Linux Intro Class Final Exam Study Guide: Key Topics & Commands

---

1. Linux Fundamentals & Distributions

- **Linux Origins:**
  - Who is credited with starting the Linux kernel project?
  - When was the initial release of the Linux kernel?
- **Linux Distributions:**
  - Identify several popular Linux distributions (e.g., Ubuntu, Fedora, Red Hat).
  - Understand the difference between open-source and commercial distributions.
- **Linux's Impact:**
  - Recognize the prevalence of Linux in modern computing (e.g., internet infrastructure, supercomputers).
  - Understand the significance of the open-source model for Linux's growth.

---

2. File System Navigation & Management

- **Listing Directory Contents:**
  - Command: ls
  - Know common options to view detailed information or hidden files.
- **Navigating Directories:**
  - Command: cd
  - Practice changing to different directories (e.g., parent, home, specific paths).
  - Command: pwd - How to confirm your current location.
- **Creating & Removing Directories:**
  - Command: mkdir - How to make new directories.
  - Command: rmdir (for empty directories) or rm -r (for non-empty directories) - How to delete directories.
- **File Manipulation:**
  - Command: cp - How to copy files and directories.
  - Command: mv - How to move or rename files and directories.
  - Command: rm - How to delete files.
  - Command: touch - How to create an empty file or update timestamps.
- **File Information & Searching:**
  - Command: file - How to determine a file's type.

    - Commands: find, locate - How to search for files on the system.
- **Disk Usage:**
    - Command: df -h - How to check hard drive space.

---

3. Permissions & Ownership

- **Understanding Permissions:**
    - What are the three types of file permissions (read, write, execute)?
    - How do permissions apply to the owner, group, and others?
- **Changing Permissions:**
    - Command: chmod - How to modify file permissions using both symbolic (+x, -r) and octal (numeric) modes (e.g., 755, 777).
    - What does chmod +x specifically do?
- **Changing Ownership:**
    - Command: chown - How to change the owner of a file or directory.
    - Command: chgrp - How to change the group owner of a file or directory.

---

4. Package Management & System Updates

- **Package Management Systems:**
    - Familiarize yourself with common package management tools (e.g., apt, yum, rpm).
- **Updating & Installing Packages (Ubuntu/Debian-based):**
    - Command: sudo apt update - Its purpose.
    - Command: sudo apt install <package_name> - How to install software.
    - Command: sudo apt upgrade - How to apply system updates.
- **Database Updates:**
    - Command: sudo updatedb - What does this command do?

---

5. Process Management

- **Viewing Processes:**
    - Command: ps -e - How to list all running processes.
    - Command: top - How to monitor processes interactively.
    - Command: pstree - How to display processes in a tree structure.
- **Controlling Processes:**

- Command: kill - How to terminate a process by its ID.
- Commands: bg, fg - How to send processes to the background or bring them to the foreground.

---

6. Networking

- **Connectivity Testing:**
  - Command: ping - How to test network connectivity to another host.
- **Route Tracing:**
  - Command: traceroute - How to trace the path to a network destination.
- **DNS Lookup:**
  - Command: nslookup - How to query DNS for hostname or IP address information.
- **Network Utilities:**
  - Command: nmap - Understand its general use for network scanning.
  - Command: scp - How to securely copy files between systems.
  - Command: iptables - Its role in firewall configuration.

---

7. Shell & Scripting Basics

- **Privileges:**
  - Command: sudo - Understand its use for executing commands with superuser privileges.
  - Identify the prompt symbol for administrative mode.
- **Text Editors:**
  - Familiarize yourself with basic usage of command-line text editors like vi or nano.
- **Scripting Fundamentals:**
  - The purpose of the shebang (#!) in a script.
  - Command: chmod +x - How to make a script executable.
  - Command: read - How to take input within a script.
  - Command: echo - How to display output.
- **Basic Utilities:**
  - Command: date - How to display the current date and time.
  - Command: cal - How to display the calendar.
- **Text Processing:**
  - Commands: sort, uniq, cut, paste, cat - Understand the basic functions of these tools for manipulating text files and output.

---

8. Docker

- **Running Containers:**
  - Command: sudo docker run - How to start a Docker container.
- **Image Management:**
  - Command: sudo docker pull - How to download Docker images.
- **Listing Containers:**
  - Command: sudo docker ps - How to view running Docker containers.

---

9. General System Utilities

- **User Management:**
  - Command: passwd - How to change a user's password.
- **System Control:**
  - Command: shutdown - How to shut down or reboot the system.
- **Downloading:**
  - Command: wget - How to download files from the web via the command line.

---

* This study guide was created using Gemini. All possible questions with their answers from the study bank were input and asked to create a study guide that focuses on key concepts.

Citation: "Linux Exam Study Guide Creation." Gemini 2.5 Pro, 2 July 2025, Google.