## Bash Commands

| | |
|---|---|
| uname -a | Show system and kernel |
| head -n1 /etc/issue | Show distribution |
| mount | Show mounted filesystems |
| date | Show system date |
| uptime | Show uptime |
| whoami | Show your username |
| man *command* | Show manual for *command* |

## Bash Shortcuts

| | |
|---|---|
| CTRL-c | Stop current command |
| CTRL-z | Sleep program |
| CTRL-a | Go to start of line |
| CTRL-e | Go to end of line |
| CTRL-u | Cut from start of line |
| CTRL-k | Cut to end of line |
| CTRL-r | Search history |
| !! | Repeat last command |
| !*abc* | Run last command starting with *abc* |
| !*abc*:p | Print last command starting with *abc* |
| !$ | Last argument of previous command |
| ALT-. | Last argument of previous command |
| !* | All arguments of previous command |
| ^*abc*^123 | Run previous command, replacing *abc* with *123* |

## Bash Variables

| | |
|---|---|
| env | Show environment variables |
| echo *$NAME* | Output value of *$NAME* variable |
| export *NAME=value* | Set *$NAME* to *value* |
| $PATH | Executable search path |
| $HOME | Home directory |
| $SHELL | Current shell |

## IO Redirection

*cmd < file*
  Input of *cmd* from *file*

*cmd1 <(cmd2)*
  Output of *cmd2* as file input to *cmd1*

*cmd > file*
  Standard output (stdout) of *cmd* to *file*

*cmd > /dev/null*
  Discard stdout of *cmd*

*cmd >> file*
  Append stdout to *file*

*cmd 2> file*
  Error output (stderr) of *cmd* to *file*

*cmd 1>&2*
  stdout to same place as stderr

*cmd 2>&1*
  stderr to same place as stdout

*cmd &> file*
  Every output of *cmd* to *file*

## Directory Operations

| | |
|---|---|
| pwd | Show current directory |
| mkdir *dir* | Make directory *dir* |
| cd *dir* | Change directory to *dir* |
| cd .. | Go up a directory |
| ls | List files |

## ls Options

| | |
|---|---|
| -a | Show all (including hidden) |
| -R | Recursive list |
| -r | Reverse order |
| -t | Sort by last modified |
| -S | Sort by file size |
| -l | Long listing format |
| -1 | One file per line |
| -m | Comma-separated output |
| -Q | Quoted output |

## Search Files

| | |
|---|---|
| grep *pattern files* | Search for *pattern* in *files* |
| grep -i | Case insensitive search |
| grep -r | Recursive search |
| grep -v | Inverted search |
| grep -o | Show matched part of file only |
| find */dir/* -name *name** | Find files starting with *name* in *dir* |
| find */dir/* -user *name* | Find files owned by *name* in *dir* |
| find */dir/* -mmin *num* | Find files modifed less than *num* minutes ago in *dir* |
| whereis *command* | Find binary / source / manual for *command* |
| locate *file* | Find *file* (quick search of system index) |

## File Operations

touch *file1*
  Create *file1*

cat *file1 file2*
  Concatenate files and output

less *file1*
  View and paginate *file1*

file *file1*
  Get type of *file1*

cp *file1 file2*
  Copy *file1* to *file2*

mv *file1 file2*
  Move *file1* to *file2*

rm *file1*
  Delete *file1*

head *file1*
  Show first 10 lines of *file1*

tail *file1*
  Show last 10 lines of *file1*

## Nano Shortcuts

**Files**

| | | |
|---|---|---|
| Ctrl-R | Read file | |
| Ctrl-O | Save file | |
| Ctrl-X | Close file | |

**Cut and Paste**

| | | |
|---|---|---|
| ALT-A | Start marking text | |
| CTRL-K | Cut marked text or line | |
| CTRL-U | Paste text | |

**Navigate File**

| | | |
|---|---|---|
| ALT-/ | End of file | |
| CTRL-A | Beginning of line | |
| CTRL-E | End of line | |
| CTRL-C | Show line number | |
| CTRL-_ | Go to line number | |

**Search File**

| | | |
|---|---|---|
| CTRL-W | Find | |
| ALT-W | Find next | |
| CTRL-\ | Search and replace | |

More nano info at:
http://www.nano-editor.org/docs.php

## Screen Shortcuts

screen
  Start a screen session.

screen -r
  Resume a screen session.

screen -list
  Show your current screen sessions.

CTRL-A
  Activate commands for screen.

CTRL-A c
  Create a new instance of terminal.

CTRL-A n
  Go to the next instance of terminal.

CTRL-A p
  Go to the previous instance of terminal.

CTRL-A "
  Show current instances of terminals.

CTRL-A A
  Rename the current instance.

More screen info at:
http://www.gnu.org/software/screen/

## File Permissions

chmod 775 *file*
  Change mode of *file* to 775

chmod -R 600 *folder*
  Recursively chmod *folder* to 600

chown *user*:*group file*
  Change *file* owner to *user* and group to *group*

## File Permission Numbers

The first digit is the owner permission, the second the group and the third for everyone.

Every output of *cmd* to *file*

*cmd* refers to a command.

## Pipes

*cmd1* | *cmd2*
| stdout of *cmd1* to *cmd2*

*cmd1* |& *cmd2*
| stderr of *cmd1* to *cmd2*

## Command Lists

*cmd1* ; *cmd2*
| Run *cmd1* then *cmd2*

*cmd1* && *cmd2*
| Run *cmd2* if *cmd1* is successful

*cmd1* || *cmd2*
| Run *cmd2* if *cmd1* is not successful

*cmd* &
| Run *cmd* in a subshell

tail -f *file1*
| Output last lines of *file1* as it changes

## Process Management

| ps | Show snapshot of processes |
|---|---|
| top | Show real time processes |
| kill *pid* | Kill process with id *pid* |
| pkill *name* | Kill process with name *name* |
| killall *name* | Kill all processes with names beginning *name* |

## Watch a Command

watch -n 5 'ntpq -p'
| Issue the 'ntpq -p' command every 5 seconds and display output

Calculate each of the three permission digits by adding the numeric values of the permissions below.

| 4 | read (r) |
|---|---|
| 2 | write (w) |
| 1 | execute (x) |

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