

# An Introduction to the Linux Command Line

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## Don't be intimidated!

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## Filesystem

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## Filesystem: Paths

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## Filesystem: ls & cd

```
[magitz@gator1 scripts]$ ls
renamer.sh test.py
[magitz@gator1 scripts]$ cd ../Documents/
[magitz@gator1 Documents]$ ls
data.txt
[magitz@gator1 Documents]$
```

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## The command prompt

```

[usermagitz@hostgator1 current directoryscripts]$ ls
renamer.sh test.py
[magitz@gator1 scripts]$ cd ../Documents/
[magitz@gator1 Documents]$ ls
data.txt
[magitz@gator1 Documents]$ █

```

## Filesystem: Basic commands

- pwd: Present Working Directory
- ls: List--show contents of directory
- cd: Change Directory
- mkdir: Make directory
- rm: Remove a file (rm -r for directories)
- rmdir: Remove directory

There is no  
trashcan!  
(or backups)



- cp: Copy a file: cp data.txt ../analysis/
- mv: Move a file: mv data.txt ../analysis/

## Command arguments

- Modify how a command works
  - Used from the most basic command like ls, to most applications you will run

```

[magitz@gator1 scripts]$ ls
renamer.sh test.py
[magitz@gator1 scripts]$ ls -l
total 0
-rw-rw-r-- 1 magitz ufhpc 0 Jul 25 12:22 renamer.sh
-rw-rw-r-- 1 magitz ufhpc 0 Jul 25 12:22 test.py
[magitz@gator1 scripts]$ ls -la
total 8
drwxrwxr-x 2 magitz ufhpc 4096 Jul 25 12:22 .
drwxrwxr-x 4 magitz ufhpc 4096 Jul 25 12:25 ..
-rw-rw-r-- 1 magitz ufhpc 0 Jul 25 12:22 renamer.sh
-rw-rw-r-- 1 magitz ufhpc 0 Jul 25 12:22 test.py
[magitz@gator1 scripts]$ █

```

## Linux permissions

Indicates a directory (d) or a file (-)  
 Group (set of users)  
 drwxrwxrwx  
 Other users (everyone else)  
 User (owner) permissions

- Change with: chmod o-rwx file
    - ls -l shows permission details
- ```

-rw-rw-r-- 1 magitz ufhpc 0 Jul 25 12:22 renamer.sh
  u   g   o   user   group

```

## Viewing text files

- more and less: show contents of a file, less has more features (search, scroll up, etc.)
- head: show start of file (10 lines by default)
  - head -n 20 file.txt
- tail: show end of file (10 lines by default)
- grep: search for text in file
  - grep Gainesville weather.txt
- Text editors: nano, vi, vim, emacs, etc.

## Redirecting output

- The ">" can be used to redirect output:
  - grep Gainesville weather.txt > GNV.txt
  - ls -l > file\_lits.txt
  - **Caution:** > will overwrite the specified file!
- You can append to a file with ">>"

## Connecting commands

- ▶ The pipe, "|", can be used to send, or pipe, the output of one command to the input of another:
  - `ls -l | grep Jun > files_modified_in_June`

Tip: Don't use spaces in file or directory names

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## Tools

ssh client to connect to [hipergator.hpc.ufl.edu](http://hipergator.hpc.ufl.edu)

e.g.: Terminal, PuTTY

SFTP client to move files to/from your computer

e.g.: Cyberduck, FileZilla

Text editor to prepare files

Especially on Windows, be sure to convert DOS line breaks to Unix, and *don't use Word*

Both have SFTP built in

e.g.: TextWrangler, Notepad++

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## SSH Clients

Mac/Linux: Terminal

Windows: PuTTY

ssh user@hipergator.hpc.ufl.edu

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## PuTTY

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## FileZilla

Tutorial at: <http://wiki.hpc.ufl.edu/doc/FileZilla>

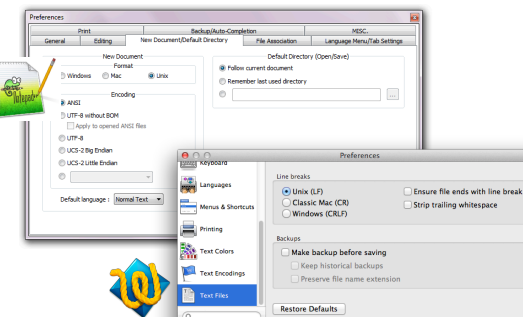
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## Text Editors

- ▶ **Not** Microsoft Word or other word processor
- ▶ Contextual coloring
- ▶ Built-in SFTP Client
- ▶ Regular expression find/replace
- ▶ **Unix line breaks**

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### Unix line breaks





The screenshot shows the 'Preferences' dialog box of a text editor, with the 'Line breaks' section selected. The 'Unix (LF)' radio button is chosen, and the 'Ensure file ends with line break' checkbox is also checked. Other options like 'Classic Mac (CR)' and 'Windows (CRLF)' are unselected. The 'Backups' section is also visible, with 'Make backup before saving' checked.

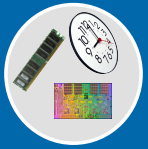
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### Cluster basics


#### User interaction

  
  
Login node (Head node)

#### Scheduler

  
Tell the scheduler what you want to do

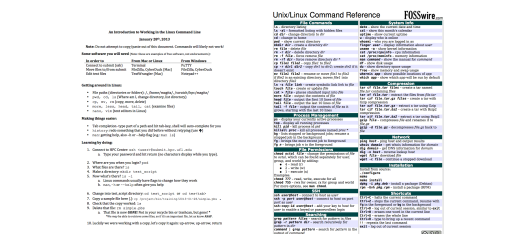
#### Compute resources

  
Your job runs on the cluster

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### Learn by doing...

Handouts also available on Wiki



The screenshot shows a Wiki page titled 'Unix/Linux Command Reference' with a table of commands and their descriptions. The table has columns for 'Command', 'Description', and 'FOSSware'. The page includes a search bar and a list of related pages.

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  - Searchable database of solutions
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  - Documents on hardware and software resources
  - Various user guides
  - Many sample submission scripts



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