

### Bash Commands

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

### 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                                        |
| <code>!<i>abc</i></code>     | Run last command starting with <i>abc</i>                  |
| <code>!<i>abc</i>:p</code>   | Print last command starting with <i>abc</i>                |
| <code>!\$</code>             | Last argument of previous command                          |
| ALT-.                        | Last argument of previous command                          |
| <code>!*</code>              | All arguments of previous command                          |
| <code>^<i>abc</i>^123</code> | Run previous command, replacing <i>abc</i> with <i>123</i> |

### Bash Variables

|                                 |                                      |
|---------------------------------|--------------------------------------|
| <code>env</code>                | Show environment variables           |
| <code>echo \$<i>NAME</i></code> | Output value of <i>NAME</i> variable |

### Bash Variables (cont)

|                                              |                                 |
|----------------------------------------------|---------------------------------|
| <code>export <i>NAME</i>=<i>value</i></code> | Set <i>NAME</i> to <i>value</i> |
| <code>\$PATH</code>                          | Executable search path          |
| <code>\$HOME</code>                          | Home directory                  |
| <code>\$SHELL</code>                         | Current shell                   |

### IO Redirection

|                                               |                                                       |
|-----------------------------------------------|-------------------------------------------------------|
| <code><i>cmd</i> &lt; <i>file</i></code>      | Input of <i>cmd</i> from <i>file</i>                  |
| <code><i>cmd</i> 1 &lt; (<i>cmd</i>2)</code>  | Output of <i>cmd</i> 2 as file input to <i>cmd</i> 1  |
| <code><i>cmd</i> &gt; <i>file</i></code>      | Standard output (stdout) of <i>cmd</i> to <i>file</i> |
| <code><i>cmd</i> &gt; /dev/null</code>        | Discard stdout of <i>cmd</i>                          |
| <code><i>cmd</i> &gt;&gt; <i>file</i></code>  | Append stdout to <i>file</i>                          |
| <code><i>cmd</i> 2&gt; <i>file</i></code>     | Error output (stderr) of <i>cmd</i> to <i>file</i>    |
| <code><i>cmd</i> 1&gt;&amp;2</code>           | stdout to same place as stderr                        |
| <code><i>cmd</i> 2&gt;&amp;1</code>           | stderr to same place as stdout                        |
| <code><i>cmd</i> &amp;&gt; <i>file</i></code> | Every output of <i>cmd</i> to <i>file</i>             |
| <i>cmd</i> refers to a command.               |                                                       |

### Pipes

|                                             |                                        |
|---------------------------------------------|----------------------------------------|
| <code><i>cmd</i>1   <i>cmd</i>2</code>      | stdout of <i>cmd</i> 1 to <i>cmd</i> 2 |
| <code><i>cmd</i>1  &amp; <i>cmd</i>2</code> | stderr of <i>cmd</i> 1 to <i>cmd</i> 2 |

### Command Lists

|                                                 |                                                    |
|-------------------------------------------------|----------------------------------------------------|
| <code><i>cmd</i>1 ; <i>cmd</i>2</code>          | Run <i>cmd</i> 1 then <i>cmd</i> 2                 |
| <code><i>cmd</i>1 &amp;&amp; <i>cmd</i>2</code> | Run <i>cmd</i> 2 if <i>cmd</i> 1 is successful     |
| <code><i>cmd</i>1    <i>cmd</i>2</code>         | Run <i>cmd</i> 2 if <i>cmd</i> 1 is not successful |
| <code><i>cmd</i> &amp;</code>                   | Run <i>cmd</i> in a subshell                       |

### Directory Operations

|                               |                                |
|-------------------------------|--------------------------------|
| <code>pwd</code>              | Show current directory         |
| <code>mkdir <i>dir</i></code> | Make directory <i>dir</i>      |
| <code>cd <i>dir</i></code>    | Change directory to <i>dir</i> |
| <code>cd ..</code>            | Go up a directory              |
| <code>ls</code>               | List files                     |

### Is 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

|                                                   |                                                    |
|---------------------------------------------------|----------------------------------------------------|
| <code>grep <i>pattern</i> <i>files</i></code>     | Search for <i>pattern</i> in <i>files</i>          |
| <code>grep -i</code>                              | Case insensitive search                            |
| <code>grep -r</code>                              | Recursive search                                   |
| <code>grep -v</code>                              | Inverted search                                    |
| <code>grep -o</code>                              | Show matched part of file only                     |
| <code>find /<i>dir</i>/ -name <i>name</i>*</code> | Find files starting with <i>name</i> in <i>dir</i> |



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### Search Files (cont)

`find /dir/ -user name` Find files owned by *name* in *dir*

`find /dir/ -mmin num` Find files modified 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*

`tail -F file1`  
Output last lines of *file1* as it changes

### Watch a Command

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

### Process Management

`ps` Show snapshot of processes

`top` Show real time processes

`kill pid` Kill process with id *pid*

`kill name` Kill process with name *name*

`killall name` Kill all processes with names beginning *name*

### 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 Shortcuts (cont)

`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

First digit is owner permission, second is group and third is everyone.

Calculate permission digits by adding numbers below.

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



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