

# O2

## Overview

O2 is a new platform for Linux-based high performance computing at Harvard Medical School. The name is derived from being the next generation of the HMS "Orchestra" cluster, hence "O"2.

- O2 is managed by the Research Computing Group, part of HMS IT.
- O2 is an HPC cluster built on Linux and the Slurm open source job scheduler.
- Please [submit a request](#) for O2 help or feedback.
- Follow us on [Twitter](#) for updates and alerts about service outages.

## Getting Started with O2 and Slurm

- [Basic guide to O2 and the Slurm job scheduler](#) **New users, start here!**
- [Switching workflows from Orchestra to O2](#) **Orchestra users, start here!**
- [How to login to O2](#)
- [Frequently Asked Questions about O2](#)

## O2 Jobs and the Slurm scheduler

- [How to choose a partition](#) (the Slurm equivalent to job queues in LSF)
- [Troubleshooting your O2 jobs](#)
- [Parallel Jobs in O2](#)
- [Using O2 GPU resources](#)
- [O2 HPC Cluster and Computing Nodes Hardware Information](#)
- [Job Priority](#)
- [Examples of O2 commands](#)
- [Get information about current and past jobs](#)

## Software and Programming on O2

- [Using research applications on O2](#)
- [Using Matlab on O2](#)
- [Using Mathematica on O2](#)
- [Using Conda on O2](#)
- [Using Java on O2](#)
- [Maintain your own library of software for different languages](#)
  - [Personal Python packages](#)
  - [Personal R packages](#)
  - [Personal Perl packages](#)
- [Installing custom software](#)
- [Using Genome Browsers \(IGV, UCSC Genome Browser\)](#)
- [Available Software on O2](#)

## General UNIX Information

- [Using X11 applications remotely](#)
- [UNIX permissions tutorial](#)
- [O2 cron service](#)

## Cluster Status

Our [cluster status page](#) has details of service outages and planned maintenance.

The Slurm job scheduler will be offline for maintenance on:

**Saturday Mar 9: 8am - 4pm.**

[No O2 cluster jobs will run during this outage.](#) Please see the [cluster status page](#) for more details.

The `/n/files` directory will also be offline for storage server maintenance on:

**Saturday Mar 9: 9am - 3pm.**

### Two Factor Authentication:

As of Monday Dec 3 2018, all O2 cluster logins [from outside of the HMS network](#) require two-factor authentication. Please see:

- [Two Factor Authentication on O2](#)
- [Two Factor Authentication FAQ](#)

## Community Events

### User Training

- Classes are offered each semester to the HMS community to help you ramp up your research skills!
- Please check the [User Training page](#) for courses, dates, and registration

### Office Hours

- RC's Office Hours are held every Wednesday, 1 - 3 PM in Gordon Hall Suite 500
- Please contact us first with a support request before dropping in at office hours so we can better help you!

## Intermediate Slurm

- [Research Computing Group custom workflows](#)
- [Get more informative slurm email notification](#)
- [Report CPU/Mem usage in slurm job standard output](#)
- [Globus Connection Personal from command line](#)
- [screen: go back to the same terminal window from anywhere, anytime](#)
- [tmux: go back to the same terminal window from anywhere, anytime](#)
- [Install and run HiC-Pro-2.10.0](#)
- [Install and run salmon-0.10.0 and Trinity-2.6.6](#)

## Grants and Citation Information

## Data Storage

- There are a number of [storage options](#) available for research data.
- [Copying files to and from O2](#) (including downloading from websites)
- If you had an Orchestra account, you will get access to the same home directory and shared network storage from O2.

- [Text about Research Computing and O2 for grant applications](#)
- [Published papers that cite HMS Research Computing resources](#)

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