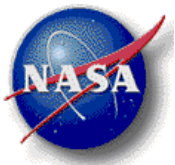# Linux 101 Support Q&A

Nicko Acks

6/18/25
(updated from 3/31/22)

Purpose

NCCS staff will go over some basic helpdesk FAQs and then answer basic linux questions proposed by the user community.

Agenda

FAQs

- What is a bastion node?

- How do I login to a CPU or GPU node?

- Why does my sftp/scp disconnect without transferring any files?

- Why are my shells so slow at startup?

- Why is my environment broken?

- How do I use my storage on Discover or ADAPT

What is a bastion node

➢ Most of the NCCS systems are accessed via an intermediary "Bastion" host referred to as login.nccs.nasa.gov. When using the Bastion Service you may be prompted to verify an SSH fingerprint. Make sure that the fingerprint presented matches one of the fingerprints listed for the system you are accessing. Fingerprint List is at below link.

➢ Bastion host modes of operation are:

  ➢ Login - ssh <USERID>@login.nccs.nasa.gov

  ➢ Direct - Create or modify the $HOME/.ssh/config file

  ➢ PIV - Add "PKCS11Provider =" to your ~/.ssh/config. Note, the path to the PKCS11 library varies depending on platform. See link below.

  https://www.nccs.nasa.gov/nccs-users/instructional/logging-in/bastion-host

How do I login to a CPU or GPU node

Both Discover and Adapt systems have CPU and GPU nodes that can be accessed from the bastion host.

- Access CPU node:
  - from Discover login node:
    ```
    <userid>@discover13:~> salloc --nodes=5 --bell
    .
    .
    salloc: Nodes borgi[033-037] are ready for job
    <userid>@borgi033:~>
    ```

  - From ADAPT login node:
    ```
    -ssh to the VM that was assigned to you.
            <userid>@<cpunode1> ~]$
    ```

- Access GPU node:
  - from Discover login node:
    ```
    <userid>@discover13:~> salloc --gres=gpu:1 --mem=60G --time=1:00:00
    ```

  - From ADAPT login node:
    ```
    -ssh to a gpu login node:
     <userid>@adaptlogin203:~> ssh gpulogin1
    -do an salloc command:
        <userid>@gpulogin1:~> salloc --gres=gpu:1 --mem=60G --time=1:00:00
    ```

sftp/scp disconnects without transferring any files

Discover:
- First thing to check: the "bastion" node Proxy command config or Winscp config (depends on client OS). Please refer to the following links for proper command:
  - https://www.nccs.nasa.gov/nccs-users/instructional/logging-in/bastion-host

  For windows:
  - https://www.nccs.nasa.gov/nccs-users/instructional/using-discover/file-transfer/local-to-nccs-systems

- Second thing to check: Your user environment on discover.
  - You can not print ("echo", "module list" to STDOUT) from within your .login/.profile/.cshrc/.tcshrc/.bashrc (or other shell init based on your default shell). This interrupts communication with the sftp/scp client and is a well documented issue (google the error message).

Module env changes upon opening a new shell and shell slow upon startup

- module commands **should not** be placed in .bashrc or .cshrc/.tcshrc. See "man csh" or "man bash" regarding which files and which order are sourced in shell invocation.

- If there is a set of modules you commonly use, put those module commands into a separate file and source that file (bash "." or "source", tcsh/csh "source") when needed.

- Modules needed for interactive use should really only be loaded sourced from your .login/.profile/.bash_profile (again depends on shell, see the man page for the order and which file to use).

Broken Env

- Don't simply copy someone else's .cshrc/.login/.tcshrc/.bashrc/.profile.

- You need to understand that anything you put in your shell init can effect running work on the cluster as well as interactive access.

- You need to understand what you are adding to your shell initialization (man bash/man csh depending on your default shell or the shell you may be using in your batch/shell scripts).

Using storage on Discover or ADAPT

- Home directories are small (1-5GB). Access via $HOME environment variable or /home/<username> link.

- NOBACKUP (or personal scratch space) should be accessed via either the $NOBACKUP environment variable or system specific link:
  - Discover: /discover/nobackup/<username>
  - ADAPT: /explore/nobackup/people/<username> -
  - *ONLY* use soft links or scripts/code so that when user data is migrated from one filesystem to another your code doesn't break.

Discover specific storage docs:

https://www.nccs.nasa.gov/nccs-users/instructional/using-discover/file-system-storage

ADAPT specific storage docs:

https://www.nccs.nasa.gov/nccs-users/instructional/adapt-instructional/storage

Q&A

Link

https://ryanstutorials.net/linuxtutorial/

Please read through the link before submitting basic linux questions to:

support@nccs.nasa.gov