Study Guide for

Linux System Administration 1

Lab work for LPI 101

version 0.2

released under the GFDL by LinuxIT

_____

Introduction:

Acknowledgments

The original material was made available by LinuxIT's technical training centre www.linuxit.com. Many thanks to Andrew Meredith for suggesting the idea in the first place. A special thanks to all the students who have helped dilute the technical aspects of Linux administration through their many questions, this has led to the inclusion of more illustrations attempting to introduce concepts in a user friendly way. Finally, many thanks to Paul McEnery for the technical advice and for starting off some of the most difficult chapters such as the ones covering the X server (101), modems (102) and the Linux kernel (102).

The manual is available online at http://savannah.nongnu.org/projects/lpi-manuals/. Thank you to the Savannah Volunteers for assessing the project and providing us with the Web space.

History

First release (version 0.0) October 2003. Reviewed by Adrian Thomasset.
Revised January 2004 after review by Andrew Meredith.
November 2004. Section on expansion cards added in 'Hardware Configuration' chapter by Adrian Thomasset
December 2004. Index and mapped objectives added by Adrian Thomasset.
January 2005. Glossary of terms, command and file review added at end of chapters by Adrian Thomasset
June 2005. Added new entries in line with recommendations from SerNet for the LATM process, by Andrew Meredith with additional text supplied by Andrew D Marshall and review by Adrian Thomasset. Section on Debian tools supplied by Duncan Thomson.
August 2005. "Linux System Administration 1 - Lab work LPI 101 - version 0.2" has been awarded the LATM status by SerNet.

Dramatis Personi

Adrian Thomasset	<adriant@linuxit.com>	http://www.linuxit.com/
Andrew Meredith	<andrew@anvil.org>	http://www.anvil.org/
Andrew D Marshall	<admarshall@gmail.com>	http://h0lug.sourceforge.net/
Duncan Thomson	<thom-ci0@paisley.ac.uk>	http://www.paisley.ac.uk/

Goals

This manuals primary aim is to provide explanations, examples and exercises for those preparing for the Linux Professional Institute (LPI) Certification Programme 1 (LPIC-1), Exam 101.

Three core sources of criteria guide this manual to its primary goals:
● The LPI's Exam-101 "Objectives".
● Its LPI-Approved Training Materials (LATM) criteria.
● The Linux Documentation Project (LDP or TLDP) Author Guide (AG).

The LPI's Exam-101 Objectives and LATM criteria are summarized below. The Objectives are also online at:

   http://www.lpi.org/en/obj_101.html

The LDP Author Guide [http://www.tldp.org/LDP/LDP-Author-Guide/] provides a consistent, comprehensive set of guidelines for those wanting to publish HOWTOs, Tutorials and Manuals via the world's largest GNU/Linux documentation system, the LDP.

This manual adopts as its second prime objective, on equal footing with its first, the LDP Author Guide's challenge to prospective LDP authors, "to massage all of the raw data into a readable, entertaining and understandable whole." [LDP-AG, 4.1. Writing the Text]

_____

Intended Training Schedules

The content herein is designed to accompany practical courses preparing for the LPI 101 exam of the LPIC-1 programme. While this material was generally structured to work with a course of 24-32 hours in consecutive 8-hour sessions, it is modularized to also work for shorter or longer sessions, consecutive or otherwise.

Intended Audience & Prerequisites

This manual's material assumes its users will already have:

● Extensive experience (several years) using Intel x86 computers, including a strong knowledge of hardware components and their interaction with basic operating system (OS) components.

● A general knowledge of computing and networking basics such as binary and hexadecimal maths, common units of measure (bytes, KB vs Kb, Mhz, etc), file-system structures, Ethernet and Internet networking operations and hardware, etc.

● More than three cumulative months of practical experience using a GNU/Linux, BSD or Unix OS, logged in and working at the command-line (in a text terminal or console) either locally or remotely.

Those with less experience, however, should not be discouraged from using this manual, if (and only if) they are willing to spend extra time catching up on the prerequisite background skills and knowledge; a challenging task, but not an impossible one.

Further references and examples are provided for the various uses of commands, as well as exercises and accompanying answers demonstrating exam-like problem-solving. All are optional with those most recommended either discussed or referenced in the manual's body.

The LPI Certification Program

There are currently two LPI certification levels. The first level LPIC-1 is granted after passing both exams LPI 101 and LPI 102. Similarly passing the LPI 201 and LPI 202 exams will grant the second level certification LPIC-2.

There are no certification pre-requisites for LPI 101 and 102. However the exams for LPIC-2 can only be attempted once LPIC-1 has been obtained.

Instructor Notice

There are no instructor notes with this manual. The following issues must be considered.
The exercises in the sections **Managing Devices** and **The Linux Filesystem** both assume that a new partition can be created. Make sure during the installation that a large extended partition with at least 100MB free space is available after all the partitions have been created.
The following RPM packages are needed for the exercises:
rpm-build
sharutils

No Guarantee

The manual comes with no guarantee at all.

Resources

www.lpi.org
www.linux-praxis.de
www.lpiforums.com
www.tldp.org

Notations

Commands and filenames will appear in the text in **bold**.

The <> symbols are used to indicate a non optional argument.
The [] symbols are used to indicate an optional argument

Commands that can be typed directly in the shell are highlighted as below

```
command
```

or

command