~ metacharacter

* A metacharacter that represents a user’s home directory

absolute pathname

* The full pathname to a certain file or directory starting from the root directory

Advanced Technology Attachment (ATA)

* A legacy hard disk technology that uses ribbon cables to typically attach up to four hard disk drives to a single computer.

application (app)

* The software that runs on an operating system and provides the user with specific functionality (such as word processing or financial calculation). Applications are commonly referred to as apps today.

Arguments

* The text that appears after a command name, does not start with a dash (-), and specifies information that the command requires to work properly.

asymmetric encryption

* A type of encryption that uses a key pair to encrypt and decrypt data.

Authentication

* The process whereby each user must log in with a valid user name and password before gaining access to a system.

bare metal

* Refers to an operating system that is installed directly on computer hardware, and not within a virtual machine or container

BASH shell

* Also known as the Bourne Again Shell, this is the default command-line interface on most Linux distributions.

Basic Input/Output System (BIOS)

* The part of a computer system that contains the programs used to initialize hardware components at boot time.

Beowulf clustering

* A popular and widespread method of clustering computers together to perform useful tasks using Linux

binary data file

* A file that contains machine language (binary 1s and 0s) and stores information (such as common functions and graphics) used by binary compiled programs

build automation

* A process used within cloud environments that allows containers and virtual machines to be created quickly.

cat command

* Used to display (or concatenate) the entire contents of a text file to the screen

cd (change directory) command

* Used to change the current directory in the directory tree

Certificate

* A digitally signed public key file

Certification Authority (CA)

* A server that digitally signs public keys used by other computers to validate their authenticity

closed source software

* The software whose source code is not freely available from the original author; Windows 11 is an example.

cloud delivery model

* The method used to host services on a cloud provider, such as IaaS, PaaS, or SaaS

cloud provider

* An organization that provides Internet access to resources in a data cente

Clustering

* The act of making a cluster; see also cluster

code repository

* A cloud service that stores and version controls source code for apps

Command

* A program that exists on the filesystem and is executed when typed on the command line.

command mode

* One of the two modes in vi; it allows a user to perform any available text-editing task that is not related to inserting text into the document

Common Gateway Interface (CGI)

* A specification that allows web servers to run apps

Concatenation

* The joining of text together to make one larger whole. In Linux, words and strings of text are joined together to form a displayed file

Container

* A subset of an operating system that provides a unique service on the network.

container runtime

* The software that runs and manages containers on an operating system

continuous deployment (CD)

* A process whereby developer apps are regularly sent to a cloud provider for testing and hosting

continuous integration (CI)

* A process whereby developer source code is regularly sent to a code repository for collaboration and approval

copyleft license

* A type of open source license that places restrictions on source code use to ensure that changes are always made freely available

Cracker

* A person who uses computer software maliciously for personal profit

Daemon

* A Linux system process that provides a system service

Database

* An organized set of data

database management system (DBMS)

* Software that manages databases

desktop environment

* The software that often works alongside a window manager to provide a standard graphical environment

development kernel

* A Linux kernel that has been recently developed yet not thoroughly tested

device driver

* A piece of software containing instructions that the kernel of an operating system uses to control and interact with a specific type of computer hardware

DevOps

* A Linux administrator that manages the software that provides a CD workflow

diff command

* Compares the contents of text files, identifying any differences

digital signature

* Information that has been encrypted using a private key

Directory

* A special file on the filesystem used to organize other files

distribution (distro)

* A complete set of operating system software, including the Linux kernel, supporting function libraries and a variety of OSS packages that can be downloaded from the Internet free of charge. These OSS packages are what differentiate the various distributions of Linux

distribution kernel

* A production Linux kernel that receives long term patch support for a particular Linux distribution

Domain Name Space (DNS)

* The naming convention used by computers on the Internet

Dynamic Host Configuration Protocol (DHCP)

* The protocol that is used to automatically obtain IP configuration for a computer

egrep command

* A variant of the grep command used to search files for patterns, using extended regular expressions

Emacs (Editor MACroS) editor

* A popular text editor that was originally developed by Richard Stallman

executable program

* A file that can be executed by the Linux operating system to run in memory as a process and perform a useful function

Extended partition

* A partition on an MBRbased hard disk drive or SSD that can be further subdivided into components called logical drives.

fgrep command

* A variant of the grep command that does not allow the use of regular expressions

file command

* Displays the file type for files on a filesystem

file globbing

* The process of using wildcard metacharacters within a command to match multiple files or directories

filename

* The user-friendly identifier given to a file

filename extension

* A series of identifiers following a dot (.) at the end of a filename, used to denote the type of the file; the filename extension .txt denotes a text file

File Transfer Protocol (FTP)

* The most common protocol used to transfer files across networks, such as the Internet

Filesystem

* The organization imposed on a physical storage device that is used to manage the storage and retrieval of data by block.

Firewall

* A software component that monitors and restricts network access to a system

Flavor

* A term that refers to a specific type of UNIX operating system. For example, macOS and FreeBSD are two different flavors of UNIX

Forum

* An area of a website that provides the ability to post and reply to messages

Free Software Foundation (FSF)

* An organization started by Richard Stallman that promotes and encourages the collaboration of software developers worldwide to allow the free sharing of source code and software programs

Freeware

* Software distributed by the developer at no cost to the user

fully qualified domain name (FQDN)

* A host name that follows DNS convention

gedit editor

* A common text editor used within desktop environments

GNU General Public License (GPL)

* A software license, ensuring that the source code for any OSS will remain freely available to anyone who wants to examine, build on, or improve upon it

GNU Network Object Model Environment (GNOME)

* One of the two mainstream desktop environments for Linux

GNU Project

* A free operating system project started by Richard Stallman

GUID Partition Table (GPT)

* The area of a large hard disk drive (> 2TB) outside a partition that stores partition information. GPTs are used on most modern hard disk drives and SSDs.

graphical user interface (GUI)

* The component of an operating system that provides a user-friendly interface comprising graphics or icons to represent desired tasks. Users can point and click to execute a command rather than having to know and use proper command-line syntax

grep command

* Searches files for patterns of characters using regular expression metacharacters. The command name is short for “global regular expression print.”

Hacker

* A person who explores computer science to gain knowledge—not to be confused with “cracker.”

Hardware

* The tangible parts of a computer, such as the network boards, video card, hard disk drives, printers, and keyboards

head command

* Displays the first set of lines of a text file; by default, the head command displays the first 10 lines.

home directory

* A directory on the filesystem set aside for users to store personal files and information.

hybrid cloud

* The process of using both a public and private cloud to provide services or run apps

Hypertext Transfer Protocol (HTTP)

* The protocol used to access websites and most web apps

Info page

* A local set of easy-to-read documentation for a specific command or file that is available by typing the info command.

Infrastructure as a Service (IaaS)

* A cloud strategy that allows access to virtualized operating systems stored within a data center

insert mode

* One of the two modes in vi; it allows the user to insert text into the document but does not allow any other functionality.

Integrated Drive Electronics (IDE)

* A legacy hard disk technology that uses ribbon cables to typically attach up to four hard disk drives to a single computer

Internet of Things (IoT)

* A term that refers to the worldwide collection of small Internet-connected devices

Internet Protocol (IP) address

* A unique string of numbers assigned to a computer to uniquely identify it on the Internet.

Internet Service Provider (ISP)

* A company that provides Internet access

ISO image

* A file that contains the content of a DVD. ISO images of Linux installation media can be downloaded from the Internet.

Journaling

* A feature that allows the filesystem to keep track of filesystem actions that have not been completed such that they can be performed in the event of a power failure.

K Desktop Environment (KDE)

* One of the two mainstream desktop environments available for Linux.

Kerberos

* A protocol used by most network authentication services

Kernel

* The central, core program of the operating system. The shared commonality of the kernel is what defines Linux; the differing OSS applications that can interact with the common kernel are what differentiates Linux distributions

Key

* A unique piece of information that is used within an encryption algorithm

less command

* Displays a text file page-by-page on the terminal screen; users can then use the cursor keys to navigate the file

ll command

* An alias for the ls –l command; it gives a long file listing.

linked file

* A file that represents the same data or is a shortcut to the data in another file.

Linus Torvalds

* A Finnish graduate student who coded and created the first version of Linux and subsequently distributed it under the GNU Public License

Linux

* A software operating system originated by Linus Torvalds. The common core, or kernel, continues to evolve and be revised. Differing OSS bundled with the Linux kernel is what defines the wide variety of distributions now available

Linux User Group (LUG)

* The open forums of Linux users who discuss and assist each other in using and modifying the Linux operating system and the OSS run on it. There are LUGs worldwide

ls command

* Used to list the files in a directory.

Live media

* Linux installation media that provides a fully functional Linux operating system in RAM prior to installation on permanent storage.

load balancing

* A feature of some network devices that allows requests for a service to be spread across several different computers for fault tolerance and performance.

log file

* A file that contains past system events.

Logical drive

* A smaller partition contained within an extended partition on an MBR-based hard disk drive or SSD.

Logical Volume Manager (LVM)

* A set of software components within Linux that can be used to manage the storage of information across several hard disk drives or SSDs on a Linux system

Mail Transfer Agent (MTA)

* An email server

major number

* When referring to the Linux kernel, it is the first number in a Linux kernel version and denotes a major change or revision. When referring to device files, it identifies which device driver to call to interact properly with a given category of hardware; similar devices share a common major number

man (manual) page

* A set of local documentation for a specific command or file, available by typing the man command. Also known as a man page.

Master Boot Record (MBR)

* The area of a typical hard disk drive or SSD (< 2TB) outside a partition that stores partition information

Message Passing Interface (MPI)

* A system that is used on Beowulf clusters to pass information to several separate computers in a parallel fashion

Metacharacter

* A character that has special meaning in a shell

minor number

* When referring to the Linux kernel, it is the second number in a Linux kernel version and denotes a minor change or revision. When referring to device files, it identifies which specific hardware device, within a given category, to use as a driver to communicate with. See also major number.

more command

* Display a text file page-by-page and line-by-line on the terminal screen.

Multiplexed Information and Computing Service (MULTICS)

* A prototype time-sharing operating system that was developed in the late-1960s by AT&T Bell Laboratories

named pipe file

* A file that can be written to and read by different processes simultaneously for the purposes of transferring data.

Namespace

* A major section of an NVMe SSD that can be partitioned

nano editor

* A user-friendly terminal text editor that uses Ctrl key combinations to perform basic functions

Network Address Translation (NAT)

* A technology that allows a router to obtain Internet resources on behalf of computers on the network.

Network Time Protocol (NTP)

* A protocol that can be used to obtain time information from other computers on the Internet

Non-Volatile Memory Express (NVMe)

* A modern SSD technology that allows for very fast data transfer directly to the PCIe bus on the computer

od command

* Display the contents of a file in octal or hexadecimal format.

open source software (OSS)

* The programs distributed and licensed so that the source code making up the program is freely available to anyone who wants to examine, utilize, or improve upon it

operating system

* The software used to control and directly interact with the computer hardware components.

Option

* A part of a command that alters that way the command works. Options are represented by one or more letters that starts with a dash (-) or a word that starts with two dashes

Orchestration

* The process of arranging and coordinating the execution of automated tasks, ultimately resulting in a consolidated process, such as a CD workflow.

parent directory

* The directory that is one level closer to the root directory in the directory tree relative to your current directory.

package manager

* The software used to install, maintain, and remove other software programs by storing all relevant software information in a central software database on the computer.

Parallel Advanced Technology Attachment (PATA)

* A legacy hard disk technology that uses ribbon cables to typically attach up to four hard disk drives to a single computer.

Partition

* A physical division of a hard disk drive or SSD

permissive license

* An open source license that places fewer restrictions on source code usage compared to copyleft licenses.

Platform as a Service (PaaS)

* A cloud strategy that allows access to operating system containers stored within a data center.

Portable Operating System Interface (POSIX)

* A set of UNIX standards that have been adopted by other operating systems, such as Linux.

Preboot eXecution Enviroment (PXE)

* A standard that allows computers to boot from installation media hosted on a network server.

Primary partition

* A major division into which a hard disk drive or SSD can be divided

private cloud

* A private data center hosted by an organization that is accessible to other computers across the Internet

private key

* An asymmetric encryption key that is used to decrypt data and create digital signatures

Process

* A program currently loaded into physical memory and running on the system

production kernel

* A Linux kernel that is deemed stable for use through widespread testing.

Program

* An executable file on a filesystem. A program can be executed to create a process

programming language

* The syntax used for developing a program. Different programming languages use different syntaxes

proxy server

* A server or hardware device that requests Internet resources on behalf of other computers

public cloud

* The worldwide collection of commercial data centers that can be used to host cloud services and apps for a fee

public key

* An asymmetric encryption key that is used to encrypt data and decrypt digital signatures.

Public Key Infrastructure (PKI)

* A system whereby a CA is used to validate the authenticity of public keys

pwd (print working directory) command

* Display the current directory in the directory tree.

regular expressions (regexp)

* The special metacharacters used to match patterns of text within text files; they are commonly used by text tool commands, including grep.

relative pathname

* The pathname of a target directory relative to your current directory in the tree.

revision number

* The third number in the version number of a Linux kernel that identifies the release version of a kernel.

Router

* A device capable of transferring packets from one network to another.

Sandbox

* An area of the system that runs apps that are isolated from other apps running on the system. Containers are the most common method used to sandbox web apps.

Scalability

* The capability of computers to increase workload as the number of processors increases.

Secure Sockets Layer (SSL)

* A technology that adds encryption to network protocols, such as HTTP

security appliance

* A server that provides advanced security services on a network. Most security appliances run a custom Linux distribution.

Serial Advanced Technology Attachment (SATA)

* A technology that allows for fast data transfer along a serial cable for hard disk drives and SSDs. It is commonly used in workstation computers

Serial Attached SCSI (SAS)

* A high-performance SCSI technology that is commonly used for hard disk drives and SSDs in server computers.

Server

* A computer that provides services to other computers on a network.

Service

* A process that provides functionality for the local system, or other systems on a network. In a Kubernetes cluster, a service provides access to web apps within pods.

Shareware

* The programs developed and provided at minimal cost to the end user. These programs are initially free but require payment after a period of time or usage.

Shell

* A user interface that accepts input from the user and passes the input to the kernel for processing.

shell script

* A text file that contains a list of commands or constructs for the shell to execute in order.

Small Computer Systems Interface (SCSI)

* A high-performance storage technology that is commonly used in server computers.

socket file

* A file connecting processes on two different computers.

Software

* The programs stored on a storage device in a computer, which provide a certain function when executed.

Software as a Service (SaaS)

* A cloud strategy that provides access to an app or service hosted on servers within a data center.

source code

* The sets of instructions that define the functions that constitute a program. Source code is compiled to create programs that can execute on a system.

special device file

* A file used to identify hardware devices such as hard disk drives and SSDs.

stat command

* Used to view detailed information within the inode of a file or directory.

strings command

* Displays text characters that are in a binary file.

subdirectory

* A directory that resides within another directory in the directory tree.

swap memory

* An area on a storage device that can be used to store information that normally resides in physical memory (RAM), if the physical memory is being used excessively

symmetric encryption

* A type of encryption that uses a single key to encrypt and decrypt data.

Tab-completion feature

* A shell feature that fills in the remaining characters of a unique filename or directory name when the user presses the Tab key.

tac command

* Displays a file on the screen, beginning with the last line of the file and ending with the first line of the file.

tail command

* Display lines of text at the end of a file; by default, the tail command displays the last 10 lines of the file.

Tarball

* A compressed archive of files that often contains Linux software or source code.

Terminal

* The channel that allows a certain user to log in and communicate with the kernel via a user interface.

text file

* A file that stores information in a readable text format.

*text tool*

* A program that allows for the creation, modification, and searching of text files.

*tree command*

* Displays the files and subdirectories under the current or specified directory.

*total cost of ownership (TCO)*

* The full sum of all accumulated costs, over and above the simple purchase price of utilizing a product. Includes training, maintenance, additional hardware, and downtime.

*Transport Layer Security (TLS)*

* A technology that adds encryption to network protocols, such as HTTP

*UEFI System Partition*

* A small partition that is created by an operating system installation program to store boot-related files on a computer that has a UEFI BIOS

*UNIX*

* The first true multitasking, multiuser operating system, developed by Ken Thompson and Dennis Ritchie, and from which Linux was originated.

*Unified Extensible Firmware Interface (UEFI)*

* A feature-rich BIOS used in modern computers

*User*

* A person who uses a computer. When used in the context of file and directory permissions, it represents the owner of a file or directory.

*user interface*

* The interface the user sees and uses to interact with the operating system and application programs.

*vi editor*

* A powerful command-line text editor available on most UNIX and Linux systems.

*virtual machine*

* An operating system that is running within virtualization software.

***Virtual Memory***

* An area on a storage device that can be used to store information that normally resides in physical memory (RAM), if the physical memory is being used excessively

***virtualization software (hypervisor)***

* Software that can be used to run multiple operating systems concurrently on the same physical hardware.

***web app***

* A software application that is run on a web server.

***web app framework***

* A set of software components that simplifies the development and execution of web apps

***wildcard metacharacter***

* The metacharacters used to match certain characters in a file or directory name; they are often used to specify multiple files.

***World Wide Web (WWW)***

* The original name for the worldwide collection of web servers.

***X Windows***

* The core component of the Linux GUI that displays graphics to windows on the terminal screen.

***Zswap***

* A Linux kernel feature that creates virtual memory in a compressed area of RAM