

# Working with Files

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# Working with Files and Directories

# Typical Actions

Creating Files

Moving Files

Renaming Files

Copying Files

Deleting Files

Inspecting Files

## Some Remarks

Avoid using spaces in file names

If you use spaces you have to scape them: e.g.

`some\ file`

Underscores or dashes are better than spaces

## Avoid spaces in file names

data set 1.csv ✗

file with long name.txt ✗

dataset1.csv ✓

file-with-long-name.txt ✓

file\_with\_long\_name.txt ✓

# UNIX file naming

UNIX doesn't care about file extensions

(... but many other programs do)

File extensions not required but helpful (e.g. .txt, .csv, .html, .md, .pdf, .jpg)

Extensions help differentiate from commands and directories

## Hidden files

File names beginning with a period are hidden:

`.bash_profile`

`.Rprofile`

`.gitconfig`

`.gitignore`

## In summary: UNIX file naming

Maximum of 255 characters

Avoid most symbols: \ / \* & % ? \$ | ^ ~ < >

Use A-Z, a-z, 0-9, period, underscore, hyphen

Don't use a hyphen as the first character

Prefer lower case letters: **MyFile** vs **myfile**

Good idea to use extensions



# Creating Files

# Creating files

3 main ways to create files:

- Using a text editor
- Direct output (from command) to a file
- Using the command **touch**

Text editor  
≠  
Word processor

## UNIX text editors

**ed** (*Text Editor*): earliest Unix editor, not user friendly.

**vi** (*visual editing mode*), **vim** (*vi improved*): modal, fingers rarely leave keyboard home row

**GNU Emacs** (*editor macros*): macros to automate work, swiss army knife

**pico** (*pine composer*), **nano**: basic features, easy to use

# Built-in Text Editors in Mac OS X

<b>vi, vim</b>	creates empty file
<b>emacs</b>	removes file (deletes it) ( <b>rm - r</b> )
<b>nano</b>	see contents

LEARN HOW TO USE ONE  
OF THESE TEXT EDITORS

## Other text editors

- **Textmate**
- **Sublime text**
- **Text wrangler**
- **Notepad ++**
- **Atom**
- **Gedit**

# Inspecting Files

## Reading the contents of files

**cat**: *concatenate*, good for short files

**more**: paginated output, doesn't go backwards

**less**: paginated output, scrolls backwards;  
better memory use.

In Mac, **more** is replaced by **less**.



## Reading portions of files

**head**: displays lines from beginning of a file

**tail**: displays lines from end of a file

**tail -f**: “follow” the tail of a file

In Mac, **more** is replaced by **less**.

# Commands for **less**

<b>b</b> or <i>page up</i>	move back one page
<i>space</i> or <i>page down</i>	move forward one page
<b>G</b>	go to the end of the file
<b>1G</b> or <b>g</b>	got to the beginning of the file
<i>/character</i>	search forward for an occurrence of <i>character</i>
<b>n</b>	repeat the previous search ( <i>next</i> )
<b>h</b>	display list of <b>less</b> commands and options
<b>q</b>	quit (exit)

# Directories

## Creating directories

```
mkdir testdir
```

```
mkdir testdir/test1
```

```
mkdir -p testdir/test1/test1a
```

**-p** is the option to create parent directories

## Listing the contents of a directory

**ls** *path/to/directory*

# Listing Contents

<b>ls</b> <i>(default)</i>	list files and dirs in current directory
<b>ls</b> /	list files and dirs in the root directory
<b>ls -l</b>	list files in current directory in <b>long format</b>
<b>ls -a</b>	list <b>all</b> files and dirs in current directory
<b>ls -r</b>	list contents in <b>reversed</b> order
<b>ls -t</b>	list contents by modification <b>time</b>
<b>ls -lh</b>	list contents (long) display size in human readable
<b>ls -la</b>	list all files in long format

# Contents in long format

```
ls -l
```

```
-rw-r--r--    1 gaston  staff    662 Aug 29 09:51 DESCRIPTION
-rw-r--r--    1 gaston  staff    251 Aug 29 09:47 NAMESPACE
drwxr-xr-x   17 gaston  staff    578 Aug 29 09:47 R
-rw-r--r--    1 gaston  staff  1327 Aug 29 09:47 README.md
drwxr-xr-x   15 gaston  staff    510 Aug 29 09:47 man
```

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```

permissions

# hard  
links

owner

group

size in  
bytes

date of last  
modification

time of last  
modification

name



change working directory

**cd** *path/to/directory*

# Changing Directories

<b>cd</b> <i>(default)</i>	change to home directory
<b>cd</b> ~	change to home directory
<b>cd</b> /	change to root
<b>cd</b> -	change to previous directory
<b>cd</b> .	change to current directory (i.e. does nothing)
<b>cd</b> ..	change to parent directory

Create directory

**mkdir** *path/to/directory*

# Commands for files

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<b>wc</b>	size of a file (lines, words, bytes)
<b>file</b>	type of file
<b>touch</b>	creates empty file

# Manipulating Files



# Manipulating Files

<b>cp</b>	copy files
<b>mv</b>	move and rename files
<b>rm</b>	delete files

# Copy file

```
cp file1 file2
```



# Rename file

```
mv file1 file2
```

## Move file

```
mv file1 path/file1
```

# Delete file

```
rm file1
```

Note: `rm` removes a file permanently (won't put it in the Trash)