Welcome to Biowulf

High performance computing @ NIH

Accelerate biomedical research at the NIH by providing convenient access to large scale **computational resources** and **scientific software** (and the **know-how** to use them).

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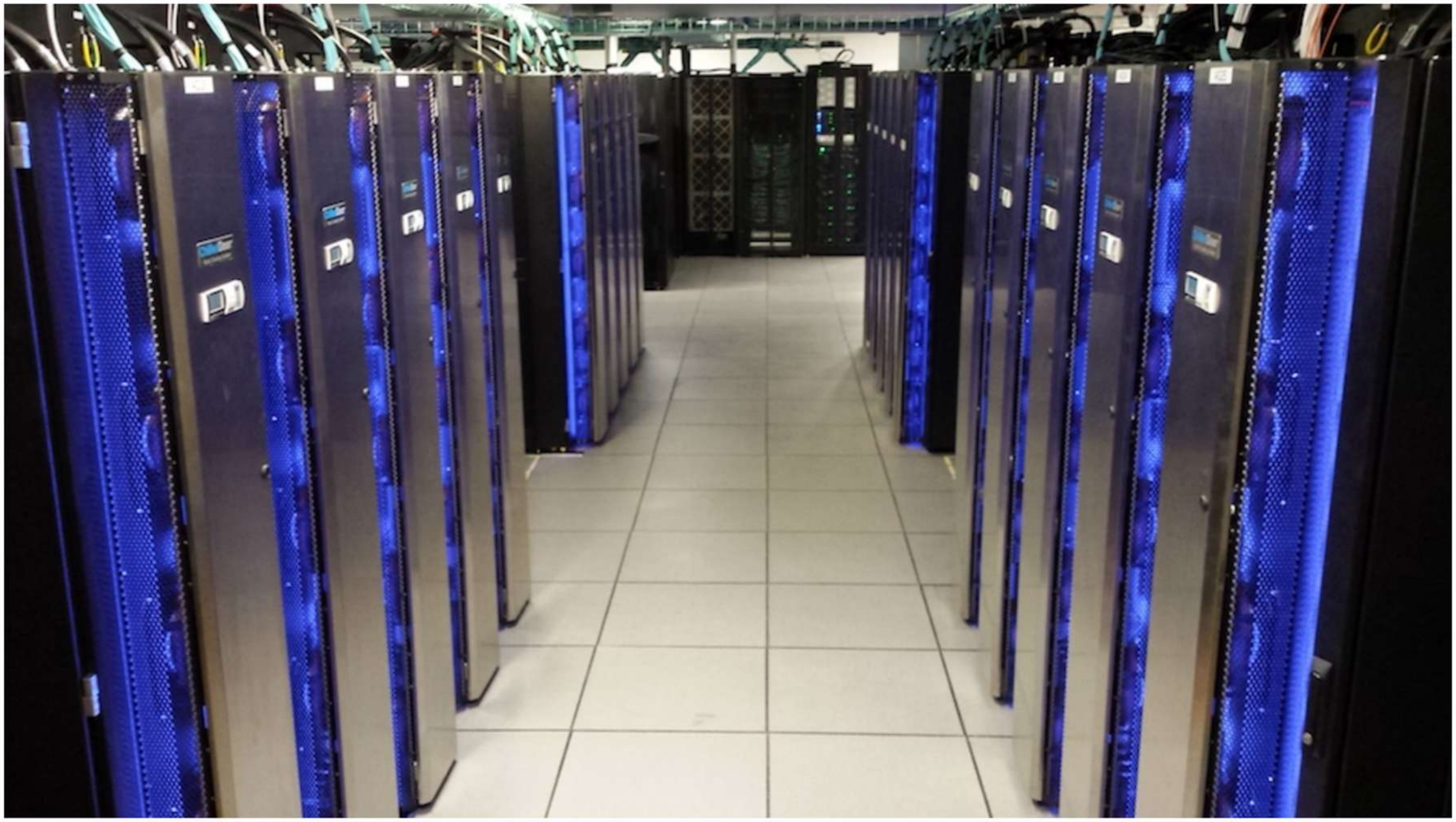
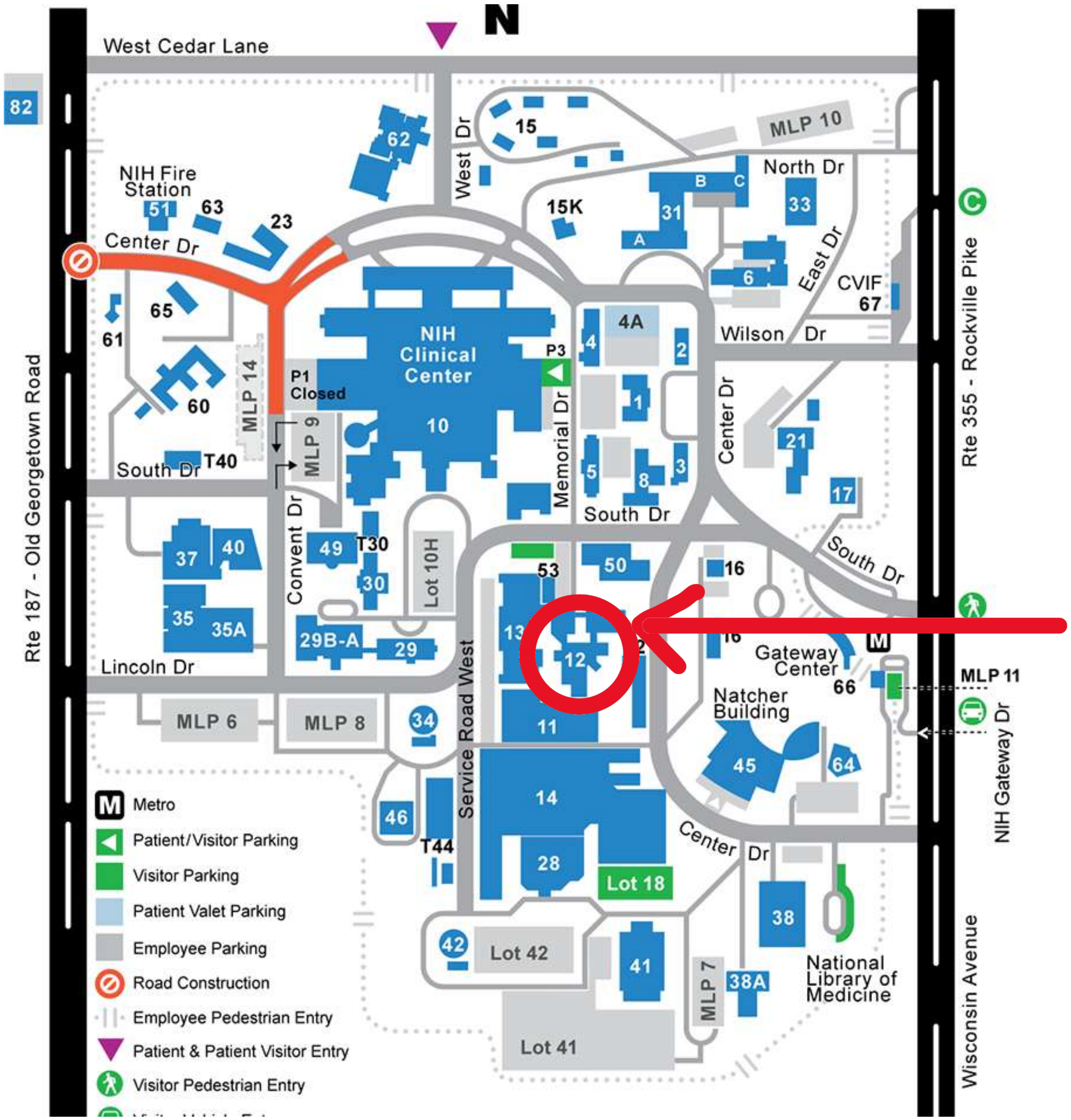
Computational resources: The Biowulf system

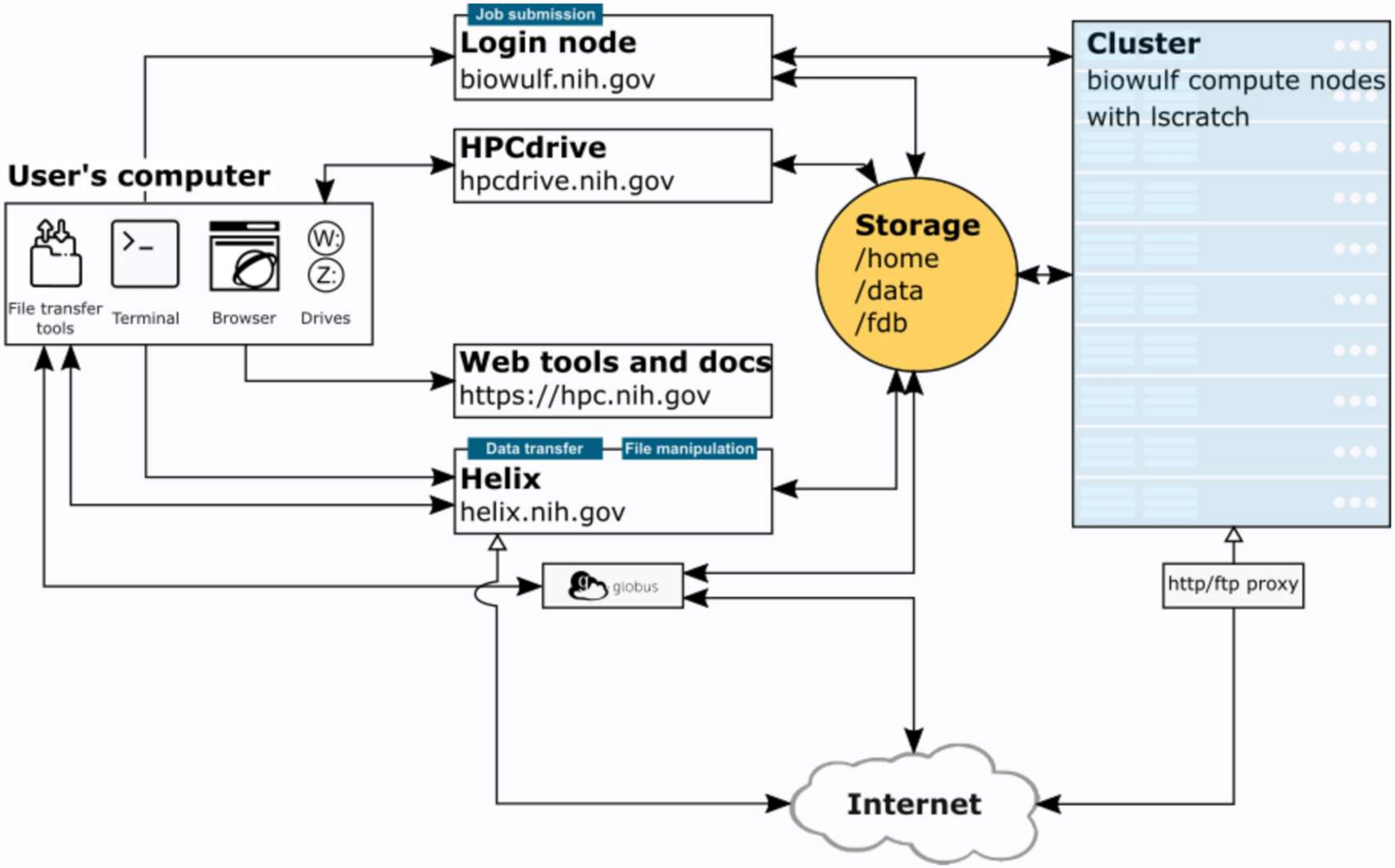
What is Biowulf?



Where is Biowulf?



Architecture

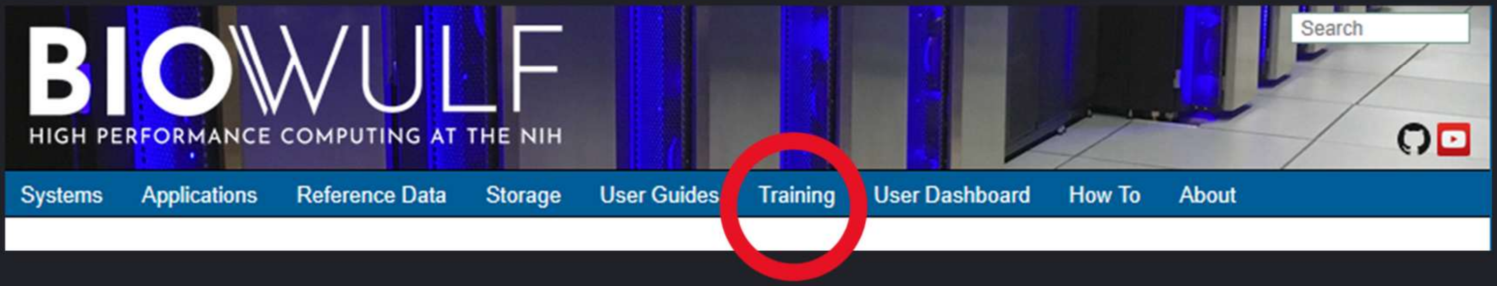


Software

Applications

- multiple versions for ~1000 applications available
- Multiple versions of python with ~500 packages each
- Multiple versions of R with about 1600 packages each
- singularity for containerization
- jupyter, rstudio (desktop, community edition), rstudio-server
- https://hpc.nih.gov/apps/

Know how - training and outreach



Training

- Online, self-paced clases (intro to biowulf, bash)
- Videos: https://hpc.nih.gov/training/intro_biowulf/
- Live action classes/recorded (e.g. Deep learning by example, R, matlab, snakemake)
- Documentation (https://hpc.nih.gov) and tutorials (e.g. https://hpc.nih.gov/training/gatk_tutorial)
- BTEP Intro to Biowulf at: https://bioinformatics.ccr.cancer.gov/btep/courses/introduction-to-unix-on-biowulf-january-2024

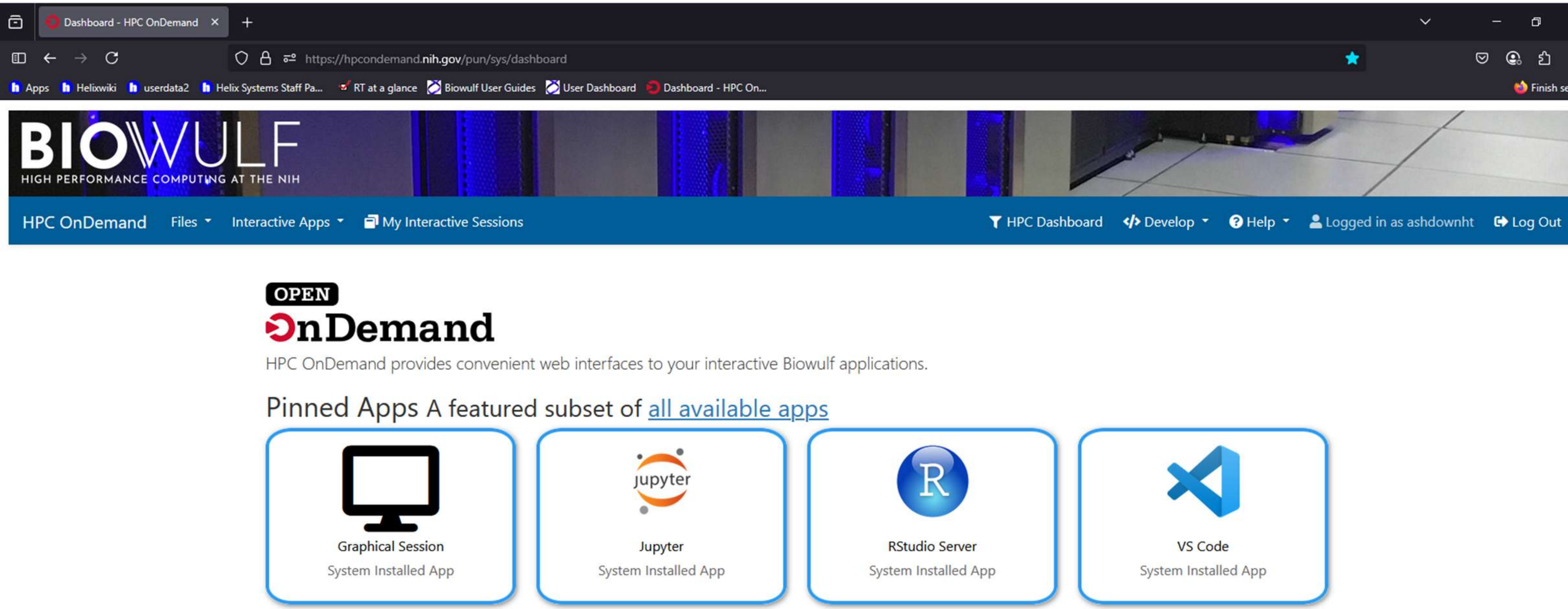
Outreach

- Monthly *Zoom-in* consult
- Meeting with individual groups or 1:1
- Cranky email from staff if/when you break something

Some things to keep in mind…

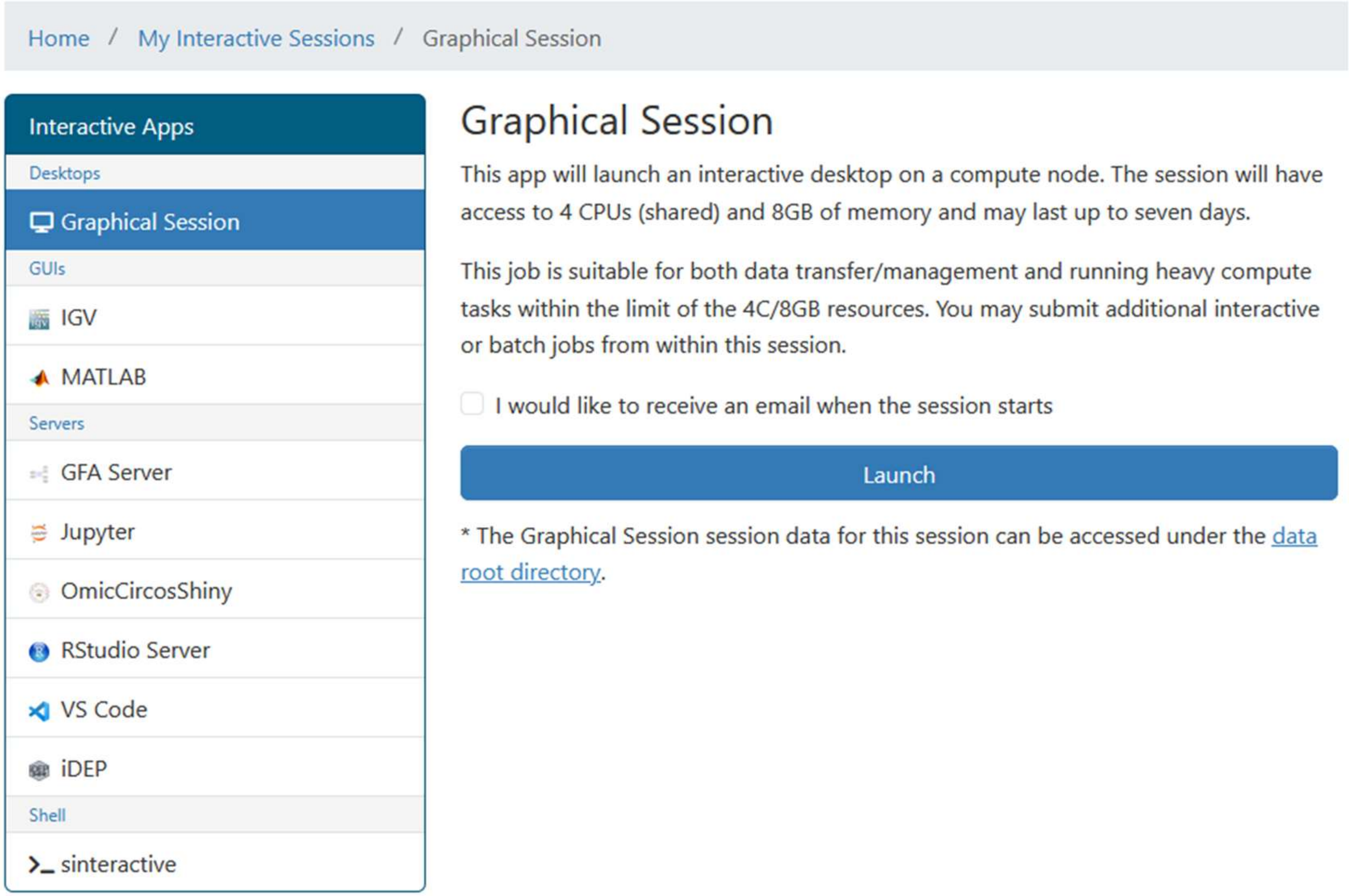
- Please do not use `sudo`, `apt-get`, `dnf`, or `yum`
  - Biowulf user's do not have root access – they will not work
- Be mindful of copy and pasting things directly from the internet
  - *Especially when using chatbots*

Open On Demand



HPC OnDemand provides convenient web interfaces to your interactive Biowulf applications.

Pinned Apps A featured subset of all available apps



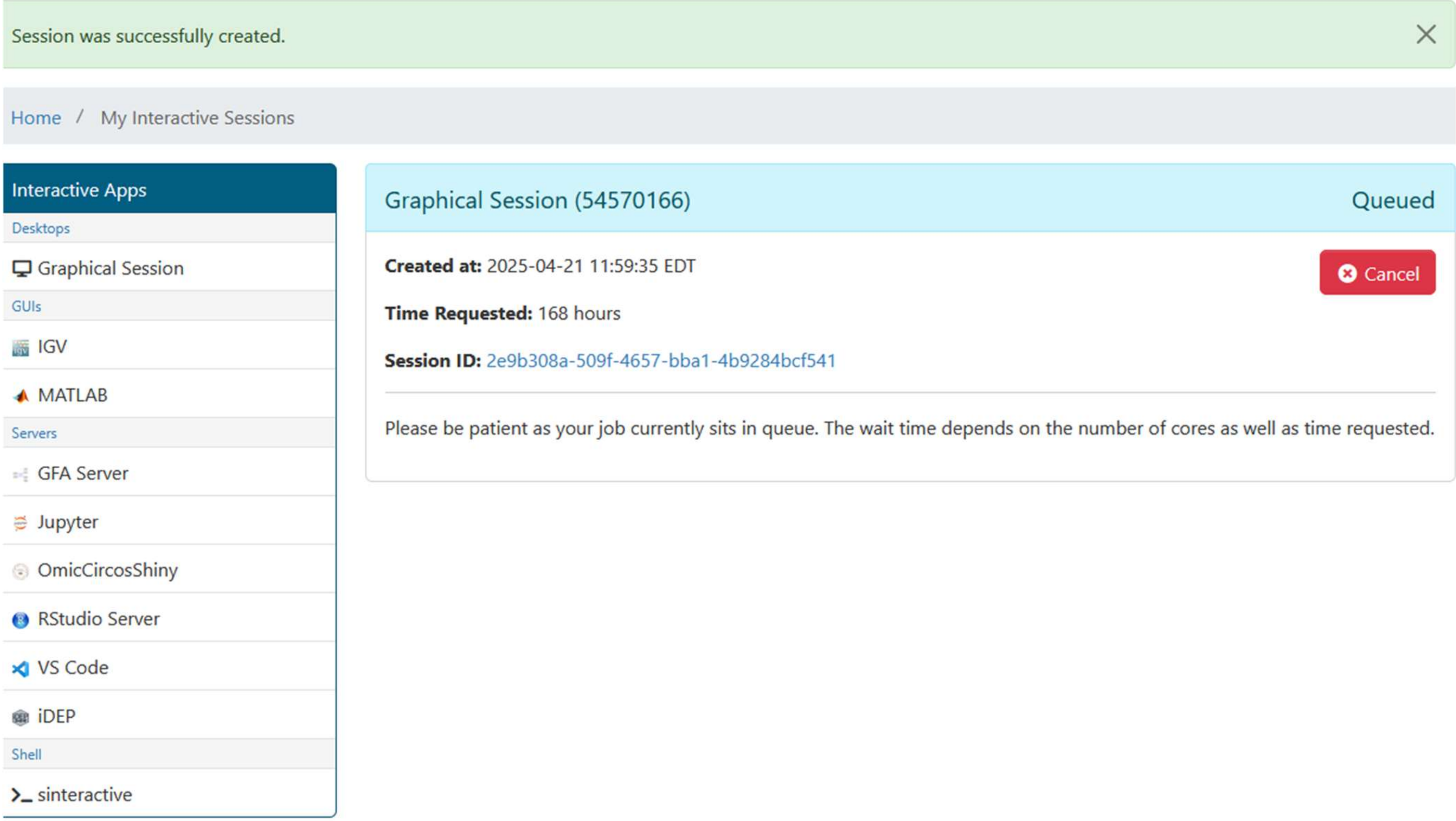
Graphical Session

This app will launch an interactive desktop on a compute node. The session will have access to 4 CPUs (shared) and 8GB of memory and may last up to seven days.

This job is suitable for both data transfer/management and running heavy compute tasks within the limit of the 4C/8GB resources. You may submit additional interactive or batch jobs from within this session.

☐ I would like to receive an email when the session starts

* The Graphical Session session data for this session can be accessed under the data root directory.



Session was successfully created.

Graphical Session (54570166) Queued

Created at: 2025-04-21 11:59:35 EDT

Time Requested: 168 hours

Session ID: 2e9b308a-509f-4657-bba1-4b9284bcf541

Please be patient as your job currently sits in queue. The wait time depends on the number of cores as well as time requested.

Transfer files to Biowulf

- Large data volumes: **globus**
- Medium/large: **scp/rsync/sftp** (use helix; graphical clients available)
- For convenient small transfers **mount hpcdrive**
- Transfer directly from biowulf to/from NIH Box/ OneDrive: **rclone** or **globus**
- Transfer to/from cloud storage: **globus**

Questions?

- Email us!
- Staff@hpc.nih.gov

Thank you!