



# Cybersecurity

## Module 4 Challenge Submission File

### Linux Systems Administration

Make a copy of this document to work in, and then for each step, add the solution commands below the prompt. Save and submit this completed file as your Challenge deliverable.

#### Step 1: Ensure/Double Check Permissions on Sensitive Files

1. Permissions on `/etc/shadow` should allow only `root` read and write access.

- a. Command to inspect permissions:

```
Ls -l /etc/shadow
```

- b. Command to set permissions (if needed):

```
Chmod 600 /etc/shadow
```

2. Permissions on `/etc/gshadow` should allow only `root` read and write access.

- a. Command to inspect permissions:

```
Ls -l /etc/gshadow
```

- b. Command to set permissions (if needed):

```
Chmod 600 /etc/gshadow
```

Permissions on `/etc/group` should allow `root` read and write access, and allow everyone else read access only.

- c. Command to inspect permissions:

```
Ls -l /etc/group
```

- d. Command to set permissions (if needed):

```
Chmod 644 /etc/group
```

- 3. Permissions on `/etc/passwd` should allow `root` read and write access, and allow everyone else read access only.

- a. Command to inspect permissions:

```
Ls -l /etc/passwd
```

- b. Command to set permissions (if needed):

```
Chmod 644 /etc/passwd
```

## Step 2: Create User Accounts

- 1. Add user accounts for `sam`, `joe`, `amy`, `sara`, and `admin` with the `useradd` command.

- a. Command to add each user account (include all five users):

```
Sudo useradd sam  
Sudo useradd joe  
Sudo useradd amy  
Sudo useradd sara  
Sudo useradd admin
```

- 2. Ensure that only the `admin` has general sudo access.

- a. Command to add `admin` to the sudo group:

```
Sudo usermod -G sudo admin
```

### Step 3: Create User Group and Collaborative Folder

1. Add an `engineers` group to the system.

- a. Command to add group:

```
Sudo Addgroup engineers
```

2. Add users `sam`, `joe`, `amy`, and `sara` to the managed group.

- a. Command to add users to `engineers` group (include all four users):

```
Sudo usermod -aG engineers sam  
Sudo usermod -aG engineers joe  
Sudo usermod -aG engineers amy  
Sudo usermod -aG engineers sara
```

3. Create a shared folder for this group at `/home/engineers`.

- a. Command to create the shared folder:

```
Sudo Mkdir /home/engineers
```

4. Change ownership on the new engineers' shared folder to the `engineers` group.

- a. Command to change ownership of engineers' shared folder to `engineers` group:

```
Sudo chown :engineers /home/engineers
```

### Step 4: Lynis Auditing

1. Command to install Lynis:

```
Sudo apt install lynis
```

2. Command to view documentation and instructions:

```
Sudo lynis --help
```

3. Command to run an audit:

```
Sudo lynis audit system
```

4. Provide a report from the Lynis output with recommendations for hardening the system.
  - a. Screenshot of report output:

## Bonus

1. Command to install chkrootkit:

```
Sudo apt install chkrootkit
```

2. Command to view documentation and instructions:

```
Sudo chkrootkit - - help
```

3. Command to run expert mode:

```
Chkrootkit -x
```

4. Provide a report from the chkrootkit output with recommendations for hardening the system.
  - a. Screenshot of end of sample output: