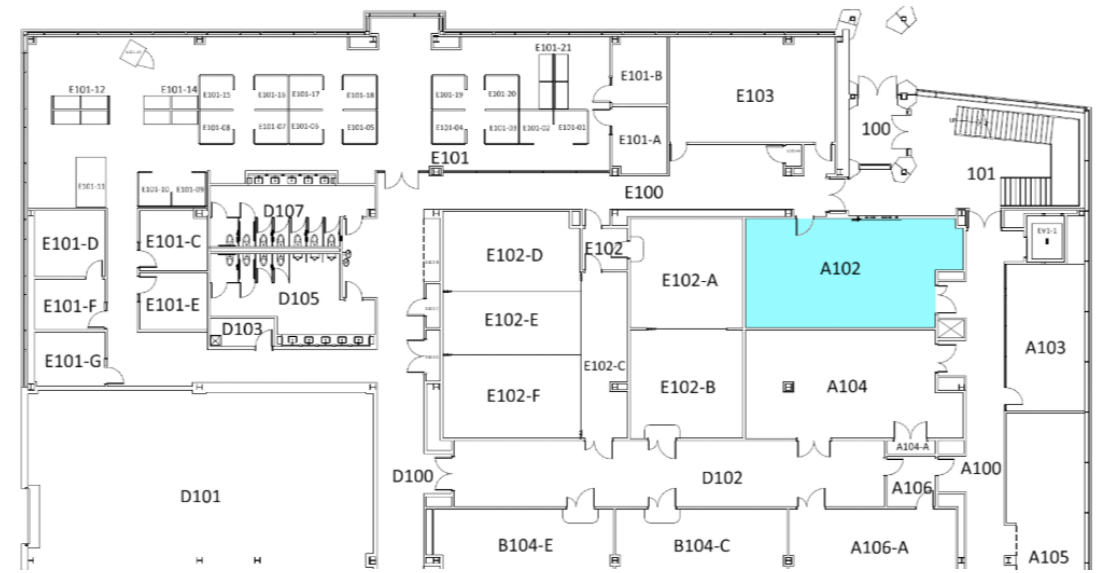# Infrastructure/System Status

Infrastructure is in good shape. No major works planned.

- Monitoring has been upgraded and picks up more problems than before.

- Arista networking infrastructure is out of support. Will get quotes for replacement.

- TRC is now available, but there are several issues, especially having to do with networking (at the moment there is no ExCL network access).   We may need to purchase a network switch.

- One last Centos7 infrastructure system in operation. Upgrade in process.

- Mi300a.   Part lost in ORNL receiving.   Working on this.

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Plans for the Next Three Months

BUILDING 3700 - FIRST FLOOR PLAN

- Continued documentation and capability updates.

- Deployment of ARC Pro A60 card.

- Deployment of AMD Xilinx U280.

- Working deployment backlog (for lower priority devices).

- Plan and start move from 5100/227 to 3700/A102 (Translational Research Capability). Infrastructure work to be done:

  - Move rack to D102 if it is still available to us (the current owner has been holding it for three years)

  - Power distribution in D102 for rack

  - Networking issues to settle

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Power consumption monitoring

Our current capabilities are not great

- Limited PDU monitoring available

- Host instrumentation is generally not good. Sometimes power data available from BMC for power supplies.

- There are tools for Intel CPUs, but we don't have many of those.

- GPU instrumentation for Nvidia and AMD generally very good. Work to be done for AMD glue code into Check_MK. Resolution currently 60 seconds.

Meeting Notifications and Groups.io

- ExCL User Group meetings are announced on our groups.io mailing list (users@excl.groups.io). We will also put a brief note in the CSMD #news slack.

- We will happily add multiple email aliases.

- There is an .ics file appended to the email notification. If you are using outlook, you can preview the attachment and open it from preview to add it to your Outlook calendar.   Similar mechanisms are available for other calendar products.

Reminder: SSH Keys for Authentication

- Using SSH keys is the preferred way to authenticate your user and to authenticate with private Git repositories.

    – For security, it is recommended to use an SSH keys encrypted with a passphrase.

- Why not passwords?

    – ExCL will block your account after 3 failed attempts. Automatic login tools, e.g. VS Code, can easily exceed this limit using a cached password and auto-reconnect.

    – For git repos with two-factor authentication, an application token/password must be created, and this password must be stored externally and is more cumbersome to use.

- How to get started?

    – Set up a key pair:

        • Visual Studio Code Remote Development Troubleshooting Tips and Tricks

        • Generating a new SSH key and adding it to the ssh-agent - GitHub Docs

    – Add key to Git Hosting Websites.

    – Setup ExCL worker node proxy via login node.

Documentation Updates ✒️

- Updated:
  - [Jupyter Notebook | ExCL User Docs](#)
  - [Julia | ExCL User Docs](#)
  - [Conda and Spack Installation | ExCL User Docs](#)

- New:
  - [Marimo | ExCL User Docs](#)
  - [Modules | ExCL User Docs](#)
  - [Backup & Storage – Project Storage | ExCL User Docs](#)
  - [ExCL Remote Development | ExCL User Docs](#)
  - [Open WebUI | ExCL User Docs](#)

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Conda Deprecation and Suggested Alternatives

Installing Conda

⚠️ With recent changes to the Conda license, we are unable to use the default conda channel without a paid license. You are still able to use conda/miniconda with the `conda-forge` repository, but you must change it from using the `default` repository. See Transitioning from defaults | conda-forge | community-driven packaging for conda and Saying Goodbye to Anaconda?. Finding a replacement for Conda | by Robert McDermott | Medium for some additional information. The recommend approach is now to use venv, uv, or Pixi for managing python environments. These approaches work better and avoid the license issues. See also Python | ExCL User Docs for more information on how to get started with Python.

Documentation Updates — Remote Development Roadmap

- ExCL Remote Development | ExCL User Docs

Roadmap for Setup

If you are new to remote development on ExCL here is a roadmap to follow to set important settings and to get familiar with remote Linux development.

1. Setup SSH: SSH Keys for Authentication | ExCL User Docs
   - Bonus: SSH-Agent and SSH Forwarding
2. Setup Git
   a. Git SSH Access | ExCL User Docs
   b. Setup Git access to code.ornl.gov | ExCL User Docs
3. Setup VS Code Remote Explorer: Visual Studio Code Remote Explorer | ExCL User Docs
   - Important: Make sure to check the setting Remote.SSH: Lockfiles in Tmp.
4. Setup FoxyProxy. This enables access to ThinLinc as well as any other web services running on ExCL systems.

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ExCL Project Storage

- Shared storage available on request for collaborative projects.

- Each project gets a dedicated subvolume in the ZFS filesystem on request.

- Access via automounted NFS share at:
  - `/auto/projects/<project_name>`

- Restricted access for security:
  - Only execute permissions on `/auto/projects/` (must know project name to cd into directory). Only project members have access to a particular project directory.
  - Users cannot list all project directories with `ls`.

- Access Control Lists (ACLs) manage permissions.
  - Default permissions:
    - Project members have read, write, and execute access.

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Open WebUI

Getting started with Open WebUI.

Link: Open WebUI (Running on Zenith)

Website: Open WebUI

Documentation: 🏠 Home | Open WebUI

GitHub: open-webui/open-webui: User-friendly AI Interface (Supports Ollama, OpenAI API, …)

There is an Open WebUI server running on ExCL for developing and testing LLM models created with Ollama. In order to use the website you must first Setup FoxyProxy, then the above link will work. When you first access the page, you will be prompted to create a new account. This account is a unique account for this instance of Open WebUI and is not tied to anything else. After creating an account, send a message to Aaron Young or excl-help@ornl.gov to request your account to be ungraded to an admin account.

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Foxy Proxy Setup

Used to Access:

- ThinLinc
- Open WebUI
- Jupyter
- Marimo
- … and more!

any <host>.ftpn.ornl.gov:<port> URL

Setup FoxyProxy

1. Launch SOCKS dynamic proxy forwarding to the login node using dynamic forwarding with SSH. On Linux or macOS, via the SSH flag `-D`

   ```
   $ ssh -D 9090 <Username>@login.excl.ornl.gov
   ```

   or in the ssh config add the `DynamicForward` option

   ```
   DynamicForward 9090
   ```

   On Windows, use MobaSSHTunnel to set up Dynamic Forwarding. See Jupyter Quickstart for more information on port forwarding in windows.

2. Setup FoxyProxy
   Install the FoxyProxy Chrome extension or Firefox extension.

   Setup FoxyProxy by adding a new proxy for localhost on port 9090. Then add the regular expression URL pattern `.*\.ftpn\.ornl\.gov` to forward ThinLinc traffic to ExCL.

Foxy Proxy Settings

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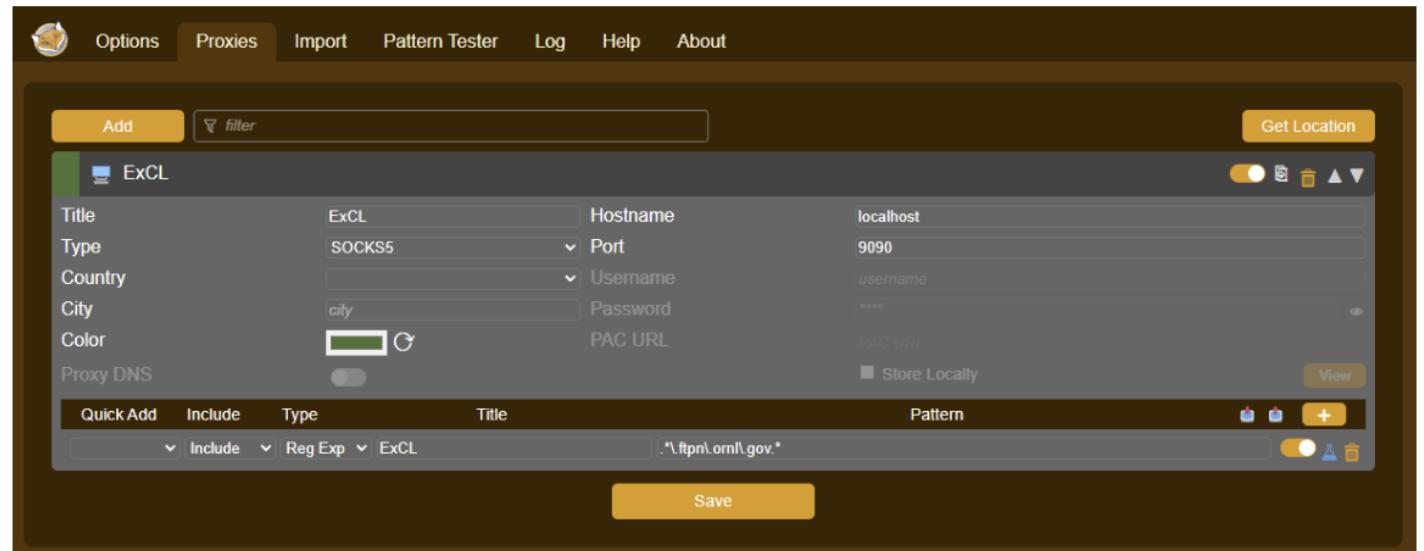
Questions/Discussions/Comments?

- Apple M1 Availability.
- M100 memory issue.