LPI Linux Essentials

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

1.1 Linux Evolution and Popular Operating Systems

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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