

Module Outline

Before you Begin

Shell Primer

Joe Thurbon | 5 February 2013 | 1.2

Introduction

This document is an outline for the modules "Before You Begin" and "Shell Primer".

Summary

These modules are targeted at participants who:

- Would like to do the other modules in the Introduction to HPC (HPC for Wimps) course.
- have little or no knowledge of how a Linux shell works, but are familiar with basic computer concepts like files, folders and programs.

These modules assume:

- basic windows competence.
- knowledge of how to connect/establish a session in a command line environment.

By the end of the modules, participants will understand:

- how to connect to the Intersect training HPC facility
- the basics of how a shell works (commands & arguments)
- how to navigate and create a directory hierarchy using BASH commands
- how to inspect and summarise the contents of files using BASH commands
- how to save the output of commands, and how to link commands together

The modules exist because almost all existing resources assume a basic competency in Unix or BASH. The modules, taken together, can be thought of as a primer for the bountiful number of online BASH and Unix tutorials.

External Resources

In these modules, you will make use of some external materials. These materials were not created by Intersect, but are either standard tools used in the area or are particularly useful for teaching purposes.

Further Reading

The following resources will help consolidate or extend the information presented here:

Name and Location	Description
Putty http://www.putty.org/	This is the software which we use to connect to the HPC facilities from a windows machine.
Basic Unix Concepts http://sc.tamu.edu/help/genera/unix/unix.html	This is a detailed and comprehensive set of instructions for Unix systems in general. It introduces material in a similar manner, but goes into more detail. The last section "Processes" is outside the scope of this module.
A Bash Tutorial http://www.hypexr.org/bash_tutorial.php	This tutorial more or less assumes the knowledge in this module, and goes from there.
Another Bash Tutorial http://www.cse.unsw.edu.au/help/doc/primer/index.html	A BASH tutorial from the University of New South Wales.
Bash Scripting Tutorial http://linuxconfig.org/Bash_scripting_Tutorial	This tutorial takes things to the next step: writing small programs using bash.
History of Newline http://en.wikipedia.org/wiki/Newline	The full gory history of why Linux and windows differ in end-of-line characters.

Units Outline

Name	Concepts Introduced	Learning Outcomes
Before You Begin	How the course is organised Account Information Installing Putty	<ul style="list-style-type: none"> • Can connect to the Intersect training HPC facility from the computer you are using for the course.
Run, Spot, Run	Command execution and conventions	<ul style="list-style-type: none"> • Can run commands, including where there are spaces in arguments • Can use 'man'
Where Am I?	Directories and their contents. Relative and absolute paths	<ul style="list-style-type: none"> • Can explore navigate a hierarchy of directories • Can specify files with relative and absolute paths • Can create a hierarchy of directories • Can copy and move files between directories
It's what's inside that counts.	File contents The shell is fundamentally about text files	<ul style="list-style-type: none"> • Can look inside files (even really big ones) • Can obtain rudimentary information about files
It's all just files	STDIN, STDOUT, redirection, pipes	<ul style="list-style-type: none"> • Can save the output of programs into files • Can chain commands together
Products of our environment	Environment variables, setting them, getting them.	<ul style="list-style-type: none"> • Can inspect the values of the variables in the environment • Can manipulate the PATH to make it easier to run commands

Revision History

Version No.	Revision Date	Summary of Changes	Revised by
1.0	25/5/2011	Initial draft	Joe Thurbon
1.0	7/6/2011	Adding Environment module and extra resources	Joe Thurbon
1.1	27/9/2012	Merged Module 1 & Module 2	Mairéad Stephens
1.2	5/2/2013	Updated to suit new HPC system	Luc Small