

Introduction to Linux Operating System

Tutorial 1

ENGR 3950U / CSCI 3020U
Operating Systems

Instructor: Dr. Kamran Sartipi

Linux

- Linux and Unix
 - Time Sharing OPS
 - Time Sharing means allowing multiple users to use the system simultaneously
- Unix was created in 1969 at Bell-Labs
- Linux was created in 1991 at the university of Helsinki in Finland
- Linux is similar to Unix in some aspects

Logon and Logoff

- Local and Remote Login
- Special Privileges for some user
- SSH and Telnet
- Text and GUI interface
 - Linux Shell

Linux Shell

- Shell: an interface between user and linux/unix kernel
- Popular shells: Bash, Csh, Tcsh, Zsh
- Shell can executes external programs
 - Searches in the PATH
 - Executable files in Linux
 - In contrast to MS-DOS, in linux shells most of the work is done by external programs
 - For example: ls

PATH variable

- > *echo \$PATH*
- > *PATH=~/bin:\$PATH*
> *export PATH*
- PATH is a shell environment variable
- Use “set” to see those variables

Shell Path

- Where is an executable?
 - Use “whereis” command
 - whereis: locates the binary, source, and manual page files for a command
 - > **whereis ls**
- Home Directory
 - The main directory assigned to a user account
 - > **echo \$HOME**
 - “~” has the same value as \$HOME

Shell Startup File

- Comparable to Autoexec.bat in DOS
- When BASH is started it executes the below file:
 - .bash_profile
- At the exit time .bash_logout is executed
- .bash_history contains command history
- /etc/passwd contains username and passwords used at the login time

Shell Environment Variables

- Some important ones:
 - HOME
 - PATH
 - PWD
 - TERM
 - DISPLAY
 - USER
 - HOSTNAME

General-Purpose Commands

- Display Time and Date
 - date
- Dipslaying a text file
 - less, more, cat
 - >less ./bash_profile
- Directory Operators
 - mkdir, rmdir, ls , pwd , cd

Getting Help

- Linux is full of detail, it is better to know how to find something rather than trying to memorize it
- Three help resources:
 - man
 - info
 - help
- “man” is the most widely used one

“man” Pages

- >man –k password
- >man 2 open
- “man” has 9 sections

Section 1 – Commands

Section 2 - System Calls

Section 3 - Library Calls

Section 4 - Special Files

Section 5 - File Formats
and Conversions

Section 6 - Games for Linux

Section 7 - Macro Packages
and Conventions

Section 8 - System
Management Commands

Section 9 - Kernel Routines

Some extra commands

- Displaying system uptime: `uptime`
- Displaying a calendar: `cal 3 2003`
- Changing Password: `Passwd`
- Command history: `history`
- Midnight commander: `mc`
- Secure-shell: `ssh`
- C compiler: `gcc`

Editors and Development environments

VI

KDevelop

Anjuta

Gedit

Kwrite

Emacs

...

Web Resources

➤ Linux Documentation Project:

- www.linuxdoc.org
- Contains a enormous number of books, how-to documents and FAQs on Linux