

Cluster computing



On 7/22/2019, your professor visited the Texas Advanced Computing Center (TACC), home of an XSEDE computing cluster, Stampede2.

- The XSEDE supercomputers are not especially fast computers, but are computing clusters, groups of computing nodes that work together
- The most common way for computational scientists to utilize these computers is to submit a batch job to the queue
 - a batch job contains
 - information about the job, e.g.
 - allocation
 - maximum duration
 - type and amount of resource, e.g. CPUs or GPUs
 - a series of commands, like if you typed them into the terminal
 - The queue
 - is usually managed by a master node
 - prioritizes jobs
 - distributes jobs to worker nodes

Logging In

- We will follow the “Single Sign On via SSH Login Hub”, so you can enter
 - `ssh username@login.xsede.org`
 - your XUP passcode
 - then ask for a push to your phone
 - more information is at <https://portal.xsede.org/web/xup/single-sign-on-hub>
- From the login portal, you can log into bridges/comet by entering
 - ``gsissh bridges'` or
 - ``gsissh comet'`
- To log out of a remote computer, press control-D

```

Minh-IIT-MBP2018:[~]: ssh daveminh@login.xsede.org
Please login to this system using your XSEDE username and password:
password:
Duo two-factor login for daveminh

Enter a passcode or select one of the following options:

1. Duo Push to XXX-XXX-4139
2. Phone call to XXX-XXX-4139

Passcode or option (1-2): 1
Success. Logging you in...
Last login: Sat Feb  1 13:41:10 2020 from 207.237.205.39

# Welcome to the XSEDE Single Sign-On (SSO) Hub!
#
# This system is for use by authorized users only, and is subject to the XSEDE
# Acceptable Use Policy, described at https://www.xsede.org/usage-policies.
# All activities on this system may be monitored and logged.
#
# Your storage on this system is limited to 100MB. Backup is not provided.
#
# From this system, you may login to other XSEDE system login hosts on which
# you currently have an active account. To see a list of your accounts, visit:
# https://portal.xsede.org/group/xup/accounts
#
# To login to an XSEDE system login host, enter: gsissh <login-host>
# where <login-host> is the hostname, alias or IP address of the login host.
# The following default gsissh host aliases have been defined:
#
#         bridges comet mason osg rmacc-summit stampede
#         stampede2 supermic wrangler-iu wrangler-tacc
#
# For example, to login to the Comet system at SDSC, enter: gsissh comet
#
# E-mail help@xsede.org if you require assistance in the use of this system.

[daveminh@ssohub ~]$ gsissh comet
Last login: Sat Feb  1 10:46:54 2020 from 149.165.168.51
Rocks 7.0 (Manzanita)
Profile built 13:03 03-Dec-2019

Kickstarted 14:18 03-Dec-2019

                                WELCOME TO

-----/ ____/ __ \ / ____/ ____/
--/ / / / / / / / / / / / / / /
/ / ____/ / / / / / / / ____/ /
\ ____/ ____/ / / ____/ / /

comet-ln3:[~]: █

```