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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
