

# User accounts and HPC system access

Users must have **accounts** in order to log in to the high-performance computing (HPC) systems that CISL manages.

Connecting to one of these systems from a local computer is most commonly done using **Secure Shell** (SSH) access and **X Window** software.

As explained below, users have a number of ways to get what they need.

See [VPN access](#) if you need to use the virtual private network.

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## Accounts

Individuals who have **user accounts** can log in to CISL-supported HPC systems. Each person must have his or her own user account; they may not be shared.

Accounts are established when an allocation is awarded or when a project lead or project administrator later requests accounts for additional individuals. [Use this form to submit such requests](#).

Users are responsible for notifying CISL of changes in their contact information (email, phone, address, and so on). If CISL personnel are unable to reach a user when necessary, the user's account will be locked. For additional information on responsibilities that come with having a user account, see [User responsibilities](#).

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## Secure Shell access

Users commonly access the NCAR systems that CISL manages through a terminal window or emulator with **Secure Shell (SSH)**. SSH encrypts transmissions between computers. It provides interactive login, remote command execution, and file transfer services. For systems with X Window servers, SSH also can forward connections from the machine you log into back to your display.

SSH clients are available for all major operating systems, including UNIX, Linux, Microsoft Windows, and Mac OS X. Computers running Mac OS X 10.0.1 or later use OpenSSH.

## SSH clients and terminal window emulators

Here are links to some of the most popular SSH clients, which enable users to establish secure connections through terminal windows:

- Cygwin
- [MobaXterm](#) (includes X Window support)
- mRemoteNG
- [PuTTY](#)
- [SecureCRT](#)

Client software is available for Apple's iPhones and iPads, too. Here are two examples of SSH clients for iOS devices:

- [iSSH](#)
- [pTerm](#)

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## X Window System

Users need an X Window System to be able to display graphics from the HPC environment on their local machines and to enable X11 forwarding when using interactive applications such as MATLAB. Mac computers and Linux implementations typically come with the necessary X-display support.

These are some of the commonly used X system products for Microsoft Windows users:

- [MobaXterm](#) (includes SSH client)
- [Cygwin/X](#)
- [Xming Server](#)

Mac OS X users can [download XQuartz here](#).

To see if your local machine already has the necessary display support, log in to the HPC system and run **xclock** on your command line. A clock will be displayed if you have what you need.

If you get an error like the following one instead, install the X-display software (or start it if it is already installed) on your local machine.

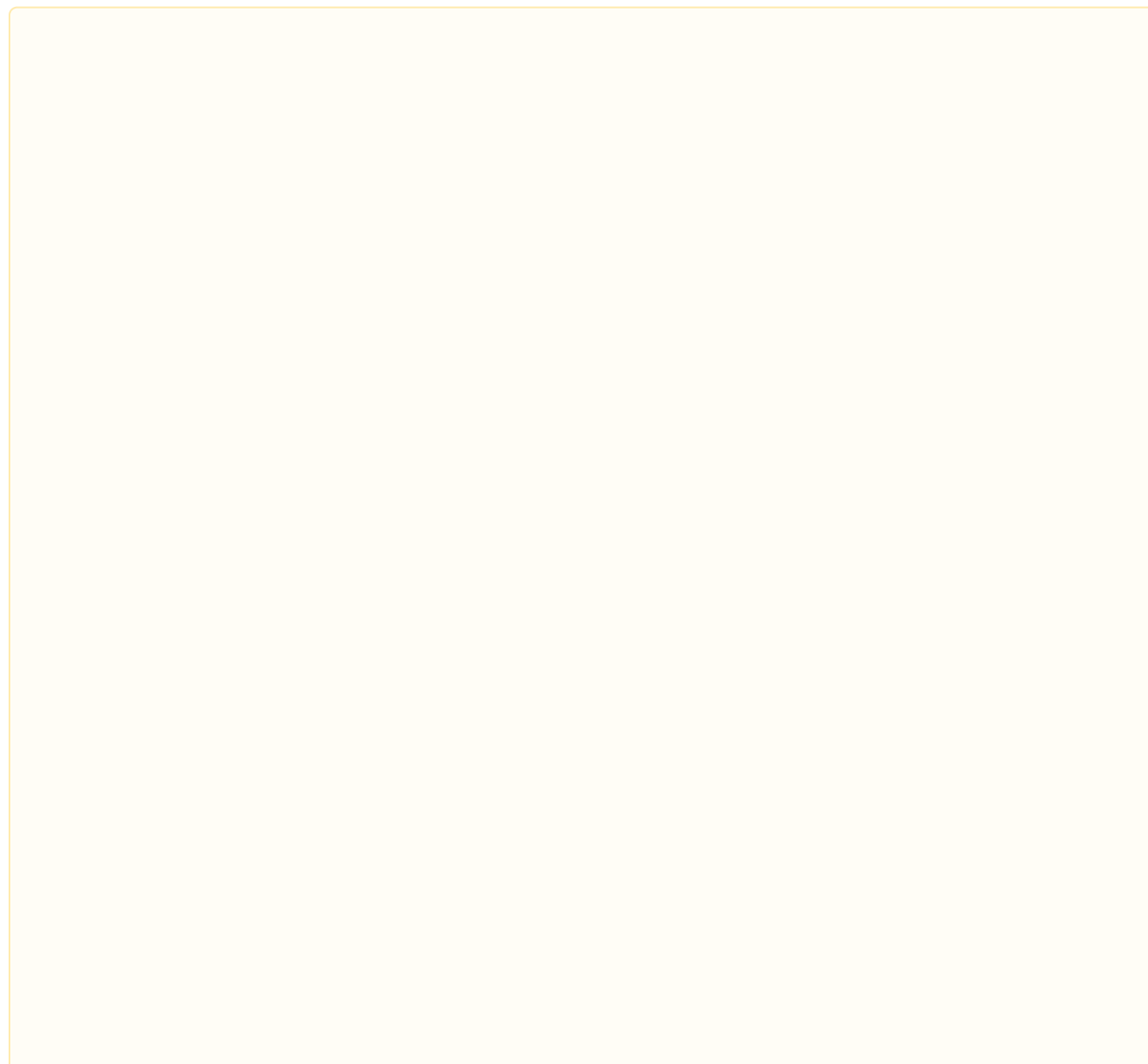
```
Error: Can't open display:
```

Some users encounter the following message when trying to start an **xterm** window after logging in or when running a job.

```
xterm Xt error: Can't open display: localhost:12.0
```

Removing the **.Xauthority** file from your `/glade/u/home/username` directory as shown here may solve the problem. You will get a new `.Xauthority` file the next time you log in.

```
rm .Xauthority
rm: remove regular file `'.Xauthority'? yes
```



## Troubleshooting tips

### Error message

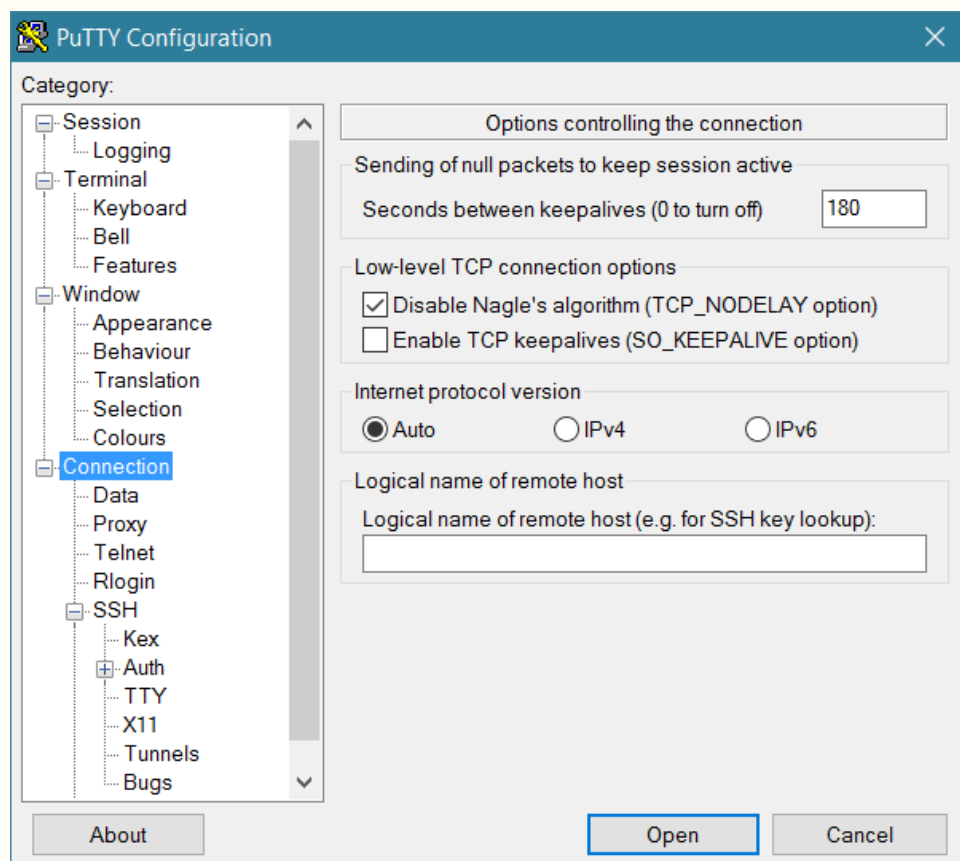
```
Write failed: Broken pipe
```

### What to do

This indicates that your SSH connection has been broken. The simplest solution is to reconnect.

Broken connections sometimes follow periods of inactivity. For example, you may find yourself disconnected after leaving your terminal for a while to go to lunch. You can address this by activating your SSH client's "keepalives" setting.

If you use PuTTY, for example, start the client, then select **Connection** in the **Category** pane. (Click image to enlarge it.) Enter **180** in the field that follows "Seconds between keepalives (0 to turn off)." Be sure to save the change so the packets are sent every three minutes.



Mac and Linux users sometimes need to include these lines in a local `~/.ssh/config` file to enable persistent connections:

```
Host *
  ServerAliveInterval 120
  ServerAliveCountMax 3
```

### Other considerations

- If you get the error message while you are typing, the root cause can't be inactivity. The most likely cause is that your machine's IP address has changed. For example, it may have switched from a wired to a wireless network. You can prevent some changes by telling your machine not to switch networks without asking you first. Check your operating system's instructions for how to do that.
- If the problem persists, consider using a package such as [GNU Screen](#) or [tmux](#), which allow you to restart a session right where it ended. This applies even if you ended the session yourself – for example, when leaving the office to start up again at home. Both are installed on the HPC systems that CISL manages. Just log in and run the **screen** command or load the **tmux** module and run **tmux**.

