Computer and Network Orientation

Kathy Myers, Director of IT
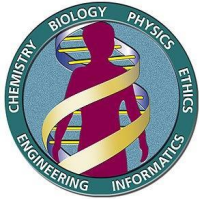
Evan Lavelle, Bioinformatics Analyst

Ethan Price, Project Assistant

Brought to you by:
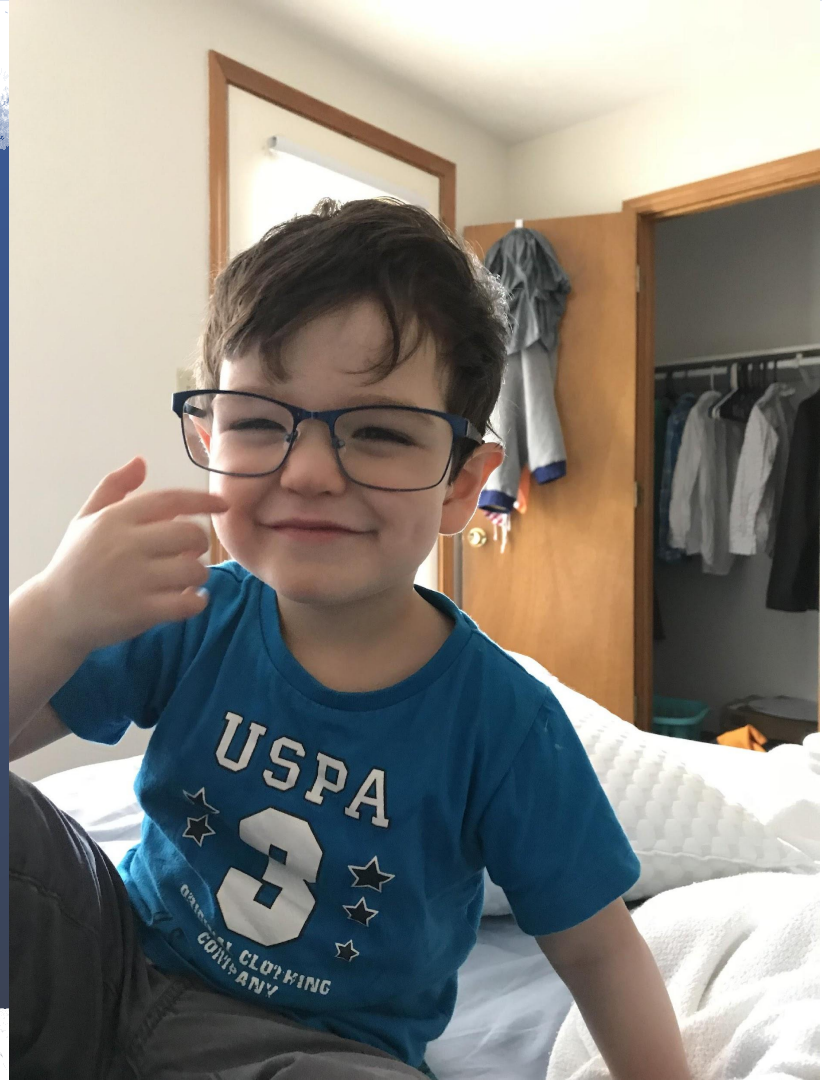
Ethan Price – NCGR Project Assistant

Overview

- DON'T PANIC!
- Computer terms ahead
- Sounds like a foreign language
- By the end of the week, you will understand

What we should accomplish

Ensure everyone:

- Has a working personal computer and access to the resources provided

- Has required and suggested software

- Understands "shell" and "operating system"

- Terminal access (MobaX for Windows. Mac users have a built in terminal.)

- Can login to the Linux analysis server *logrus* housed at NCGR

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Why are we doing this?

- Scientific computers are *SUPER FAST* and needed for big data
  - CPU(s):   88
  - MemTotal: 528074992 kB
- They also only do what they are told
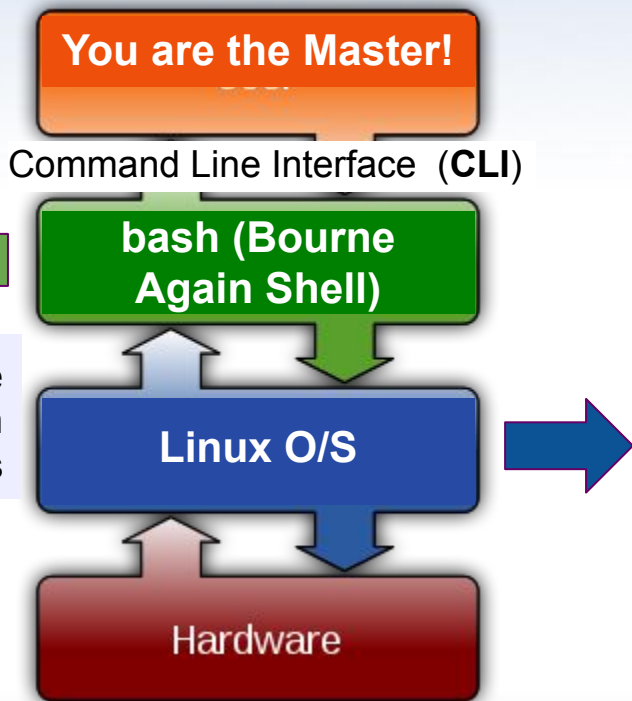- They are accessed using a terminal interface

What's a shell? What's an operating system (O/S)?

terminal

You are the Master!

Command Line Interface (**CLI**)

bash (Bourne Again Shell)

Manages computer hardware, software resources, and provides common services to software programs

logrus analysis server

Linux O/S

Hardware

O/S Common features

- Process management
- Interrupts
- Memory management
- File System
- Networking
- Security

Hardware: Central processing unit (CPU) disk, RAM, graphic card, sound card, motherboard, etc.

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What is *logrus*?

- *logrus* is the name of an NCGR compute analysis server that uses Linux as an operating system

- Running bioinformatics programs on a desktop machine is oftentimes infeasible (not enough CPUs, disk, RAM)

- Logging into logrus through a "terminal" enables us to leverage its vast compute power for large datasets
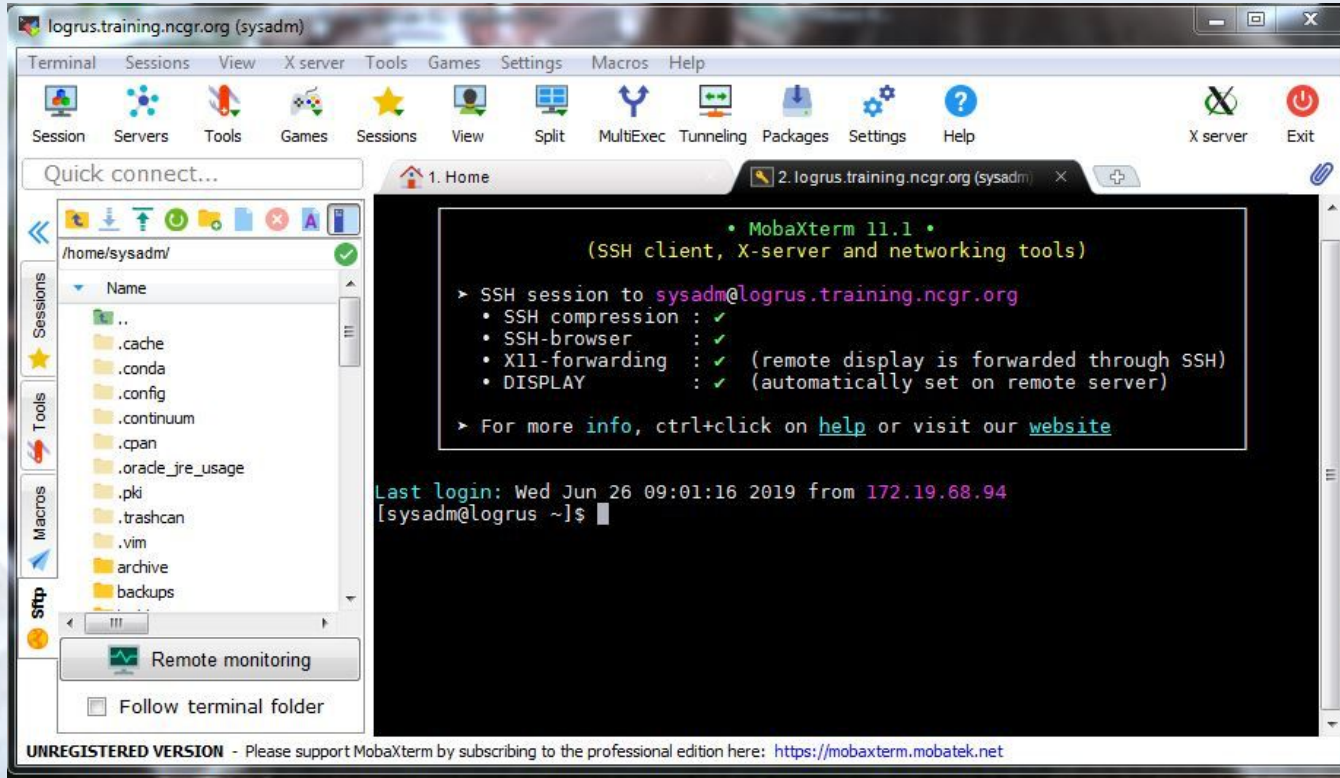
Terminal

(needed to connect to the analysis server *logrus* from your laptop)

- Windows: MobaX

- Macintosh: built-in terminal

- Linux: Xterm & others are built in

Windows users: Connect using MobaX terminal

1. Click on "New session"
2. Remote host ⮕ gateway.training.ncgr.org
3. Select "Specify username" checkbox
4. Enter your username
5. Port ⮕ 44111
6. Click on "OK"
7. Do not save your password
8. You should now see a terminal connection

MobaX Terminal

Pasting into MobaX

- A user cannot paste into the MobaX terminal by use of CTRL + v

- Right clicking and selecting "paste" will open a dialogue box to confirm the text to be pasted

- If you want to paste upon simply right-clicking, select the terminal tab in settings configuration, then check "paste using right-click" in the terminal features box

Logging into *logrus* remotely
(e.g. from home)

Indicate port number 44111 which firewall allows

Windows (using MobaX)
Host Name = gateway.training.ncgr.org
Port = 44111

Mac

$ ssh –p 44111 <username>@gateway.training.ncgr.org

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Signing in to *logrus*

Login: First letter of first name & up to seven letters of last name

password: provided over the phone or by google drive by Ethan

Ex: John Jayden is jjayden

Ex: Ashley Smitherson is asmither

Mac and Linux users use SSH (Secure Shell) to login to logrus

$ ssh -p 44111 <username>@gateway.training.ncgr.org

Will then ask you for your Password:

Result:

[<username>@logrus ~]$

Change your password!

1. While logged into logrus

2. Pick a strong password

   - Ten characters or more

   - Mixed Case, digits, punctuation

3. Change your password

   \<you\> $ passwd