

Logical Volume Manager Administration

Course Summary

Length: 4 Days

Recommendation Statement:

The student should have completed the Linux System Administration I course or have equivalent experience.

Course Description:

A course for system administrators who are responsible for the configuration and administration of the Logical Volume Manager (LVM) on Linux based systems. The course covers basic and advanced installation, configuration and recovery topics.

This class course covers procedures to setup and manage the Logical Volume Manager (LVM) on Linux servers from the command line and from the LVM Administration GUI.

Upon completion of this course, you should be able to:

- Configure and manage LVM disks, disk groups, and logical volumes
- Configure linear, striped, mirrored, and distributed logical volumes
- Configure thin-provisioned and cache volumes
- Configure LVM for optimal performance
- Backup LVM configurations
- Recover failed LVM disks and volumes
- Effectively manage LVM disks, disk groups, and volumes
- Move volume groups between servers
- Manage LVM snapshots
- Mirror LVM data and boot disks to improve uptime and reliability
- Replace failed LVM data and boot disks
- Expand volume groups and grow logical volumes
- Learn tips and techniques for managing, troubleshooting and recover LVM components
- Understand LVM metadata and configuration files

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Detailed Course Outline

Introduction to the Logical Volume Manager

- Understand LVM, where and why it's used
- When to use LVM vs. Hardware based RAID
- Compare LVM to other software based RAID packages
- Understand LVM features

LVM architecture

- Understand LVM components
 - Physical volumes (PVs)
 - Volume Groups (VGs)
 - Logical Volumes (LVs)

Logical Volumes

- Linear volumes
- Striped Logical volumes
- Mirrored logical volumes
- RAID logical volumes
- Thin provisioned volumes
- Cache volumes

Volume Groups

- Configure disks for use in a volume group (PVs)
- Create volume groups
- LVM allocation
- Add physical volumes to a volume group
- Display and understand volume group configuration information
- Remove physical volumes from the volume group
- Split a volume group
- Combine volume groups
- Backup volume group metadata
- Rename a volume group
- Move a volume group to another server
- Recreate a volume group directory
- Understand LVM volume group metadata

LVM Administration

- Create linear logical volumes
- Create striped volumes
- Create mirrored volumes
- Create thin-provisioned logical volumes
- Create snapshot volumes
- Create thin-provisioned snapshot logical volumes
- Create cache logical volumes
- Merge snapshot volumes
- Maintain persistent device numbers
- Change LVM parameters on a volume group
- Rename a logical volume
- Remove a logical volume
- Display logical volumes
- Grow logical volumes
- Shrink logical volumes
- RAID logical volumes
- Control logical volume activation

Online Data relocation

Customized reporting for the Logical Volume Manager

LVM configuration examples

LVM troubleshooting

LVM Configuration Files

- /etc/lvm/lvm.conf
- LVM profiles
- /etc/lvm/backup, /etc/lvm/cache, /etc/lvm/archive, /var/lock/lvm