

bash on Ubuntu on Windows

Linux command shell for Windows

bash

- BASH is the **B**ourne-**A**gain **S**hell
- A shell in UNIX is a command interpreter. Like CMD in windows, but MUCH more powerful.
- BASH does more than interpret commands, such as:
 - scripting
 - command line completion
 - command history
 - file listing coloring
 - and a lot more
- There are many shells in the UNIX world, but BASH is the default shell for many Linux distributions including Ubuntu.

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Installing

- Requires Windows 10 Anniversary Update or later
- Turn on "Developer Mode" (search for help)
Settings -> Update and Security -> For Developers -> Developer mode
- Turn on "bash subsystem" (search for help)
Control Panel -> Programs -> Turn Windows features on or off -> Check the "Windows Subsystem for Linux" checkbox
- Reboot
- Click on "run" and enter **bash** as the command. This is how you start **bash** from now on.
- It will ask you if you want to install bash, say yes.
- You may have to reboot again.
- Restart bash and you will be prompted for a username and password. You must enter the password twice.

REMEMBER YOUR PASSWORD. You will need it for installing and updating.

- Next: Installing software

DO THIS FIRST

- After you get bash installed, update it.
 - This is a beta. My recommendation would be to install updates every time you start bash.
- The command for updating is:
`sudo apt-get update`
`sudo apt-get upgrade`

You will need the password you originally entered.
Run both of the above commands.

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Installing software

- Command for installing packages (applications) once bash is installed:
sudo apt-get install package_name
- Install the build tools (including gcc and g++)
sudo apt-get install build-essentials
- Vim and Nano are already installed.
- The following will uninstall bash:
lxrun /uninstall /full

The Linux file system

- The filesystem is set up as a Linux file system
- Get to your newly created (and empty) home directory:
cd ~
- If you want to get to your system drives they are located under the /mnt directory.
- Get to your C: drive with:
cd /mnt/c
- Get to your C: drive with:
cd /mnt/c

Setting up common directories

- I suggest not doing much work under your home directory since you cant access the files from windows.
- Instead, set up files to common Windows locations.
- Link to Desktop:

ln -s /mnt/c/Users/Joel/Desktop .

- Of course use YOUR drive and USERNAME according to your system
- The first character is a lower case L (LN but lower case).
- The DOT on the end of the command is very important.
- Spaces between each portion of the command are required.
- DO NOT put any other spaces.

Other Links You May Want

- Documents

ln -s /mnt/c/Users/Joel/Documents .

- Downloads

ln -s /mnt/c/Users/Joel/Downloads .

- Pictures

ln -s /mnt/c/Users/Joel/Pictures .

- To use these links simply CD to them from the home directory

cd Documents	;Go to Documents
cd ~	;Go back home
cd Desktop	;Go to Desktop

- If you are currently in a directory, get to another by using ~

cd Documents	;takes you to the Documents directory
cd ~/Desktop	;takes you back to home, then to Desktop in one step

Access UNIX Configuration Files

- The Linux filesystem gets added under AppData.
 - Each user with bash will have her own AppData folder.
- Mine is here:
C:\Users\Joel\AppData\Local\lxss
- You will need to restart bash after making changes.

Access to your home directory

- Also under AppData.
- My home directory is here:
C:\Users\Joel\AppData\Local\lxss\home\swansonja
- I would not suggest using your home directory from Windows.
 - The bash system does not refresh its file list and files created or moved to the system will not currently show up in a listing under bash without a restart.
 - Use links as described previously to folders where your data is stored.
 - DO NOT MODIFY .bashrc or .profile FROM WINDOWS.

More BASH

- There are plenty of tutorials online helping you learn more about BASH.
- Search for bash
- <https://www.gnu.org/software/bash/manual/bashref.html>

An A-Z Index of the Bash command line for Linux.

I don't know how many of these actually work for bash on Ubuntu on Windows

- a
- alias Create an alias â€¢
- apropos Search Help manual pages (man -k)
- apt-get Search for and install software packages (Debian/Ubuntu)
- aptitude Search for and install software packages (Debian/Ubuntu)
- aspell Spell Checker
- awk Find and Replace text, database sort/validate/index
- b
- basename Strip directory and suffix from filenames
- bash GNU Bourne-Again SHell
- bc Arbitrary precision calculator language
- bg Send to background
- bind Set or display readline key and function bindings â€¢
- break Exit from a loop â€¢
- builtin Run a shell builtin
- bzip2 Compress or decompress named file(s)

- c
- cal Display a calendar
- case Conditionally perform a command
- cat Concatenate and print (display) the content of files
- cd Change Directory
- cfdisk Partition table manipulator for Linux
- chgrp Change group ownership
- chmod Change access permissions
- chown Change file owner and group
- chroot Run a command with a different root directory
- chkconfig System services (runlevel)
- cksum Print CRC checksum and byte counts
- clear Clear terminal screen
- cmp Compare two files
- comm Compare two sorted files line by line
- command Run a command - ignoring shell functions â€¢
- continue Resume the next iteration of a loop â€¢
- cp Copy one or more files to another location
- cron Daemon to execute scheduled commands
- crontab Schedule a command to run at a later time
- csplit Split a file into context-determined pieces
- curl Transfer data from or to a server
- cut Divide a file into several parts

- d
- date Display or change the date & time
- dc Desk Calculator
- dd Convert and copy a file, write disk headers, boot records
- ddrescue Data recovery tool
- declare Declare variables and give them attributes â€¢
- df Display free disk space
- diff Display the differences between two files
- diff3 Show differences among three files
- dig DNS lookup
- dir Briefly list directory contents
- dircolors Colour setup for 'ls'
- dirname Convert a full pathname to just a path
- dirs Display list of remembered directories
- dmesg Print kernel & driver messages
- du Estimate file space usage

- e
- echo Display message on screen
- egrep Search file(s) for lines that match an extended expression
- eject Eject removable media
- enable Enable and disable builtin shell commands
- env Environment variables
- ethtool Ethernet card settings
- eval Evaluate several commands/arguments
- exec Execute a command
- exit Exit the shell
- expect Automate arbitrary applications accessed over a terminal
- expand Convert tabs to spaces
- export Set an environment variable
- expr Evaluate expressions

- f
- false Do nothing, unsuccessfully
- fdformat Low-level format a floppy disk
- fdisk Partition table manipulator for Linux
- fg Send job to foreground
- fgrep Search file(s) for lines that match a fixed string
- file Determine file type
- find Search for files that meet a desired criteria
- fmt Reformat paragraph text
- fold Wrap text to fit a specified width.
- for Expand words, and execute commands
- format Format disks or tapes
- free Display memory usage
- fsck File system consistency check and repair
- ftp File Transfer Protocol
- function Define Function Macros
- fuser Identify/kill the process that is accessing a file

- gawk Find and Replace text within file(s)
- getopt Parse positional parameters
- grep Search file(s) for lines that match a given pattern
- groupadd Add a user security group
- groupdel Delete a group
- groupmod Modify a group
- groups Print group names a user is in
- gzip Compress or decompress named file(s)
- h
- hash Remember the full pathname of a name argument
- head Output the first part of file(s)
- help Display help for a built-in command
- history Command History
- hostname Print or set system name
- htop Interactive process viewer
- i
- iconv Convert the character set of a file
- id Print user and group id's
- if Conditionally perform a command
- ifconfig Configure a network interface
- ifdown Stop a network interface
- ifup Start a network interface up
- import Capture an X server screen and save the image to file
- install Copy files and set attributes
- ip Routing, devices and tunnels

- j
- jobs List active jobs â€¢
- join Join lines on a common field
- k
- kill Kill a process by specifying its PID
- killall Kill processes by name
- l
- less Display output one screen at a time
- let Perform arithmetic on shell variables â€¢
- link Create a link to a file
- ln Create a symbolic link to a file
- local Create variables â€¢
- locate Find files
- logname Print current login name
- logout Exit a login shell â€¢
- look Display lines beginning with a given string
- lpc Line printer control program
- lpr Off line print
- lprint Print a file
- lprintd Abort a print job
- lprintq List the print queue
- lprm Remove jobs from the print queue
- lsblk List block devices
- ls List information about file(s)
- lsof List open files

- m
- make Recompile a group of programs
- man Help manual
- mkdir Create new folder(s)
- mkfifo Make FIFOs (named pipes)
- mkisofs Create an hybrid ISO9660/JOLIET/HFS filesystem
- mknod Make block or character special files
- more Display output one screen at a time
- most Browse or page through a text file
- mount Mount a file system
- mtools Manipulate MS-DOS files
- mtr Network diagnostics (traceroute/ping)
- mv Move or rename files or directories
- mmv Mass Move and rename (files)
- n
- nc Netcat, read and write data across networks
- netstat Networking information
- nice Set the priority of a command or job
- nl Number lines and write files
- nohup Run a command immune to hangups
- notify-send Send desktop notifications
- nslookup Query Internet name servers interactively
- o
- open Open a file in its default application
- op Operator access

- p
- passwd Modify a user password
- paste Merge lines of files
- pathchk Check file name portability
- ping Test a network connection
- pgrep List processes by name
- pkill Kill processes by name
- popd Restore the previous value of the current directory
- pr Prepare files for printing
- printcap Printer capability database
- printenv Print environment variables
- printf Format and print data "€"
- ps Process status
- pushd Save and then change the current directory
- pv Monitor the progress of data through a pipe
- pwd Print Working Directory
- q
- quota Display disk usage and limits
- quotacheck Scan a file system for disk usage

- r
- ram ram disk device
- rar Archive files with compression
- rcp Copy files between two machines
- read Read a line from standard input â€¢
- readarray Read from stdin into an array variable â€¢
- readonly Mark variables/functions as readonly
- reboot Reboot the system
- rename Rename files
- renice Alter priority of running processes
- remsync Synchronize remote files via email
- return Exit a shell function
- rev Reverse lines of a file
- rm Remove files
- rmdir Remove folder(s)
- rsync Remote file copy (Synchronize file trees)

- s
- screen Multiplex terminal, run remote shells via ssh
- scp Secure copy (remote file copy)
- sdiff Merge two files interactively
- sed Stream Editor
- select Accept keyboard input
- seq Print numeric sequences
- set Manipulate shell variables and functions
- sftp Secure File Transfer Program
- shift Shift positional parameters
- shopt Shell Options
- shutdown Shutdown or restart linux
- sleep Delay for a specified time
- slocate Find files
- sort Sort text files
- source Run commands from a file '.'
- split Split a file into fixed-size pieces
- ss Socket Statistics
- ssh Secure Shell client (remote login program)
- stat Display file or file system status
- strace Trace system calls and signals
- su Substitute user identity
- sudo Execute a command as another user
- sum Print a checksum for a file
- suspend Suspend execution of this shell
- sync Synchronize data on disk with memory

- t
- tail Output the last part of file
- tar Store, list or extract files in an archive
- tee Redirect output to multiple files
- test Evaluate a conditional expression
- time Measure Program running time
- timeout Run a command with a time limit
- times User and system times
- touch Change file timestamps
- top List processes running on the system
- tput Set terminal-dependent capabilities, color, position
- traceroute Trace Route to Host
- trap Run a command when a signal is set(bourne)
- tr Translate, squeeze, and/or delete characters
- true Do nothing, successfully
- tsort Topological sort
- tty Print filename of terminal on stdin
- type Describe a command â€¢

- u
- ulimit Limit user resources
- umask Users file creation mask
- umount Unmount a device
- unalias Remove an alias
- uname Print system information
- unexpand Convert spaces to tabs
- uniq Uniquify files
- units Convert units from one scale to another
- unrar Extract files from a rar archive
- unset Remove variable or function names
- unshar Unpack shell archive scripts
- until Execute commands (until error)
- uptime Show uptime
- useradd Create new user account
- userdel Delete a user account
- usermod Modify user account
- users List users currently logged in
- uuencode Encode a binary file
- uudecode Decode a file created by uuencode
- v
- v Verbosely list directory contents ('ls -l -b')
- vdir Verbosely list directory contents ('ls -l -b')
- vi Text Editor
- vmstat Report virtual memory statistics

- w
- wait Wait for a process to complete
- watch Execute/display a program periodically
- wc Print byte, word, and line counts
- whereis Search the user's \$path, man pages and source files for a program
- which Search the user's \$path for a program file
- while Execute commands
- who Print all usernames currently logged in
- whoami Print the current user id and name ('id -un')
- wget Retrieve web pages or files via HTTP, HTTPS or FTP
- write Send a message to another user
- x
- xargs Execute utility, passing constructed argument list(s)
- xdg-open Open a file or URL in the user's preferred application.
- xz Compress or decompress .xz and .lzma files
- yes Print a string until interrupted
- zip Package and compress (archive) files.
- . Run a command script in the current shell
- !! Run the last command again
- ### Comment / Remark