Troubleshooting with OpenSUSE

Duration: 3 days (8hrs/day)

Prerequisites:

- Intermediate knowledge of Linux Server Administration.

Course Objective: This is a comprehensive course that equips participants with essential skills to diagnose and resolve common issues encountered in openSUSE environments. Through interactive modules, learners explore troubleshooting methodologies, system log analysis, hardware and software configuration problems, and network connectivity issues. Practical exercises and real-world scenarios deepen understanding, empowering participants to optimize system performance and enhance security. This comprehensive course targets system administrators, IT professionals, and Linux enthusiasts seeking proficiency in openSUSE troubleshooting.

OpenSUSE Version: Latest

Lab Requirement: Koenig-DC (https://linuxlab.koenig-solutions.com)

Module 1 – Finding and gathering information

Checking system logs

Using system monitoring tools (e.g., top, htop, sysstat, sar)

Checking system resources (e.g., CPU, memory, disk usage)

Lab: Analyzing system logs and resource usage

Module 2 – Boot Process and Boot issues

Understanding the boot process in OpenSUSE

Understanding and troubleshooting boot failures

Fixing bootloader issues

Lab: Diagnosing and fixing boot failures

Lab: Repairing bootloader configurations

Module 3 – Network Troubleshooting

Checking network connectivity

Troubleshooting DNS issues

Investigating firewall configurations

Analyzing network traffic with tools like tcpdump or Wireshark

Lab: Diagnosing network connectivity issues

Lab: Investigating DNS resolution problems

Lab: Analyzing firewall configuration and network traffic

Module 4 – Troubleshooting backup and recovery

Understand and use snapper for restoring files

Backing up and restoring hard disks using disk images

Lab: Work with snapper

Lab: Managing disk images

Module 5 – Troubleshooting Security issues

Understanding SElinux

Troubleshooting SElinux Issues

Changing SElinux context

Verifying SElinux audit logs and troubleshooting

Login problems

Troubleshooting login problems with Pluggable authentication modules (PAM)

Lab: Troubleshooting SElinux Issues and reviewing SElinux

Lab: Troubleshooting user login problems

Module 6 – Using the rescue system

Booting into the rescue target

Repairing or fixing filesystem issues

Recovering the root password

Fixing corrupted bootloader configuration

Lab: Repairing filesystem issues

Lab: Recovering the root password and fixing bootloader configuration file issues

Module 7 – System hardware check

Using hardware monitoring tools to check utilization of hardware in our system

Using 'dmesg' and 'mcelog'

Identifying kernel driver for system hardware

Managing kernel modules

Lab: Monitoring hardware with hardware diagnostic tools

Lab: Using 'dmesg' and 'mcelog'

Lab: Managing kernel modules

Module 8 – Updating applications

Using the package manager to update packages and patches

Creating and adding repositories

Scheduling package updates via cron

Troubleshooting package installation errors

Lab: Package Management with zypper

Lab: Creating and adding software repositories

Lab: Scheduling package update via cron