

Course 405

Linux[®] System Administration

A 4-day Hands-On Workshop

This fast paced workshop is designed for experienced Linux/Unix users who need to expand their knowledge to include system administration skills. The workshop provides hands-on experience to new Linux system administrators, giving them the skills and confidence needed to keep Linux systems running smoothly and safely.

You will benefit from this workshop if you

- Are new to Linux System Administration
- Want to have Linux and Windows machines share resources
- Need to increase the security and stability of Linux machines and networks
- Configure and administrate DHCP-, web-, file-, or DNS servers

You will learn how to

- Automate the Linux installation process
- Use many of Linux' system administration tools
- Configure and troubleshoot Linux startup and shutdown sequences
- Configure user and group permissions
- Configure Linux network services like DHCP and DNS
- Create and manage Linux file systems
- Manage Linux printers
- Secure Linux computers from hacker attacks
- Customize and tune the Linux kernel

Prerequisites

Techstream's *Linux Installation, Configuration, Networking and Troubleshooting* workshop and a few months of daily experience. This is **not** a workshop for the Linux/UNIX novice!

The training approach

- **Real Hands-On:** You will spend over 50% of the workshop doing practical, realistic hands-on labs.
- **Up to date information:** We update the materials before every event.
- **Straightforward explanations:** Technical concepts and terms are explained in plain English. You will walk away with a thorough understanding of how Linux works, and how to fix it when it doesn't.

Workshop topics

Installing and configuring Linux

- Automated local installations
- Configuring and performing network installations
- Performing remote updates and management

Key system administration tools

- Local and on-line documentation
- Using the shell and command-line tools and utilities
- Commands for finding files and resources
- Logging activity with `syslog`
- Scheduling tasks with `cron` and `at`
- System rescue tools

Configuring Linux startup and shutdown processes

- How Linux boots and shuts down – The System V initialization process
- LILO and GRUB configuration
- Kernel configuration with `rdev`
- A typical `init` script
- Decoding `rc.sysinit`
- The `/etc/sysconfig` directory

Linux network services

- Configuring network services: `ftp`, web and mail servers, Samba, DHCP, DNS etc.
- Key configuration files
- Starting and stopping network services
- Checking the status of network services
- Automating service monitoring

Managing users and groups

- Adding, deleting, suspending, and restoring user and group accounts
- Granting user and group privileges
- Merging sets of users
- Setting up group membership policies
- Role-based access controls (RBAC)
- Adding and removing users from groups

Software installations and upgrades

- Linux software package management
- Updating your system
- Downloading and installing binary software packages
- Downloading, building, and installing source code packages
- Configure a Linux software update service

File system and disk management

- What exactly is a file system?
- File system planning and configuration
- Inodes and superblocks
- Choosing the right file systems
- The `/etc/fstab` file
- Backing up and restoring files

Linux printing

- Adding and sharing local and network printers
- Starting and stopping printer queues
- Prioritizing print jobs
- Deleting print jobs

Coexisting with Windows

- Configuring and running *Samba*
- Sharing files and printers with Windows
- Running Windows applications on Linux
- Setting up Linux file and print servers
- Replacing a Windows' Primary Domain Controller with Linux

Linux security

- The security problem – “They” *are* out to get you!
- Threats: IP forwarding, ICMP redirects, source routing, broadcast pings, IP spoofing...
- Hardening an internet connected Linux server
- Detecting unauthorized and/or malicious activity on local machines and networks
- Responding to security incidents
- Virtual Private Networks (VPNs)
- Password selection and policies

Hands-On labs

The ten labs are an integral part of this workshop! Most chapters are followed by a lab session that allows you to practice what you have just learned. The lab instructions are written in a format that helps you reinforce and retain information. They also contain the information you need to implement your new skills outside the classroom. Some of the lab topics are:

- How to setup and perform **Linux installations over a network**
- How to add and remove services included in the **startup and shutdown** processes
- How to install, configure and manage **network servers** like FTP, DHCP, the *Apache* web server, DNS, and secure shells
- Configuring options for **user accounts** and **groups** and how to **control access** to resources, directories, and files
- Configure **Samba** to allow resource sharing between **Windows and Linux** machines
- **Make your Linux system more secure** by creating and installing a **hardened kernel** and **intrusion detection** services