

# Linux Essentials Exam

**Exam Code/Version:** 010-160 <https://www.lpi.org/>

**About Objective Weights:** Each objective is assigned a weighting value. The weights indicate the relative importance of each objective on the exam. Objectives with higher weights will be covered in the exam with more questions.

Linux adoption continues to rise world-wide as individual users, government entities and industries ranging from automotive to space exploration embrace open source technologies. This expansion of open source in enterprise is redefining traditional Information and Communication Technology (ICT) job roles to require more Linux skills. Whether you're starting your career in open source, or looking for advancement, independently verifying your skill set can help you stand out to hiring managers or your management team.

The Linux Essentials certificate also serves as a great introduction to the more complete and advanced Linux Professional certification track.

**Prerequisites:** There are no prerequisites for this certification

**Requirements:** Passing the Linux Essentials 010 exam. The Linux Essentials exam contains 40 questions and must be completed within 60-minutes.

**Validity period:** Lifetime

**To receive the Linux Essentials certificate the candidate must:**

- have an understanding of the Linux and open source industry and knowledge of the most popular open source Applications;
- understand the major components of the Linux operating system, and have the technical proficiency to work on the Linux command line; and
- have a basic understanding of security and administration related topics such as user/group management, working on the command line, and permissions.

<https://learning.lpi.org/en/learning-materials/010-160/>



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

### 1.1 Linux Evolution and Popular Operating Systems (weight: 2)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	1
<b>Description</b>	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)*

<b>Weight</b>	2
<b>Description</b>	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)*

<b>Weight</b>	3
<b>Description</b>	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)*

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)*

<b>Weight</b>	3
<b>Description</b>	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)*

<b>Weight</b>	4
<b>Description</b>	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)

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)

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)

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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	2
<b>Description</b>	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)

<b>Weight</b>	1
<b>Description</b>	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