WIKI for Hyak users

News

Mailing List

Sign up for the Hyak-users mailing list to stay up to date with the latest news: https://mailman1.u.washington.edu/mailman/listinfo/hyak-users

This list is used for ALL announcements to Hyak users, so please sign up. Important Hyak announcements are ONLY sent to this list, not to the individual Hyak accounts.

Announcements

System Status

Hyak consists of 1 cluster: mox.hyak (the 2nd generation hyak system).

Current Status

> ⊘ mox.Hyak is online.*
>
> *A maintenance reservation is in place for scheduled maintenance on October 13th, 2020.

*When a maintenance reservation is in place, jobs whose time limit (sbatch --time parameter) could allow the job to extend into the maintenance period will not be allowed to start by the scheduler. The squeue command will show the reason as 'ReqNodeNotAvail'.

Hyak will be offline from 9:00 am - 5:00 pm for scheduled maintenance the second Tuesday of every month. Every third month (Feb, May, Aug, Nov), the maintenance window will last from 9:00 am to 9:00 the following morning. More on the Maintenance schedule.

Other maintenance performed on Hyak is relatively rare, short (30 - 60 minutes), and does not impact running jobs. This type of maintenance is announced to the hyak-users list.

Hyak Overview

Hyak is a service of UW-IT. You can read more about it at this link https://itconnect.uw.edu/service/shared-scalable-compute-cluster-for-research-hyak/

This link describes how to get an Hyak account: Requesting an Account

This link has information about of some the research groups which use Hyak: Hyak_Research

Here is a list of some of the research papers which have used Hyak: Hyak Publications

Most of the nodes are devoted for computing but the cluster also includes a few "login-nodes", dedicated to logins, file transfers, and similar communication tasks. There are also nodes that belong to the sponsoring institutions, and nodes for compiling and testing the programs.

Any UW student can get access to hyak by joining the RC club: https://depts.washington.edu/uwrcc/getting-started-2/getting-started/

RC Club office hours: https://depts.washington.edu/uwrcc/calendar/

Hyak consists of 1 cluster: mox.hyak (the 2nd generation Hyak system).

mox

mox.hyak contains hundreds of nodes, each comparable to a high-end server. A typical node on mox.hyak has at least 28 processor cores and at least 128GB of memory. All the mox.hyak nodes run CentOS 7 Linux, and they are tied together by the Slurm cluster software. The user tasks are submitted through the Slurm scheduler.

For an overview of mox please see Hyak mox Overview.

Purchasing Hyak Capacity

CPU and storage options are available for purchase to Hyak users associated with sponsored campus units. Non-sponsored campus units are able to purchase dedicated compute or storage capacity with an added annual maintenance cost.

This information is provided for preliminary planing purposes only. Please use your UW e-mail to contact help@uw.edu for assistance in preparing actual Hyak hardware configurations.

https://itconnect.uw.edu/service/shared-scalable-compute-cluster-for-research-hyak/

Any faculty or PI can send an e-mail to help@uw.edu and request a "Welcome to Hyak Tutorial" to be held at their lab or department.

Getting Started

Please review everything in this section before contacting Hyak support for help with new accounts. This section also contains useful information on life with two-factor authentication, including setting up SSH tunnels to reduce hassles.

- Requesting an Account
- Logging In

Using Hyak

First Steps

Knowledge Pre-requisites:

You should be familiar with the Linux command line. Hyak's default shell is bash which is also the default shell on a Mac computer. Here is a link to Software Carpentry's lessons on the bash shell, Python, git etc. (Scroll down for videos of their courses.)

http://software-carpentry.org/lessons/

Software Carpentry also conducts workshops at UW. See below link for the next workshop at UW:

http://software-carpentry.org/workshops/

You should be familiar with Hyak basics:

Hyak_101

Code Pre-requisites:

Before you start running your code to hyak, ensure it works on your own computer, or even better, in your lab network. Be sure you know how to keep all the cores busy. For example, using GNU Parallel for weak-scaling, or MPI for strong-scaling.

A user connects to hyak by using ssh. Mac and Linux machines have ssh. Windows users will have to install appropriate ssh software.

Software and Development Tools

Hyak provides software development tools and libraries for HPC and data intensive computing.

- Hyak Software
- Hyak Scientific Software

Filesystems and Data Transfer

Hyak offers a variety of filesystems, each best suited for a different set of circumstances. Along with selecting the best filesystem for the job, this section includes instructions for moving your data to and from Hyak.

- Managing your Files

Submitting and Running Jobs

All Hyak use is mediated by the system scheduler. This section provides details on using the scheduler to run interactive, batch, and parallel jobs. It also includes instructions for using the scheduler to monitor your jobs and the cluster status.

mox.hyak uses the slurm scheduler. Jobs must be submitted via the login nodes.

The page below is for mox.hyak.

Mox_scheduler

Getting Help

If you use the STF (Student Technology Fee) allocation through the Research Computing Club (RCC), please join the mailing list for the RCC (https://depts .washington.edu/uwrcc/) and direct all questions there.

The principle means of support we provide is this Wiki - a comprehensive set of documentation covering all basic Hyak functions. If you encounter problems with one of Hyak's basic functions use your UW e-mail to send an e-mail to help@uw.edu with 'hyak' as the first word in the subject and a brief description of your issue. If you do not use your UW provided e-mail account, please include your UW NetID in your e-mail. If you're reporting a problem with a job or the job scheduler, please include at least one affected jobid as well as paths to the job script and job stdout.

RC Club Office Hours: http://depts.washington.edu/uwrcc/calendar/

We operate Hyak as a campus resource for research computing at scale. It provides a capable, stable platform upon which users can build complex, domain specific software environments and workflows. Our end-user support resources are limited, covering the system hardware, operating system, filesystems, networks, job scheduler, and a defined set of development tools and applications. Users are responsible for building, installing, maintaining and running any other applications.

To have a good experience using Hyak, or any other HPC/supercomputer system, we offer these general recommendations:

WIKI for Hyak users Guidelines

For users building complex codes from sources, please read this.

Other Help

Hyak Tutorials

Here are a few tutorials written for different tasks. While not directly applicable to all users' work, they're worth taking a look at to get an idea about how some common tasks are accomplished using Hyak.

- Compiling HDF5: compiling a non-parallel application with the Intel compilers
- Compiling an MPI application: compiling a test program with the Intel compilers and Intel MPI and then submitting a job to the scheduler

Hyak How-tos

- Hyak HOWTO is a list of articles for different tasks, including how to use Python, Matlab and R on hyak.

Hyak wiki pages Index

[Hyak_wiki_Index](#)

Below is a list of Hyak wiki pages which do not start with the word Hyak.

[Managing your Files](#)

[Logging In](#)

[preemption](#)

[WIKI for Hyak users Guidelines](#)

Other Tutorials

Please review this online course if you are not already familiar with *nix systems:

- [UNIX Book](#)
- [UNIX Presentation](#)

The Teragrid offers an excellent online tutorial series on more advanced HPC topics. You must create an account before accessing content. Just follow the instructions on the main page.

- http://www.citutor.org/users/index.php

Troubleshooting

- [Common problems and errors](#)

Hyak User Contributions

Hyak users can contribute and find tips from other users on the [Hyak User Contributions site](#).

Feature Requests

- [Wish List](#) - requests for software features

Citing Hyak in Publications and Proposals

Please remember to acknowledge Hyak in any publications or posters with results Hyak contributed to generating. When citing Hyak please use the following language:

- This work was facilitated through the use of advanced computational, storage, and networking infrastructure provided by the Hyak supercomputer system at the University of Washington

When you cite Hyak, please let us know! Please use your UW e-mail to send mail to help@uw.edu with Hyak as the first word in the subject along with a citation we can use in the body of the message. Likewise please let know of successful funding proposals and research collaborations which relied, at least in part, on Hyak for their success.

Here's a current list of [publications](#) citing Hyak.

Help for Hyak Node Sponsors

- [Hyak Account Creation](#) - Information for Node Sponsors about how to create Hyak accounts
- [Hyak UNIX Groups](#) - Information for node sponsors about how to create additional filesystem permission groups.
- [Hyak Quotas](#) - Information for Node Sponsors about how to manage user, group, and fileset quotas.