

Command Line Basics

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Basic command lines

Code/ Symbol	Command/ Elaboration	Function/ Example
~ (called Tilde)		Home directory (main folder)
/ (Slash)		Root directory i.e beginning of a file path
./ (One Period/Slash)		Current directory/ folder
../ (Two Periods/Slash)		One directory (folder) up
pwd	Print/Present Working Directory (folder)	Prints where you're
mkdir	Make a or multiple Directories (folders)	mkdir Directory1 mkdir Directory1 Directory2 mkdir -m777 Directory1 (gives rwx permission) mkdir -p Dir1/Dir2/Dir3 (creates a series of directory in one command)
cd	Change Directory Navigates among directories/folders Needed to navigate to a folder before working in it	cd Directory1
"cd" or "cd ~"	home directory	
"cd /"	root directory	
"cd .."	up one directory level	
"cd -"	previous directory (or back)	
ls or ls .	List the content of the working folder	cd Directory1 ls
ls . .	List the content of the folder that one-level before the working folder	ls . .
ls *.txt	* is called wildcard List all the txt files in the folder Find all the txt files	cd Directory1 ls *.txt
ls *.txt wc -l	List all the txt files AND Count them is called pipe Pipes feed the output of a command to the next command as input 'wc' stands for Word Count '-l' asks for line counts	cd Directory1 ls *.txt wc -l

Code/ Symbol	Command/ Elaboration	Function/ Example
ls A*	Find all the files starting with A	cd Directory1 ls A*
ls *A*	Find all the files containing A	cd Directory1 ls *A*
ls [^A]*	Find all the files except the ones starting with A	cd Directory1 ls [^A]
ls [^AT]*	Find all the files except the ones starting with A or T	cd Directory1 ls [^AT]
ls -l --block-size=M	List files with their size in Mb	
Du -sh /path to the folder	Shows the folder size	Du -sh /Directory1
touch	Create a or multiple files in the working folder	touch File1 touch File1 File2
cat	Concatenate See the content of a file	cat File1
mv	Move a file to different folder (Directory2) Rename file Can copy a file as well	mv File1 Directory2 mv oldName newName
cp	Copy a file to different folder	mv File1 File1copy cp File1 ~/Directory2 File1 in working directory
cp *.txt	Copy all the txt files	cp *.txt Directory2
cp -r	Copy the whole directory including sub-directories	cp -r directory 1 path/directory2
rm	Delete a file	rm File1
rm -i (-i is called a flag); 'I' = interactive	Ask for permission before deleting	rm File1
rm -i *	Denotes everything in the folder Deletes everything in the folder BUT NOT the folder itself	cd Directory1 rm -i *
rm -i *.png	Deletes all the png files in the folder	
rm -r	Deletes a folder and everything in it	rm -r Directory1
rm -rf	Deletes a folder without prompting anything	rm -rf Directory1
rmdir	Deletes a folder BUT the folder has to be empty	rm -r Directory1
chmod -R 777	Changes file permission	
sudo apt install	For auto tab completion	
bash-completion		
file *	List the directory content with types	
git clone	Clone/download a repository	git clone https://github.com/speciationgenomics/unix_exercises.git
head	Display top 10 lines	head File1.txt

Code/ Symbol	Command/ Elaboration	Function/ Example
head -30	Display top 30 lines	head -30 File1.txt
tail	Display last 10 lines	tail File1.txt
tail -30	Displays last 30 lines	tail -30 File1.txt
tail -n+10	'-n' asks to skip the top lines In this case, skip first 10 lines	tail -n+10 File1.txt

Some frequently used command line utilities

grep

Code/ Symbol	Command/ Elaboration	Function/ Example
grep --color	Search text	grep --color "Lunch" File1.txt
grep --color -A 2 "word"	Print 2 lines after the match	grep --color -A 2 "word" File1.txt
grep --color -B 2 "word"	Print 2 lines before the match	grep --color -B 2 "word" File1.txt
grep --color -C 2 "word"	Print 2 lines before and after the match	grep --color -C 2 "word" File1.txt
grep -v "word"	Find everything except 'word'	grep -v "word" File1.txt
grep -c "[WW]ord"	Count the occurrence of 'W/word'	grep -c "[WW]ord" File1.txt

sed

Code/ Symbol	Command/ Elaboration	Function/ Example
sed -n 3p	Extract the 3rd line	sed -n 3p File1.txt
sed -n 3-5p	Extract the 3rd to 5th lines	sed -n 3-5p File1.txt
sed 's/Ishmael/Dave/g' ishmael.txt or 's/Ishmael/Dave/' \$fileName	Replace "Ishmael" by "Dave"	sed 's/Ishmael/Dave/g' File1.txt

awk

Code/ Symbol	Command/ Elaboration	Function/ Example
awk '{print \$1,\$2,\$3,\$4,\$5,\$7}' file	Subset columns 1-5, 7	
awk '{print \$3}'	Print third column	awk '{print \$3}' File.tsv head
awk '{print \$3,"\\t"50}'	Print third column Add 50 at each row /t is tab space	awk '{print \$3,"\\t"50}' File.tsv head
awk '{print \$3,"\\t"\$3+1}'	Print third column Add 1 with all row values	awk '{print \$3,"\\t"\$3+1}' iris_data.tsv head

cut

Code/ Symbol	Command/ Elaboration	Function/ Example
cut -f1,2,3,4,5,7	Subset columns 1-5, 7	cut -f1,2,3,4,5,7 File1.txt

Nano

Code/ Symbol	Function/ Example
alt+sht+\$	wraps lines
alt+sht+y	highlights syntax
alt+sht+#	puts line number
fg	to return to nano
ctrl+K	deletes entire line
ctrl+A	moves the cursor at the beginning of the line
ctrl+E or Alt+/	moves the cursor at the end of the line
Ctrl+Shift+- 7406148	Jump to line number 7406148
Ctrl+W	Search for words

Putty

Code/ Symbol	Function/ Example
psftp> get -r *	download one file
psftp> mget -r *	download multiple files
psftp> put -r *	upload one file
psftp> mput -r *	upload multiple files