Guided Exercises for Linux Users and Group Management

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1. User Management

This section covers creating, modifying, and deleting user accounts, along with additional operations such as locking/unlocking accounts, setting expiration dates, changing shells, and managing home directories.

1.1 Creating a New User

Command:

```
sudo adduser username
```

Explanation: - `adduser`: User-friendly command that creates a new user, sets up home directory, shell, and prompts for information. - `username`: Replace with actual username.

Verification:

```
cat /etc/passwd | grep username
```

1.2 Adding a User to an Existing Group

Command:

```
sudo usermod -aG groupname username
```

Explanation: - `-aG`: Adds the user to the group without removing them from others. - `groupname`: Target group. - `username`: User to add.

Verification:

```
groups username
```

1.3 Changing User Password

Command:

```
sudo passwd username
```

Explanation: - `passwd`: Change the user's password.

Verification:

```
sudo grep username /etc/shadow
```

1.4 Creating a User Using useradd

Command:

```
sudo useradd -m -s /bin/bash username
```

Explanation: - `-m`: Creates a home directory. - `-s /bin/bash`: Sets the default shell.

Verification:

```
cat /etc/passwd | grep username
```

1.5 Creating a User with Specific UID/GID

Command:

```
sudo useradd -m -s /bin/bash -u 1001 -g groupname username
```

Explanation: - `-u 1001`: Assign specific UID. - `-g groupname`: Assign group.

Verification:

```
id username
```

1.6 Locking a User Account

Command:

```
sudo usermod -L username
```

Explanation: Locks the account.

Verification:

```
sudo passwd -S username
```

1.7 Unlocking a User Account

Command:

```
sudo usermod -U username
```

Verification:

```
sudo passwd -S username
```

1.8 Setting User Account Expiration

Command:

```
sudo usermod -e YYYY-MM-DD username
```

Verification:

```
sudo chage -l username
```

1.9 Changing User's Default Shell

Command:

```
sudo usermod -s /bin/zsh username
```

Verification:

```
grep username /etc/passwd
```

1.10 Changing a User's Home Directory

Command:

```
sudo usermod -d /new/home/directory -m username
```

Verification:

```
ls /new/home/directory
```

1.11 Deleting a User

Command:

```
sudo userdel -r username
```

Verification:

```
ls /home/username
```

2. Group Management

This section covers creating, modifying, deleting groups, and managing user membership.

2.1 Creating a New Group

Command:

```
sudo groupadd groupname
```

Verification:

```
getent group groupname
```

2.2 Adding a User to a Group

Command:

```
sudo usermod -aG groupname username
```

Verification:

```
groups username
```

2.3 Removing a User from a Group

Command:

```
sudo gpasswd -d username groupname
```

Verification:

```
groups username
```

2.4 Deleting a Group

Command:

```
sudo groupdel groupname
```

Verification:

```
getent group groupname
```

3. Password Management and Policies

This section covers password aging, enforcing complexity, and security policies.

3.1 Setting Password Expiry Policy

Command:

```
sudo chage -M 30 -m 7 -W 7 username
```

Verification:

```
sudo chage -l username
```

3.2 Enforcing Password Complexity (PAM)

Command:

```
sudo vi /etc/pam.d/common-password
```

Add or modify:

```
password requisite pam_pwquality.so retry=3 minlen=12 minclass=4
```

Verification: Try setting a weak password.

3.3 Setting Minimum Password Length

Command:

```
sudo vi /etc/login.defs
```

Update:

```
PASS_MIN_LEN 12
```

3.4 Forcing Users to Change Password on First Login

Command:

```
sudo chage -d 0 username
```

3.5 Locking a Password

Command:

```
sudo passwd -l username
```

3.6 Unlocking a Password

Command:

```
sudo passwd -u username
```

3.7 Setting Password Expiration Date

Command:

```
sudo chage -E YYYY-MM-DD username
```

Summary of Key Points

- **User Management:** Create users, modify account settings, change shells, lock/unlock accounts.
- **Group Management:** Create/delete groups, manage user memberships.
- **Password Policies:** Complexity rules, password aging, expiration, and security controls.

This guide provides complete coverage of Linux user, group, and password administration.