

LPIC1-102 (temario)

Shells, Scripting and Data Management

- Customize and use the shell environment
 - Key Knowledge Areas:
 - Set environment variables (e.g. PATH) at login or when spawning a new shell
 - Write Bash functions for frequently used sequences of commands
 - Maintain skeleton directories for new user accounts
 - Set command search path with the proper directory
 - The following is a partial list of the used files, terms and utilities:
 - .
 - source
 - /etc/bash.bashrc
 - /etc/profile
 - env
 - export
 - set
 - unset
 - ~/.bash_profile
 - ~/.bash_login
 - ~/.profile
 - ~/.bashrc
 - ~/.bash_logout
 - function

- alias
 - lists
- Customize or write simple scripts
 - Key Knowledge Areas:
 - Use standard sh syntax (loops, tests)
 - Use command substitution
 - Test return values for success or failure or other information provided by a command
 - Perform conditional mailing to the superuser
 - Correctly select the script interpreter through the shebang (!) line
 - Manage the location, ownership, execution and suid-rights of scripts
 - Terms and Utilities:
 - for
 - while
 - test
 - if
 - read
 - seq
 - exec
- SQL data management
 - Key Knowledge Areas:
 - Use of basic SQL commands
 - Perform basic data manipulation
 - Terms and Utilities:
 - insert
 - update
 - select
 - delete
 - from
 - where
 - group by
 - order by
 - join

Interfaces and Desktops

- Install and configure X11
 - Key Knowledge Areas:
 - Verify that the video card and monitor are supported by an X server
 - Awareness of the X font server
 - Basic understanding and knowledge of the X Window configuration file
 - Terms and Utilities:
 - /etc/X11/xorg.conf
 - xhost
 - DISPLAY
 - xwininfo
 - xdpyinfo
 - X
- Setup a display manager
 - Key Knowledge Areas:
 - Basic configuration of LightDM
 - Turn the display manager on or off
 - Change the display manager greeting
 - Awareness of XDM, KDM and GDM
 - Terms and Utilities:
 - lightdm
 - /etc/lightdm/
- Accessibility
 - Key Knowledge Areas:
 - Basic knowledge of keyboard accessibility settings (AccessX)
 - Basic knowledge of visual settings and themes

- Basic knowledge of assistive technology (ATs)
 - Terms and Utilities:
 - Sticky/Repeat Keys
 - Slow/Bounce/Toggle Keys
 - Mouse Keys
 - High Contrast/Large Print Desktop Themes
 - Screen Reader
 - Braille Display
 - Screen Magnifier
 - On-Screen Keyboard
 - Gestures (used at login, for example GDM)
 - Orca
 - GOK
 - emacspeak
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Administrative Tasks

- Manage user and group accounts and related system files
 - Key Knowledge Areas:
 - Add, modify and remove users and groups
 - Manage user/group info in password/group databases
 - Create and manage special purpose and limited accounts
 - Terms and Utilities:
 - /etc/passwd
 - /etc/shadow
 - /etc/group
 - /etc/skel/
 - chage

- getent
- groupadd
- groupdel
- groupmod
- passwd
- useradd
- userdel
- usermod
- Automate system administration tasks by scheduling jobs
 - Key Knowledge Areas:
 - Manage cron and at jobs
 - Configure user access to cron and at services
 - Configure anacron
 - Terms and Utilities:
 - /etc/cron.{d,daily,hourly,monthly,weekly}/
 - /etc/at.deny
 - /etc/at.allow
 - /etc/crontab
 - /etc/cron.allow
 - /etc/cron.deny
 - /var/spool/cron/
 - crontab
 - at
 - atq
 - atrm
 - anacron
 - /etc/anacrontab
- Localisation and internationalisation
 - Key Knowledge Areas:
 - Configure locale settings and environment variables
 - Configure timezone settings and environment variables
 - Terms and Utilities:
 - /etc/timezone
 - /etc/localtime

- /usr/share/zoneinfo/
 - LC_*
 - LC_ALL
 - LANG
 - TZ
 - /usr/bin/locale
 - tzselect
 - timedatectl
 - date
 - iconv
 - UTF-8
 - ISO-8859
 - ASCII
 - Unicode
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Essential System Services

- Maintain system time
 - Key Knowledge Areas:
 - Set the system date and time
 - Set the hardware clock to the correct time in UTC
 - Configure the correct timezone
 - Basic NTP configuration
 - Knowledge of using the pool.ntp.org service
 - Awareness of the ntpq command
 - Terms and Utilities:
 - /usr/share/zoneinfo/
 - /etc/timezone
 - /etc/localtime
 - /etc/ntp.conf

- date
- hwclock
- ntpd
- ntpdate
- pool.ntp.org
- System logging
 - Key Knowledge Areas:
 - Configuration of the syslog daemon
 - Understanding of standard facilities, priorities and actions
 - Configuration of logrotate
 - Awareness of rsyslog and syslog-ng
 - Terms and Utilities:
 - syslog.conf
 - syslogd
 - klogd
 - /var/log/
 - logger
 - logrotate
 - /etc/logrotate.conf
 - /etc/logrotate.d/
 - journalctl
 - /etc/systemd/journald.conf
 - /var/log/journal/
- Mail Transfer Agent (MTA) basics
 - Key Knowledge Areas:
 - Create e-mail aliases
 - Configure e-mail forwarding
 - Knowledge of commonly available MTA programs (postfix, sendmail, qmail, exim) (no configuration)
 - Terms and Utilities:
 - ~/.forward
 - sendmail emulation layer commands
 - newaliases
 - mail
 - mailq

- postfix
 - sendmail
 - exim
 - qmail
 - ~/.forward
 - sendmail emulation layer commands
 - newaliases
 - Manage printers and printing
 - Key Knowledge Areas:
 - Basic CUPS configuration (for local and remote printers)
 - Manage user print queues
 - Troubleshoot general printing problems
 - Add and remove jobs from configured printer queues
 - Terms and Utilities:
 - CUPS configuration files, tools and utilities
 - /etc/cups/
 - lpd legacy interface (lpr, lprm, lpq)
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Networking Fundamentals

- Fundamentals of internet protocols
 - Key Knowledge Areas:
 - Demonstrate an understanding of network masks and CIDR notation
 - Knowledge of the differences between private and public «dotted quad» IP addresses
 - Knowledge about common TCP and UDP ports and services (20, 21, 22, 23, 25, 53, 80, 110,

123, 139, 143, 161, 162, 389, 443, 465, 514, 636, 993, 995)

- Knowledge about the differences and major features of UDP, TCP and ICMP
- Knowledge of the major differences between IPv4 and IPv6
- Knowledge of the basic features of IPv6
- Terms and Utilities:
 - /etc/services
 - IPv4, IPv6
 - Subnetting
 - TCP, UDP, ICMP
- Basic network configuration
 - Key Knowledge Areas:
 - Manually and automatically configure network interfaces
 - Basic TCP/IP host configuration
 - Setting a default route
 - Terms and Utilities:
 - /etc/hostname
 - /etc/hosts
 - /etc/nsswitch.conf
 - ifconfig
 - ifup
 - ifdown
 - ip
 - route
 - ping
- Basic network troubleshooting
 - Key Knowledge Areas:
 - Manually and automatically configure network interfaces and routing tables to include adding, starting, stopping, restarting, deleting or reconfiguring network interfaces
 - Change, view, or configure the routing table and correct an improperly set default route manually

- Debug problems associated with the network configuration
 - Terms and Utilities:
 - ifconfig
 - ip
 - ifup
 - ifdown
 - route
 - host
 - hostname
 - dig
 - netstat
 - ping
 - ping6
 - traceroute
 - traceroute6
 - tracepath
 - tracepath6
 - netcat
 - Configure client side DNS
 - Key Knowledge Areas:
 - Query remote DNS servers
 - Configure local name resolution and use remote DNS servers
 - Modify the order in which name resolution is done
 - Terms and Utilities:
 - /etc/hosts
 - /etc/resolv.conf
 - /etc/nsswitch.conf
 - host
 - dig
 - getent
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Security

- Perform security administration tasks
 - Key Knowledge Areas:
 - Audit a system to find files with the suid/sgid bit set
 - Set or change user passwords and password aging information
 - Being able to use nmap and netstat to discover open ports on a system
 - Set up limits on user logins, processes and memory usage
 - Determine which users have logged in to the system or are currently logged in
 - Basic sudo configuration and usage
 - Terms and Utilities:
 - find
 - passwd
 - fuser
 - lsof
 - nmap
 - chage
 - netstat
 - sudo
 - /etc/sudoers
 - su
 - usermod
 - ulimit
 - who, w, last
- Setup host security
 - Key Knowledge Areas:
 - Awareness of shadow passwords and how they work
 - Turn off network services not in use

- Understand the role of TCP wrappers
- Terms and Utilities:
 - /etc/nologin
 - /etc/passwd
 - /etc/shadow
 - /etc/xinetd.d/
 - /etc/xinetd.conf
 - /etc/inetd.d/
 - /etc/inetd.conf
 - /etc/inittab
 - /etc/init.d/
 - /etc/hosts.allow
 - /etc/hosts.deny
- Securing data with encryption
 - Key Knowledge Areas:
 - Perform basic OpenSSH 2 client configuration and usage
 - Understand the role of OpenSSH 2 server host keys
 - Perform basic GnuPG configuration, usage and revocation
 - Understand SSH port tunnels (including X11 tunnels)
 - Terms and Utilities:
 - ssh
 - ssh-keygen
 - ssh-agent
 - ssh-add
 - ~/.ssh/id_rsa and id_rsa.pub
 - ~/.ssh/id_dsa and id_dsa.pub
 - /etc/ssh/ssh_host_rsa_key and ssh_host_rsa_key.pub
 - /etc/ssh/ssh_host_dsa_key and ssh_host_dsa_key.pub
 - ~/.ssh/authorized_keys
 - ssh_known_hosts
 - gpg

- ~/ .gnupg/