Utilities for Power Users

- Book Chapter 4

Figure 4-1 from text

Section	Utilities
Filtering files	egrep, fgrep, grep, uniq
Sorting files	sort
Comparing files	cmp, diff
Archiving files	tar, cpio
Searching for files	find
Scheduling commands	at, crontab
Programmable text processing	gawk, perl
Hard and soft links	ln
Switching users	su
Transforming files	gzip, gunzip, sed, tr, ul, zcat
Looking at raw file contents	od
Mounting file systems	mount, umount
Identifying shells	whoami
Timing execution of a command	time

grep, fgrep, egrep

- Get Regular Expression and Print

  - search for pattern in list of files

  - pattern may be regular expression

  - displays lines that match regular expression

    - option *-n*: precedes line number

    - option *-v*: display lines that do <u>not</u> match

    - fgrep: (Fixed grep) uses fixed strings only

    - egrep: (Extended grep) supports matching with regular expr.

uniq

- Utility: uniq -c -number [inputfile [outputfile]]

  - displays its input file with all adjacent repeated lines collapsed to a single occurrence of the repeated line.

  - -c option causes each line to be preceded by the number of occurrences that were found.

cmp and diff

- cmp: find first byte that differs between two files

- diff: display differences between two files

Find

- Utility: find pathList expression

  - recursively descends through pathList and applies expression to every file.

  - examples

    - find . -name '*.c' //...print c source files in current directory

    - find -mtime 14 -ls   //... ls files modified during last 14 days

Tape Archiving: tar

- Utility: tar -cfrtuvxz [tarFileName] fileList

  - tar allows to create and access tar-format archive files.

  - -c option creates a tar-format file.

  - -f option followed by a filename to specify the destination for the tar-format file.

  - -v option causes verbose output.

  - -x option allows you to extract named files,

  - -t option generates a table of contents.

Tape Archiving: tar

- Utility: tar -cfrtuvxz [tarFileName] fileList

  - -r option unconditionally appends listed files to archive file.

  - -u option appends only files that are more recent than those already archived.

  - -z option filters the archive through gzip to compress or uncompress it.

  - If the file list contains directory names, the contents of the directories are appended/extracted recursively.

Scheduling with crontab

- crontab -- user interface to Linux cron system

  - uses input file that contains lines of format:

    - *minute hour day month weekday command*

    - valid values

      - minute 0 - 59

      - hour 0 - 23

      - day 1 - 31

      - month 1 - 12

      - weekday 1 - 7 (1=Monday, 2=Tuesday...)

      - multiple values: e.g. 1,4,9 or range 1-5

Scheduling with crontab

- registered crontab file: crontab crontabfile

- remove crontab file: crontab -r

- examples:

  - crontab -l

    - lists content of current crontab file

  - 0 8 * * 1-5 echo You overslept!

    - message displayed every weekday at 8am

- One-time execution utility: **at**

gawk

- Programmable Text Processing

  - gawk utility scans one or more files and performs an action on all of the lines that match a particular condition.

  - actions and conditions range from the very simple to the complex.

Hard and Soft Links

- What are links?

- What is the difference between a hard and soft link?

- Utility:

  - ln -sF original [newLink]

  - ln -sF { original }+ directory

  - ln is a utility that allows you to create hard links or symbolic (soft) links to existing files.

Compression

- gzip and gunzip

  - gzip replaced file by its compressed version

  - gunzip ... oh well :-)