Module:7-

Linux server -deployment of network services

57. What is Difference between LILO And GRUB?

Ans- **Difference between LILO and GRUB (in short):**

Feature	LILO (Linux Loader)	GRUB (GRand Unified Bootloader)
Graphical Interface	No (text-based only)	Yes (menu-based with graphical support)
Config File Changes	Requires reinstallation after changes	Automatically detects changes
Multiboot Support	Limited	Supports multiple operating systems easily
Filesystem Support	Doesn't understand filesystems	Understands many filesystems (like ext, FAT)
Development	Obsolete, no longer maintained	Actively maintained (GRUB2 is current version)

58. How to Recover Linux Password ?

Ans- **Reboot the system**.

Access GRUB menu (press Esc or Shift during boot).

Edit boot entry:

- Highlight Linux entry.
- Press e to edit.

Modify the kernel line:

- Find the line starting with linux.
- Add init=/bin/bash at the end.

Boot with modified entry:

- Press Ctrl + X or F10 to boot.

 Remount root as read/write:

bash

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mount -o remount,rw /

 Reset the password:

bash

CopyEdit

passwd username

 Reboot:

bash

CopyEdit

exec /sbin/init

59. Which command use for format partition in Linux OS?

Ans- The command used to **format a partition in Linux** is:

bash

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mkfs

Common Usage Examples:

- **ext4 filesystem**:

bash

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mkfs.ext4 /dev/sdX#

- **FAT32 filesystem**:

bash

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mkfs.vfat /dev/sdX#

- **NTFS filesystem**:

bash

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mkfs.ntfs /dev/sdX#

Replace /dev/sdX# with your actual partition (e.g., /dev/sda1).

60. How to enable “quota” in Linux ?

Ans- **How to enable "quota" in Linux (in short):**

1. **Edit /etc/fstab**
   Add usrquota and/or grpquota to the desired filesystem options:

bash

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/dev/sda1 / ext4 defaults,usrquota,grpquota 0 1

2. **Remount the filesystem**:

bash

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mount -o remount /

3. **Create quota database files**:

bash

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quotacheck -cum /   # For users

quotacheck -cgm /   # For groups

4. **Enable quota**:

bash

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quotaon /   # For users

quotaon -g / # For groups

5. **Set user quota (example)**:

bash

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edquota username

61. How to Mount Partition in Linux ?

Ans - **Create a mount point**:

bash

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mkdir /mnt/mydrive

Mount the partition:

bash

CopyEdit

mount /dev/sdX# /mnt/mydrive

Replace /dev/sdX# with your partition (e.g., /dev/sda1).

(Optional) View mounted partitions:

bash

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df -h

(Optional) Auto-mount at boot:
Add entry to /etc/fstab:

bash

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/dev/sda1 /mnt/mydrive ext4 defaults 0 2

62. What is use of “mdadm” Command ?

Ans- mdadm is used to **manage RAID (Redundant Array of Independent Disks)** in Linux.

Key Functions:

- **Create** software RAID arrays.
- **Assemble** existing RAID arrays.
- **Monitor** RAID health.
- **Manage** or **repair** RAID devices.

Example (create RAID 1):

bash

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mdadm --create /dev/md0 --level=1 --raid-devices=2 /dev/sdX /dev/sdY

63. How to configure secure Apache web server in Linux ?

Ans- **Install Apache**:

bash

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sudo apt install apache2 # Debian/Ubuntu

sudo yum install httpd # RHEL/CentOS

Disable directory listing:
Edit Apache config:

apache

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Options -Indexes

Set proper permissions:

- Files: 644
- Directories: 755
- Web root owned by root, content by www-data (or apache)

Enable firewall (UFW example):

bash

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sudo ufw allow 'Apache Full'

 Enable HTTPS with SSL/TLS:

- Install Certbot:

bash

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sudo apt install certbot python3-certbot-apache

- Get and install free SSL certificate:

bash

CopyEdit

sudo certbot --apache

 Hide Apache version info:
Edit /etc/apache2/conf-available/security.conf:

apache

CopyEdit

ServerSignature Off

ServerTokens Prod

 Enable important security modules:

bash

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a2enmod headers ssl rewrite

 Restart Apache:

bash

CopyEdit

sudo systemctl restart apache2

64. How to run Windows Software on Linux operating System?

1. Ans- **Use Wine (Windows compatibility layer)**:
    - Install Wine:

bash

CopyEdit

sudo apt install wine # Debian/Ubuntu

sudo dnf install wine # Fedora/RHEL

    - Run a Windows program:

bash

CopyEdit

wine setup.exe

2. **Use PlayOnLinux (GUI for Wine)**:
    - Install:

bash

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sudo apt install playonlinux

    - Launch and install apps easily via GUI.
3. **Use a Virtual Machine (e.g., VirtualBox or VMware)**:
    - Install VirtualBox:

bash

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sudo apt install virtualbox

    - Create a VM and install Windows inside it.
4. **Use CrossOver (paid, user-friendly Wine-based tool)**.

✅ Best for running simple apps/games. For heavy software, a **VM** is more reliable.

65. what is difference between windows and Linux

Ans-

Feature	Windows	Linux
License	Commercial (paid)	Open-source (free)
Source Code	Closed	Open and modifiable
User Interface	GUI-focused	GUI + Powerful CLI
Customization	Limited	Highly customizable
Security	More vulnerable to viruses	More secure by design
Software	Supports most commercial software	Supports open-source and many cross-platform tools
System Updates	Centralized, less control	User-controlled, frequent updates
Usage	Common for desktops/gaming	Common for servers/developers

66.What is the advantage of Open Source?

Ans- **Free to Use** – No licensing cost.

Customizable – Modify code to fit your needs.

Secure – Code is transparent; vulnerabilities are found and fixed faster.

Community Support – Large communities provide help and updates.

No Vendor Lock-in – Full control without dependency on one company.

Learning Opportunity – Great for developers to study and improve skills.

67. · Install and configure web servers like Apache

Ans- **Install Apache**:

- On Debian/Ubuntu:

bash

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sudo apt update

sudo apt install apache2

- On CentOS/RHEL:

bash

CopyEdit

sudo yum install httpd

 Start and enable Apache service:

bash

CopyEdit

sudo systemctl start apache2 # Ubuntu/Debian

sudo systemctl enable apache2

sudo systemctl start httpd # CentOS/RHEL

sudo systemctl enable httpd

 Configure firewall to allow HTTP/HTTPS:

bash

CopyEdit

sudo ufw allow 'Apache Full' # Ubuntu with UFW

sudo firewall-cmd --permanent --add-service=http

sudo firewall-cmd --permanent --add-service=https

sudo firewall-cmd --reload # CentOS/RHEL with firewalld

 Test Apache:
Open a browser and go to http://your-server-ip/ to see the Apache welcome page.

 Edit configuration files (optional):
Config files in /etc/apache2/ (Ubuntu) or /etc/httpd/ (CentOS).

 Restart Apache after changes:

bash

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sudo systemctl restart apache2 # Ubuntu/Debian

sudo systemctl restart httpd # CentOS/RHEL

68. · Host a simple website and configure virtual hosts

Ans- **Create website directory**:

bash

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sudo mkdir -p /var/www/example.com/public_html

sudo chown -R $USER:$USER /var/www/example.com/public_html

Add a simple index.html:

bash

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echo "<h1>Welcome to example.com</h1>" >
/var/www/example.com/public_html/index.html

Create Virtual Host file:

- On Ubuntu/Debian, create /etc/apache2/sites-available/example.com.conf with:

bash

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<VirtualHost *:80>

ServerName example.com

ServerAlias www.example.com

DocumentRoot /var/www/example.com/public_html

ErrorLog ${APACHE_LOG_DIR}/example.com_error.log

CustomLog ${APACHE_LOG_DIR}/example.com_access.log combined

</VirtualHost>

Enable the site and reload Apache:

bash

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sudo a2ensite example.com.conf

sudo systemctl reload apache2

 Update /etc/hosts (for testing locally):
Add line:

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127.0.0.1 example.com

 Access your site:
Open browser and go to http://example.com

69. · Install and manage databases like MySQL/MariaDB

Ans- **1. Install MySQL/MariaDB**

- **On Debian/Ubuntu:**

bash

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sudo apt update

sudo apt install mysql-server # For MySQL

sudo apt install mariadb-server # For MariaDB

- **On CentOS/RHEL:**

bash

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sudo yum install mysql-server # MySQL

sudo yum install mariadb-server # MariaDB

2. Start and enable service

bash

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sudo systemctl start mysql # or mariadb

sudo systemctl enable mysql

3. Secure installation

bash

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sudo mysql_secure_installation

(Follow prompts to set root password, remove test DB, disable remote root login.)

4. Login to MySQL/MariaDB shell

bash

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sudo mysql -u root -p

5. Basic database management commands:

- **Create database:**

sql

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CREATE DATABASE mydb;

- **Create user and grant privileges:**

sql

CopyEdit

CREATE USER 'user'@'localhost' IDENTIFIED BY 'password';

GRANT ALL PRIVILEGES ON mydb.* TO 'user'@'localhost';

FLUSH PRIVILEGES;

- **Show databases:**

sql

CopyEdit

SHOW DATABASES;

- **Exit:**

sql

CopyEdit

EXIT;