**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**

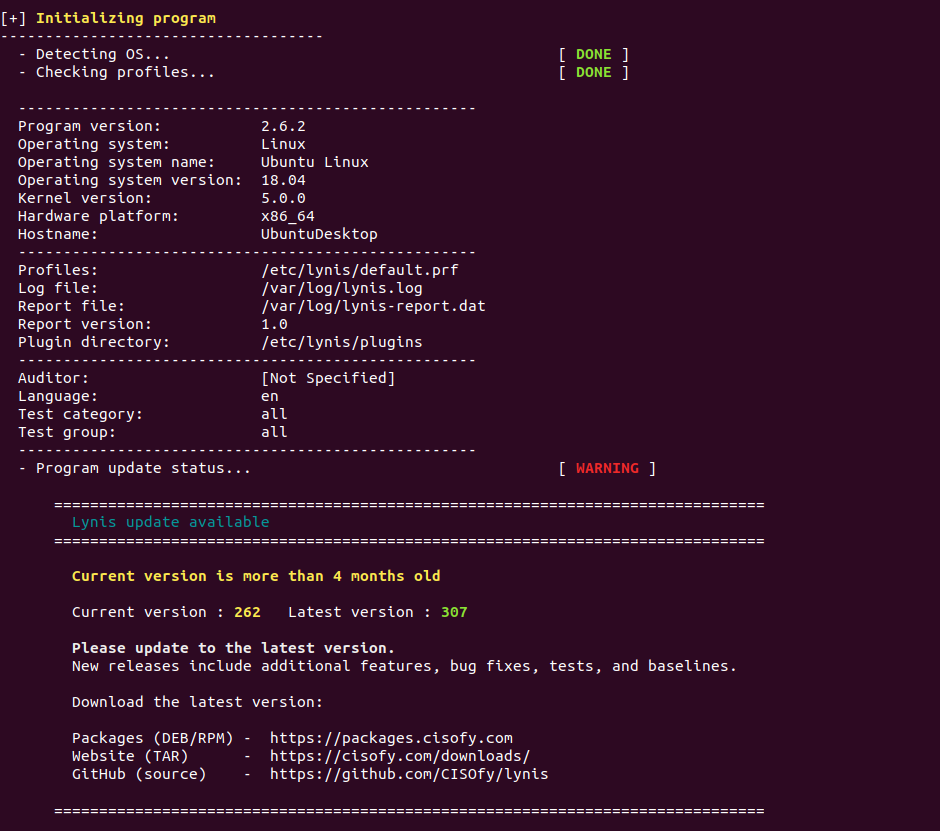
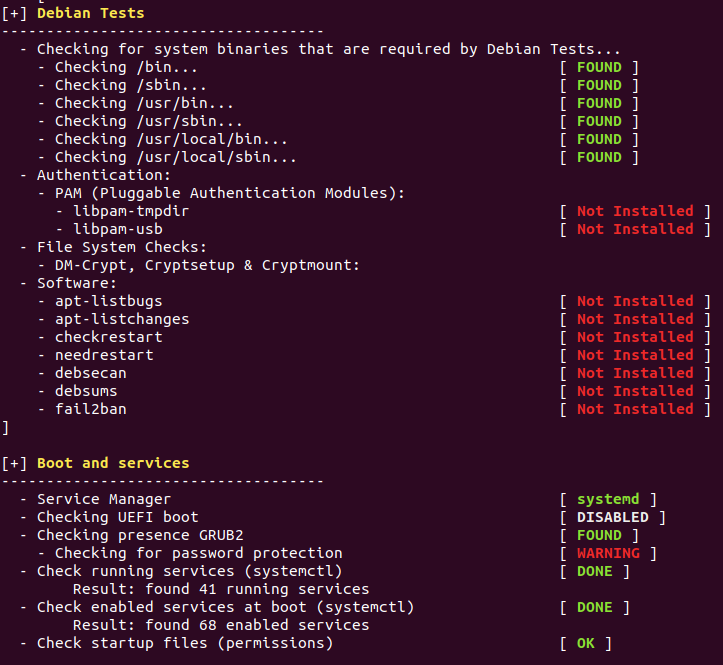
**Step 2: Create User Accounts**

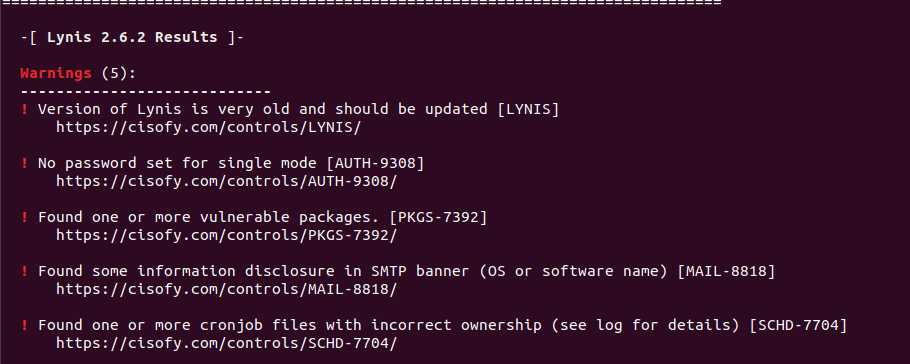
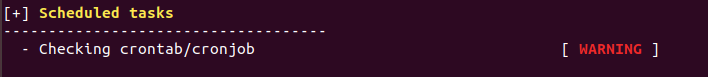
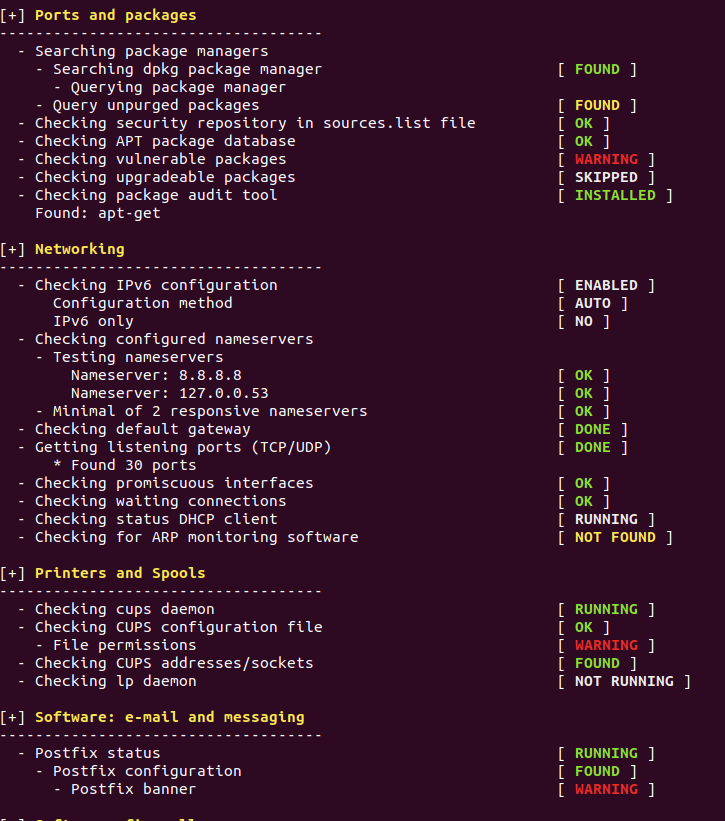
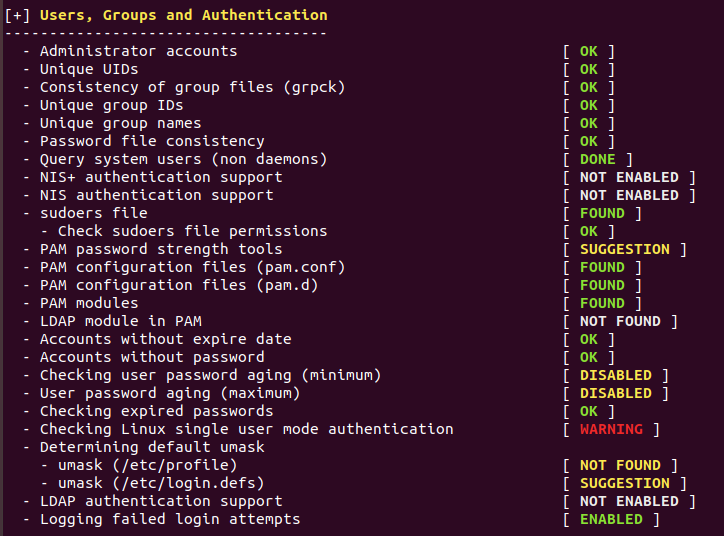
1. Add user accounts for sam, joe, amy, sara, and admin.
   * Command to add each user account (include all five users):
     1. **sudo adduser sam**
     2. **sudo adduser joe**
     3. **sudo adduser amy**
     4. **sudo adduser sara**
     5. **sudo adduser admin**
2. Ensure that only the admin has general sudo access.
   * 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.
   * 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):
     1. **sudo usermod -aG engineers sam**
     2. **sudo usermod -aG engineers joe**
     3. **sudo usermod -aG engineers amy**
     4. **sudo usermod -aG engineers sara**
3. Create a shared folder for this group at /home/engineers.
   * Command to create the shared folder: **sudo mkdir /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:
     1. **sudo chown :engineers /home/engineers**

**Step 4: Lynis Auditing**

1. Command to install Lynis: **sudo apt-get install lynis**
2. Command to see documentation and instructions: **man lynis**
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:
     1. 
     2. 

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**Bonus**

1. Command to install chkrootkit: **sudo apt-get install chkrootkit**
2. Command to see documentation and instructions: **man chkrootkit**
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: