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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://ittraining.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 - Partitioning 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 Command 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
 - Facilities
 - 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

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