

Linux Command Basics: Users and Networking

This handout provides a series of foundational commands in Linux systems to help access administrative permissions, create user profiles and complete basic networking tasks. This handout does not include a complete list of Linux commands; however, they serve as a foundation for students to provide them with a brief explanation of the use of base commands.

It is important to note that Linux systems have various distributions, or different versions, that use similar terminal commands. A brief explanation of the command format is included below, which is essential to bridge the gap between distributions and the structure of commands.

Linux commands can contain four parts, but commands do not have to contain each segment.

command [-flag(s)] [value]] [argument(s)]

- Command: The primary function, which tells the terminal what action to perform
- Flags: Modify the command by providing specific details or settings for the action
- Value: A guideline for the flag
- Arguments: The item the command operates on

The commands listed in the tables below provide examples that explain what certain commands and flags represent, or examples of the execution of these commands.

The root user in Linux has administrative privileges, allowing access to system level functions. This is often required to complete certain tasks or to gain access to important information such as account data, file ownership, and setting restrictions.

Administrative Permissions

Command	Function / Description	Example
sudo	Runs commands with superuser privileges	sudo command
su root	Switch to root user session	su root
sudo passwd	Changes the password	sudo passwd
sudo passwd root	Changes the root password	sudo passwd root

Updates and Installation

Command	Function / Description	Example
sudo apt update	Updates package list for updates	sudo apt update

Creating Groups and Users

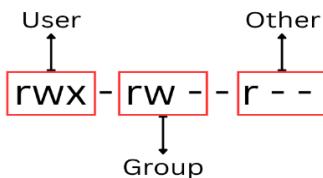
Command	Function / Description	Example
sudo useradd	Adds users to a system	sudo
sudo passwd user	Adds user's password	su root
su username	Changes to user account	su new_user
sudo groupadd	Creates group	sudo passwd
sudo groupdel	Deletes group	sudo groupdel group_name
sudo usermod -aG	Adds user to group	sudo usermod -aG a_user new_group
sudo gpasswd -d	Removes user from group	sudo gpasswd -d a_user new_group

Ownership and Permissions

Command	Function / Description	Example
chown	Changes the user and/or group ownership	chown new_user myfile.txt
chmod	Changes the modification permissions	chmod 755 filename

When using the change modification command (chmod), it is important for students to understand the types of permission and assignments for which they are associated with.

Example



Modification permissions are separated into three sections: user, groups, and others. The letters for permission stand for: r for read, w for write, x for execution, and (–) meaning no permission given.

Within the example above, the user has been given full permission, the group has read and write permission, while others can only read documents.

Common Networking Commands

Command	Function / Description	Example
dig	Looks up DNS records	dig url.com
nslookup	Output the DNS record	nslookup url.com
ping	Used to test if a host is reachable	ping url.com
ip a	Shows all IP addresses on the network	ip a
hostname	Displays the name of the device	hostname
netstat	Displays specific network information	netstat
traceroute	Used for network diagnoses	traceroute ip address
ping	Used to test if a host is reachable	ping url.com

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