Mittuniversitetet
MID SWEDEN UNIVERSITY

DT043G Advanced administration of linux systems

Study guide:
The complete study guide for the course Advanced administration of Linux systems

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Contents

1 Introduction

This guide contain the aim of this course together with a timetable and a complete list of the reading instructions.

2 Timetable

See Table 1 on page 5 for a complete timetable for the course.

3 Aim of the course

After completing this course you will have:

- have a working installation of a linuxsystem running on your system,
- become familiar with the basic commands commonly used for basic usage.

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- the knowledge on how to customize your systems kernel.

- become familiar with upstart, init and boot scripts,
- the basic knowledge of administrating user accounts,
- the knowledge to partition and format new harddrives to your system,
- be able to set up storage backup on your system.

- become familiar with process handling, priorities and scheduling
- a good knowledge of how to logging works in a Unix-like system.

- have the knowledge of setting up and administrating different file sharing network services
- be able to correctly set up and administrate your own domain using BIND.

- have the knowledge to set up an SMTP server process,
- be able to set up the necessary security measures so that an email sent from your SMTP server won't be regarded as spam and cannot easily be used by spammers.
- know how to correctly set up your DNS to handle email and related mechanisms, and
- install and configure software for delivering emails using either POP3 or IMAP.

- have the knowledge of setting up an IPTables firewall, and
- have basic understanding of DNSSEC.

4 Reading assignments

This course use Nemeth et al. [19] as its primary course literature.

Laboratory assignment 0

Before starting this assignment you should have read chapters 1, 12.1, 12.5-12.7 12.10 in Nemeth et al. [19]

Laboratory assignment 1

Before starting this assignment you should have read chapters 13.1-13.3, 13.7-13.9 in Nemeth et al. [19]

Laboratory assignment 2

Before starting this assignment you should have read chapters 3.1-3.5, 3.7, 4, 6, 7 and 10 in Nemeth et al. [19] after which you should read [1], [4], [2], [5], you can also use [3] as a reference material

Laboratory assignment 3

Before starting this assignment you should have read chapters 5, 9, 11 and 29 in Nemeth et al. [19]

Laboratory assignment 4

Before starting this assignment you should have read chapters 18, 19, 30.6, 17.1-17.10 in Nemeth et al. [19] During the lab you will also need to consult the follwing documents [16], [20], [9], [17], [15]

Laboratory assignment 5

Before starting this assignment you should have read chapter 20 and chapter 17 – "SPF records" and "DKIM and ADSP records", respectively, in Nemeth et al. [19]. During this laboratory assignment you should also consult the following sites and documents: [13], [11], [10], [7], [8], [12], [14], [18].

Laboratory assignment 6

Before starting this assignment you should have read chapter 22 and chapter 17.13 in Nemeth et al. [19]. You should also read the Internet System Consortiums document about DNSSEC and BIND [6].

References

[1] Grub2. URL `https://help.ubuntu.com/community/Grub2/`.

[2] Ubuntubootuphowto. URL `https://help.ubuntu.com/community/UbuntuBootupHowto`.

[3] Upstart intro, cookbook and best practises, . URL `http://upstart.ubuntu.com/cookbook/`.

[4] Ubuntu's upstart event-based init daemon, . URL `http://archive09.linux.com/feature/125977`.

[5] Upstarthowto, . URL `https://help.ubuntu.com/community/UpstartHowto`.

[6] DNSSEC and BIND, 2010. URL `http://www.isc.org/software/bind/dnssec`.

[7] Dovecot, 2012. URL `https://help.ubuntu.com/community/Dovecot`.

[8] Dovecot official documentation, 2012. URL `http://wiki2.dovecot.org/`.

[9] Multiple ip addresses on one interface, 2012. URL `http://wiki.debian.org/NetworkConfiguration#Multiple_IP_addresses_on_One_Interface`.

[10] Postfix, 2012. URL `https://help.ubuntu.com/community/Postfix`.

[11] Postfix basic setup howto, 2012. URL `https://help.ubuntu.com/community/PostfixBasicSetupHowto`.

[12] Postfix/dkim, 2012. URL `https://help.ubuntu.com/community/Postfix/DKIM`.

[13] Postfix official documentation, 2012. URL http://www.postfix.org/documentation.html.

[14] Postfix/spf, 2012. URL https://help.ubuntu.com/community/Postfix/SPF.

[15] D. Barr. Common DNS Operational and Configuration Errors. RFC 1912 (Informational), February 1996. URL http://www.ietf.org/rfc/rfc1912.txt.

[16] A.K. Bhushan. File Transfer Protocol. RFC 114, April 1971. URL http://www.ietf.org/rfc/rfc114.txt. Updated by RFCs 133, 141, 171, 172.

[17] Peter Koch. Recommendations for dns soa values, 1999. URL http://www.ripe.net/ripe/docs/ripe-203.

[18] A. Melnikov and K. Zeilenga. Simple Authentication and Security Layer (SASL). RFC 4422 (Proposed Standard), June 2006. URL http://www.ietf.org/rfc/rfc4422.txt.

[19] Evi Nemeth, Garth Snyder, Trent R. Hein, and Ben Whaley. *UNIX and Linux system administration handbook*. Prentice Hall, Upper Saddle River, NJ, 4th ed. edition, 2011. ISBN 978-0-13-148005-6 (pbk. : alk. paper).

[20] J. Postel and J. Reynolds. File Transfer Protocol. RFC 959 (Standard), October 1985. URL http://www.ietf.org/rfc/rfc959.txt. Updated by RFCs 2228, 2640, 2773, 3659, 5797.

Table 1: Timetable based on course given at 50%.

Week	Chapter
1	Laboratory assignment 0 and 1
2	Laboratory assignment 2
3	Laboratory assignment 3
4	Laboratory assignment 4
5	
6	Laboratory assignment 5
7	
8	Laboratory assignment 6
9	
10	Exam