

Agenda

- Network Interfaces
- Environment Variables
- String Processing
- Virtual Consoles



Special Permissions



Special Permission

Effect on Directories

`g+s`

Files newly created in the directory have their group owner set to match the group owner of the directory

`o+t`

Users with write permission on the directory can only remove files that they own

Special Permissions



- Example

```
# chmod g+s directory1
```

```
# ls -l
```

```
drwxr-sr-x ...
```

```
# chmod o+t directory1
```

```
# ls -l
```

```
drwxrwxrwt ...
```

Network Interfaces



- Interface names
 - eth0
 - eth1
 - eth2
- To list the interface names for all NICs on your computer(view MAC address)
 - Ifconfig
- To configure IP addresses on network interfaces

```
sudo ifconfig eth0 192.168.1.14
```

Network Interfaces Commands

- To bring up or down a network interface

```
# ifdown eth0
```

```
# ifup eth0
```



Configuration Utilities cont'd



- To specify your DNS server manually in `/etc/resolv.conf`

```
nameserver 4.2.2.1
```

```
nameserver 4.2.2.2
```

Setting/Changing The hostname



- The `hostname` command allows you to directly query, or set, the hostname from the command line.

Hostname

myserver

- To change it

`Hostname -b NewName`

Use network diagnostic tools



- `host hotmail.com`
hotmail.com has address 64.4.20.169
- The `ping` command is a network packet loss and latency measurement tool
- The `tracert` command will attempt to show the network packets' router path between the local system and a remote system.

Client-side DNS configuration



- Local name resolution can eliminate the need for DNS look-ups by modifying the `/etc/hosts`
- `192.168.5.55` `mywebapp.mydomain.com`

Environment Variables



- | An environment variable is a named object that contains data used by one or more applications.
- ▯ In simple terms, it is a variable with a name and value.
- ▯ The value of an environmental variable can for example be the location of all executable files in the file system, the default editor that should be used, or the system locale settings

Environment Variables



\$HOME

Complete path of the user home directory

Example

```
mkdir $HOME/file1
```

\$PATH

A colon-separated list of directories used by the shell to look for executable program names

Example

```
echo $PATH
```

```
/usr/bin:/bin:/usr/local/java/bin
```

Environment Variables Cont'd



- **\$PWD**
 - The user current working directory
- **\$SHELL**
 - Path name of the login shell
- **\$USER**
 - Currently logged in user
- **\$HOSTNAME**
 - Name of the computer

Viewing variable contents



- The shell assumes whatever follows the dollar sign (\$) in the command line is a variable and substitutes its value
 - `echo $HOME`

/home/user
- To view the contents of all variables by running the `env` command

Command Alias



```
alias l.='ls .* '
```

```
alias ll='ls -l '
```

▮ Type `alias` at the terminal to **see all set aliases**

▮ **Remove aliases**

```
unalias command
```

▮ **Bypass aliases**

```
alias ls='ls -AF'
```

```
/usr/bin/ls
```

```
\ls
```

Commands History



- bash stores a history of commands you have entered so that you can recall them later.
- The history is stored in the user's home directory and is called `.bash_history` by default.

Start-up Scripts



Start-up scripts are scripts of commands executed at login. They are used to:

- Set up the environment
- Establish commonly used aliases
- Run programs

Global Initialization Files



- `~/.bashrc`

By default this file will be executed in each and every invocation of bash or logging the user as well as while logging in to the graphical environment.

- `/etc/bash.bashrc`

This is the system-wide version of the `~/.bashrc` file. By default this file is executed whenever a user enters a shell or the desktop environment.

Initialization Files



- /etc/environment

It is not a script file, but rather consists of assignment expressions, one per line. Specifically, this file stores the system-wide locale and path settings.

- /etc/profile.d/*.sh

This is the system-wide version of the ~/.bashrc file. By default all files in this directory executed whenever a user enters a shell or the desktop environment .

String Processing



- Use the `wc` and the `diff` commands to gather word file statistics and compare two files
- Search strings for patterns using the `grep` command
- Move and delete data using `cut` command
- Organize data using the `sort` command

The wc command



- The `wc` command displays the number of characters, words, and lines in a specified file.
- The syntax for the `wc` command is:
 - `wc [option] [filename]`
- The `wc` command is often used when differentiating between two versions of a file.

The wc command Cont'd



- Word-count command options

Option	Meanings
-c	Count the number of characters only
-l	Count the number of lines only
-w	Counts the number of words only

The wc command

- For example,

```
$ wc story.txt
```

```
39 237 1901 story.txt
```



The diff command



- The diff command is also used to compare the contents of two files for differences.
If you upgrade a utility and want to see how the new configuration files differ from the old, use the diff command

```
diff /etc/named.conf.rpm.new /etc/named.conf
```

Searching for Content in Files



- Displays the lines of its input that match a pattern given as an argument
- `grep options regular-expression filename(s)`

Option	Description
-I	Ignore case sensitive
-l	List files name
-n	Precedes each line with relative line number in the file
-c	Counts the line that contains the pattern

The cut command



- cut command cuts fields or columns of text from standard input or the named file and displays the result to standard output
 - cut option[s] [filename]
 - -f specifies field or column.
 - -d specifies field delimiter (default is TAB).
 - cut -f3 -d: /etc/passwd