**## Week 4 Homework Submission File: Linux Systems Administration**

Please edit this file by adding the solution commands on the line below the prompt.

Save and submit the completed file for your homework submission.

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

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

**-** Command to inspect permissions: ls -l /etc/shadow

**-** Command to set permissions (if needed): sudo chmod 600 /etc/shadow

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

**-** Command to inspect permissions: ls -l /etc/gshadow

**-** Command to set permissions (if needed): sudo chmod 600 /etc/gshadow

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

**-** Command to inspect permissions:

ls -l /etc/group

**-** Command to set permissions (if needed):

sudo chmod 644 /etc/group

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

**-** Command to inspect permissions:

ls -l /etc/passwd

**-** Command to set permissions (if needed):

sudo chmod 644 /etc/passwd

**### Step 2: Create User Accounts**

**1.** Add user accounts for `sam`, `joe`, `amy`, `sara`, and `admin`.

**-** 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.

**-** Command to add `admin` to the `sudo` group:

sudo usermod -a -G sudo admin

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

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

**-** Command to add group:

sudo groupadd engineers

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

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

sudo usermod -a -G engineers sam

sudo usermod -a -G engineers joe

sudo usermod -a -G engineers amy

sudo usermod -a -G engineers sara

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

**-** Command to create the shared folder:

sudo mkdir -p /home/engineers

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

**-** Command to change ownership of engineer's shared folder to engineer group:

sudo chmod -R 775 /home/engineers

**### Step 4: Lynis Auditing**

**1.** Command to install Lynis:

sudo apt -get install lynis -y

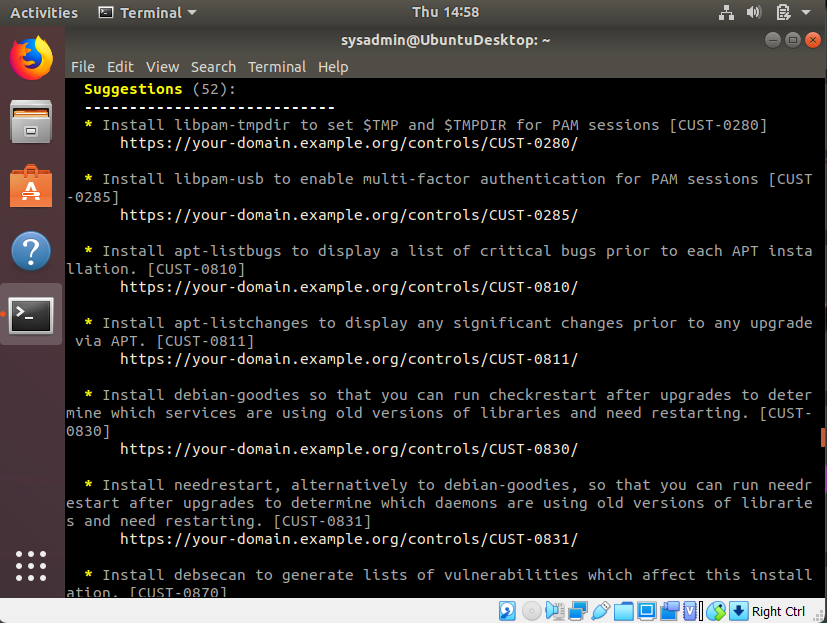
**2.** Command to see documentation and instructions:

sudo lynis --help

**3.** Command to run an audit:

sudo lynis audit system

**4.** Provide a report from the Lynis output on what can be done to harden the system.

**-** Screenshot of report output:

**### Bonus**

**1.** Command to install chkrootkit:

sudo apt install chkrootkit

**2.** Command to see documentation and instructions:

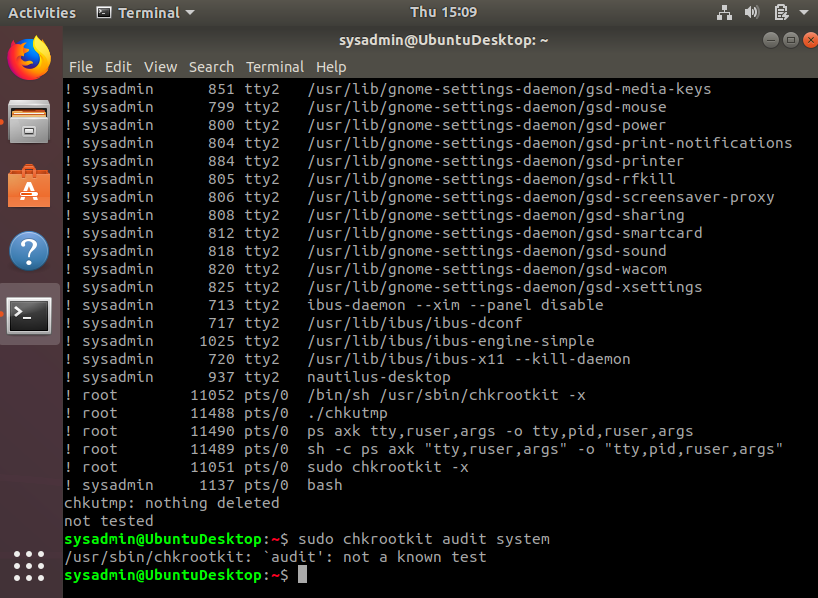
sudo chkrootkit -h

**3.** Command to run expert mode:

sudo chkrootkit -x

**4.** Provide a report from the chrootkit output on what can be done to harden the system.

**-** Screenshot of end of sample output:



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