first SSH login
  - Scratch migrated to /project, check new links in Files menu!
- Inconvenient time limits for Desktop app
  - Contact us, we are now trying to optimize these things
- An Application X would be useful to have on Grex
  - Contact us, we are working on expanding the list of Apps.

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