Albert Einstein College of Medicine
OF YESHIVA UNIVERSITY

Science at the heart of medicine

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How to Access the Einstein High Performance Computing Cluster

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Provisioning a login node

1. Browse to `https://hpcportal.einstein.yu.edu`.
2. Sign in using your Active Directory (YUAD) credentials.
3. Click on the "Manage My Login Nodes" link.
4. Create a login node by clicking on the blue button.
5. Wait for the node to build and boot (Status = ACTIVE).

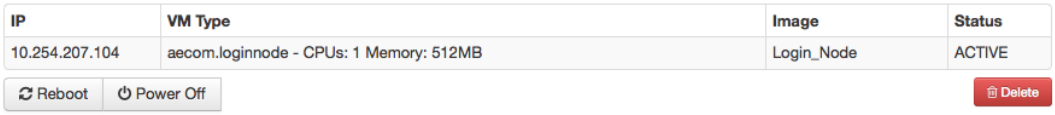

Figure 1: Example active login/submit node. Note that the IP address is unique to your node.

6. The system will display the IP address for your personal login/submit node. Every time you want to access the cluster, use a secure shell (SSH) client to connect to this node and authenticate using your YUAD username/password*.

Mounting cluster shares as a local disk

To transfer data to and from the cluster, you can directly mount your cluster home directory to your desktop or laptop computer or using your Einstein YUAD username/password as follows:

*Your YUAD username/password are the credentials that you use to log into OWA/Einstein e-mail and the YUWireless WiFi system.

Microsoft Windows

1. Open the start menu and type `\\data.einstein.yu.edu\users`
2. Enter your username in this format: `YUAD\myusername`
3. Enter your YUAD password

Mac OS X

1. From the Finder Go Menu, select "Connect to Server..."
2. User server address: `smb://data.einstein.yu.edu/users`
3. Connect as registered user and enter just your YUAD username and password

Linux

1. Ensure that the correct CIFS (Common Internet File System utilities) packages are installed. Recent Debian (including Ubuntu) installations use `cifs-utils` (`sudo apt-get install cifs-utils`).
2. Create a placeholder directory (`mkdir ~/cluster`).
3. Mount the remote directory onto the placeholder:
   ```
   sudo mount -t cifs //data.einstein.yu.edu/users ~/cluster \
     -o sec=ntlm,username=YUADusername,domain=YUAD,uid=`id -u`
   ```
   changing `YUADusername` to your YUAD username, and enter your password when prompted. Note that the `uid=`id -u`` is necessary to set ownership to your current user id (the command in backticks is evaluated before sudo is called).
4. Older versions of Samba may use the `smbfs` mount type

Accessing the cluster remotely

SSH gateway

You must first request access to the SSH gateway system by going to `http://yu.edu/ITS/Services/Request-Forms/` and clicking on the "Remote Access for Faculty, Current Staff, and Vendors" link.

ITS will contact you and request a public SSH key in order to provide secure access to the cluster. ITS will provide instructions for generation of these keys for Windows using `puttygen`; however, Linux and Mac OS X users can generate their own keys by opening the terminal and running the `ssh-keygen` command.

```
ssh-keygen -b 4096 -t rsa -C your.email@einstein.yu.edu -f ~/.ssh/id_rsa_e-sshgw
```

Change the comment string to match your Einstein email address and follow the instructions. This will create a 4096-bit RSAv2 key pair in your SSH directory called `id_rsa_e-sshgw` and `id_rsa_e-sshgw.pub`. Upon request, supply the public key (`id_rsa_e-sshgw.pub`) to ITS. Note that you will need to have a copy of these keys on any computer that you wish to connect through the gateway.

The hostname of the SSH gateway is `ma1.rit.aecom.yu.edu`.

When connecting using your SSH client, you will need to identify the key that you wish to use. If you are using the Windows PuTTY client, you will need to click on the "Private key file for authentication", browse for and choose your private SSH key and then save the session. If you are connecting via a command-line SSH client, you can either specify the path to the SSH identity file using the `-i` switch (e.g. `ssh -i ~/.ssh/id_rsa_e-sshgw` username`@ma1.rit.aecom.yu.edu`) or add the following information to your `~/.ssh/config` file.

```
Host e-sshgw
user username
Hostname ma1.rit.aecom.yu.edu
IdentityFile ~/.ssh/id_rsa_e-sshgw
```

Create the file if it does not exist and change the username to your YUAD user id. This sets up the SSH key file, and associates it with an alias, so you need only execute `ssh e-sshgw` in order to use your SSH key to connect in the future.

The Einstein SSH gateway allows you to execute a single command: `ssh`. From this server, you can connect to your cluster login node or any other Einstein host with SSH enabled.

Einstein VPN

Einstein provides a Fortinet VPN client to grant system-level access the cluster, other networked servers, and your home directory from off-campus. E-mail hpc-sysadmin@einstein.yu.edu for access to the client software and instructions.

Getting help

E-mail hpc-sysadmin@einstein.yu.edu for further assistance.