ENPM685 Group Project 1

Group 5

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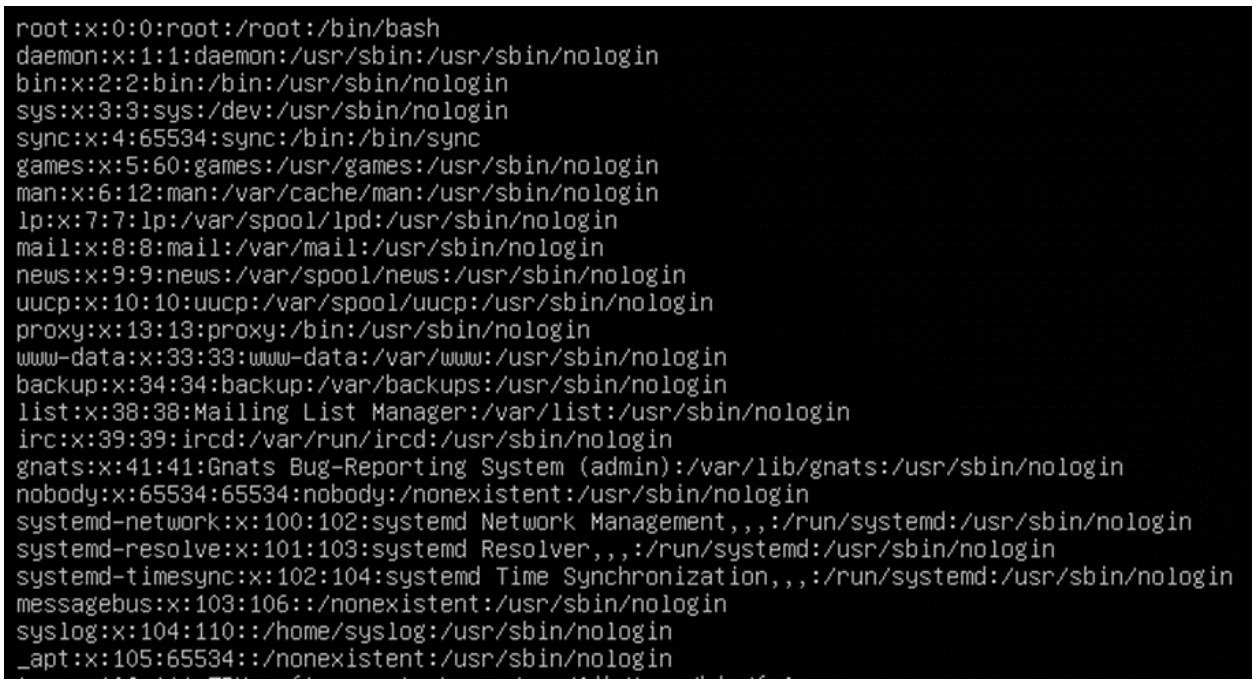
Access Control

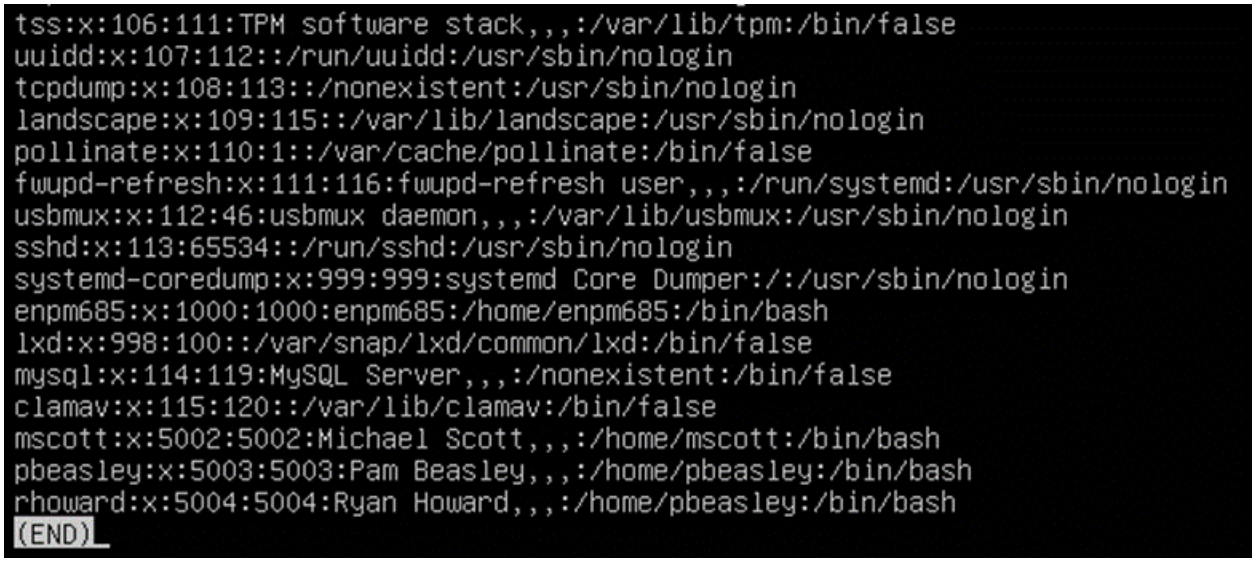
AC.L1-3.1.1 - Authorized Access Control

Limit information system access to authorized users, and processes acting on behalf of authorized users, or devices (including other information systems).

Is this requirement being met? **MET** NOT MET N/A

Evaluation/Evidence:
To facilitate identification, each user is assigned a unique login, and services are executed under individual accounts. The Cybersecurity Authentication Policy establishes recommendations for user verification, including the use of multi-factor authentication and strong password practices, which help restrict system access to only those who are allowed.
User ID (UID): A unique numerical identifier issued to each user. The system uses this ID to internally identify users. The root user normally has a UID of zero. UIDs less than 1000 (or another criterion, depending on the distribution) are often reserved for system accounts.



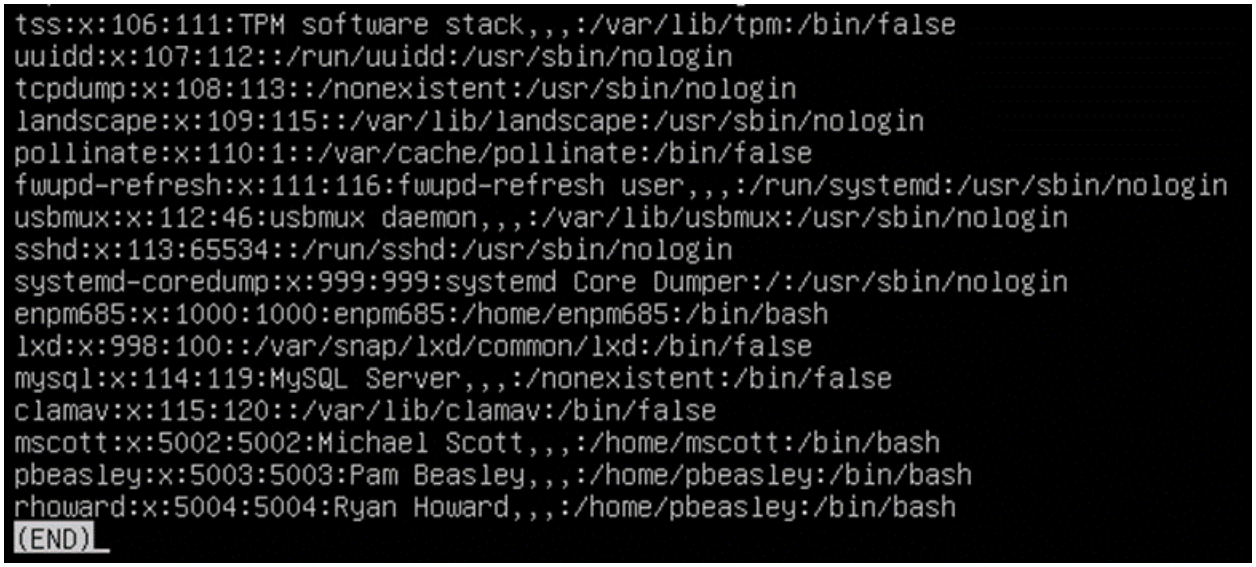


AC.L1-3.1.2 - Transaction & Function Control

Limit information system access to the types of transactions and functions that authorized users are permitted to execute.

Is this requirement being met? **MET** NOT MET N/A

Evaluation/Evidence:
root and admin group have all the privileges. If any authorized users (**mscott**, **pbeasley** and **rhoward**) are added to the admin group, then they can have all the privileges.



```
enpm685@mspc:~$ sudo cat /etc/sudoers
[sudo] password for enpm685:
#
# This file MUST be edited with the 'visudo' command as root.
#
# Please consider adding local content in /etc/sudoers.d/ instead of
# directly modifying this file.
#
# See the man page for details on how to write a sudoers file.
#
Defaults        env_reset
Defaults        mail_badpass
Defaults        secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/snap/bin"

# Host alias specification

# User alias specification

# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL

# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "#include" directives:

#includedir /etc/sudoers.d
```

```
enpm685@mspc:~$ id mscott
uid=5002(mscott) gid=5002(mscott) groups=5002(mscott),4(adm),27(sudo)
enpm685@mspc:~$ id rhoward
uid=5004(rhoward) gid=5004(rhoward) groups=5004(rhoward)
enpm685@mspc:~$ id pbeasley
uid=5003(pbeasley) gid=5003(pbeasley) groups=5003(pbeasley)
enpm685@mspc:~$ id enpm685
uid=1000(enpm685) gid=1000(enpm685) groups=1000(enpm685),4(adm),24(cdrom),27(sudo),30(dip),46(plugdev),117(lxd)
```

AC.L1-3.1.20 - External Connections

Verify and control/limit connections to and use of external information systems

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

There are two open ports (HTTP and SSH). HTTP is a default open port, while in SSH we have to check for the configuration. After reviewing the SSH configuration, we find that the SSH is secured with password authentication and rules. So SSH is securely handled. Input connections and the firewall's status must be considered while assessing external connections. Unfortunately, the firewall is still turned off and all default incoming connections are allowed by the IP tables, leaving open the possibility of attacks.

```
enpm685@mspc:~$ nmap -P 192.168.9.133
Warning:  You are not root -- using TCP pingscan rather than ICMP
Starting Nmap 7.80 ( https://nmap.org ) at 2024-03-07 00:44 UTC
Nmap scan report for mspc (192.168.9.133)
Host is up (0.000036s latency).
Not shown: 998 closed ports
PORT   STATE SERVICE
22/tcp open  ssh
80/tcp open  http
```

```
enpm685@mspc:~$ cat  /etc/ssh/sshd_config
#       $OpenBSD: sshd_config,v 1.103 2018/04/09 20:41:22 tj Exp $

# This is the sshd server system-wide configuration file.  See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/bin:/bin:/usr/sbin:/sbin

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented.  Uncommented options override the
# default value.

Include /etc/ssh/sshd_config.d/*.conf

#Port 22
#AddressFamily any
#ListenAddress 0.0.0.0
#ListenAddress ::

#HostKey /etc/ssh/ssh_host_rsa_key
#HostKey /etc/ssh/ssh_host_ecdsa_key
#HostKey /etc/ssh/ssh_host_ed25519_key

# Ciphers and keying
#RekeyLimit default none

# Logging
#SyslogFacility AUTH
#LogLevel INFO
```

```
# Authentication:

#LoginGraceTime 2m
#PermitRootLogin prohibit-password
#StrictModes yes
#MaxAuthTries 6
#MaxSessions 10

#PubkeyAuthentication yes

# Expect .ssh/authorized_keys2 to be disregarded by default in future.
#AuthorizedKeysFile     .ssh/authorized_keys .ssh/authorized_keys2

#AuthorizedPrincipalsFile none

#AuthorizedKeysCommand none
#AuthorizedKeysCommandUser nobody

# For this to work you will also need host keys in /etc/ssh/ssh_known_hosts
#HostbasedAuthentication no
# Change to yes if you don't trust ~/.ssh/known_hosts for
# HostbasedAuthentication
#IgnoreUserKnownHosts no
# Don't read the user's ~/.rhosts and ~/.shosts files
#IgnoreRhosts yes

# To disable tunneled clear text passwords, change to no here!
#PasswordAuthentication yes
#PermitEmptyPasswords no

# Change to yes to enable challenge-response passwords (beware issues with
# some PAM modules and threads)
ChallengeResponseAuthentication no
```

```
enpm685@mspc:~$ sudo iptables -nL
Chain INPUT (policy ACCEPT)
target     prot opt source               destination

Chain FORWARD (policy ACCEPT)
target     prot opt source               destination

Chain OUTPUT (policy ACCEPT)
target     prot opt source               destination
enpm685@mspc:~$ sudo iptables -S
-P INPUT ACCEPT
-P FORWARD ACCEPT
-P OUTPUT ACCEPT
enpm685@mspc:~$
```

Suggestion:
Set up rules about input connections and turn on the firewall to protect against possible instructions from outside connections.

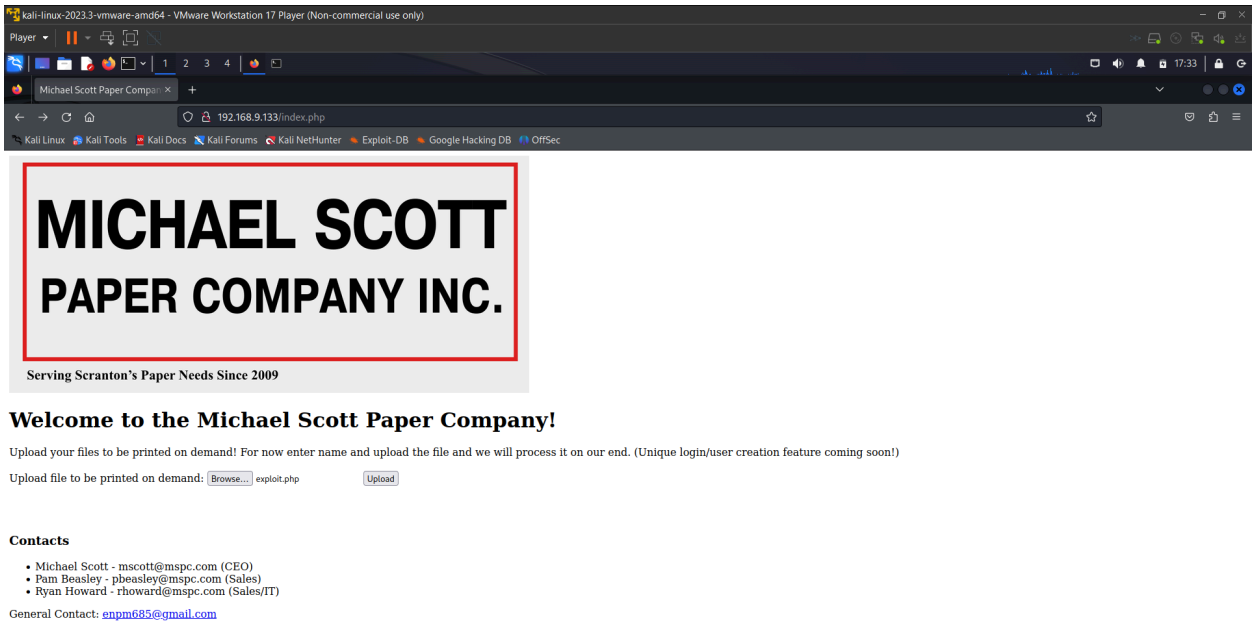
AC.L1-3.1.22 - Control Public Information

Control information posted or processed on publicly accessible information systems.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Restricting access to authorized users only and establishing certain methods for accessing web server content are crucial for maintaining compliance. But in this case, there aren't any official rules about what kinds of files are allowed to be uploaded to the web application. In a test run with the Weevely tool, we uploaded a "a.php" file and were able to acquire access by taking advantage of the lack of file type limitations.



```
┌──(kali㉿kali)-[~]
└─$ weevely http://192.168.9.133/uploads/exploit.php password

[+] weevely 4.0.1

[+] Target:     www-data@mspc:/var/www/html/uploads
[+] Session:    /home/kali/.weevely/sessions/192.168.9.133/exploit_0.session
[+] Shell:      System shell

[+] Browse the filesystem or execute commands starts the connection
[+] to the target. Type :help for more information.

weevely> ls
exploit.php
www-data@mspc:/var/www/html/uploads $ echo "See!! I got in" > Test.txt
www-data@mspc:/var/www/html/uploads $ ls
Test.txt
exploit.php
www-data@mspc:/var/www/html/uploads $
```

```
enpm685@mspc:~$ cd /var/www/html/uploads/
enpm685@mspc:/var/www/html/uploads$ ls
exploit.php  Test.txt
enpm685@mspc:/var/www/html/uploads$ cat Test.txt
See!! I got in
```

Suggestion:

Implement strict input validation on the website so that users can only upload approved file types. This means confirming the content type as well as the file extension. To further block public access, secure the upload directory (e.g., 192.168.9.133/uploads). Set filesystem permissions so that only authorized users can access them.

Identification and Authentication

IA.L1-3.5.1 - Identification

Identify information system users, processes acting on behalf of users, or devices.

Is this requirement being met? **MET** NOT MET N/A

Evaluation/Evidence:

All users have unique usernames through which they can be identified. The processes can be identified as service accounts that run separately. The following screenshot shows the details of the user accounts in the */etc/passwd* file in the system.

```
enpm685@mspc:~$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:100:102:systemd Network Management,,,:/run/systemd:/usr/sbin/nologin
systemd-resolve:x:101:103:systemd Resolver,,,:/run/systemd:/usr/sbin/nologin
systemd-timesync:x:102:104:systemd Time Synchronization,,,:/run/systemd:/usr/sbin/nologin
messagebus:x:103:106::/nonexistent:/usr/sbin/nologin
syslog:x:104:110::/home/syslog:/usr/sbin/nologin
_apt:x:105:65534::/nonexistent:/usr/sbin/nologin
tss:x:106:111:TPM software stack,,,:/var/lib/tpm:/bin/false
uuidd:x:107:112::/run/uuidd:/usr/sbin/nologin
tcpdump:x:108:113::/nonexistent:/usr/sbin/nologin
landscape:x:109:115::/var/lib/landscape:/usr/sbin/nologin
pollinate:x:110:1::/var/cache/pollinate:/bin/false
fwupd-refresh:x:111:116:fwupd-refresh user,,,:/run/systemd:/usr/sbin/nologin
usbmux:x:112:46:usbmux daemon,,,:/var/lib/usbmux:/usr/sbin/nologin
sshd:x:113:65534::/run/sshd:/usr/sbin/nologin
systemd-coredump:x:999:999:systemd Core Dumper:/:/usr/sbin/nologin
enpm685:x:1000:1000:enpm685:/home/enpm685:/bin/bash
lxd:x:998:100::/var/snap/lxd/common/lxd:/bin/false
mysql:x:114:119:MySQL Server,,,:/nonexistent:/bin/false
clamav:x:115:120::/var/lib/clamav:/bin/false
mscott:x:5002:5002:Michael Scott,,,:/home/mscott:/bin/bash
pbeasley:x:5003:5003:Pam Beasley,,,:/home/pbeasley:/bin/bash
rhoward:x:5004:5004:Ryan Howard,,,:/home/pbeasley:/bin/bash
```

In the above screenshot, we can see that there are a total of 3 users (excluding **enpm685**) and those are the same users as mentioned in the web application. Please refer the screenshot below from the Michael Scott Paper Company website:

Contacts

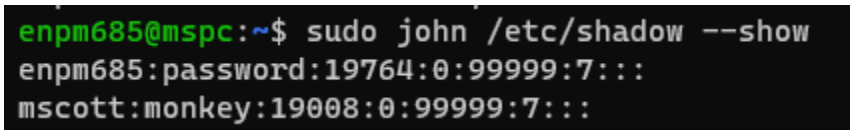
- Michael Scott - mscott@mspc.com (CEO)
- Pam Beasley - pbeasley@mspc.com (Sales)
- Ryan Howard - rhoward@mspc.com (Sales/IT)

IA.L1-3.5.2 - Authentication

Authenticate (or verify) the identities of those users, processes, or devices, as a prerequisite to allowing access to organizational information systems.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:
The authentication policy for the Michael Scott Paper Company includes requirements for strong and unique passwords. However, on an attempt to verify the password hashes in the system, the password for the user **mscott** (Michael Scott) did not follow the policy and the details can be seen in the screenshot below.



The password needs to be updated as mentioned in the authentication policy of Michael Scott Paper Company as the statements are according to CMMC requirements.

Media Protection

MP.L1-3.8.3 – Media Disposal

Sanitize or destroy information system media containing Federal Contract Information before disposal or release for reuse.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

1. Media files present in system

```
enpm685@mspc:~$ sudo apt install lsscsi
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  lsscsi
0 upgraded, 1 newly installed, 0 to remove and 66 not upgraded.
Need to get 43.6 kB of archives.
After this operation, 114 kB of additional disk space will be used.
Get:1 http://ports.ubuntu.com/ubuntu-ports focal/main arm64 lsscsi arm64 0.30-0.1 [43.6 kB]
Fetched 43.6 kB in 0s (113 kB/s)
Selecting previously unselected package lsscsi.
(Reading database ... 77430 files and directories currently installed.)
Preparing to unpack .../lsscsi_0.30-0.1_arm64.deb ...
Unpacking lsscsi (0.30-0.1) ...
Setting up lsscsi (0.30-0.1) ...
Processing triggers for man-db (2.9.1-1) ...
enpm685@mspc:~$ lsscsi
[0:0:0:0]    disk    ATA      ENPM685 Group Pr 7XX0  /dev/sda
[1:0:0:0]    cd/dvd           Virtual DVD-ROM  R103  /dev/sr0
```

Block Devices:

```
enpm685@mspc:~$ lsblk
NAME                      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0                       7:0    0 57.9M  1 loop /snap/core20/1614
loop1                       7:1    0   61M  1 loop /snap/lxd/22761
loop3                       7:3    0 35.2M  1 loop /snap/snapd/20674
loop4                       7:4    0 59.7M  1 loop /snap/core20/2186
loop5                       7:5    0 91.9M  1 loop /snap/lxd/24065
sda                         8:0    0   64G  0 disk
├─sda1                      8:1    0  1.1G  0 part /boot/efi
├─sda2                      8:2    0    2G  0 part /boot
└─sda3                      8:3    0   61G  0 part
  └─ubuntu--vg-ubuntu--lv 253:0    0 30.5G  0 lvm  /
sr0                        11:0    1 1024M  0 rom
```

Hard Drives:

```
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
enpm685@mspc:~$ df -h
Filesystem                         Size  Used Avail Use% Mounted on
udev                               426M     0  426M   0% /dev
tmpfs                               98M  1.5M   96M   2% /run
/dev/mapper/ubuntu--vg-ubuntu--lv   30G  5.7G   23G  20% /
tmpfs                              486M     0  486M   0% /dev/shm
tmpfs                              5.0M     0  5.0M   0% /run/lock
tmpfs                              486M     0  486M   0% /sys/fs/cgroup
/dev/loop0                          58M   58M     0 100% /snap/core20/1614
/dev/loop1                          62M   62M     0 100% /snap/lxd/22761
/dev/sda2                          2.0G  107M  1.7G   6% /boot
/dev/sda1                          1.1G  6.4M  1.1G   1% /boot/efi
/dev/loop3                          36M   36M     0 100% /snap/snapd/20674
/dev/loop4                          60M   60M     0 100% /snap/core20/2186
/dev/loop5                          92M   92M     0 100% /snap/lxd/24065
tmpfs                               98M     0   98M   0% /run/user/1000
```

USB Devices:

```
enpm685@mspc:~$ lsusb
Bus 003 Device 011: ID 203a:fffb Parallels Virtual Keyboard
Bus 003 Device 010: ID 203a:fffc Parallels Virtual Mouse
Bus 003 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 002 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
```

2. Media classified according to the sensitivity of the information it contains.

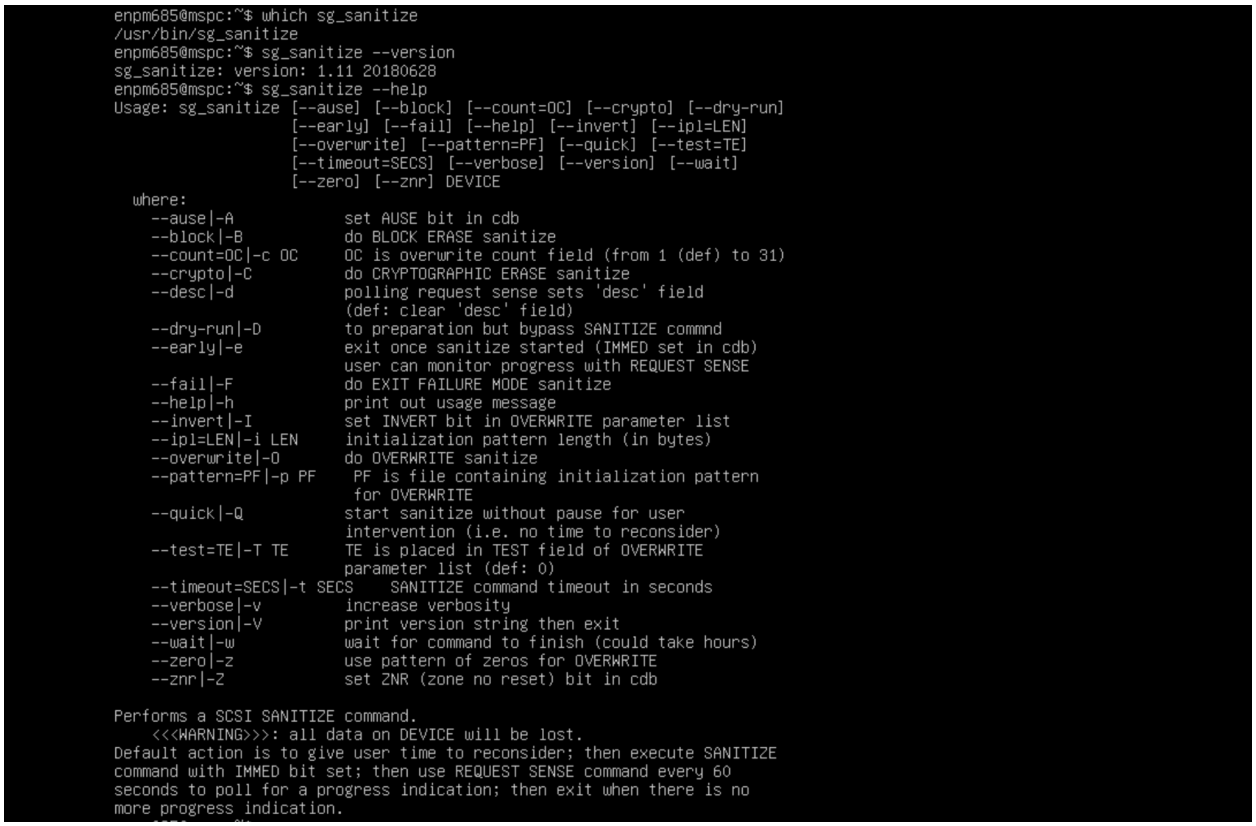
```
enpm685@mspc:/dev/disk$ ls
by-dname  by-id  by-partuuid  by-path  by-uuid
enpm685@mspc:/dev/disk$ cd by-dname
enpm685@mspc:/dev/disk/by-dname$ ls
ubuntu--vg-ubuntu--lv
enpm685@mspc:/dev/disk/by-dname$ cat ubuntu--vg-ubuntu--lv
cat: ubuntu--vg-ubuntu--lv: Permission denied
enpm685@mspc:/dev/disk/by-dname$ cd -
/dev/disk
enpm685@mspc:/dev/disk$ cd by-id
enpm685@mspc:/dev/disk/by-id$ ls
ata-ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF
ata-ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF-part1
ata-ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF-part2
ata-ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF-part3
ata-Virtual_DVD-ROM__1__-_31415B265
dm-name-ubuntu--vg-ubuntu--lv
dm-uuid-LVM-ISkKmXNiQiewnfwi8Zd1pLZd6hVpjFQFCor36CcMLH2i2sv0qv6nx0A5ZwVZUvcx
lvm-pv-uuid-0wPECf-xtbR-dz98-vVLB-nw4u-GeVe-Hn4DUh
scsi-0ATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF
scsi-0ATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF-part1
scsi-0ATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF-part2
scsi-0ATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF-part3
scsi-1ATA_ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF
scsi-1ATA_ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF-part1
scsi-1ATA_ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF-part2
scsi-1ATA_ENPM685_Group_Project_1-0_SSD_MX5HQK0FR314Q3Q3VHBF-part3
scsi-SATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF
scsi-SATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF-part1
scsi-SATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF-part2
scsi-SATA_ENPM685_Group_Pr_MX5HQK0FR314Q3Q3VHBF-part3
enpm685@mspc:/dev/disk/by-id$ cd -
/dev/disk
enpm685@mspc:/dev/disk$ cd by-partuuid
enpm685@mspc:/dev/disk/by-partuuid$ ls
46cdec98-c514-48c5-bb61-d13353062e9b  affb737a-98e9-44b2-a538-da2cdec7e7aa  c5d33c58-6356-4aad-9001-8219c3295989
enpm685@mspc:/dev/disk/by-partuuid$ cd -
/dev/disk
enpm685@mspc:/dev/disk$ cd by-path
enpm685@mspc:/dev/disk/by-path$ ls
platform-PRL4010:00-ata-1       platform-PRL4010:00-ata-1-part2  platform-PRL4010:00-ata-2
platform-PRL4010:00-ata-1-part1  platform-PRL4010:00-ata-1-part3
enpm685@mspc:/dev/disk/by-path$ cd -
/dev/disk
enpm685@mspc:/dev/disk$ cd by-uuid
enpm685@mspc:/dev/disk/by-uuid$ ls
08812951-9057-4011-a446-b93338a46685  89D6-59E2  c3c5a575-fdf5-477b-9b26-12b18cd4df3d
enpm685@mspc:/dev/disk/by-uuid$
```

3. System media containing FCI is sanitized or destroyed before disposal using sg_sanitize version 1.11 20180628:

Is this requirement met? MET **NOT MET** NA

Evaluation/Evidence:

Even though sanitization tools are installed, we have no proof whether they are being implemented to dispose of system media since we couldn't find any media destruction certificate for the same.



Recommendation: The company should have automated sanitization of media and should contain all the appropriate certificates for media destruction policy.

4. Sanitization techniques installed are Shred version 8.30 for Shredding and dd version 8.30 for Data Wiping

```
enpm685@mspc:~$ shred --version
shred (GNU coreutils) 8.30
Copyright (C) 2018 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Colin Plumb.
```

```
enpm685@mspc:~$ dd --version
dd (coreutils) 8.30
Copyright (C) 2018 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Written by Paul Rubin, David MacKenzie, and Stuart Kemp.
```

5. Secure storage for media, Media not accessible by unauthorized personnel.

```
enpm685@mspc:~$ fdisk -l
fdisk: cannot open /dev/loop0: Permission denied
fdisk: cannot open /dev/loop1: Permission denied
fdisk: cannot open /dev/loop3: Permission denied
fdisk: cannot open /dev/loop4: Permission denied
fdisk: cannot open /dev/loop5: Permission denied
fdisk: cannot open /dev/sda: Permission denied
fdisk: cannot open /dev/mapper/ubuntu--vg-ubuntu--lv: Permission denied
```

6. Media Device Encryption
   Managed data storage not encrypted. No encryption mechanism used for media devices.

Is this requirement being met? MET **NOT MET** N/A

```
enpm685@mspc:~$ lsblk -lpno name,fstype,MOUNTPOINT
/dev/loop0                          squashfs   /snap/core20/1614
/dev/loop1                          squashfs   /snap/lxd/22761
/dev/loop3                          squashfs   /snap/snapd/20674
/dev/loop4                          squashfs   /snap/core20/2186
/dev/loop5                          squashfs   /snap/lxd/24065
/dev/sda
/dev/sda1                           vfat       /boot/efi
/dev/sda2                           ext4       /boot
/dev/sda3                           LVM2_member
/dev/sr0
/dev/mapper/ubuntu--vg-ubuntu--lv   ext4       /
```

Recommendation: Managed data storage can be encrypted using LUKS (Linux Unified key Setup) which is a de facto standard for disk encryption under linux. For example: using crypto_LUKS fstype.

Physical Protection

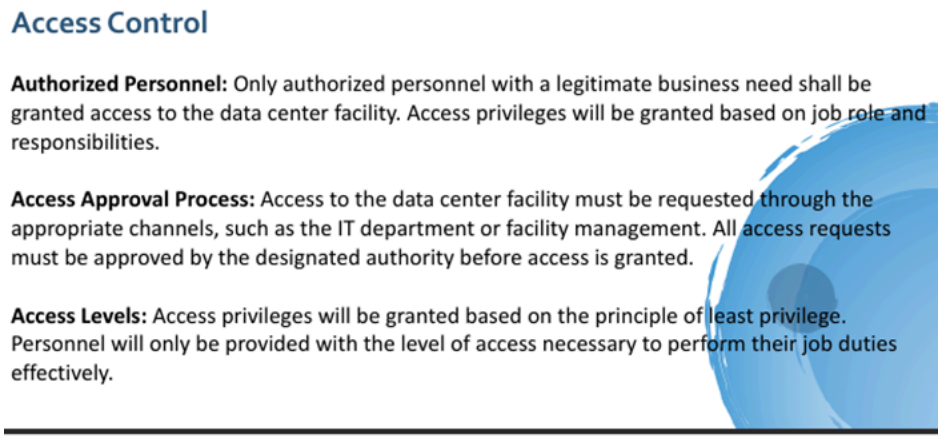
PE.L1-3.10.1 – Limit Physical Access

Limit physical access to organizational information systems, equipment, and the respective operating environments to authorized individuals.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Access control is a part of the Data Center Policy. The following screenshot shows the access control segment of the policy.



Access Control

Authorized Personnel: Only authorized personnel with a legitimate business need shall be granted access to the data center facility. Access privileges will be granted based on job role and responsibilities.

Access Approval Process: Access to the data center facility must be requested through the appropriate channels, such as the IT department or facility management. All access requests must be approved by the designated authority before access is granted.

Access Levels: Access privileges will be granted based on the principle of least privilege. Personnel will only be provided with the level of access necessary to perform their job duties effectively.

Visitor Access: Visitors to the data center facility must be pre-authorized and accompanied by an authorized employee or contractor at all times. Visitors must sign in and out, providing appropriate identification, and adhere to all data center access policies.

However, there is no proof of physical access being limited to only authorized personnel since we are not able to physically access the Michael Scott Paper Company data center.

PE.L1-3.10.3 – Escort Visitors

Escort visitors and monitor visitor activity.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Although the data center policy mentions visitor access being monitored, there is no actual proof of physical access mechanisms or controls being implemented at the facility. Visiting the facility was not a possibility for our team to verify this requirement.

PE.L1-3.10.4 – Physical Access Logs

Maintain audit logs of physical access.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Even though the data center policy mentions logs being maintained for physical access to the data center, there is no information regarding any physical access logs in the VM nor can we physically verify that by visiting the data center.

PE.L1-3.10.5 – Manage Physical Access

Control and manage physical access devices

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Managing physical access is a part of the datacenter policy. However, there is no concrete evidence as to how the physical access devices are managed or any kind of documentation regarding that.

System and Communications Protection

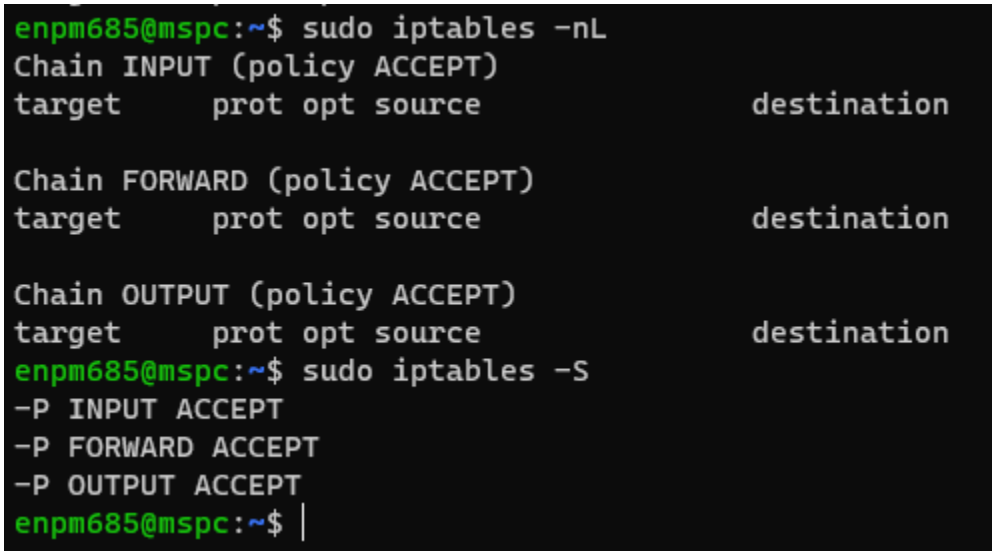
SC.L1-3.13.1 - Boundary Protection

Monitor, control, and protect organizational communications (i.e., information transmitted or received by organizational information systems) at the external boundaries and key internal boundaries of the information systems.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

The IP tables are set in the default configuration and not modified to protect the server network. All kinds of incoming and outgoing traffic is allowed to pass through the network and this is not considered as a safe configuration for an organization. The below screenshot shows that there are no traffic filters added and relies on the default configurations.



The network traffic must be filtered to protect from malicious traffic flow by explicitly allowing only the traffic that needs to be in the network and setting the default filters to deny all traffic.

SC.L1-3.13.5 - Public-Access System Separation

Implement subnetworks for publicly accessible system components that are physically or logically separated from internal networks.

Is this requirement being met? MET NOT MET **N/A**

Evaluation/Evidence:

There is no mention of separation of internal and external networks or any other network infrastructure for the web application in any of their policy documents. Hence, this requirement remains inconclusive and not applicable for this organization.

System and Information Integrity

SI.L1-3.14.1 - Flaw Remediation

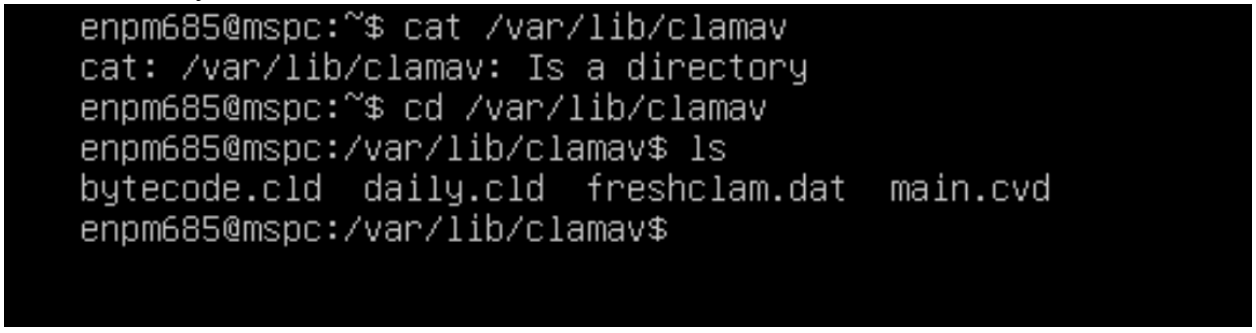
Identify, report, and correct information and information systems flaws in a timely manner.

Is this requirement being met? **MET** NOT MET N/A

Evaluation/Evidence:

1. Patches for ubuntu-keyring: ARM64 are recorded in */var/log/apt/history.log*

2. Anti-virus signatures like bytecode.cld, daily.cld, freshclam.dat, main.cvd are installed in directory */var/lib/clamav*



3. To keep the ClamAV Antivirus Server definition database up-to-date, freshclam is configured to check for new definitions. The default is set to 24 times per day.

```
enpm685@mspc:/etc/clamav$ cat freshclam.conf
# Automatically created by the clamav-freshclam postinst
# Comments will get lost when you reconfigure the clamav-freshclam package

DatabaseOwner clamav
UpdateLogFile /var/log/clamav/freshclam.log
LogVerbose false
LogSyslog false
LogFacility LOG_LOCAL6
LogFileMaxSize 0
LogRotate true
LogTime true
Foreground false
Debug false
MaxAttempts 5
DatabaseDirectory /var/lib/clamav
DNSDatabaseInfo current.cvd.clamav.net
ConnectTimeout 30
ReceiveTimeout 0
TestDatabases yes
ScriptedUpdates yes
CompressLocalDatabase no
Bytecode true
NotifyClamd /etc/clamav/clamd.conf
# Check for new database 24 times a day
Checks 24
DatabaseMirror db.local.clamav.net
DatabaseMirror database.clamav.net
```

4. List of vendors in our system to ensure timely access to updates.

```
enpm685@mspc:~$ sudo lshw | grep -i "vendor"
    vendor: Parallels International GmbH.
       vendor: Parallels ARM Virtual Machine
          vendor: Parallels International GmbH.
          vendor: Apple
          vendor: Intel Corporation
          vendor: Intel Corporation
             vendor: Linux 5.4.0-171-generic ehci_hcd
          vendor: NEC Corporation
             vendor: Linux 5.4.0-171-generic xhci-hcd
             vendor: Linux 5.4.0-171-generic xhci-hcd
                vendor: Parallels
                vendor: Parallels
          vendor: Red Hat, Inc.
          vendor: Parallels, Inc.
          vendor: Red Hat, Inc.
                vendor: mkfs.fat
                vendor: Linux
```

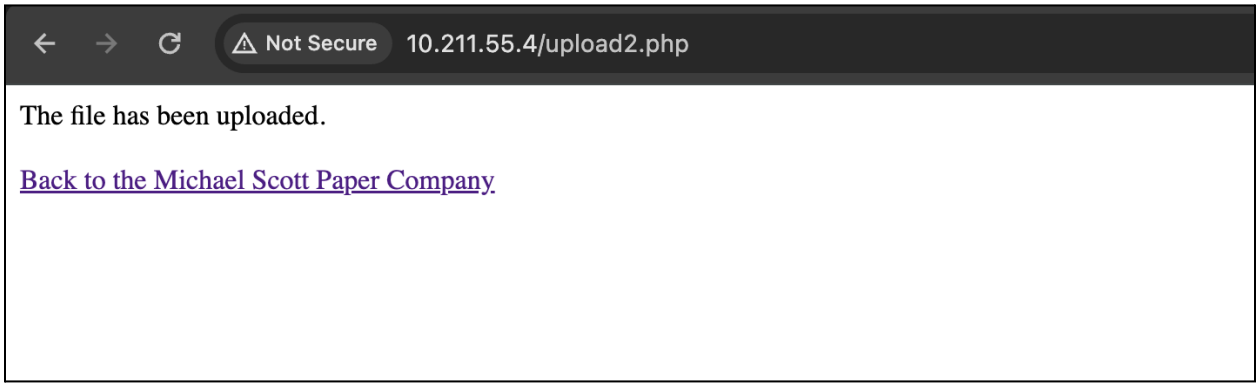
SI.L1-3.14.2 - Malicious Code Protection

Provide protection from malicious code at appropriate locations within organizational information systems.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Michael Scott paper company website allows all file types to be uploaded regardless of their extensions. This way, attackers can exploit this vulnerability by uploading malicious PHP web shells to get backdoor access to the server.



Always validate and verify the file type that is being uploaded to prevent such vulnerabilities.

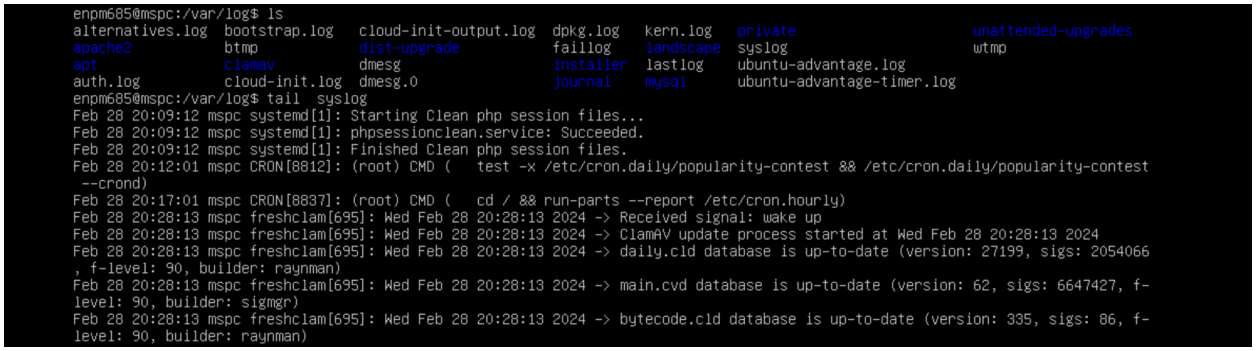
SI.L1-3.14.4 - Update Malicious Code Protection

When new releases are available

Is this requirement being met? **MET** NOT MET N/A

Evaluation/Evidence:

Freshclam downloads and updates ClamAV's official virus signature databases can be seen available in the virtual machine.



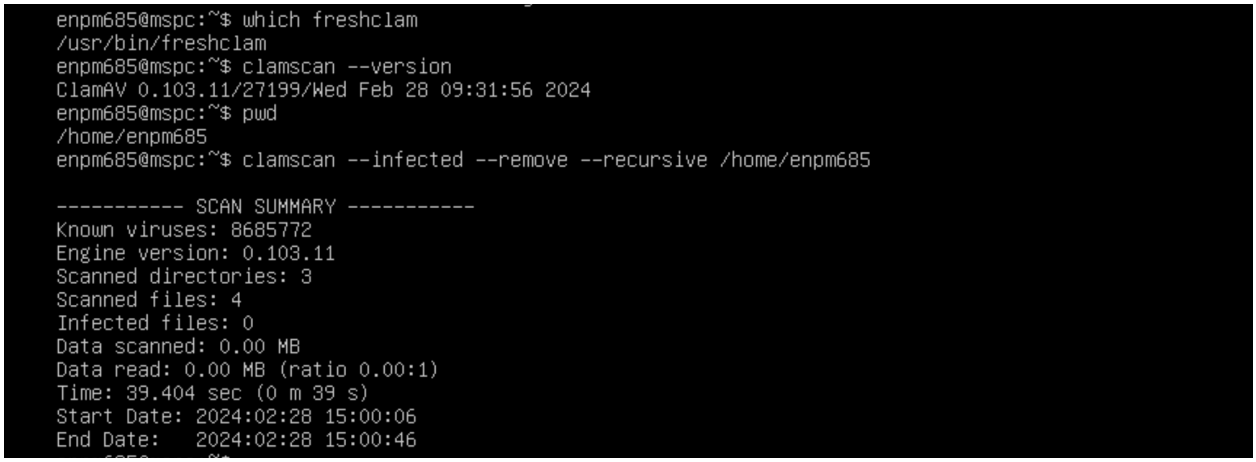
SI.L1-3.14.5 - System & File Scanning

Perform periodic scans of the information system and real-time scans of files from external sources as files are downloaded, opened, or executed.

Is this requirement being met? MET **NOT MET** N/A

Evaluation/Evidence:

Anti-malware software like ClamAV is used to scan for and identify viruses, but it can only be run manually i.e. the anti-virus scan is not performed automatically.



Set up automated tasks to run anti-virus scans on a frequent basis to prevent any kind of malware in the system.