Linux Fundamentals: A Beginner's Guide to User & Group Management in Linux

Why This Matters for Your IT Career:

Linux is everywhere— powering web servers, cloud platforms, and cybersecurity tools like Kali Linux. At its core, Linux is a multi-user system, meaning multiple people (or processes) can share the same machine. User management lets you create, modify, and remove accounts, while group management organizes users for teamwork and access control. Together, they're your first line of defense for security and efficiency:

- Create accounts for new employees
- Troubleshoot access issues
- Secure systems by managing permissions
- Organize teams with group policies

Perfect for Beginners:

No prior Linux experience needed! We'll use Kali Linux (great for practice), but these commands work on any Linux system you'll encounter in IT roles.

What This Guide Covers

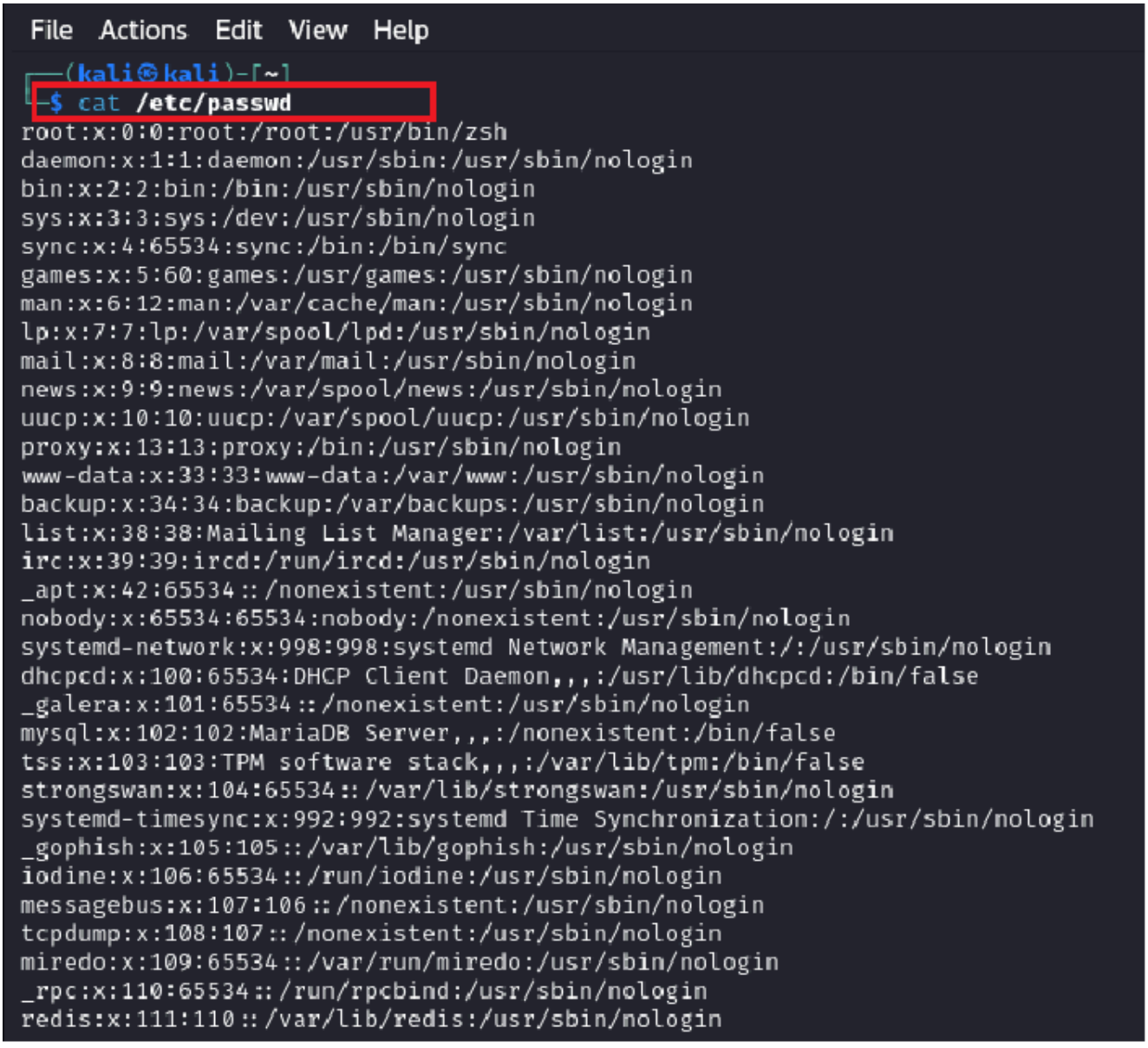
This is Phase 1 of user and group management, designed for beginners with a taste of advanced concepts. We'll use Kali Linux in your VM to:

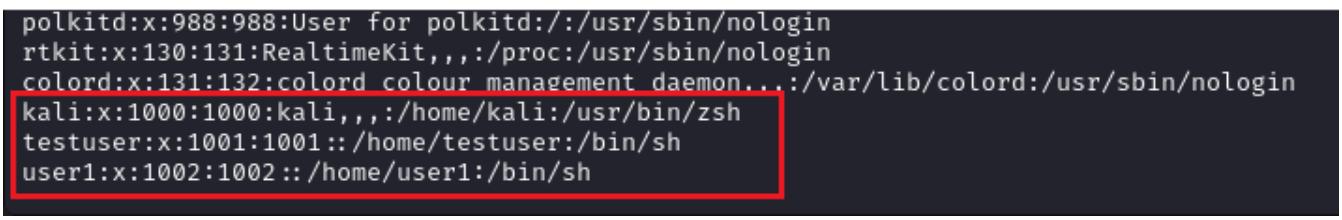
- View and Create Users: See who's on the system and add new accounts.
- Switch and Delete Users: Move between accounts and clean up when done.
- Manage Groups: Create, assign, and remove groups for organized access.

By the end, you'll confidently wield commands like useradd, usermod, and groupdel. Follow along, take screenshots, and share your results—I'd love to see your progress! Next up, we'll tackle permissions (Part 3), where you'll learn to lock down or share files based on these users and groups. Let's get started!

User Management

1. **Viewing Users :**
   Command: cat /etc/passwd
   What it Does:
   List all users (even system accounts). Each line showsL
   - Username
   - UID (User ID)
   - GID (Group ID)
   - Home directory
   - Default shell





2. Creating a User:

Commands: sudo useradd -m newuser / Creates "newuser" with a home directory (-m)

- Without -m, the user won't have a home folder (/home/newuser).
- Commands: sudo passwd newuser / Sets their password

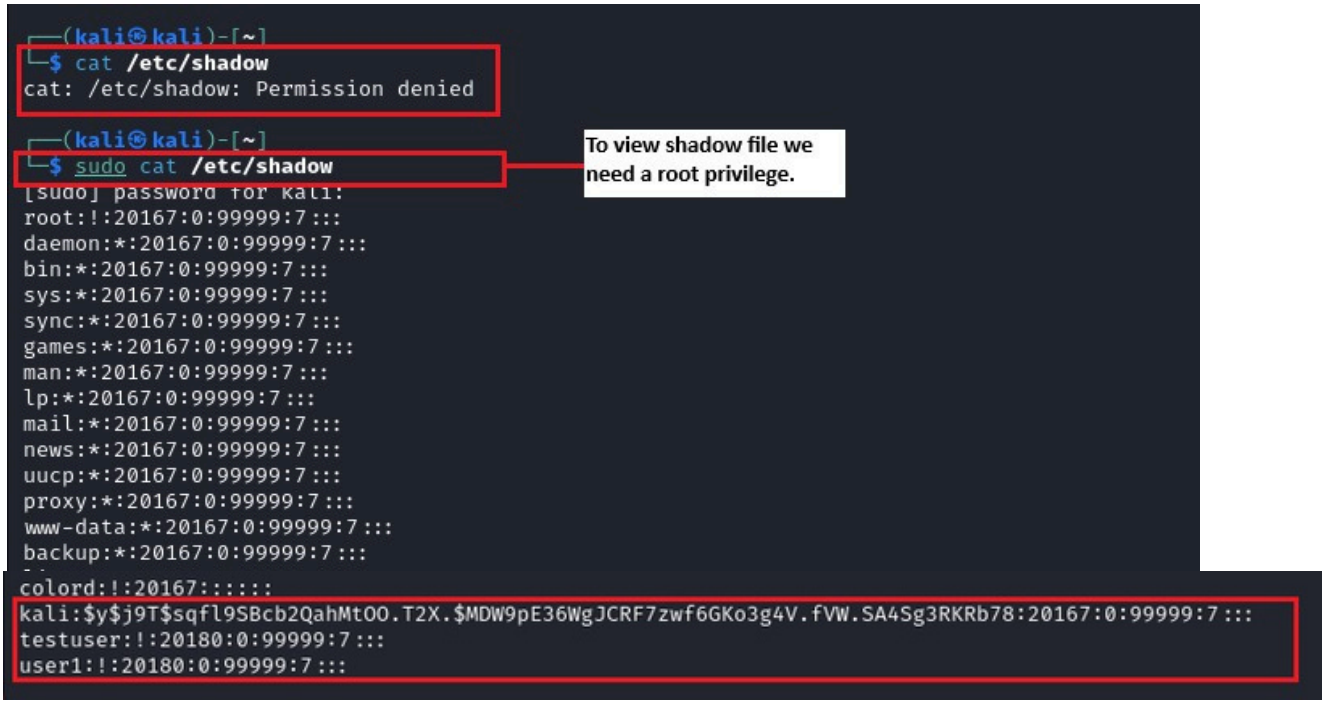
- passwd is mandatory—otherwise, the user can't log in

The /etc/shadow File: Password Storage Explained

What It Is:

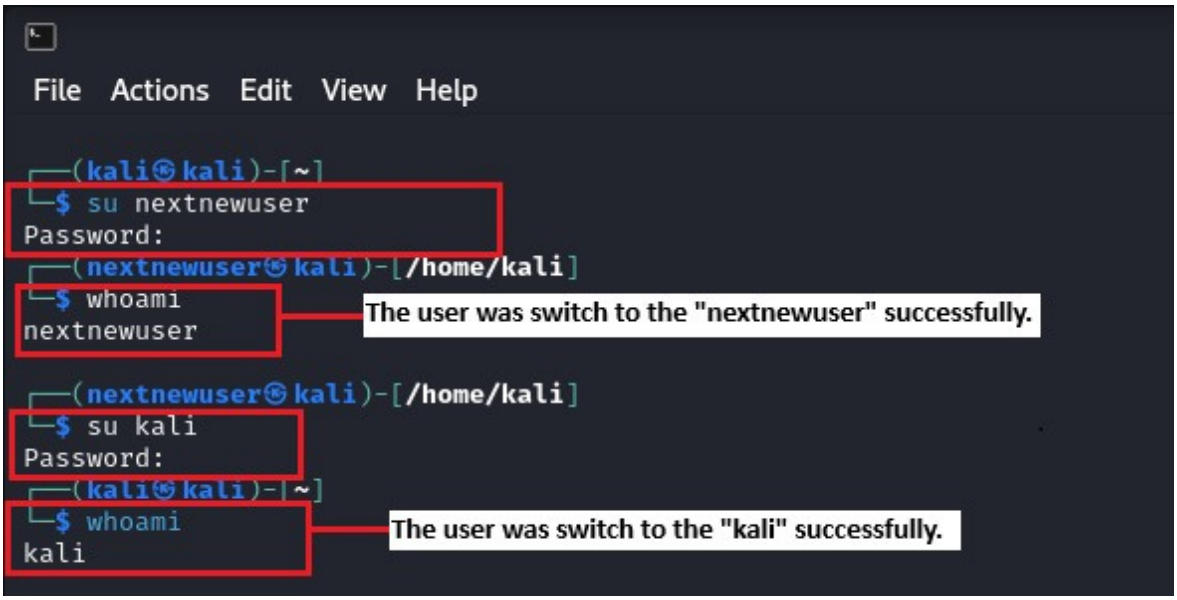
The /etc/shadow file stores encrypted passwords and security settings for user accounts. Unlike /etc/passwd, it's only readable by root to protect sensitive data.

Command to View: sudo cat /etc/shadow



3. **Switching Users**

Commands: su ***username***: Switches to "user" (keeps your current environment)



When to Use Which:

 su → Quick access (but may break scripts due to environment variables).

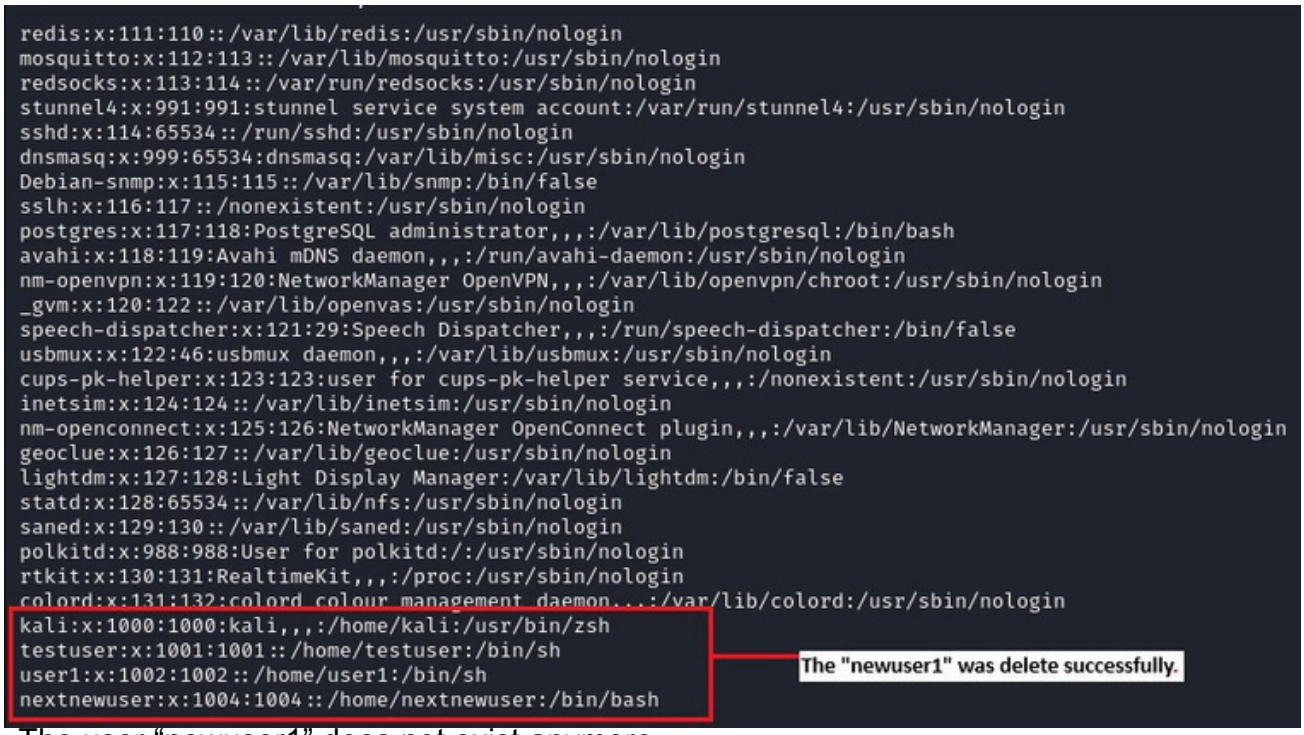
 su - → Simulates a real login (safer for testing).

 sudo -u → Admin-friendly (no target user's password required).

4. **Deleting a User**

Command: sudo userdel -r newuser /Deletes "newuser" AND their home directory (-r).

After deletion we can check if the user exist confirmatio n using command:cat /etc/passwd



The user "newuser1" does not exist anymore.

Warning: Without -r, the home directory lingers (security risk!).

Group Management

1. Viewing groups

Commands: cat /etc/group # Lists all groups (GID + members)

```
┌──(kali㉿kali)-[~]
└─$ cat /etc/group
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:kali
tty:x:5:
disk:x:6:
lp:x:7:
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:kali
fax:x:21:
voice:x:22:
cdrom:x:24:kali
floppy:x:25:kali
tape:x:26:
sudo:x:27:kali
audio:x:29:kali
kali:x:1000:
vboxsf:x:134:kali
kaboxer:x:135:kali
testuser:x:1001:
user1:x:1002:
nextnewuser:x:1004:
```

The user are not assigned to any specific group here.

2. Creating a Group

Command: sudo groupadd myteam # Creates "myteam" (auto-assigns GID)

```
File  Actions  Edit  View  Help

┌──(kali㉿kali)-[~]
└─$ sudo groupadd techteamm
[sudo] password for kali:

┌──(kali㉿kali)-[~]
└─$
```

Lets verify using command: cat /etc/group | grep “groupname”

```
┌──(kali㉿kali)-[~]
└─$ cat /etc/group | grep "techteam"
techteam:x:1005:

┌──(kali㉿kali)-[~]
└─$
```

The "techteam" group exist.

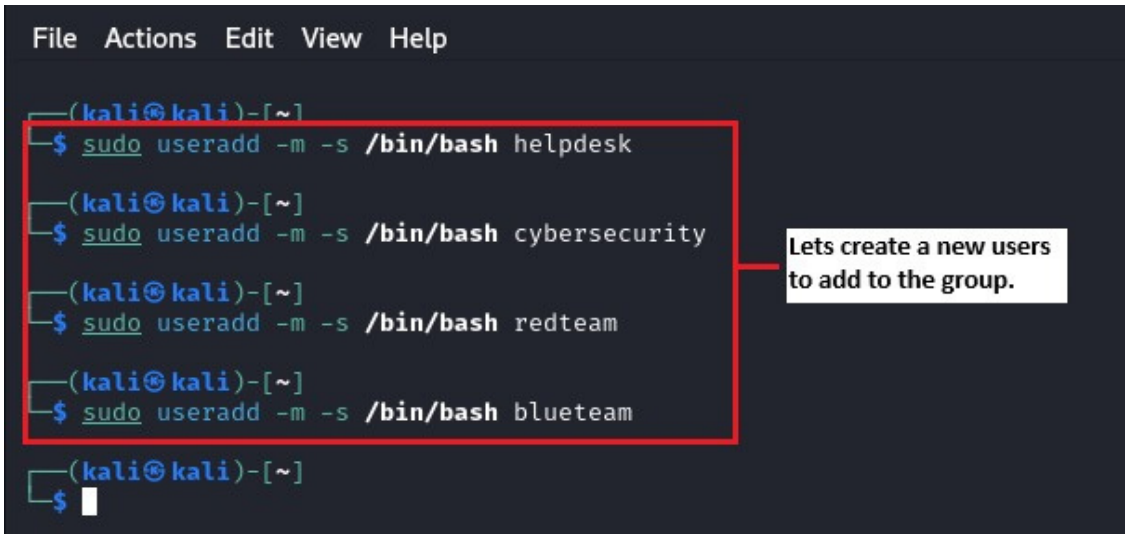
The group has been successfully created.

3. Adding a User to a Group

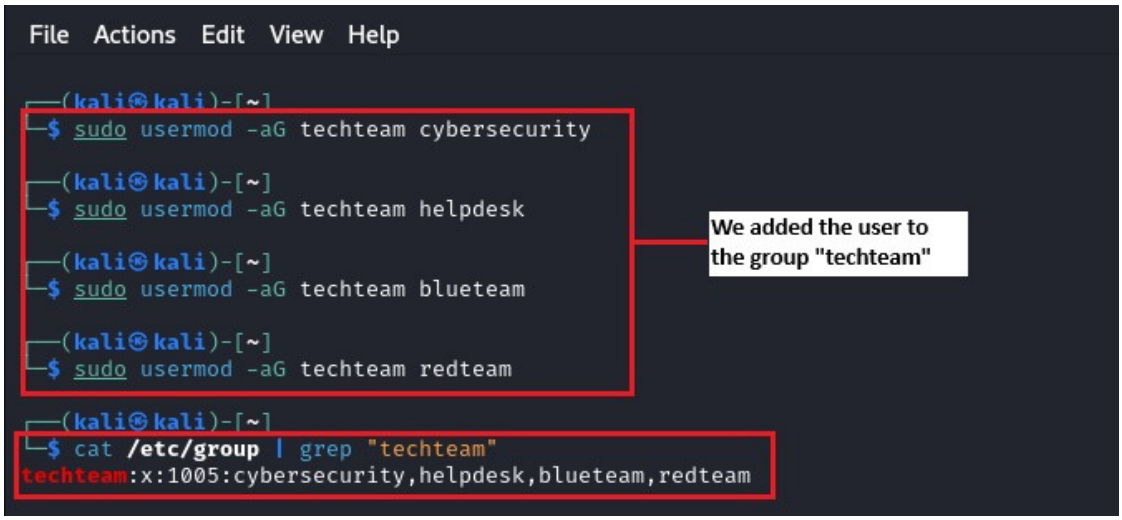
Command: sudo usermod -aG groupname newuser # Adds "newuser" to "groupname"
Critical Flag:

 -aG ensures the user is appended to the group. Without -a, it overwrites all other groups

Lets create some of new users to add to the group as shown in the example below:



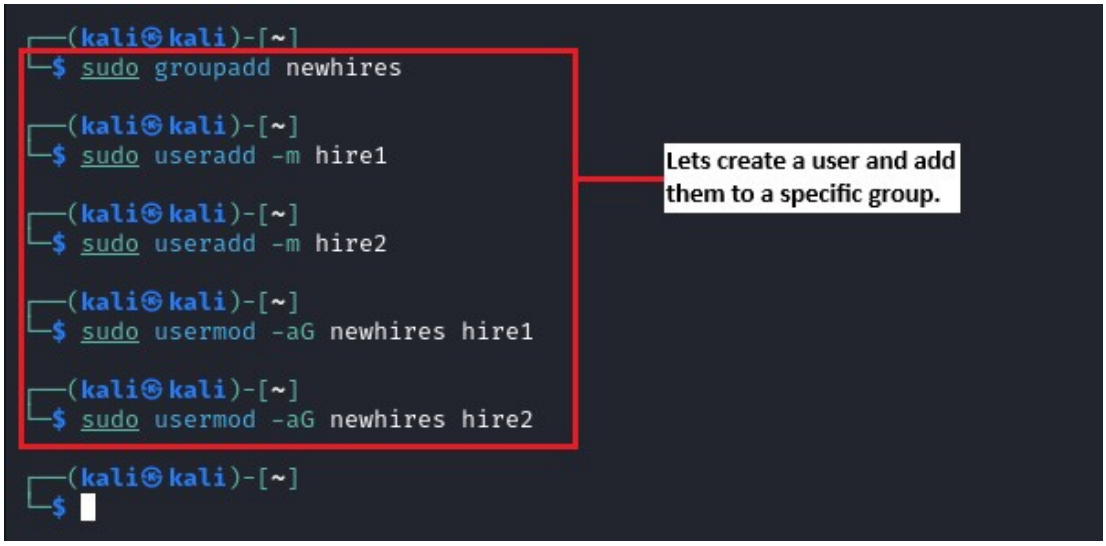
Now lets add the user to the group using command: sudo usermod -aG groupname newuser



The users has been added to the group successfully.

4. Deleting a Group

Command: sudo groupdel groupname # Deletes "group"



We created a new group and new user

First lets check if the group exist using view group command: cat /etc/group

now lets delete the group that we just created using command : sudo groupdel groupname

Lets Verify if the removal of group using command: cat /etc/group | grep “groupname”

The group has been successfully removed / deleted.