

1. Please describe how you finished Task I

First, find the hidden directory by inspecting `/etc/crontab`. Then, read `crack_me.log` character by character and xor each character by a key. Try every possible key until a readable output is discovered. Finally, replace the number and encrypt the file back.

2. Please propose three security settings in SSH server that can prevent common dictionary attack

- a. Install safety module like fail2ban so that the attacker will be banned after trying just a few passwords.
- b. Disable password login and use private key authentication instead, since it is much harder to brute force a private key.
- c. Accept connection only from trusted IPs and networks.

3. Please explain why Linux differentiates crontab into three types (users, system and applications).

By doing so, the operating system can have better permission control, as normal users will not be able to edit critical system cron jobs. Furthermore, when executing those jobs, the operating system can assign appropriate permission to each job. That is, user's jobs will be run with user's permission, application's job will be run with its permission.