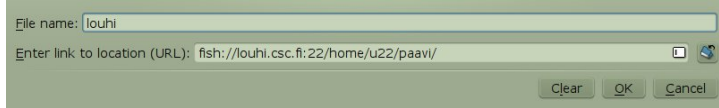


Window manager: most common choice is KDE (version 3.x installed)

- Control center: use to adjust things
- Menu editor: change the menu items
- konqueror
 - Corresponds to windows explorer
 - Supports fish protocol for ssh to open directory from another computer
 - right-click desktop: create new ⇒ Link to URL
 - add your username before word louhi (user@louhi.csc.fi)



- An icon appears on desktop ⇒ double-click to open location
- kwrite/kedit/kate: text editing
 - emacs might be worth studying, emacs -nw in terminal
- kalarm/korganizer: alarm clock and calendar
- kpdf: fast pdf-viewer
 - acroread is more versatile
- konsole: kde terminal
- amarok: music player (very nice)

Basic console commands and syntax

Command	Description	Examples
man	Show manual page of a command	man ls
ls	Show directory listing	ls -la; ls /usr/local/vasp/
cd	Change work directory	cd /usr/; cd examples
pwd	Displays current work directory	pwd
mkdir	Create directory	mkdir test
more/less	View a file one page at a time; "q" to quit arrows or page up/down for more;"h" for help	less file1
emacs	Text editor	emacs file
cp	Copy files and directories (-r option)	cp file1 file2 cp -r examples /home/user/
rm	remove a file Options: -r for directory;-f no questions	rm file1 rm -r directory1
mv	Move file (another place or rename)	mv file1 file2 mv file1 /home/user/
logout	Logs user out of the system	
gzip/gunzip	Compress/decompress files	gzip file1 gunzip file1.gz
jobs	Lists jobs which are running	
kill	Kills a job which is running	kill %1
top	Display system usage information; "q" to exit	
nohup	run a command immune to hangups	nohup vasp > vasp.out &

Syntax examples:

command > outputfile	command writes its output to file "outputfile"
command >> outputfile	command adds its output to the end of file "outputfile"
command &	command runs on background; user can input more commands on terminal
ls -la less	output of "ls" is piped to "less"for viewing one page at a time

Bash - terminal command interpreter

- Previous commands are interpreted by SHELL (bash)
- Configuration of bash:

.bash_profile: contains configuration information

```
export PS1='\A \h > ' # This tells you how prompt looks like
bind '"\e[A":history-search-backward' #matlab-like up and down keys
bind '"\e[B":history-search-forward'
export PYTHONPATH=./home/paavi/Python/Packages/:/home/paavi/Python/Packages/VASP/
export PATH=/bin:/local/paavi/XVASP/Bin:$PATH:~/Python/Packages/Tools:~/bin/lhkaskyt:~/local/bin/
# a list of aliases
alias l='less'
alias md='mkdir'
alias ssh='ssh -A'
alias wd='echo `pwd` | sed "s/\/home\/paavi\/~/g"'
alias sshlouhi='ssh -t louhi "cd `wd`; bash"'
alias spotify='wine .wine/drive_c/Program\ Files/Spotify/spotify.exe 2>&1 1> /dev/null &'
#functions
function la () {
    ls -Falh $* | less -eXF
}
scpmurska () {
    todir='wd'
    eval `printf "ssh murska ' [ -d %s ] || mkdir -pv %s'" $todir $todir`
    scp $* murska:$todir
}
```

Environment variables

- Set using export VAR=value
- HOME: home directory
- PATH: where programs will be searched in
- HOSTNAME: your computer name
- Check using *env* command

Other stuff about system

Useful text handling commands

- cat/tac: show file in normal way/lines reversed
- grep: find a line with certain string from a file
- cut: cut certain parts of line from a file
- tail, head: show last/first lines of a file
- sed: stream editor, does many things, for example replaces strings
- awk: very versatile stream editor
- wc, sort, split, expand, tr, paste, join,

Other stuff

- jobs/ps: show information on terminal/all processes
- chmod: changes file permissions
- ln: create shortcut (link)
- kill: kill a process
- bc: simple calculator
- passwd: change your linux password

Mounting devices

- 1 Plug device (stick)
 - 2 Write: *mount /mnt/stick*
 - 3 Copy, read, etc to /mnt/stick/
 - 4 Check that nothing is open at /mnt/stick/ (cd \$HOME)
 - 5 write: *umount /mnt/stick*
 - 6 Unplug device (stick)
- Or create shortcut on KDE desktop (create new link to device)
 - Right click icon to mount
 - Check /etc/fstab for information

Basic syntax

- `ssh username@remotecomputer.xx.fi`
- `scp file username@remotecomputer.xx.fi:destdir`
- `scp username@remotecomputer.xx.fi:sourcedir/sourcefile file`

Making things easier:

`$HOME/.ssh/config`

```
Host murska
HostName murska.csc.fi
User paavi
```

- Now I can just write `ssh murska` instead of `ssh paavi@murska.csc.fi`

SSH and SCP without giving password all the time

- 1 `ssh-keygen -t dsa`
 - Creates files `id_dsa.pub` and `id_dsa` in `.ssh` directory
 - Give a strong password you can easily remember (ssh password)
- 2 Copy public key into remote computer
 - Login on remote computer with `ssh`
 - Create `$HOME/.ssh` directory (if not exist already)
 - Edit `authorized_keys` file (remote)
 - Copy-paste contents of your local `id_dsa.pub` into remote `authorized_keys` file
 - check that there is only single long line
 - Log out
- 3 Make a file `$HOME/.xsession` in your home directory (local computer)

`$HOME/.xsession`

```
exec ssh-agent /usr/bin/startkde
```

- 4 Give it exec rights: `chmod u+x $HOME/.xsession`
- 5 Restart KDE
 - Logout from KDE
 - Choose "Custom" from the login menu
- 6 Open konsole and write `ssh-add` (asks for your ssh password)
- 7 Now you can login on remote computer without giving password
- 8 If you login by `ssh -A` you will also get back without giving password
 - Handy with `scp`

Other programs etc

Image processing

- xfig: graphs
- gimp: a versatile tool for image editing
- xv: view an image file
- ghostview,gv: view ps and eps files
- ImageMagic package: command line tools for image manipulation
 - display: view image files
 - convert: converts file format into another
 - montage: compiles several images into one
 - mogrify, animate, ... check *man ImageMagic*

Movies

- mplayer/vlc: watch movies
- mencoder: change video format
- ppmtompeg: make an mpeg movie from series of images

Openoffice

- presentations, text documents, spreadsheets, image drawing...
- *soffice file*

Printing

- *lpr file.ps*
- kprinter
- Choose "duplex on" from the menu to get two-sided documents

L^AT_EX

- Very nice way of producing documents (and presentations)
- Needs practise (works like a programming language)

Backups

- Done automatically every night

Analysis and compiling stuff

Matlab

- not on every computer, ask if needed

Octave

- free matlab clone, installed on every computer

Compiling programs

- Intel software
 - ifort: fortran compiler
 - icc: c++ compiler
 - use -xP option on local computers
 - MKL libraries (on some computers)
- Gnu programs
 - gcc: c++ compiler
 - gfortran: fortran compiler
 - use -O2 -march=i686 on local computers

Plenty of other software not mentioned here

Also other programs can be installed if needed

- Contact Petri or Sami