

Topic 1: The Linux Community and a Career in Open Source

1.1 Linux Evolution and Popular Operating Systems

Weight: 2

Description: Knowledge of Linux development and major distributions.

Key Knowledge Areas:

- Distributions
- Embedded Systems
- Linux in the Cloud

The following is a partial list of the used files, terms and utilities:

- Debian, Ubuntu (LTS)
- CentOS, openSUSE, Red Hat, SUSE
- Linux Mint, Scientific Linux
- Raspberry Pi, Raspbian
- Android

1.2 Major Open Source Applications

Weight: 2

Description: Awareness of major applications as well as their uses and development.

Key Knowledge Areas:

- Desktop applications
- Server applications
- Development languages
- Package management tools and repositories

The following is a partial list of the used files, terms and utilities:

- OpenOffice.org, LibreOffice, Thunderbird, Firefox, GIMP
- Nextcloud, ownCloud
- Apache HTTPD, NGINX, MariaDB, MySQL, NFS, Samba
- C, Java, JavaScript, Perl, shell, Python, PHP
- dpkg, apt-get, rpm, yum

1.3 Open Source Software and Licensing

Weight: 1

Description: Open communities and licensing Open Source Software for business.

Key Knowledge Areas:

- Open source philosophy
- Open source licensing
- Free Software Foundation (FSF), Open Source Initiative (OSI)

The following is a partial list of the used files, terms and utilities:

- Copyleft, Permissive
- GPL, BSD, Creative Commons
- Free Software, Open Source Software, FOSS, FLOSS
- Open source business models

1.4 ICT Skills and Working in Linux

Weight: 2

Description: Basic Information and Communication Technology (ICT) skills and working in Linux.

Key Knowledge Areas:

- Desktop skills
- Getting to the command line
- Industry uses of Linux, cloud computing and virtualization

The following is a partial list of the used files, terms and utilities:

- Using a browser, privacy concerns, configuration options, searching the web and saving content
- Terminal and console
- Password issues
- Privacy issues and tools
- Use of common open source applications in presentations and projects

Topic 2: Finding Your Way on a Linux System

2.1 Command Line Basics

Weight: 3

Description: Basics of using the Linux command line.

Key Knowledge Areas:

- Basic shell
- Command line syntax
- Variables
- Quoting

The following is a partial list of the used files, terms and utilities:

- Bash
- echo
- history
- PATH environment variable

- export
- type

2.2 Using the Command Line to Get Help

Weight: 2

Description: Running help commands and navigation of the various help systems.

Key Knowledge Areas:

- Man pages
- Info pages

The following is a partial list of the used files, terms and utilities:

- man
- info
- /usr/share/doc/
- locate

2.3 Using Directories and Listing Files

Weight: 2

Description: Navigation of home and system directories and listing files in various locations.

Key Knowledge Areas:

- Files, directories
- Hidden files and directories
- Home directories
- Absolute and relative paths

The following is a partial list of the used files, terms and utilities:

- Common options for ls
- Recursive listings
- cd
- . and ..
- home and ~

2.4 Creating, Moving and Deleting Files

Weight: 2

Description: Create, move and delete files and directories under the home directory.

Key Knowledge Areas:

- Files and directories
- Case sensitivity
- Simple globbing

The following is a partial list of the used files, terms and utilities:

- mv, cp, rm, touch
- mkdir, rmdir

Topic 3: The Power of the Command Line

3.1 Archiving Files on the Command Line

Weight: 2

Description: Archiving files in the user home directory.

Key Knowledge Areas:

- Files, directories
- Archives, compression

The following is a partial list of the used files, terms and utilities:

- tar
- Common tar options
- gzip, bzip2, xz
- zip, unzip

3.2 Searching and Extracting Data from Files

Weight: 3

Description: Search and extract data from files in the home directory.

Key Knowledge Areas:

- Command line pipes
- I/O redirection
- Basic Regular Expressions using ., [], *, and ?

The following is a partial list of the used files, terms and utilities:

- grep
- less
- cat, head, tail
- sort
- cut
- wc

3.3 Turning Commands into a Script

Weight: 4

Description: Turning repetitive commands into simple scripts.

Key Knowledge Areas:

- Basic shell scripting
- Awareness of common text editors (vi and nano)

The following is a partial list of the used files, terms and utilities:

- #! (shebang)
- /bin/bash
- Variables
- Arguments
- for loops
- echo
- Exit status

Topic 4: The Linux Operating System

4.1 Choosing an Operating System

Weight: 1

Description: Knowledge of major operating systems and Linux distributions.

Key Knowledge Areas:

- Differences between Windows, OS X and Linux
- Distribution life cycle management

The following is a partial list of the used files, terms and utilities:

- GUI versus command line, desktop configuration
- Maintenance cycles, beta and stable

4.2 Understanding Computer Hardware

Weight: 2

Description: Familiarity with the components that go into building desktop and server computers.

Key Knowledge Areas:

- Hardware

The following is a partial list of the used files, terms and utilities:

- Motherboards, processors, power supplies, optical drives, peripherals
- Hard drives, solid state disks and partitions, /dev/sd*
- Drivers

4.3 Where Data is Stored

Weight: 3

Description: Where various types of information are stored on a Linux system.

Key Knowledge Areas:

- Programs and configuration
- Processes
- Memory addresses
- System messaging
- Logging

The following is a partial list of the used files, terms and utilities:

- ps, top, free
- syslog, dmesg

- /etc/, /var/log/
- /boot/, /proc/, /dev/, /sys/

4.4 Your Computer on the Network

Weight: 2

Description: Querying vital networking configuration and determining the basic requirements for a computer on a Local Area Network (LAN).

Key Knowledge Areas:

- Internet, network, routers
- Querying DNS client configuration
- Querying network configuration

The following is a partial list of the used files, terms and utilities:

- route, ip route show
- ifconfig, ip addr show
- netstat, ss
- /etc/resolv.conf, /etc/hosts
- IPv4, IPv6
- ping
- host

Topic 5: Security and File Permissions

5.1 Basic Security and Identifying User Types

Weight: 2

Description: Various types of users on a Linux system.

Key Knowledge Areas:

- Root and standard users
- System users

The following is a partial list of the used files, terms and utilities:

- /etc/passwd, /etc/shadow, /etc/group
- id, last, who, w
- sudo, su

5.2 Creating Users and Groups

Weight: 2

Description: Creating users and groups on a Linux system.

Key Knowledge Areas:

- User and group commands
- User IDs

The following is a partial list of the used files, terms and utilities:

- /etc/passwd, /etc/shadow, /etc/group, /etc/skel/
- useradd, groupadd
- passwd

5.3 Managing File Permissions and Ownership

Weight: 2

Description: Understanding and manipulating file permissions and ownership settings.

Key Knowledge Areas:

- File and directory permissions and ownership

The following is a partial list of the used files, terms and utilities:

- ls -l, ls -a
- chmod, chown

5.4 Special Directories and Files

Weight: 1

Description: Special directories and files on a Linux system including special permissions.

Key Knowledge Areas:

- Using temporary files and directories
- Symbolic links

The following is a partial list of the used files, terms and utilities:

- /tmp/, /var/tmp/ and Sticky Bit
- ls -d
- ln -s