System Access

Overview
From November 8 2016 the bastion host path will be required for access. It is shown on the diagram below with "ssh netid@hpc.arizona.edu"
Login Procedure

As simple as...

1. Obtain an SSH Client: Before any login sessions can be initiated, a working SSH v2 client needs to be present on your local machine. For more information on SSH clients for these OS types and how to log in, select your OS from the links below:
   - Windows
   - Mac OS
2. **NetID+**: To ensure secure login sessions to HPC systems, users must enable NetID+ as 2-factor authentication is required.

3. **Access** to the HPC systems is through a bastion host (ssh netid@hpc.arizona.edu):

   Example:

   ```
   $ ssh netid@hpc.arizona.edu
   Password: Duo two-factor login for netid
   Enter a passcode or select one of the following options:
   1. Duo Push to XXX-XXX-XXXX
   2. Phone call to XXX-XXX-XXXX
   3. SMS passcodes to XXX-XXX-XXXX (next code starts with: X)
   Passcode or option (1-3): <enter option>
   Success. Logging you in...
   Last login: Date from IP Address
   This is a bastion host used to access the rest of the environment.
   ```

   Shortcut commands to access each resource
   -------------------------------
   Ocelote:
   $ ocelote
   El Gato:
   $ elgato
   [netid@keymaster ~]$

   If you try to log in and get a continuous prompt of "password" and nothing else, you are probably not registered for NetID+.

   When using SSH, if you leave out the `netid` then it may default to your workstation username, which is not valid.

   All the integration on Ocelote is done with the "bash" shell which means to get consistent results bash must be your shell. New HPC users automatically are set to the bash shell unless they already are using a different shell. If you need to change your shell, use the "uchsh" command.

**FAQ - I am having trouble with ...**

I try to connect through SSH but am unable to login. I am getting permission denied message

You need an HPC account - go to account.arizona.edu. Once you've done that you should just need to wait about 15 minutes before you can log in. If your instructor hasn't already added you to their group you'll need to wait for that as well.
My HPC account is set up but I can't log in - incorrect password
You need to wait about 15 minutes after your account is approved for the account to be available
You must enroll in NetId. Depending on the application you use to log in, you may not get the typical NetID+/DUO menu of options, or an error message indicating this is your problem.

I can log in but I have no /home directory
If you just created your hpc account you need to wait about 15 minutes before you can log into it.

I can log in but have no /home on gatekeeper
"gatekeeper" is used to access the login nodes for the HPC clusters. No work is done from here. Don't set up your ssh keys here. Follow the instructions on the screen to choose the HPC cluster that you would like to connect to. The flow chart on this page shows the role of gatekeeper.

I can log in but I have no /extra directory
/extra will be created automatically but it takes a while to show up - about an hour

Common commands like qsub do not work
Perhaps your shell is not set to Bash. Ocelote will require this. The command "uchsh" will set your shell.
If you already had an other account before getting an HPC account that profile will carry over.
A brand new account will default to the bash shell.

My job is not running
A good starting point is "qstat -s jobid". There is a comment as to why your job is not running.
Note your job id might have this form "xxxxx.head1.cm.cluster"

How can I learn more?
Other pages on this web site have information on Linux, using PBS, using common software packages, for example.
Consultants are available for email support or one-on-one sessions at hpc-consult@list.arizona.edu

X11 Forwarding
The key to make forwarding work successfully is to include the -X at each login step.

On a Mac, if you get a blank response to "echo $DISPLAY, you might need this line in your .ssh/config file: ForwardX11Trusted yes

This is a simple example with quick tests:

laptop prompt$ ssh -X netid@hpc.arizona.edu
Password:
Duo two-factor login for netid
Enter a passcode or select one of the following options:

1. Duo Push to XXX-XXX-8969
2. Phone call to XXX-XXX-8969
3. Phone call to XXX-XXX-0502
4. SMS passcodes to XXX-XXX-8969

Passcode or option (1-4): 1
Success. Logging you in...
Last login: Fri Nov  4 08:13:11 2016 from dhcp-135-102aits.arizona.edu
This is a bastion host used to access the rest of the environment.
Shortcut commands to access each resource
----------------------------------------
Ocelote:                El Gato:                Cluster(ICE)/HTC/SMP:
$ ocelote               $ elgato                $ ice
[netid@gatekeeper ~]$ echo $DISPLAY
localhost:13.0

[netid@gatekeeper ~]$ ssh -X elgato-login  # or "elgato -X"
Last login: Fri Nov  4 08:13:50 2016 from gatekeeper.hpc.arizona.edu

[netid@elgato-login ~]$ echo $DISPLAY
localhost:18.0

[netid@elgato-login ~]$ xterm &
[1] 28196

Screen Capture - Linux

Bastion Host Access:
~ > ssh <insert NetID>@hpc.arizona.edu
Password:
Duo two-factor login for netid
Enter a passcode or select one of the following options:
1. Duo Push to XXX-XXX-3614
2. Phone call to XXX-XXX-3614
3. SMS passcodes to XXX-XXX-3614 (next code starts with: 1)
Passcode or option (1-3):
Success. Logging you in...
Creating home directory for <NetID>.
Last login: Fri Nov  4 11:01:16 2016 from dhcp-135-102.uits.arizona.edu
This is a bastion host used to access the rest of the environment.

Shortcut commands to access each resource
----------------------------------------
Ocelote:                El Gato:                Cluster(ICE)/HTC/SMP:
$ ocelote               $ elgato                $ ice
[netid@gatekeeper ~]$ ocelote
The authenticity of host 'login.ocelote.hpc.arizona.edu (10.140.117.12)' can't be established.
RSA key fingerprint is SHA256:ScBFga9u0zINt8b/4PGZry+/bqxGe144.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'login.ocelote.hpc.arizona.edu,128.196.131.12' (RSA) to the list of known hosts.
Last login: Mon May  9 08:51:31 2016 from frost.hpc.arizona.edu
[netid@login2 ~]$