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LCE500 - CentOS 8 Linux (RHEL 8 / Oracle Linux 8) - System Administrator

Presentation

Objectives: Master CentOS 8 / RHEL 8 / Oracle Linux 8 System Administration.
Who can benefit: Linux users, Administrators of other operating systems.
Prerequisites: Taken the LCE400 - CentOS 8 Linux (RHEL 8 / Oracle Linux 8) - Fundamentals course or possess equivalent skills.
Learning technique: Clear, theoretical course content divided into lessons and extensive LABS.
Student Progression: Student progression is monitored in terms of comprehension using self-assessment tests.
Duration: 4 days (28 hours).

Prerequisites

Hardware

- A computer running either MacOS, Linux, Windows™ or Solaris™,
- QWERTY US Keyboard,
- 4 GB of RAM,
- Headphones,
- A mic (optional).

Software

- Chrome, Edge or Firefox web browser.

Internet

- A fast, **direct** (no proxy or VPN), Internet connection (4G minimum),
- Access to : https://itraining.network, https://ittraining.team and subdomains thereof.
- Accessible ports : 80, 443.

Training Program

- **LCE500 - CentOS 8 Linux (RHEL 8 / Oracle Linux 8) - System Administrator**
    - Prerequisites

- Hardware
- Software
- Internet
  - Using our infrastructure
  - Training Program
  - Skills Assessment

- **LCE501 - Managing Users and Groups**
  - Presentation
    - /etc/nsswitch.conf
    - The getent Command
    - The /etc/group and /etc/gshadow files
    - The /etc/passwd and /etc/shadow files
  - Commands
    - Groups
      - groupadd
      - groupdel
      - groupmod
      - newgrp
      - gpasswd
    - Users
      - useradd
      - userdel
      - usermod
      - passwd
      - chage
  - Configuration
  - LAB #1 - Managing Users and Groups
  - LAB #2 - su and su -
  - sudo

- **LCE502 - Package Management**
  - LAB #1 - Compiling Software
    - 1.1 - ./configure
    - 1.2 - make
    - 1.3 - make check
    - 1.4 - make install
  - LAB #2 - The rpm Command
    - 2.1 - Configuration
    - 2.2 - Usage
  - LAB #3 - The dnf Command
    - 3.1 - Presentation
    - 3.2 - Configuration
    - 3.3 - Repositories
    - 3.4 - Searching for Packages
    - 3.5 - Viewing Information on and Downloading a Package
    - 3.6 - Installing a Package
    - 3.7 - Updating Packages
    - 3.8 - Deleting Packages
  - Shared Libraries
    - Presentation
      - Introduction

- Shared Object Locations
- ld-linux.so.2
  - The ldd Command
  - The /etc/ld.so.conf File
  - The ldconfig Command

- **LCE503 - Managing File Permissions**
  - Presentation
  - Preparation
  - LAB #1 - Basic Unix File Permissions
    - 1.1 - Changing Permissions with chmod
      - Symbolic Mode
      - Octal Mode
      - The umask Command
    - 1.2 - Changing the Owner or the Group with chown and chgrp
      - The chown Command
      - The chgrp Command
  - LAB #2 - Advanced Unix Permissions
    - 2.1 - SUID/SGID bit
    - 2.2 - Inheritance Flag
    - 2.3 - Sticky bit
  - LAB #3 - Extending Linux Permissions using ACLs and Attributes
    - 3.1 - ACLs
    - 3.2 - Attributes

- **LCE504 - Managing Disks and Filesystems**
  - Peripherals
  - Partitions
  - Partitioning
    - LAB #1 - Partioning your Disk with the fdisk Command
    - LAB #2 - Modifier les Drapeaux des Partitions avec fdisk
  - Logical Volume Manager (LVM)
    - LAB #3 - Linear Logical Volumes
      - Physical Volumes (PV)
      - Volume Groups (VG) and Physical Extents (PE)
      - Logical Volumes (LV)
    - LAB #4 - Grow a Volume
    - LAB #5 - Snapshots
    - LAB #6 - Deleting Volumes
    - LAB #7 - Mirrored Volumes
    - LAB #8 - Changing LVM Attributes
    - LAB #9 - Striped Volumes
    - LAB #10 - Managing Meta-data
  - Journaled Filesystems
    - Ext3
      - Managing Ext3
      - LAB #11 - Converting Ext3 to Ext2
      - LAB #12 - Converting Ext2 to Ext3
      - LAB #13 - Using another PArtition for the Journal
      - LAB #14 - Changing the File System Check interval on an ext3 Filesystem
    - Ext4
      - LAB #15 - Creating an Ext4 Filesystem

- LAB #16 - Adding a Label to an Ext4 Filesystem
- LAB #17 - Converting Ext3 to Ext4
  - XFS
    - LAB #18 - Creating an XFS Filesystem
    - LAB #19 - Adding a Label to an XFS Filesystem

- **LCE505 - Process Scheduling**
  - cron
    - The /etc/crontab file
    - Time Fields
    - User Crontabs
  - anacron
  - at

- **LCE506 - Archiving and Compression**
  - Traditional Backup Tools
    - Preparation
    - The tar Command
      - Presentation
      - LAB #1 - Working with the tar Command
      - The GPL tar Commande and Compression
    - The cpio Command
      - Presentation
      - LAB #2 - Working with the cpio Command
    - The dd Command
      - Presentation
      - LAB #3 - Working with the dd Command
    - The dump et restore Commands
      - Presentation
    - LAB #4 - System Backups
      - Backing up the Installed Package List
      - Backing up the Disk Structure
      - Backing up Mount Points
      - Backing up the Boot Loader
        - GRUB Legacy
        - GRUB 2 on BIOS
        - GRUB 2 on EFI
      - Backing up User Files
    - Rsync
      - Presentation
      - LAB #5 - Working with the rsync Command
  - Compression
    - The gzip Command
      - Presentation
      - LAB #4 - Working with the gzip Command
    - The bzip2 Command
      - Presentation
      - LAB #5 - Working with the bzip2 Command
    - The xz Command
      - Presentation
      - LAB #6 - Working with the xz Command
    - Other Compression Utilities

- **LCE507 - Process Management**
  - Presentation
  - Process Types
  - Process Commands
    - The ps Command
    - The pgrep Command
    - The pstree Command
    - The top Command
    - The fg, bg and jobs Commands
    - The wait Command
    - The nice Command
    - The renice Command
    - The nohup Command
    - The kill Command
    - The pkill Command

- **LCE508 - Managing Logs**
  - Presentation
  - The dmesg Command
  - Security Logging
    - The last Command
    - The lastlog Command
    - The lastb Command
    - The /var/log/secure File
  - The /var/log/audit/audit.log File
    - Managing Audit Events
      - auditd
      - auditctl
    - Viewing Audit Events
      - The aureport Command
      - The ausearch Command
  - The /var/log/messages File
  - Applications
  - rsyslog
    - Priorities
    - Facilitiess
    - The /etc/rsyslog.conf File
      - Modules
      - Global Directives
      - Rules
        - Facility.Priority
        - Facility!Priority
        - Facility=Priority
        - Using the * Wildcard
        - n Facilities with Identical Priorities
        - n Selectors with Identical Actions
  - The logger Command
  - The logrotate Command
  - journald
    - Using Journald
      - Application Specific Messages

- Boot Messages
- Priority Specific Messages
- Messages from a Specific Date Range
- Real Time Messages
- Searching with Key Words

- **LCE509 - Printer Management**
  - Cups
    - Protocols
    - Packages
    - Daemon
    - The /etc/cups/cupsd.conf File
    - Filters
    - Backends
    - Logs
    - Printers
    - Administration
      - The lpstat Command
      - The lpadmin Command
      - The accept et cupsenable Commands
      - Classes
      - The /etc/cups/printers.conf File
      - The /etc/cups/classes.conf File
      - The cancel Command
      - The lpmove Command
      - Web Interface

- **LCE510 - System Startup and Shutdown**
  - System Startup
    - Boot Loader
      - BIOS Systems
      - EFI Systems
      - GRUB 2
        - The /boot/grub/grub.cfg File
        - The /etc/default/grub file
        - Files in the /etc/grub.d directory
    - Initramfs
      - The init Script
    - Kernel Booting Process
  - Systemd
    - LAB #1 - The systemctl Command
    - LAB #2 - Configuration Files
      - 2.1 - Default Configuration Files
      - 2.1 - Overloading Default Configuration Files
    - LAB #3 - The systemd-analyze Command
    - LAB #4 - Targets
      - 4.1 - Checking the Target Dependencies
      - 4.2 - The Default Target
        - Checking the Default Target
        - Changing the Default Target
        - Changing the Default Target for the Current Session
    - LAB #5 - Managing Services

- 5.1 - Single Service Instances
- 5.2 - Multiple Instance Services
- 5.3 - Disallowing Modifications to a Service Status
  - LAB #6 - System Shutdown
    - 6.1 - The shutdown Command
    - 6.2 - The reboot Command
    - 6.3 - The halt Command
    - 6.4 - The poweroff Command

- **LCE511 - Training Validation**
  - Course Materials
  - Reminder of the Training Program
    - Day #1
    - Day #2
    - Day #3
    - Day #4
  - Training Evaluation
  - Exam - Acquired knowledge