Techstaff

Who

Bob Bartlett, Colin Hudler, Phil Kauffman, Tom Dobes, and Carolyn Topper.

What

Techstaff supports all aspects of technical needs for the CS department – from top to bottom. All of us have years of experience in various aspects of technology. The department itself has centered around Linux and Mac OSX for many years, and these are the operating systems that we currently support. Our infrastructure consists of almost 400 linux systems (both bare metal and virtual) and about 20 Macs. The linux systems include all of our central servers, instructional lab machines, instructional resources, and student desktops. The Macs are used as desktops for staff, faculty, and some students. However, we also provide other assistance including printer, A/V, and just about anything that comes along. We answer staff, student, and faculty questions and try to anticipate and address their needs.

Where

We are located in JCL 357. Our hours are 9:00-5:30, though we are often around outside of those hours.

We can also be reached virtually through instructions at start.

When

Our hours are between 9:00 AM (09:00) and 5:30 PM (17:30) Central Time

Contact

Email: techstaff@cs.uchicago.edu (this goes to our ticketing system and is emailed to all three of us)

Phone: 773-702-1031 (2-1031 from campus phones)

Resources

All CS systems that permit logins require SSH over the standard port (22) and use your CNetID for authentication.

Desktops

Each student other than first years is supplied with a desktop with the following general configuration:

- Intel i7 with 4 cores/8 hyperthreads
- 500GB disk drive
- 8GB of RAM
- NFS-mounted home directory which is mounted on all Techstaff administered computers. It is backed up regularly.
- Running Linux (Ubuntu 16.04) (These will be upgraded soon.)
- Large software installation (instructional and research related software)
- Your desktops are configured and managed by Techstaff using automated build and configuration management systems which allows the systems to easily maintain current software revisions, quickly reconfigure or rebuild if required, and maintain consistency amongst CS systems to minimize differences in behavior between the systems.

First year students, beginning in September 2019, will be equipped with new desktops. These systems have the following:

- Intel i7 CPUs with 6 cores/12 hyperthreads
- 16 GB of RAM
- 512 GB SSD
- Running Ubuntu 18.04
- 27" 4K monitor
- on a non-routable private address using NAT

Note: the new systems will be required to have Techstaff management and cannot be self-managed.

Miscellaneous Components

Cables, adapters, and other miscellaneous parts are available for short term loan from Techstaff.

Services

Interactive login servers

Techstaff has 3 servers (linux1, linux2, and linux3) that serve as interactive login systems for instructional use. These systems are reachable either by the canonical address or by a cname (linux.cs.uchicago.edu). The address linux.cs.uchicago.edu is a DNS round-robin entry that will rotate between the canonical addresses. This allows for future expansion of the service. You should always be aware of the canonical in case you need to reconnect to a specific machine. The canonical name is displayed in the shell prompt or can be found by typing the 'hostname' command. These systems are configured similarly to the desktops and lab machines and can be used interchangeably with them. They are configured with 16 hyperthreads, 64GB of RAM, 450GB /local partition, and mount the NFS home directory. The purpose of these systems is to support instructional computing.

Personal website

Instructions for using a personal website are available.

The site can then be accessed at the following URL http://people.cs.uchicago.edu/~your_cnetid for example, http://people.cs.uchicago.edu/~rdb

Printers

Techstaff has distributed a number of community printers around the department. There are 4 color printers distributed throughout Ryerson:

- sassafras.cs.uchicago.edu located in JCL 214
- basswood.cs.uchicago.edu located in JCL 235
- persimmon.cs.uchicago.edu located in JCL 314
- chinkapin.cs.uchicago.edu located in 362

More printer information.

There are also black and white printers available in the larger student offices. These printers are all available on all Techstaff managed linux systems. You will need to add them to any personally managed system.

Note: We will be adding them to all student rooms.

Instructional servers

Linux.cs.uchicago.edu

Previously described in the Interactive login server section. These larger systems are configured to support instructional computing, though they are also general use. Their main purposes include:

- a place for students to work on assignments outside of the lab
- a place for TA’s to test course assignments and grade assignments
- a place for general computing that will not compromise the performance of the lab machines

The systems support many users and should be respected. Please follow the following guidelines: Resource intensive activities (utilize large amounts of RAM, excessive disk I/O, multiple CPUs, or long execution times) should be directed to your desktop or elsewhere (see SLURM for internal options, or RCC for external options).

Programs requiring significant disk I/O should not use your home directory as a data repository. The home directory is convenient but it is slow. Please create a directory in the /local directory and use that directory for your data source. /local is a local disk and is orders of magnitude faster than NFS. When grading assignments for courses, especially large ones or ones involving large files, please use /local as described previously as a place to download and do your work. Doing so improves

performance, reduces I/O on the NFS server, and bypasses your home directory quota. IMPORTANT: As these files will contain student information, please ensure that your directory is readable and executable only by you. Please clean up the area after you finish and commit your work by deleting the work directory.

Course specific

Some courses have course specific machines. These may be bare metal or virtual. For certain courses, we have reconfigured a server to support the course exclusively. This is rare. A number of courses have moved to virtual machines. There are two types – personal and server-based.

The personal ones are VirtualBox images that are originally configured by Techstaff for general use by courses. They are a baseline systems with a minimal software install to keep the size small for distribution. These systems are further configured with software for the course and are distributed to students for installation on personal systems.

The other type of virtual system is a customized VM that is running on one of Techstaff's hypervisors and is managed by Techstaff. It is configured explicitly for a particular course, but provides services (database, web, etc.) required by the course.

SLURM

The SLURM cluster was originally constructed to support Hank Hoffmann's OS course. SLURM is a job scheduling system that allows users to submit requests for resources and allows them to execute jobs using those reserved resources. The cluster should be used for larger jobs, rather than than linux.cs.uchicago.edu. Additionally, we have a couple of GPUs that can be utilized on the cluster.

Labs

The department supports one computer labs.

CSIL

CSIL is located in Crerar Library and is composed of 5 pods of computers along with additional Macs external to the pods and a staff of student aids known as "tutors". The pods have collapsing walls that allow them to be reconfigured into larger spaces.

Three of the pods each contain Linux boxes that are configured and managed by Techstaff. They are configured using a template similar to linux.cs.uchicago.edu or student desktops. The linux systems are rebooted each morning at 4:00 AM in order to clean up processes and to make them less desirable platforms for long term execution which would impact performance for the seated user. The other two pods each contain 20 Macs which are configured and maintained by CSIL tutors.

These pods are reserved for a number of courses for labs, class, or TA sessions. The software on both architectures supports the needs of many courses allowing students to have access to reliable systems that will work consistently for course assignments.

Policies & Recommendations

Getting help

Techstaff

We are here to help and will do so. Please contact us by stopping by the office (JCL 357), writing us (techstaff@cs.uchicago.edu), or calling us (773-702-1031).

http://howto.cs.uchicago.edu

We try to put as much as we can on this site that we think is helpful. You should take some time and explore this site to get a sense of the available computing resources. This is a CS wiki and therefore anyone with a CS account is able to edit it. If you think something should be added we encourage you to do so. If you are unsure or need further explanation on something expressed on the wiki you should let us know. We are always looking to make this site more helpful.

Using your desktop

Do I get sudo access?

No. There are a number of reasons for this, but the primary reason is that root access gives one access to other users home directories.

Best practices

Create a directory within /local on the system that you are using for data files that are large or will be accessed regularly by a program. Doing so will improve performance (local disk is much faster than network disk) and will bypass home directory quotas.

```
cd /local
mkdir $USER  # this will create a directory named with your CnetID
chown 700 $USER  # this will ensure that your directory is accessible only
by you
```

This directory can now serve as a repository on this system. Unlike the home directory, it will only be available on your desktop system, however, it will not have a quota or be as slow as the network

drive. More information on unix permissions.

If you require software that is not installed, it is best to install it locally, in your home directory or /local directory if this is possible. If it is not, please contact Techstaff. Place any files that you want to be backed up in your home directory, either by creating them there or by copying them there for long term storage. We back up the home directories twice a week.

Second Monitors

Some students have second monitors. These were given on a first-come, first-served basis. Techstaff had a large number of older monitors that we felt was better used by being given to students than by sitting on a shelf. That stash has been exhausted. First years are getting new 27" 4K monitors that have much higher resolution than the older 1080P monitors.

Quotas

We place quotas on the home directory. The starting quota is 5GB. Most users do not exceed this limit and it is mostly in place to prevent runaway log files or similar inadvertently large files. We will increase it upon reasonable request.

Self Management

Because we don’t give sudo access on desktops or servers to students, or because students prefer other operating system options, we do allow students to install and manage their own operating system on the desktop. Doing so gives freedom but also has the following restrictions:

- The desktop will not be permitted to mount filesystems from the NFS server. (See “Do I get sudo access?”) Therefore, you will not have access to your CS home directory or to other filesystems, for example /stage. (/stage gives direct access to website source such as for courses.)
- Techstaff does not perform backups of the system.
- Techstaff does not maintain updates to your system.
- Techstaff will assist as we can if there are questions or problems, but the amount of time that can be spent is limited.
- You will have to use other systems to perform TA duties.
- You will be required to install an SSH allowing Techstaff root access. This is a new requirement. The purpose of this access is for emergency situations (systems have been hacked) or to acquire system hardware configuration information for inventory purposes.
- The new machines cannot be self-managed.

The reported hacked systems that we have had have all been student-run systems. Therefore, it is very important to note the following:

- Make sure that your root and user passwords are not guessable, are not used elsewhere, and that you connect from trusted sources and always use encryption.
- The system will be immediately pulled from the network by ITS Security and cannot be restored

without a complete reformat and reinstall of the OS.
- Make sure that you are backing up important files regularly.
- Make sure that your system is current with all patches.
- Be careful about what you install and to whom you give access.

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