User and Group Management Automation in Kali Linux

Model Institute of Engineering & Technology (Autonomous) Permanently Affiliated to the University of Jammu Accredited by NAAC with "A" Grade

Jammu, India 2025

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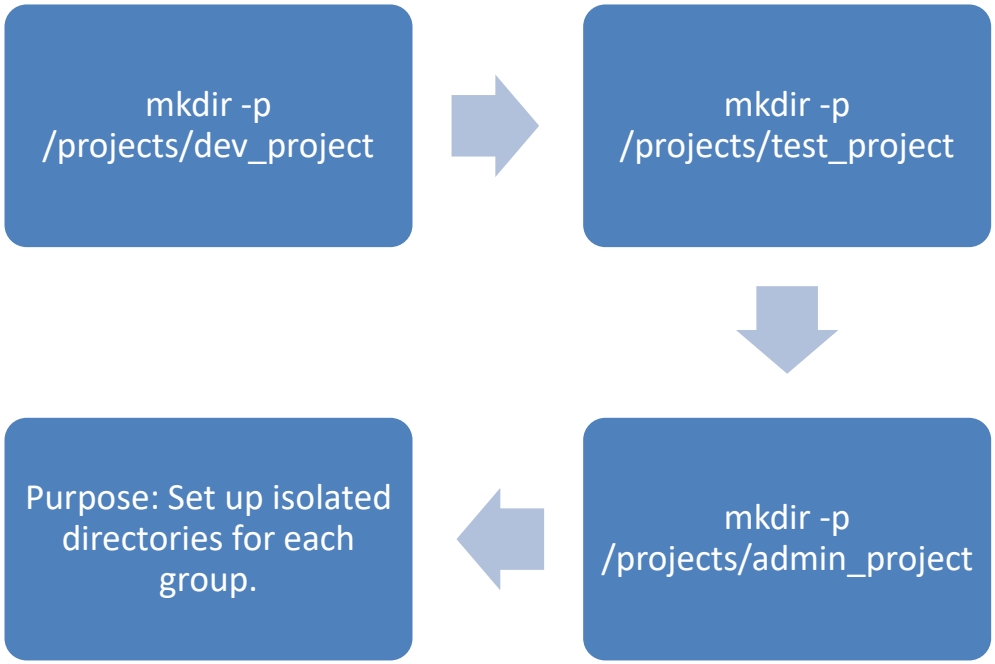
Environment: Kali Linux | Shell Script

User and Group Management Automation in Kali Linux

Objective

Automate	- Automate user and group management
Configure	- Configure project-specific directories
Set	- Set permissions and ownership
Maintain	- Maintain system-level logs for auditing

Project Directory Creation



dev_project Configuration

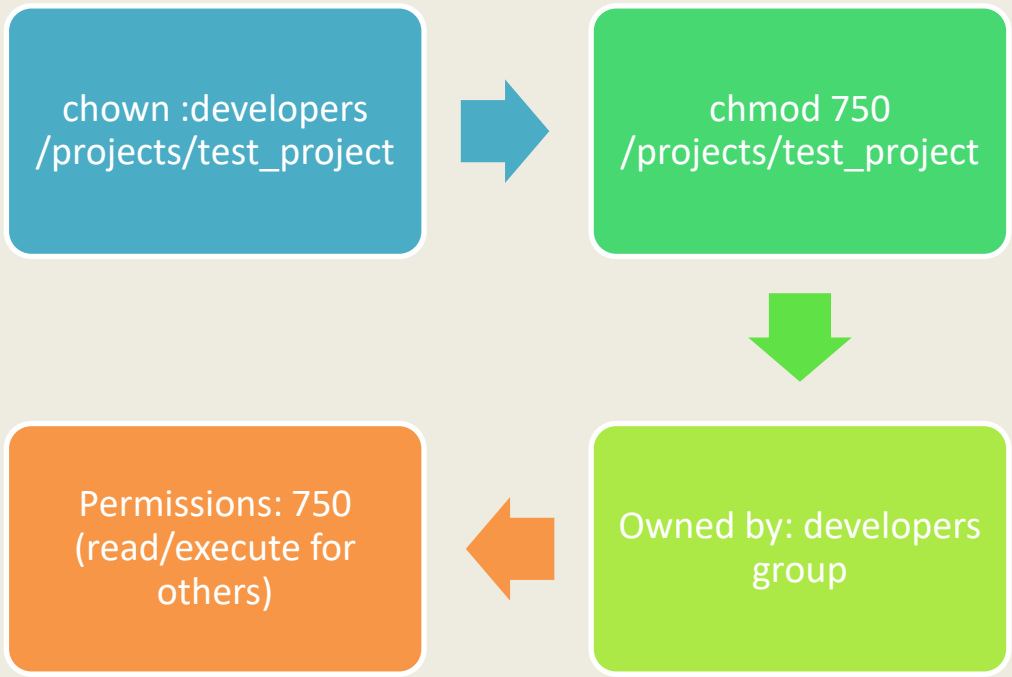
chown :developers /projects/dev_project

chmod 770 /projects/dev_project

Owned by: developers group

Permissions: 770 (full for owner & group)

test_project Configuration



admin_project Configuration

chown :admins /projects/admin_project

chmod 700 /projects/admin_project

Owned by: admins group

Permissions: 700 (private access)

Shared Configuration File

- touch /projects/dev_project/config.txt
- chmod 660 config.txt
- Used for shared config
- Permissions: 660 (read/write for owner & group)

User Assignments

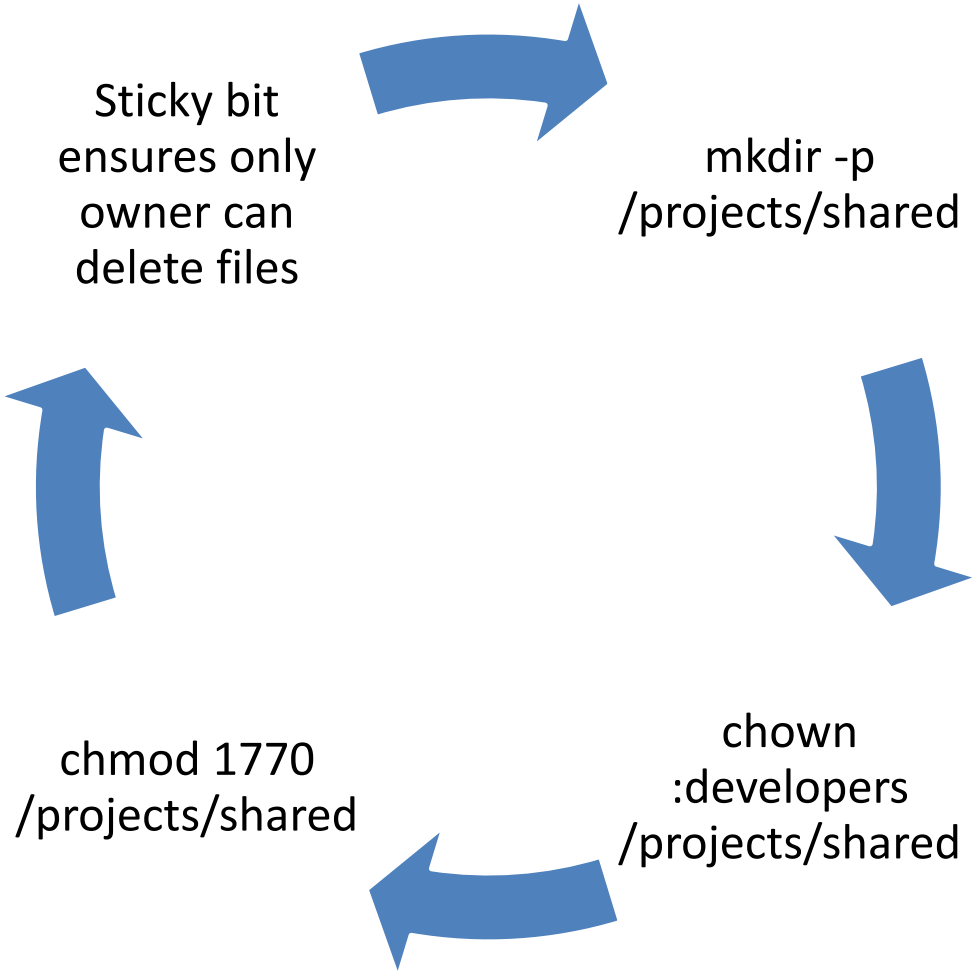
usermod -aG testers dev1

usermod -aG admins dev2

Added dev1 to testers

Added dev2 to admins

Shared Directory with Sticky Bit



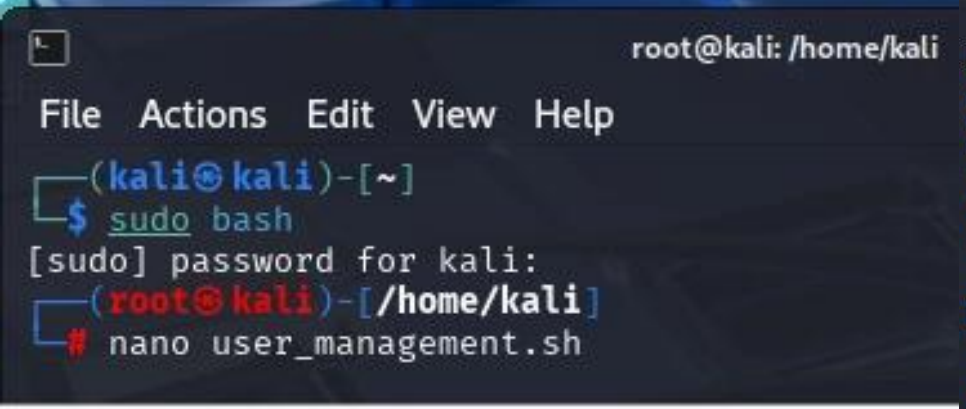
Logging & Verification

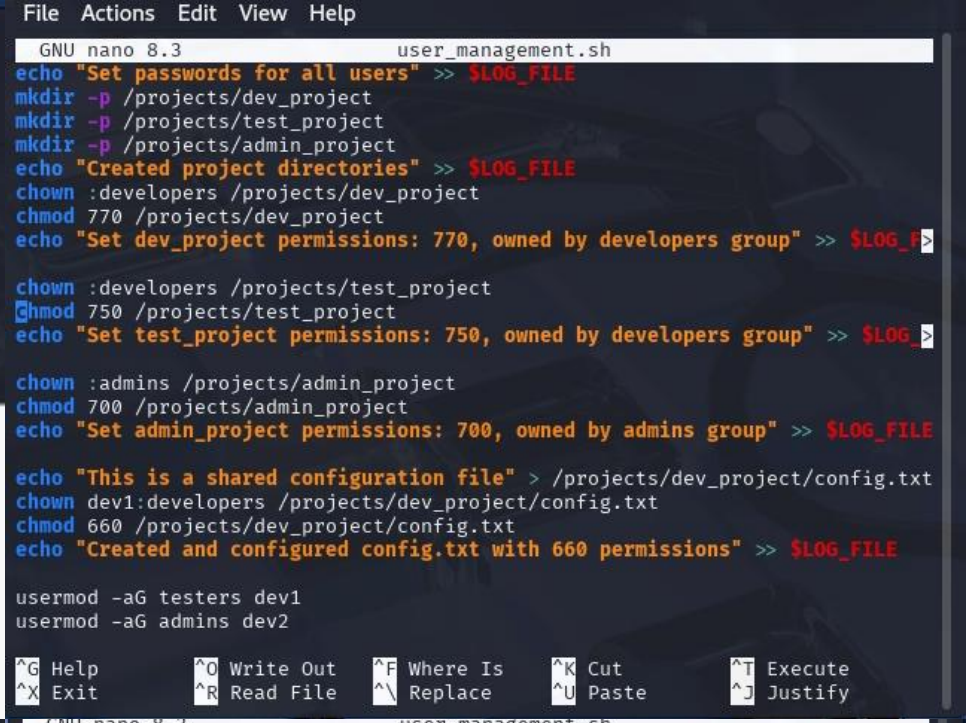
ls -ld /projects/* >> $LOG_FILE

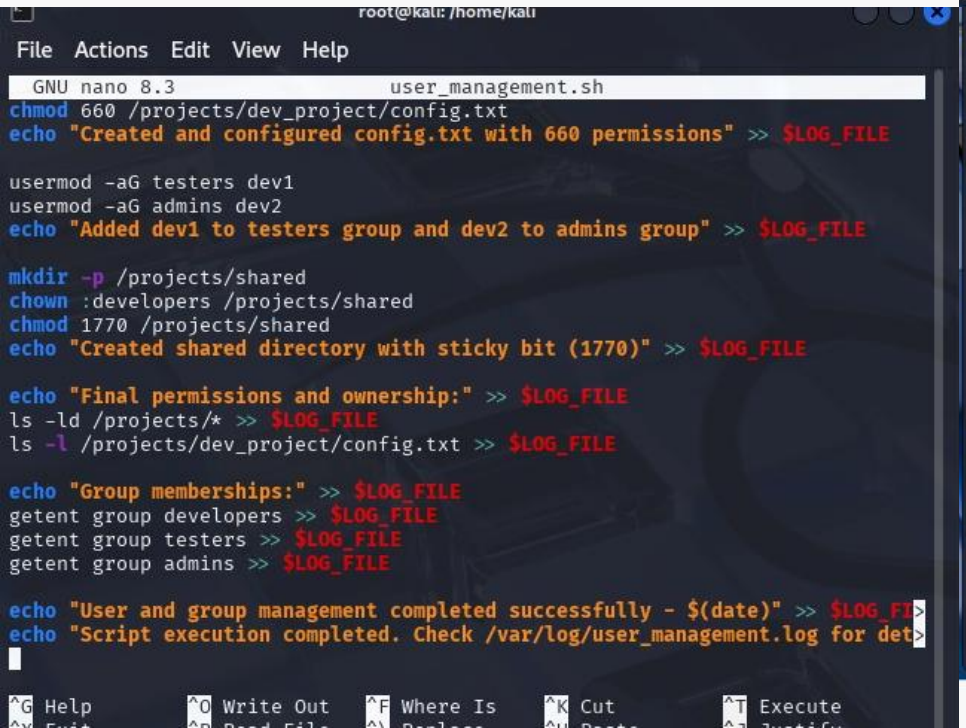
getent group developers >> $LOG_FILE

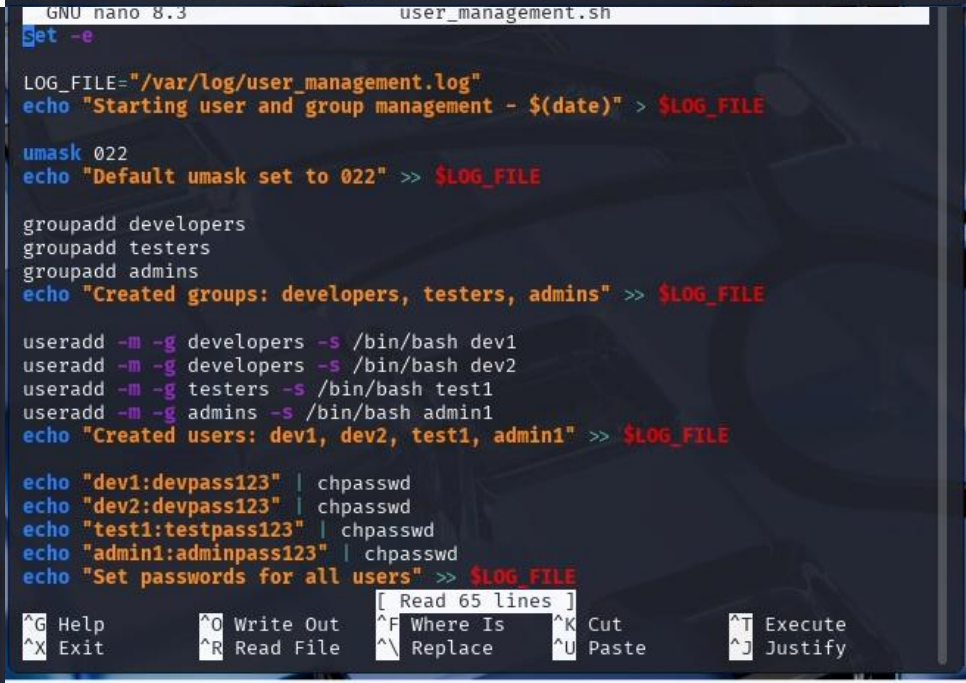
Verifies final permissions and memberships

Logs written to /var/log/user_management.log


root@kali: /home/kali
File Actions Edit View Help
┌──(kali㉿kali)-[~]
└─$ sudo bash
[sudo] password for kali:
┌──(root㉿kali)-[/home/kali]
└─# nano user_management.sh


File Actions Edit View Help
GNU nano 8.3 user_management.sh
echo "Set passwords for all users" >> $LOG_FILE
mkdir -p /projects/dev_project
mkdir -p /projects/test_project
mkdir -p /projects/admin_project
echo "Created project directories" >> $LOG_FILE
chown :developers /projects/dev_project
chmod 770 /projects/dev_project
echo "Set dev_project permissions: 770, owned by developers group" >> $LOG_F
chown :developers /projects/test_project
chmod 750 /projects/test_project
echo "Set test_project permissions: 750, owned by developers group" >> $LOG_
chown :admins /projects/admin_project
chmod 700 /projects/admin_project
echo "Set admin_project permissions: 700, owned by admins group" >> $LOG_FILE
echo "This is a shared configuration file" > /projects/dev_project/config.txt
chown dev1:developers /projects/dev_project/config.txt
chmod 660 /projects/dev_project/config.txt
echo "Created and configured config.txt with 660 permissions" >> $LOG_FILE
usermod -aG testers dev1
usermod -aG admins dev2
^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify


root@kali: /home/kali
File Actions Edit View Help
GNU nano 8.3 user_management.sh
chmod 660 /projects/dev_project/config.txt
echo "Created and configured config.txt with 660 permissions" >> $LOG_FILE
usermod -aG testers dev1
usermod -aG admins dev2
echo "Added dev1 to testers group and dev2 to admins group" >> $LOG_FILE
mkdir -p /projects/shared
chown :developers /projects/shared
chmod 1770 /projects/shared
echo "Created shared directory with sticky bit (1770)" >> $LOG_FILE
echo "Final permissions and ownership:" >> $LOG_FILE
ls -ld /projects/* >> $LOG_FILE
ls -l /projects/dev_project/config.txt >> $LOG_FILE
echo "Group memberships:" >> $LOG_FILE
getent group developers >> $LOG_FILE
getent group testers >> $LOG_FILE
getent group admins >> $LOG_FILE
echo "User and group management completed successfully - $(date)" >> $LOG_FI
echo "Script execution completed. Check /var/log/user_management.log for det
^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute

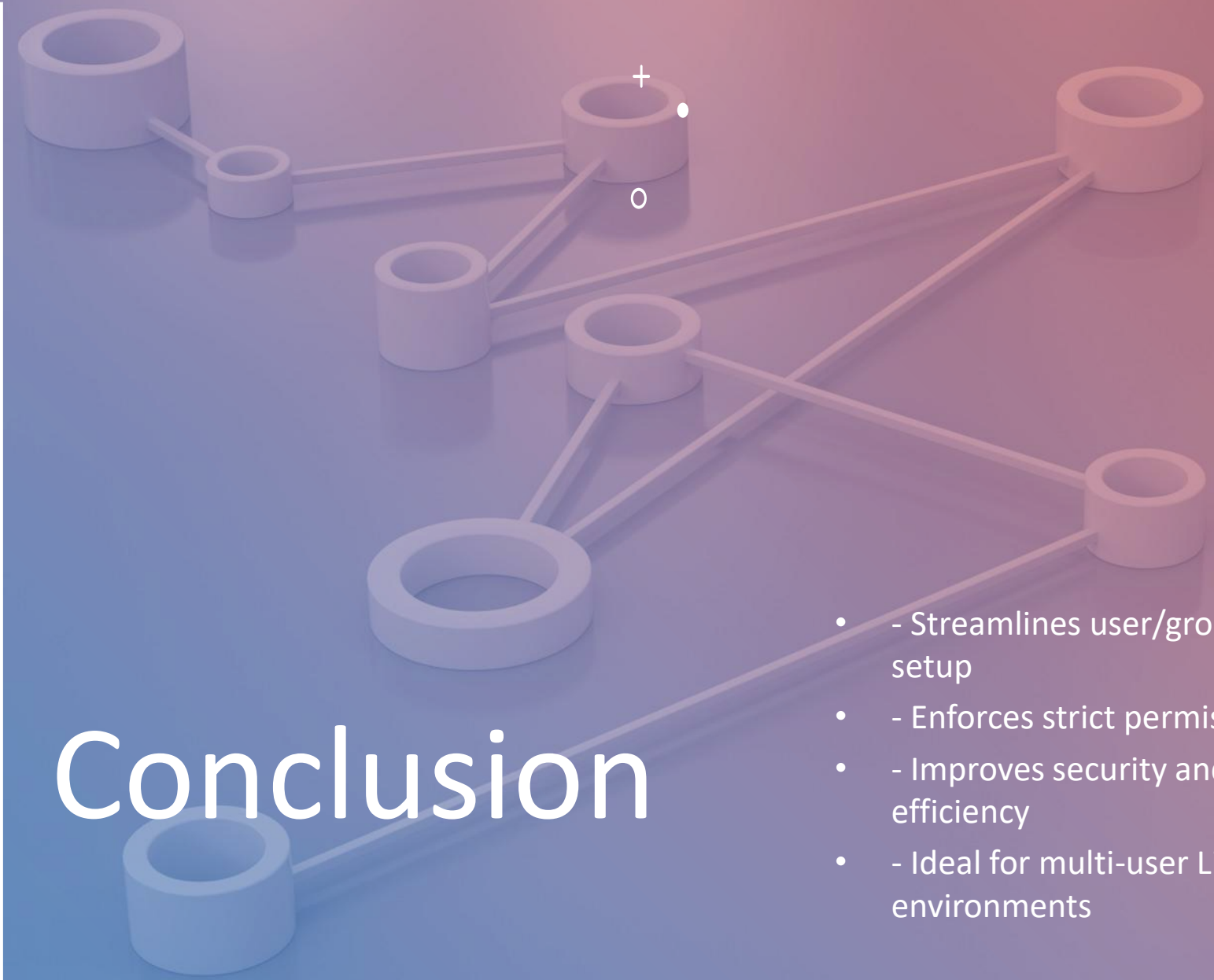

GNU nano 8.3 user_management.sh
set -e
LOG_FILE="/var/log/user_management.log"
echo "Starting user and group management - $(date)" > $LOG_FILE
umask 022
echo "Default umask set to 022" >> $LOG_FILE
groupadd developers
groupadd testers
groupadd admins
echo "Created groups: developers, testers, admins" >> $LOG_FILE
useradd -m -g developers -s /bin/bash dev1
useradd -m -g developers -s /bin/bash dev2
useradd -m -g testers -s /bin/bash test1
useradd -m -g admins -s /bin/bash admin1
echo "Created users: dev1, dev2, test1, admin1" >> $LOG_FILE
echo "dev1:devpass123" | chpasswd
echo "dev2:devpass123" | chpasswd
echo "test1:testpass123" | chpasswd
echo "admin1:adminpass123" | chpasswd
echo "Set passwords for all users" >> $LOG_FILE
[Read 65 lines]
^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify

Script Execution

echo "Script execution completed. Check /var/log/user_management.log for details"

Complete automation

Helpful for audits and debugging



Conclusion

- - Streamlines user/group setup
- - Enforces strict permissions
- - Improves security and efficiency
- - Ideal for multi-user Linux environments