Blue Text - Brad
Green Text - Garrett

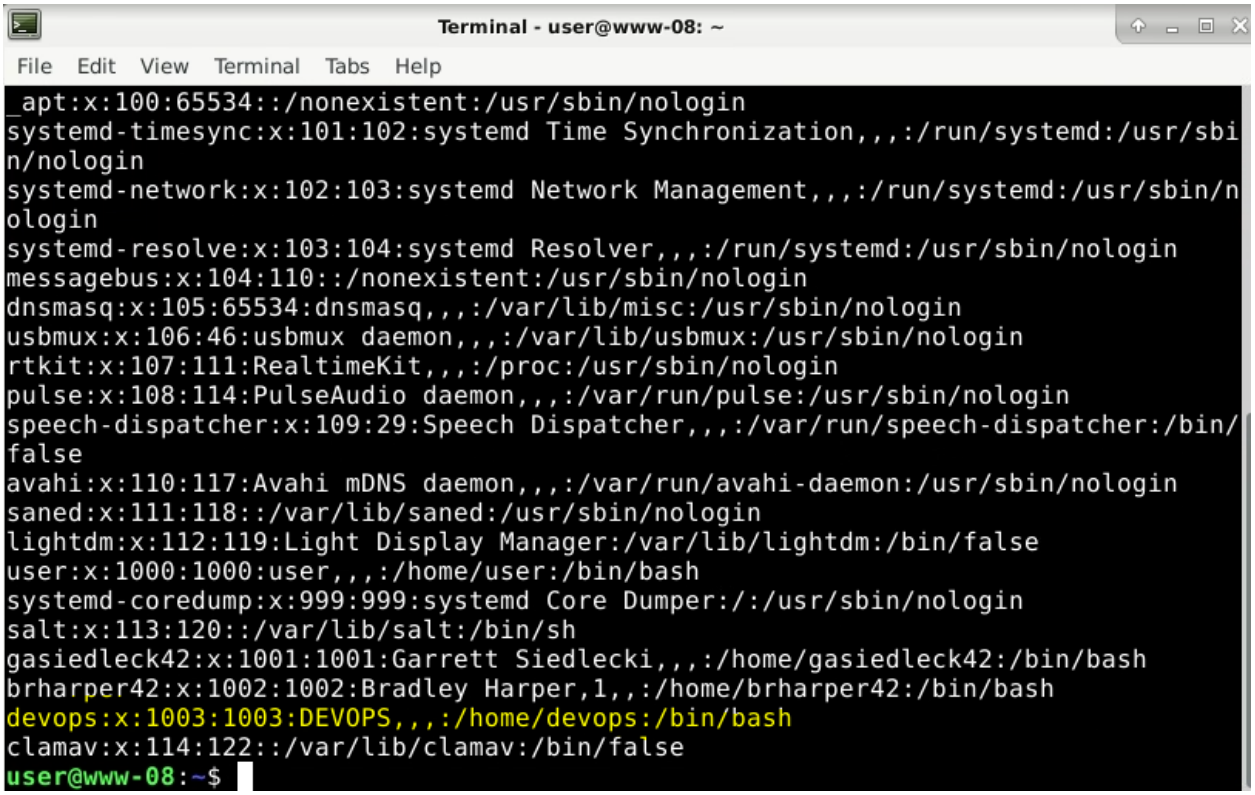
8/27/2021
Lab 1

- Workstation
  - Updated Windows 10
  - Updated Local Admin Password
    Password: wiEAF#oXG%pPDNa^
  - Verified Network Settings
    - IP: 192.168.8.3
    - Subnet mask: 255.255.255.128
    - Gateway: 192.168.8.1
    - DNS: 192.168.1.1
- pfSense Router
  - Username and Password verified to provide admin access to system
  - New user created with admin privileges
    - Username: pfsensei
    - Password: CtyJ5BWPJMD4yHJ
  - Router updated
    - Version: 2.4.5-RELEASE-p1
- Windows Server 2016
  - Forced password for admin using ‘net user Administrator
  - /passwordreq:yes’ in powershell
  - Added “Roles and Features” to begin configuring active directory
  - NEXT Step is clicking yellow triangle and adding domain
  - Clicked triangle to add domain and created new forest
  - Host domain set to pompeii08.net
  - Password is MountVesuvius08
  - AD is configured
  - NEXT step is join windows 10 system to domain
  - Joined windows 10 system to domain
  - Pass: P@ssw0rd!
- Debian Server
  - Updated user password
    - Password: P@$$word
  - New user created for Garrett
    - Username: gasiedleck42
    - Password: P@$$word
  - New user created for Bradley
    - Username: brharper42
    - Password: P@$$word
  - System updated with “apt-get update | apt-get upgrade”

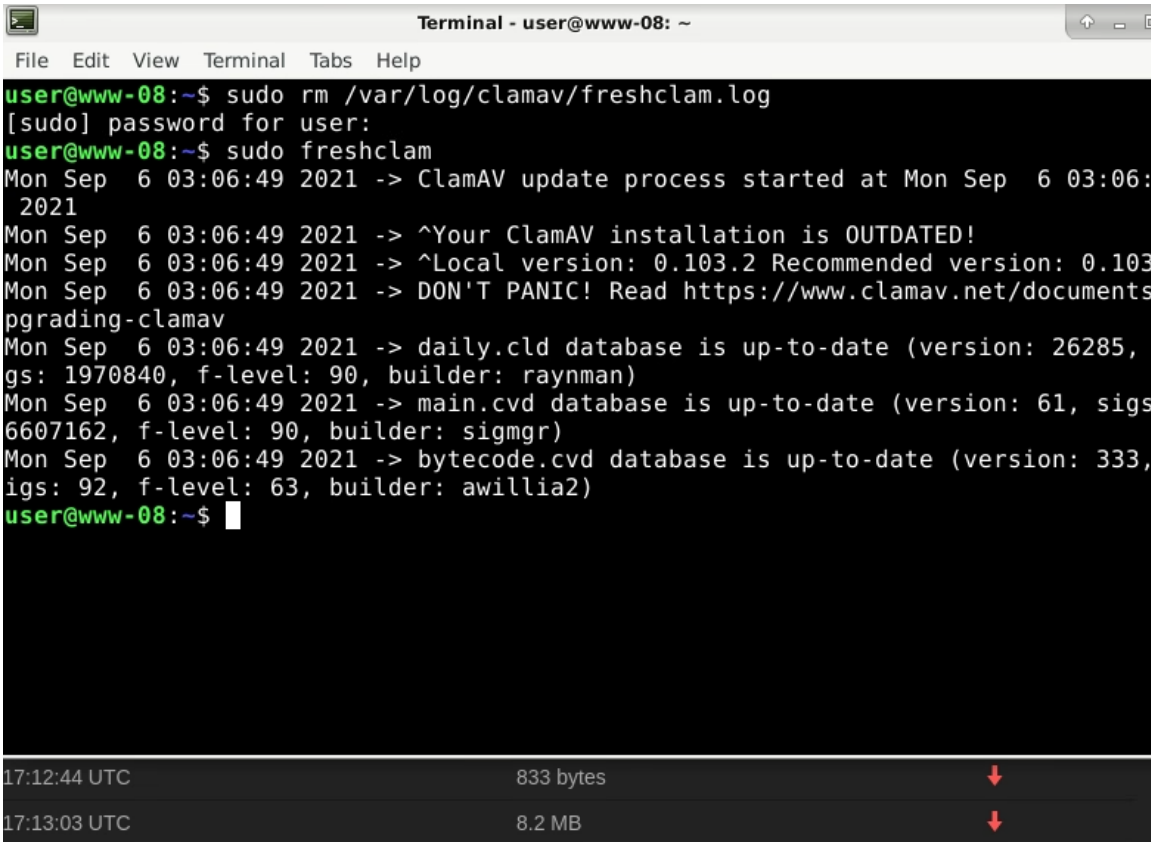
    - Installed Apache2
    - Installed Php7
- Windows 10 Management Laptop
    - Nothing to do here, used in later labs

9/1/2021
Lab2

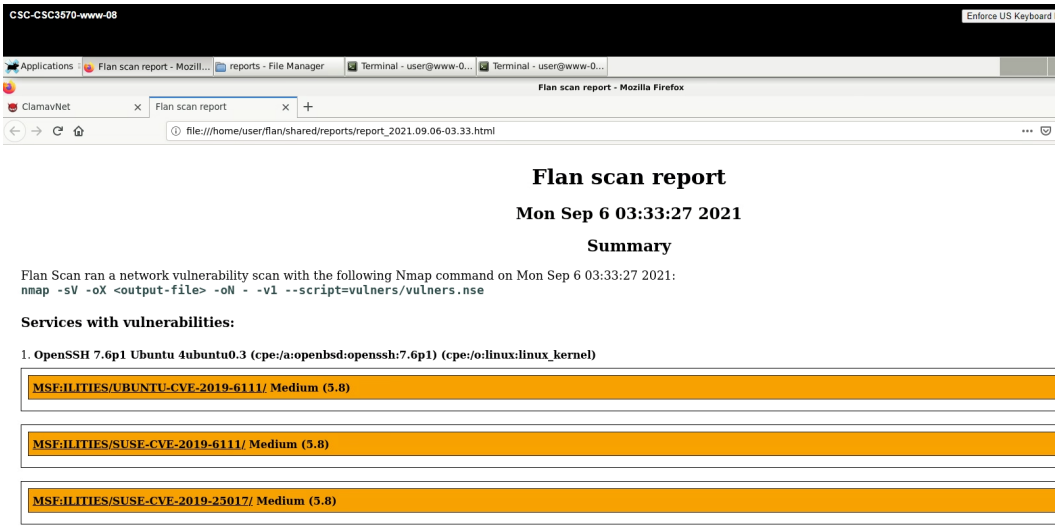
- Debian Server
    - Added user “devops”
        - Password: Password123!




    - Added user “devops” to sudo group
    - Installed ClamAV (OUTDATED)
    - Scanned with sudo freshclam

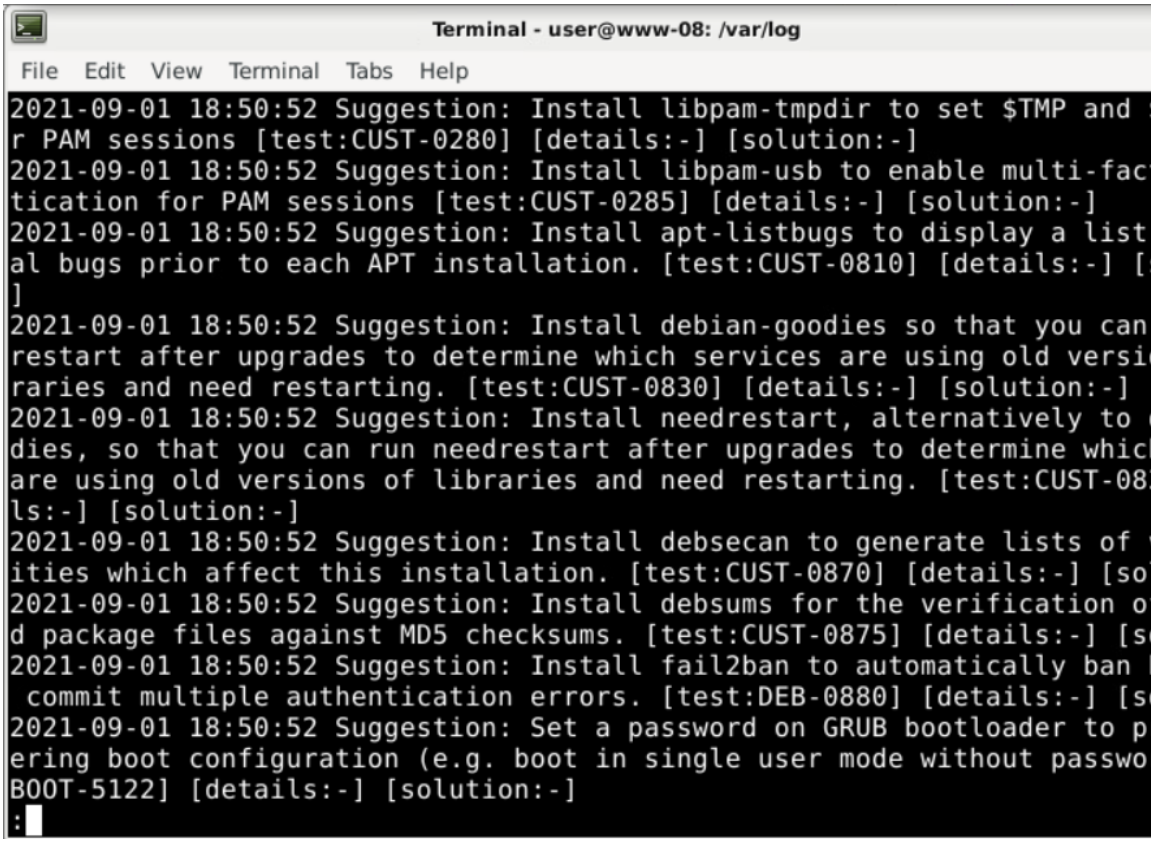



- Installed curl
- Installed git
- Installed make
- Installed docker
- Ran flan scan

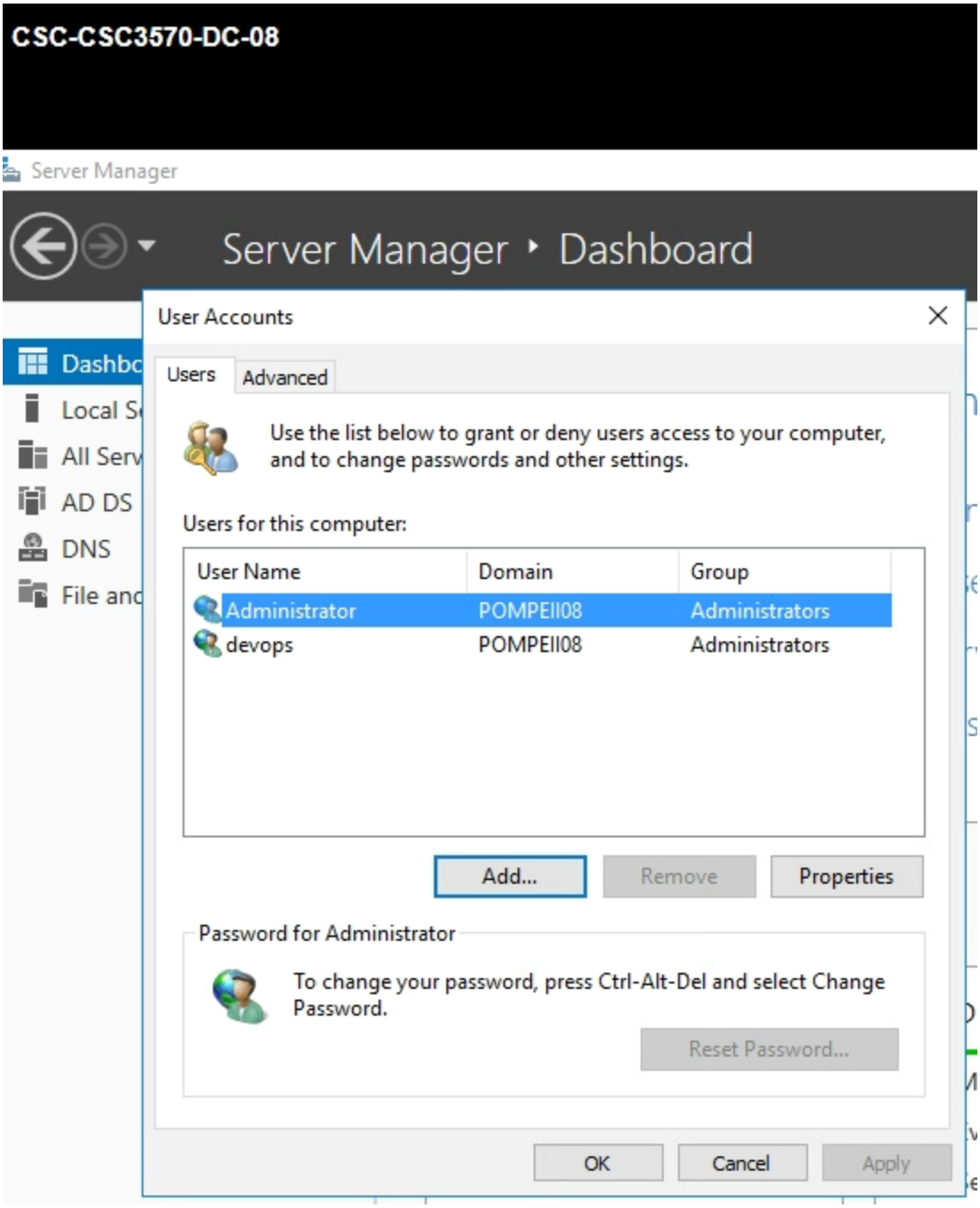



- Installed lynis
- Ran a system audit with lynis “sudo lynis system audit -q”

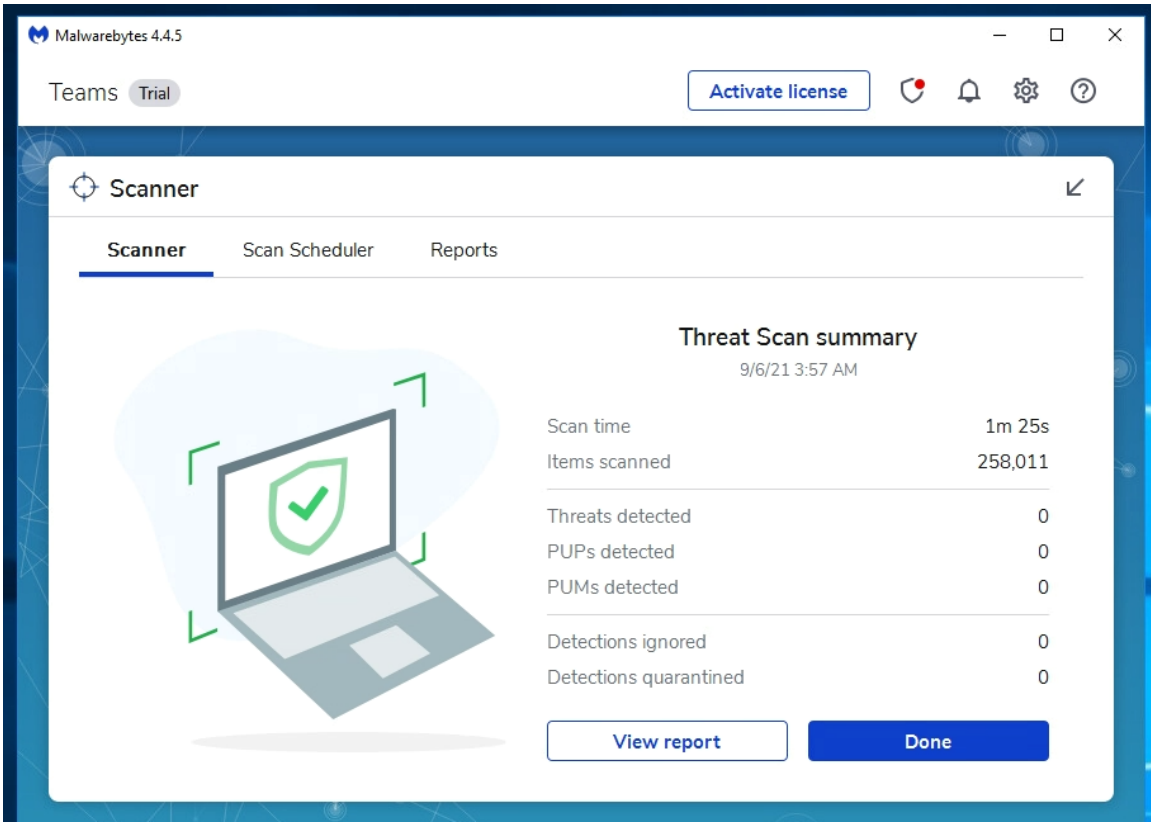
- Analyzed list of suggestions from lynis by issuing command “grep -i Suggestion /var/log/lynis.log | less”



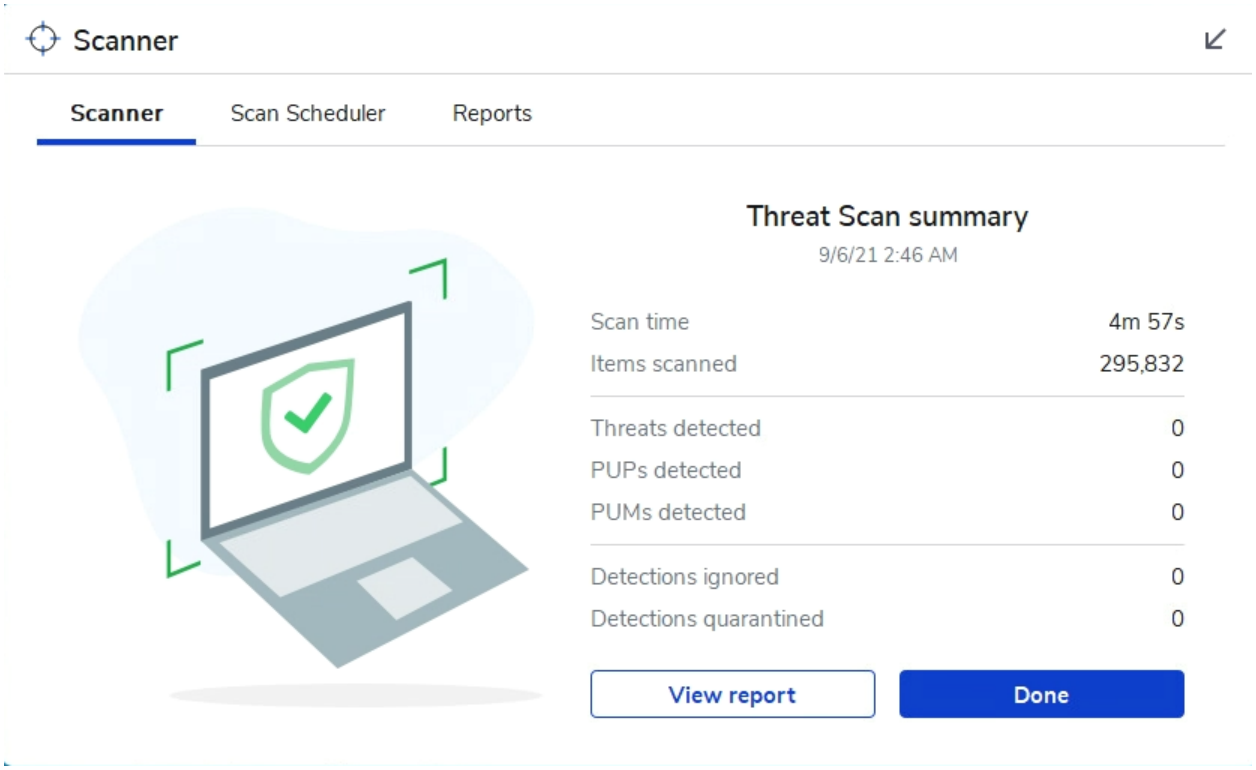

- Windows Server 16
  - Devops user created with password: Password123!




- Installed malwarebytes and scanned




- Workstation
  - Installed Malwarebytes Free
  - Ran Malwarebytes scan
    - No threats detected




Deliverable Part 2:

1. CVE-2017-15710 In Apache httpd 2.0.23 to 2.0.65, 2.2.0 to 2.2.34, and 2.4.0 to 2.4.29, mod_authnz_ldap, if configured with AuthLDAPCharsetConfig, uses the Accept-Language header value to lookup the right charset encoding when verifying the user's credentials.
    a. All httpd users should upgrade to 2.4.30 or later.
2. CVE-2018-1303 A specially crafted HTTP request header could have crashed the Apache HTTP Server prior to version 2.4.30 due to an out of bound read while preparing data to be cached in shared memory. It could be used as a Denial of Service attack against users of mod_cache_socache. The vulnerability is considered as low risk since mod_cache_socache is not widely used, mod_cache_disk is not concerned by this vulnerability.
    a. All httpd users should upgrade to 2.4.30 or later.
3. CVE-2019-0217 In Apache HTTP Server 2.4 release 2.4.38 and prior, a race condition in mod_auth_digest when running in a threaded server could allow a user with valid credentials to authenticate using another username, bypassing configured access control restrictions.
    a. All httpd users deploying mod_auth_digest should upgrade to 2.4.39 or later.

Deliverable Part 3:

>Install libpam-tmpdir to set $TMP aand $TMPDIR for PAM sessions

>>Many programs use $TMPDIR for storing temporary files. Not all of them are good at securing the permissions of those files. libpam-tmpdir sets $TMPDIR and $TMP for PAM sessions and sets the permissions quite tight. This helps system security by having an extra layer of security, making such symlink attacks and other /tmp based attacks harder or impossible

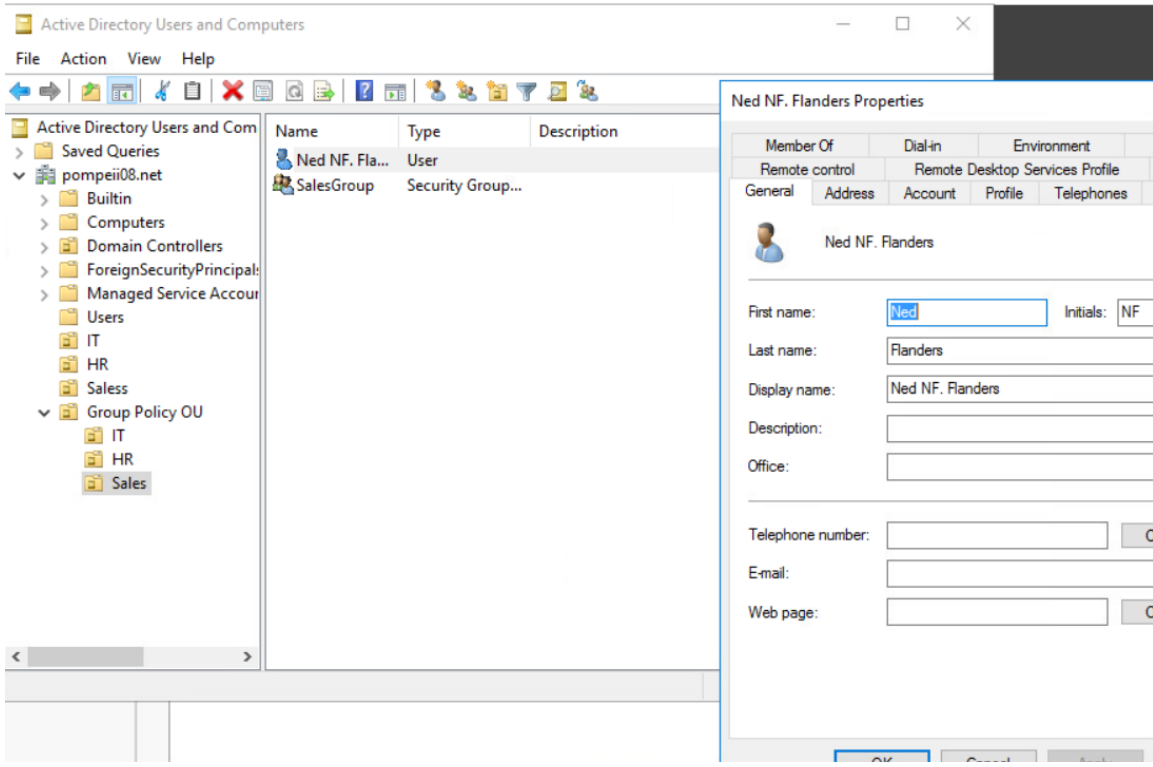
>Install debian-goodies so that you can run checkrestart after upgrades to determine which services are using old versions of libraries and need restarting
>>you want to know which packages occupy the most disk space, or which package might have broken another, or to get a most recent version of a package, or just to get a particular version of a package, then you probably need Debian-goodies.

>Configure minimum password for age
So that passwords are more difficult to guess/crack

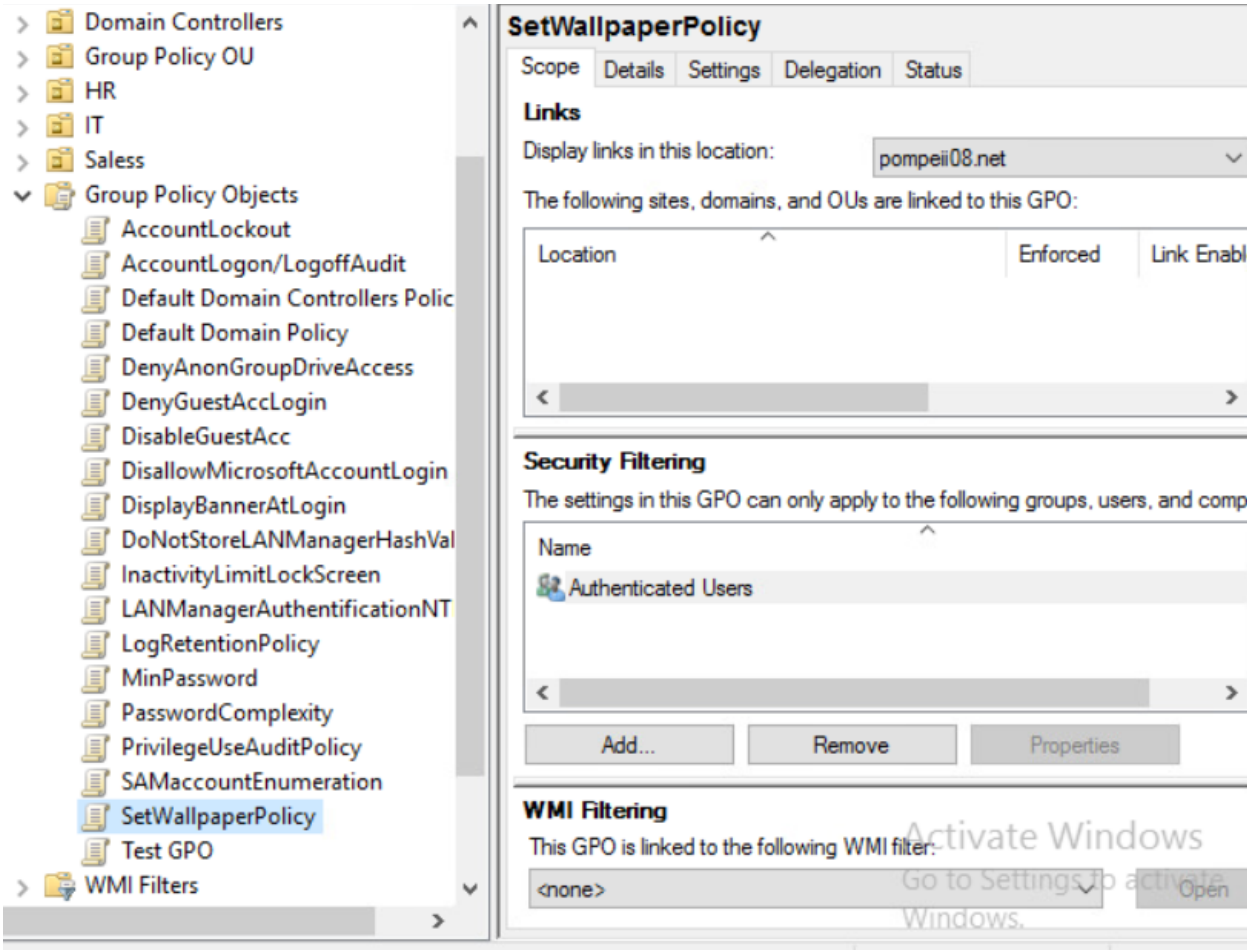
Deliverable Part 4:
Weed

Lab 03 P1 09/15/2021

- Windows Server 2016
  - Created Organizational Units for:
    - HR
    - IT
    - Sales
  - Created Security Groups for:
    - HR
    - IT
    - Sales
  - Created user Herbert Garrison in IT using:
    - user: hgarrison
    - Password: pompeii123! (must change at next login)
  - Created user Dwight Schrute in HR using:
    - user: dshrute
    - Password: pompeii123! (must change at next login)
  - Created user Ned Flanders in Sales using:
    - user: nflanders
    - Password: pompeii123! (must change at next login)

- 

  - Created a test GPO
  - Created GPO for:
    - Set minimum password length (your choice - use best practice)
    - Enable password Complexity
    - Account lockout policy (use best practice)
    - Disable guest account
    - Deny guest account logon as service, or via RDP
    - Display a banner at logon: “Warning: Pompeii employees only. Logging on to this machine means that you understand and accept Pompeii’s acceptable use policy.”
    - Disallow users from creating or logging in with Microsoft accounts
    - Configure machine inactivity limit to lock screen when user is idle
    - Do not allow anonymous enumeration of SAM accounts
    - Do not allow any shared drives to be accessed anonymously
    - Do not store LAN Manager hash values
    - Set LAN Manager authentication to only NTLMv2
    - Configure account logon/logoff audit policy
    - Configure privilege use audit policy
    - Configure log retention policy
    - Set wallpaper on every account to a standard background (your choice)

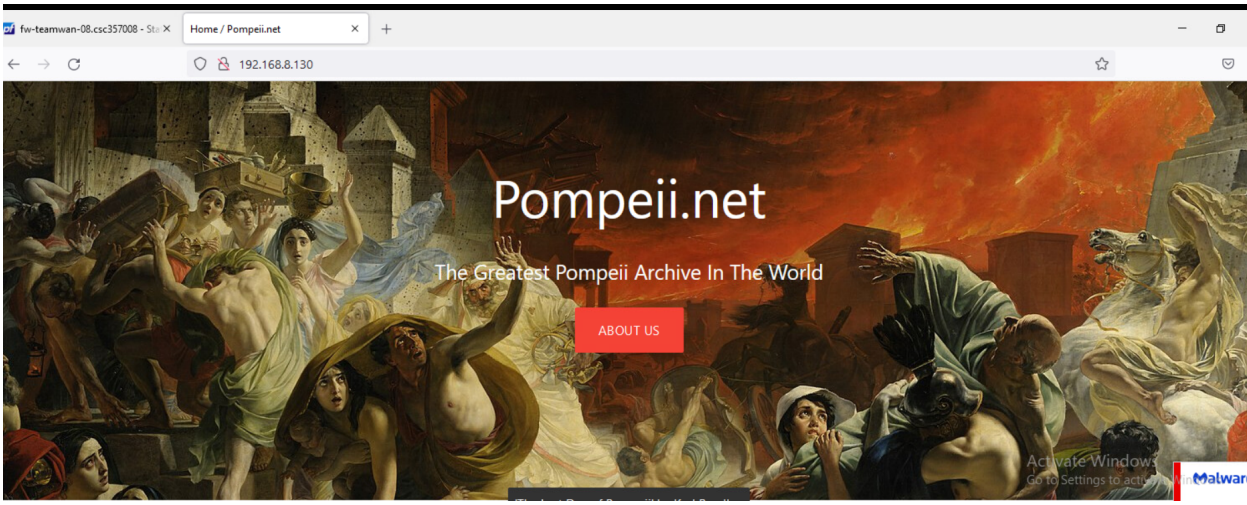



- Debian Server
  - Cloned PompeiiSite to machine through git
  - Changed execute permission to true for
    - Install_webserver.sh
    - Install_mysql.sh
    - Update_webserver.sh
  - Ran ./install_webserver.sh
  - ‘dev’ group added to system
  - User ‘devops’ added to the group ‘dev’
  - Folder ‘devops’ added to the root directory
  - Owner of folder ‘devops’ changed to ‘devops’ user

```
gasiedleck42@www-08:/devops$ ls -al
total 8
drwxr-xr-x  2 devops root 4096 Sep 15 18:19 .
drwxr-xr-x 20 root   root 4096 Sep 15 18:19 ..
```

- Workstation

    - Verified Website is accessible on local network through Workstation



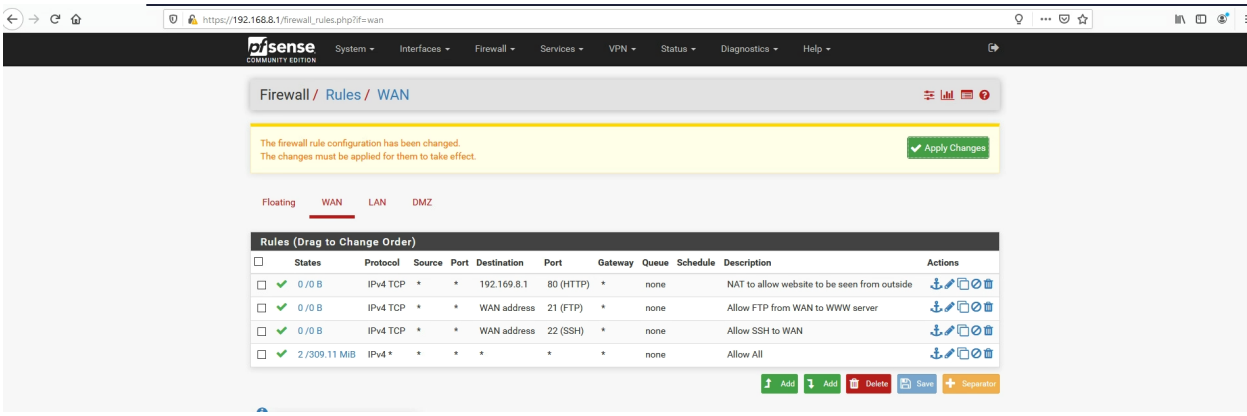

    -
- Deliverables
- SCREENSHOTS ADDED WITHIN CHANGELOG
- Group Policies are designed to enable IT admins to centrally manage users and computers across an AD domain. This allows IT admins to easily automate one-to-many management of users and computers, as well as apply policy settings as a whole. It simplifies administrative tasks and reduces IT costs.
- A sticky bit is a permission bit that is set on a file or a directory that lets only the owner of the file/directory or the root user to delete or rename the file. No other user is given privileges to delete the file created by some other user. This ensures that no user can delete (or rename) another user's files by accident.

Lab 03 P2 09/15/2021

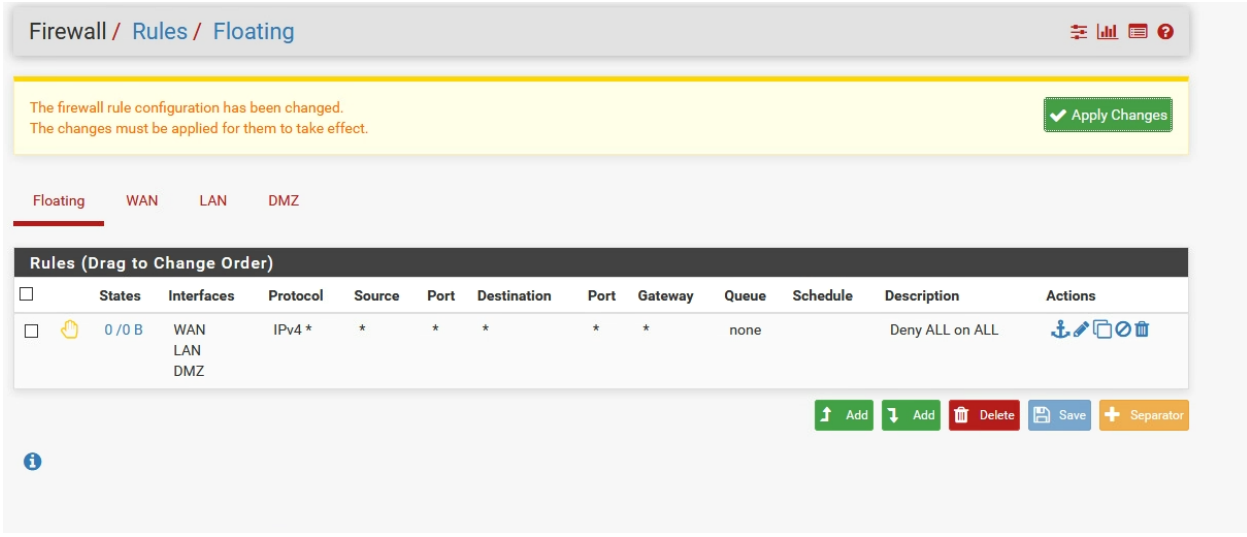
- Windows server 2016
    - Wrote two scripts
        - Add Users from CSV
        - Add gpo one liners
    - Created admin accounts
        - brharper42
            - Password123!
            - Password123? (Updated)
            - Florence123?
        - gasiedleck42
            - Password123! (change on next logon)

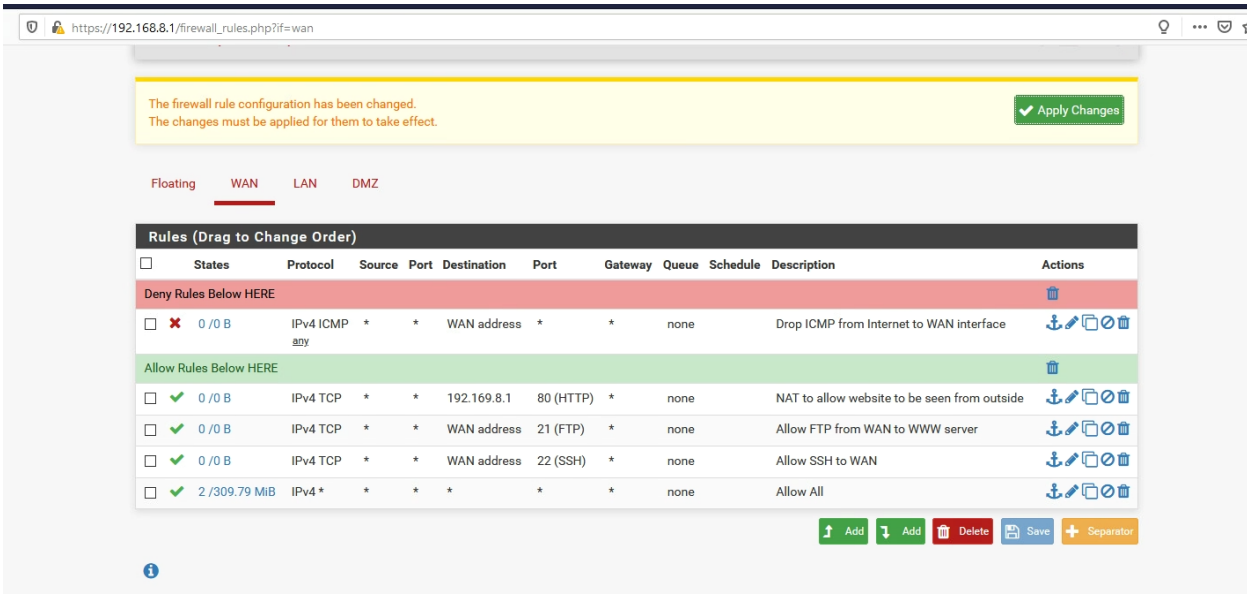
Lab 04 10/1/2021

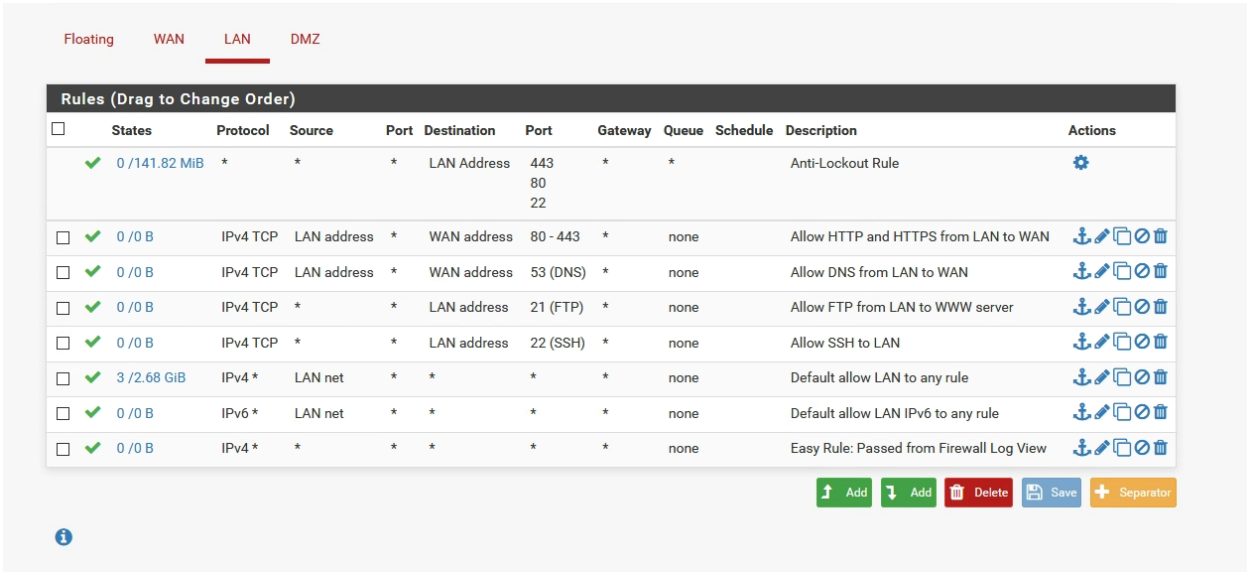
- pfSense
    - Configured rule to make the www server accessible from the internet

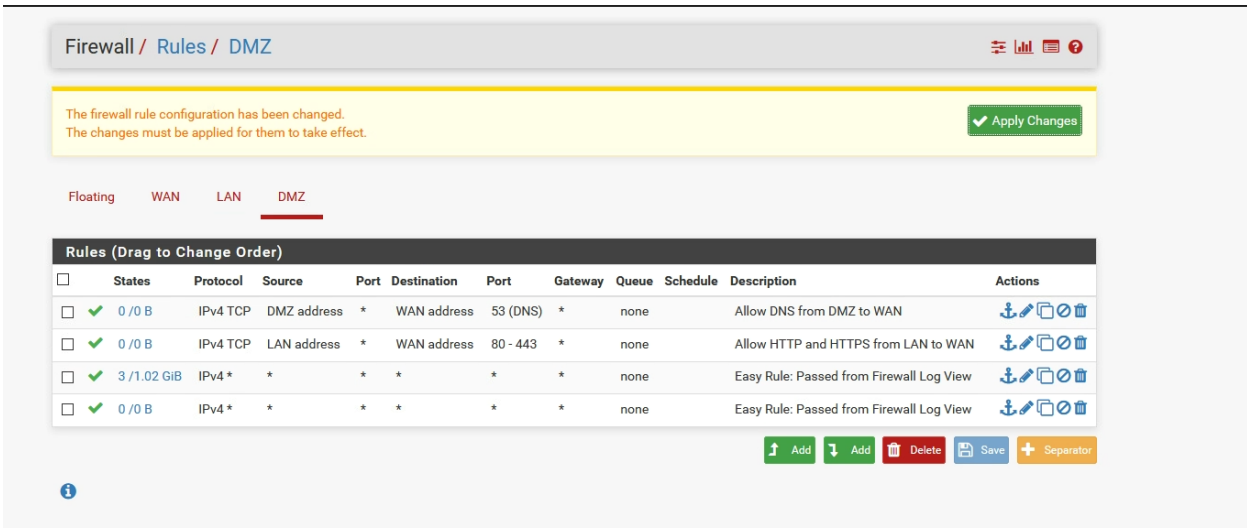



- Changed opt1 to DMZ
- Allow SSH from WAN to WWW server
- Allow SSH from LAN to WWW server
- Allow FTP from WAN to WWW server
- Allow FTP from LAN to WWW server
- Allow the WWW to update (hint what port does Ubuntu use to update? UBUNTU mainly uses ports DNS on UDP 53 and HTTP on TCP 80 for its update services
- Allow RDP from the MGMT laptop IP address to the DC
- Allow HTTP and HTTPS from LAN to WAN
- Allow DNS from LAN to WAN
- Allow DNS from DMZ to WAN
- Drop ICMP from Internet to WAN interface
- Deny all on all interface

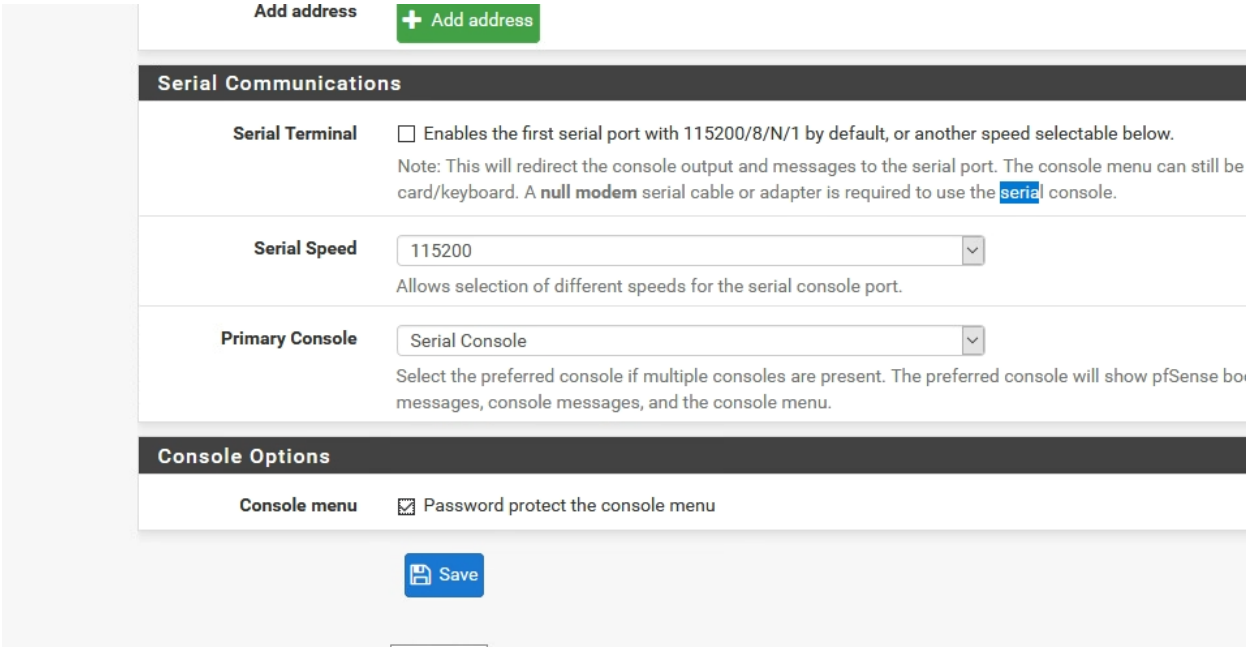



https://192.168.8.1/firewall_rules.php?if=wan
The firewall rule configuration has been changed.
The changes must be applied for them to take effect.
Apply Changes
Floating
WAN
LAN
DMZ
Rules (Drag to Change Order)
States
Protocol
Source
Port
Destination
Port
Gateway
Queue
Schedule
Description
Actions
Deny Rules Below HERE
0 /0 B
IPv4 ICMP any
* * WAN address * * none
Drop ICMP from Internet to WAN interface
Allow Rules Below HERE
0 /0 B
IPv4 TCP
* * 192.169.8.1 80 (HTTP) * none
NAT to allow website to be seen from outside
0 /0 B
IPv4 TCP
* * WAN address 21 (FTP) * none
Allow FTP from WAN to WWW server
0 /0 B
IPv4 TCP
* * WAN address 22 (SSH) * none
Allow SSH to WAN
2 /309.79 MiB
IPv4 *
* * * * * none
Allow All
Add
Add
Delete
Save
Separator


Floating
WAN
LAN
DMZ
Rules (Drag to Change Order)
States
Protocol
Source
Port
Destination
Port
Gateway
Queue
Schedule
Description
Actions
0 /141.82 MiB
* * * LAN Address 443 80 22 * * Anti-Lockout Rule
0 /0 B
IPv4 TCP
LAN address * WAN address 80 - 443 * none
Allow HTTP and HTTPS from LAN to WAN
0 /0 B
IPv4 TCP
LAN address * WAN address 53 (DNS) * none
Allow DNS from LAN to WAN
0 /0 B
IPv4 TCP
* * LAN address 21 (FTP) * none
Allow FTP from LAN to WWW server
0 /0 B
IPv4 TCP
* * LAN address 22 (SSH) * none
Allow SSH to LAN
3 /2.68 GiB
IPv4 *
LAN net * * * * none
Default allow LAN to any rule
0 /0 B
IPv6 *
LAN net * * * * none
Default allow LAN IPv6 to any rule
0 /0 B
IPv4 *
* * * * * none
Easy Rule: Passed from Firewall Log View
Add
Add
Delete
Save
Separator


Firewall / Rules / DMZ
The firewall rule configuration has been changed.
The changes must be applied for them to take effect.
Apply Changes
Floating
WAN
LAN
DMZ
Rules (Drag to Change Order)
States
Protocol
Source
Port
Destination
Port
Gateway
Queue
Schedule
Description
Actions
0 /0 B
IPv4 TCP
DMZ address * WAN address 53 (DNS) * none
Allow DNS from DMZ to WAN
0 /0 B
IPv4 TCP
LAN address * WAN address 80 - 443 * none
Allow HTTP and HTTPS from LAN to WAN
3 /1.02 GiB
IPv4 *
* * * * * none
Easy Rule: Passed from Firewall Log View
0 /0 B
IPv4 *
* * * * * none
Easy Rule: Passed from Firewall Log View
Add
Add
Delete
Save
Separator

- Disabled Allow * rules
- Left anti-lockout alone
- Only allow access to pfSense web console through HTTPS
- Only allow access to pfSense web console from Domain Controller
- Password protect the serial consolemenu (Hint:Advanced settings

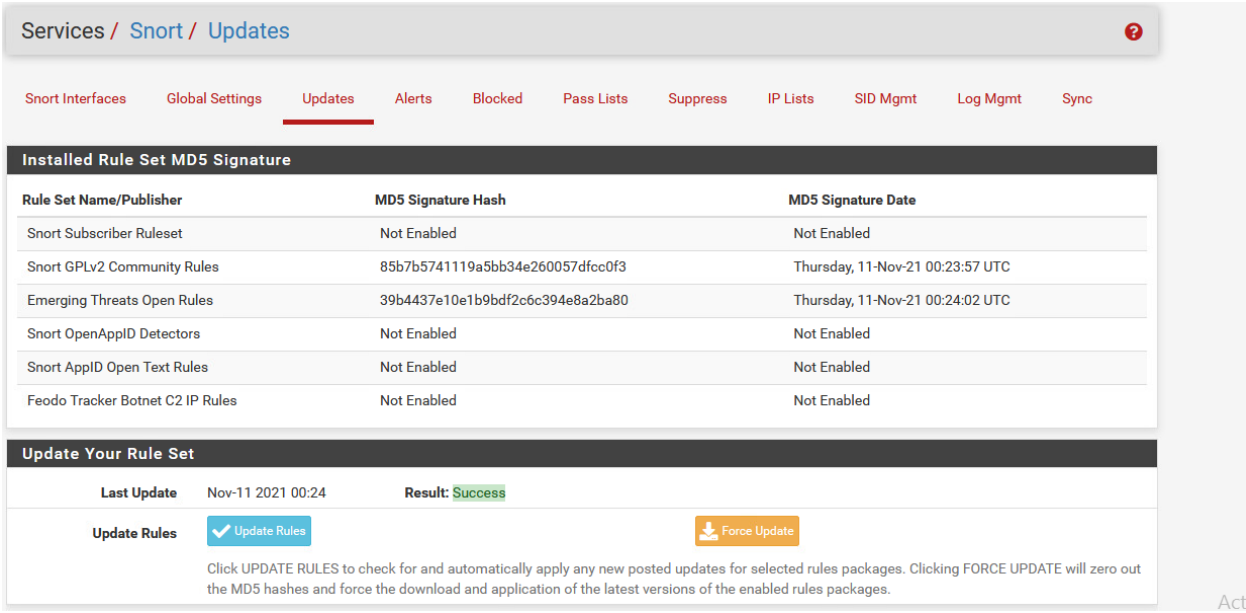



- WWW server
  - ADDED RULES FOR:
    - Drop all incoming packets
    - Drop all outgoing packets
    - Allow incoming SSH from Domain Controller IP Address
    - Allow incoming SSH from WAN
    - Allow incoming HTTP and HTTPS from WAN
    - Allow outgoing HTTP and HTTPS
    - Allow outgoing DNS
    - Allow incoming DNS established connection
    - Allow outgoing SSH, HTTP, HTTPS established connections
- Deliverables
  - 1. The main benefit of a DMZ is to provide an internal network with an advanced security layer by restricting access to sensitive data and servers. A DMZ enables website visitors to obtain certain services while providing a buffer between them and the organization's private network.
  - 2. Web servers, Mail servers, FTP servers, and VoIP servers. To limit use from outside to these machines.

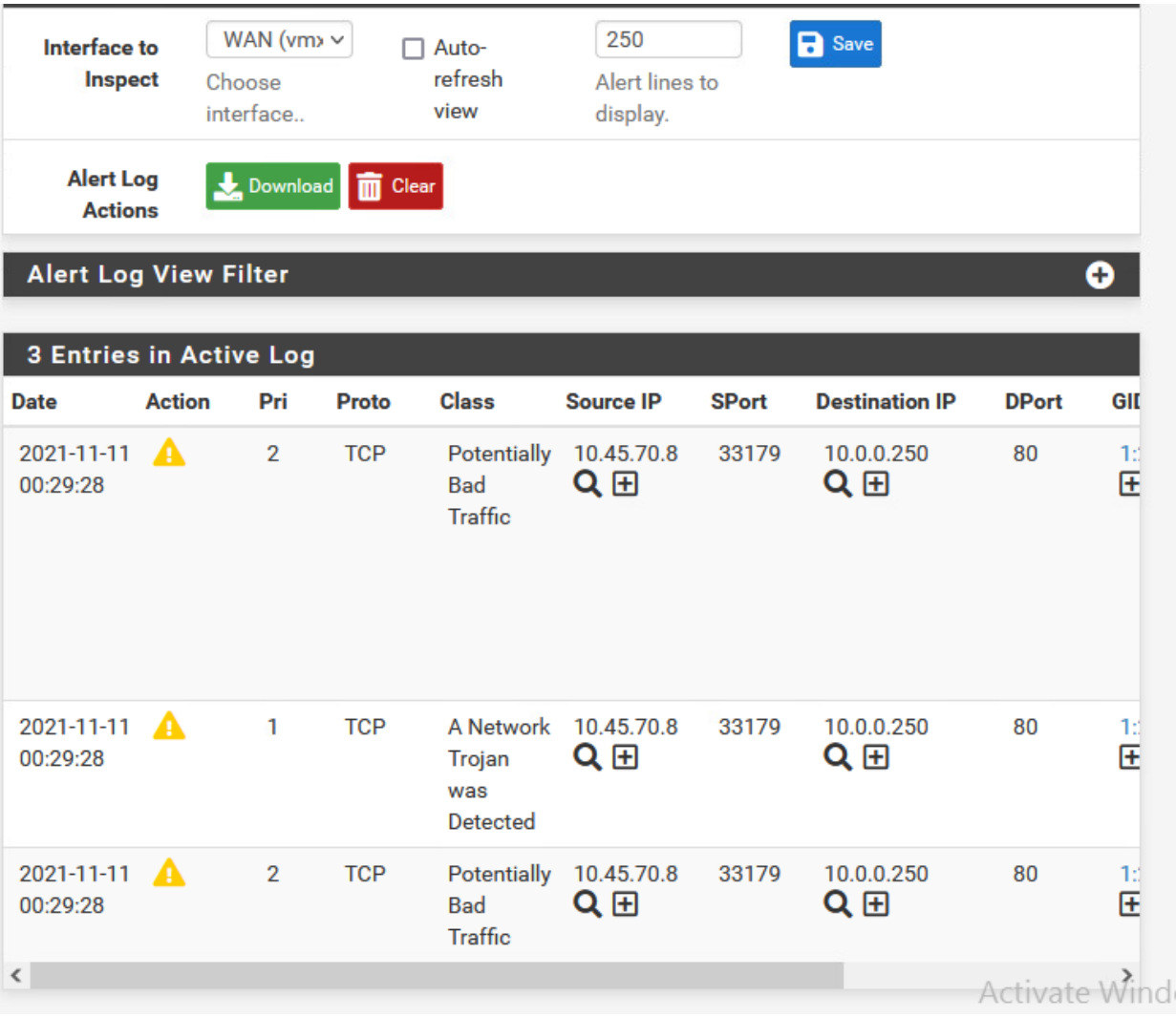
- 3.SSH - 22, RDP - 3389, HTTP - 80, HTTPS -443 , DNS - 53
- 4. Egress network traffic is good so that inside users cannot relay sensitive data to outsiders or out of the internal network
- 5. Fail safe - in the event all else fails, deny all.
- 6. Access, we have denied access to many entrances of our network
- 7. Port 3389 allows for remote desktop, I am unsure if there is a better way, but I believe ssh
- 8. Packet filtering, the most basic kind
- 9. It conserves the number of public addresses used within an organization, and it allows for stricter control of access to resources on both sides of the firewall.

Lab 05 11/10/2021

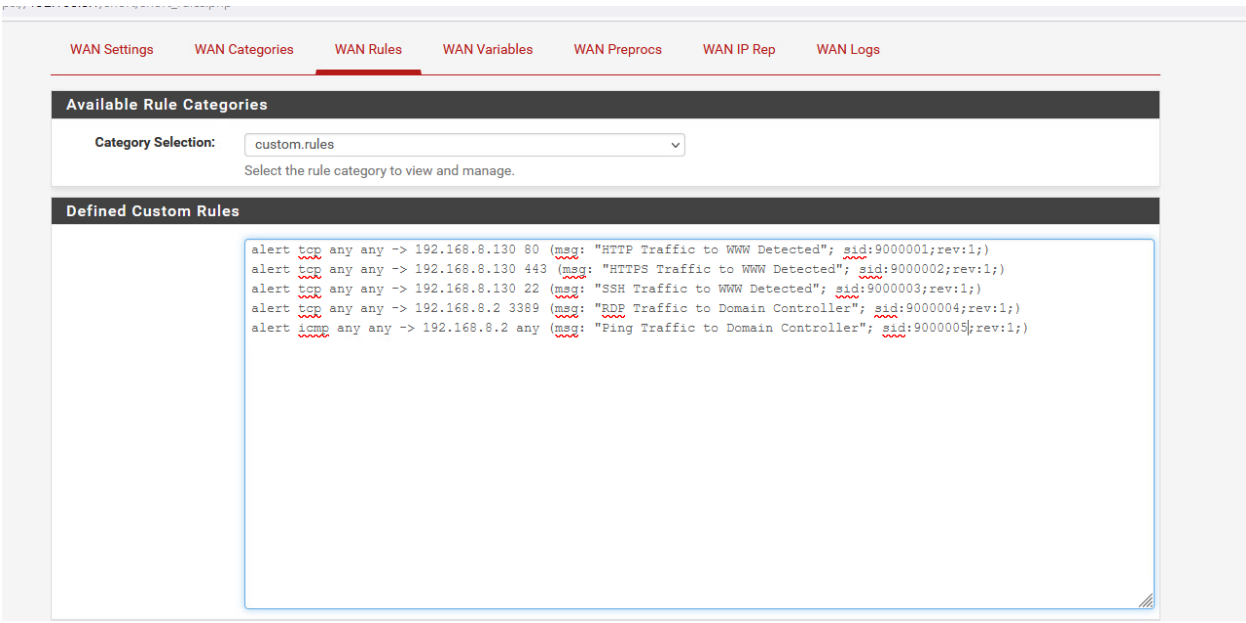
1. Pfsense
   a. Installed snort
   b. Enabled Snort GPLv2 rules
   c. Enabled ET open
   d. Enable automatic unattended management of logs and 'Enable Directory Size Limit' and set it to 500MB
   e. Updated snort rules



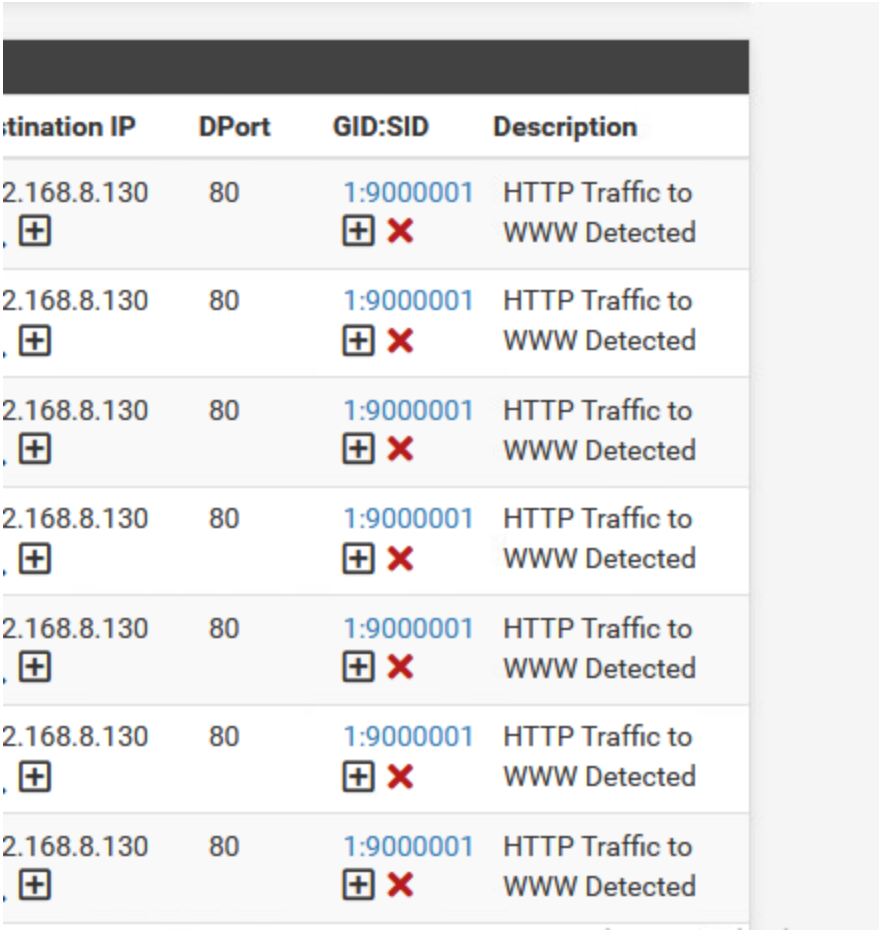
f.


Interface to Inspect
WAN (vm›
Choose interface..
Auto-refresh view
250
Alert lines to display.
Save
Alert Log Actions
Download
Clear
Alert Log View Filter
3 Entries in Active Log
Date
Action
Pri
Proto
Class
Source IP
SPort
Destination IP
DPort
2021-11-11 00:29:28
2
TCP
Potentially Bad Traffic
10.45.70.8
33179
10.0.0.250
80
2021-11-11 00:29:28
1
TCP
A Network Trojan was Detected
10.45.70.8
33179
10.0.0.250
80
2021-11-11 00:29:28
2
TCP
Potentially Bad Traffic
10.45.70.8
33179
10.0.0.250
80

g.

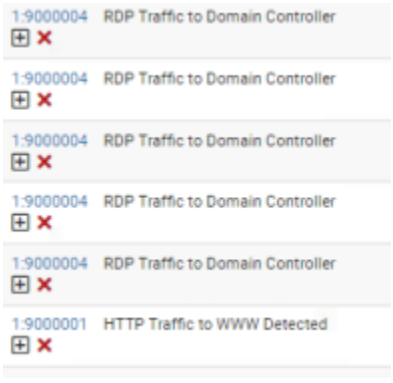

WAN Settings
WAN Categories
WAN Rules
WAN Variables
WAN Preprocs
WAN IP Rep
WAN Logs
Available Rule Categories
Category Selection:
custom.rules
Select the rule category to view and manage.
Defined Custom Rules
alert tcp any any -> 192.168.8.130 80 (msg: "HTTP Traffic to WWW Detected"; sid:9000001;rev:1;)
alert tcp any any -> 192.168.8.130 443 (msg: "HTTPS Traffic to WWW Detected"; sid:9000002;rev:1;)
alert tcp any any -> 192.168.8.130 22 (msg: "SSH Traffic to WWW Detected"; sid:9000003;rev:1;)
alert tcp any any -> 192.168.8.2 3389 (msg: "RDP Traffic to Domain Controller"; sid:9000004;rev:1;)
alert icmp any any -> 192.168.8.2 any (msg: "Ping Traffic to Domain Controller"; sid:9000005;rev:1;)

h.

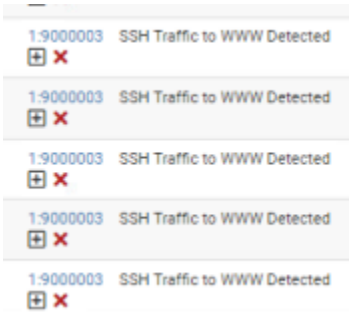


| tination IP | DPort | GID:SID | Description |
|---|---|---|---|
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |
| 2.168.8.130 | 80 | 1:9000001 | HTTP Traffic to WWW Detected |

i.




j.




k.

l.


Lab 06 10/25/2021

1. Question 1
    a. A Man-In-The-Middle (MITM) attack is achieved when an attacker poisons the ARP cache of two devices with the (48-bit) MAC address of their Ethernet NIC (Network Interface Card). Once the ARP cache has been successfully poisoned, each of the victim devices send all their packets to the attacker when communicating to the other device. This puts the attacker in the middle of the communications path between the two victim devices; hence the name Man-In-The-Middle (MITM) attack.
    b. It allows an attacker to easily monitor all communication between victim devices The objective of this MITM attack is to take over a session. The intent is to intercept and view the information being passed between the two victim devices.
    c. 192.168.0.133
    d. Employing some sort of encryption so that the attacker cannot decipher the hijacked information.
2. Question 2

    a. SQL injection, SQL injection is a code injection technique used to attack data-driven applications, in which malicious SQL statements are inserted into an entry field for execution.
    b. TCP
    c. Item=&search=latte%2C+chocolate
    d. Information not intended for the attacker to see
3. Question 3
    a. Cross-site scripting, Cross-Site Scripting (XSS) attacks are a type of injection, in which malicious scripts are injected into otherwise benign and trusted websites.
    b. http://192.168.0.133/xvwa/vulnerabilities/03/?item=<script>alert("attack")<%2Fscript>
    c. A javascript alert that outputs “attack”
    d. Sanitize your input
4. Question 4
    a. Brute force attack, A brute force attack uses trial-and-error to guess login info, encryption keys, or find a hidden web page.
    b. Admin
    c. lock out accounts after a defined number of incorrect password attempts.
5. Question 5
    a. Ping Flood Attack, also known as ICMP flood, is a common Denial of Service (DoS) attack in which an attacker takes down a victim’s computer by overwhelming it with ICMP echo requests, also known as pings.
    b. 192.168.0.133
    c. DoS (Denial of Service), intentionally interrupts services on the defending end
6. Question 6
    a. Network Scanning is taking place, The attacker is scanning the network for open ports by testing every port incrementally.
    b. The attacker can figure out what open ports are open on a network, so that he can use them maliciously.

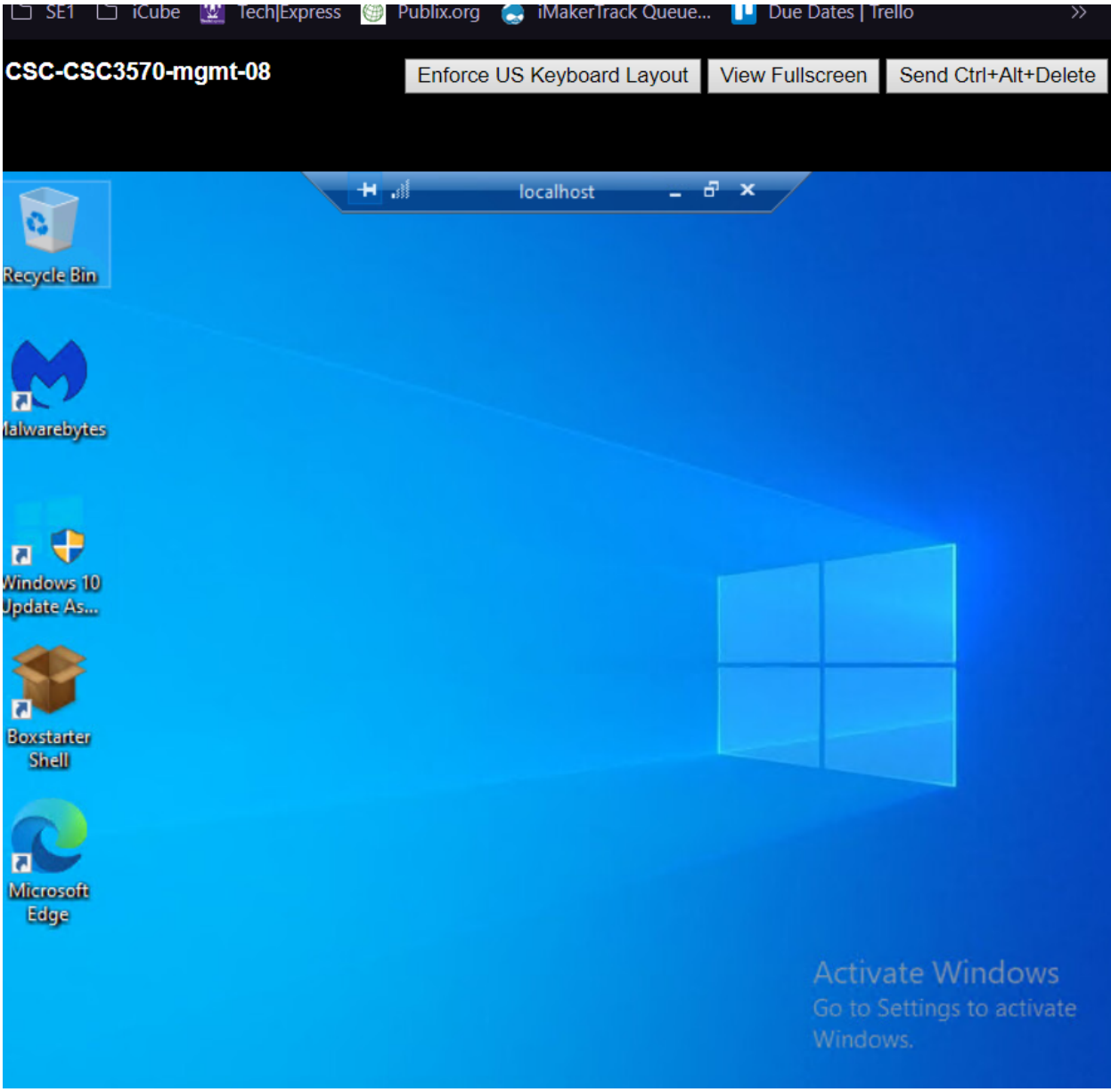
## Lab 07 - 11/7/21

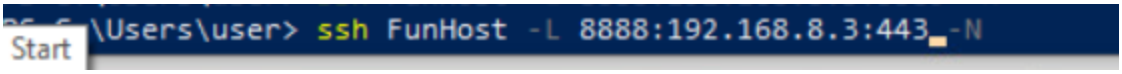
1. MGMT machine

a. Tested ssh with ssh pfsensei@10.45.70.8
b. Generated rsa private and public keys under
c. Used type $env:USERPROFILE\.ssh\id_rsa.pub | ssh {IP-ADDRESS-OR-FQDN} "cat >> .ssh/authorized_keys" to copy
d. Used ssh - i id_rsa.pub pfsensei@10.45.70.8 to connect with key
e. Created a config file
f.

```
Host Fun_Name_For_Me_To_Use
    Hostname 10.45.70.x
    User username_here
    IdentityFile ~/.ssh/keyfilehere
```

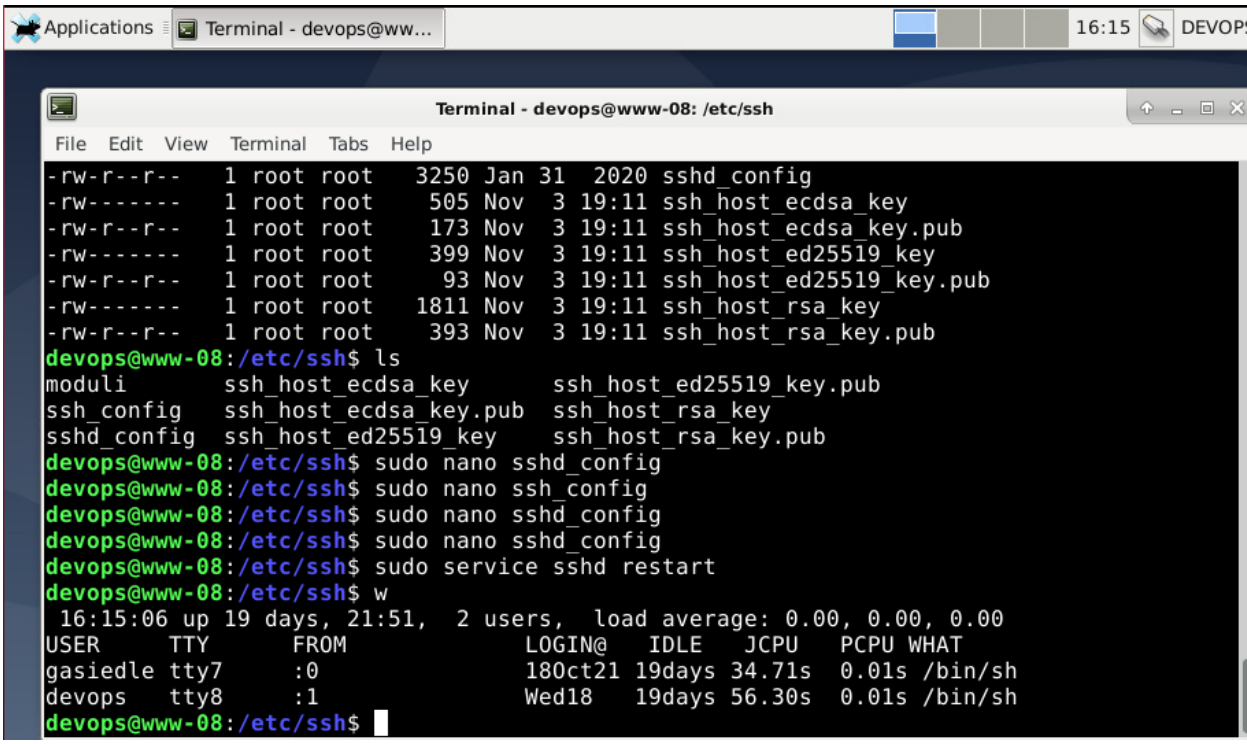
g.



h. 


i.

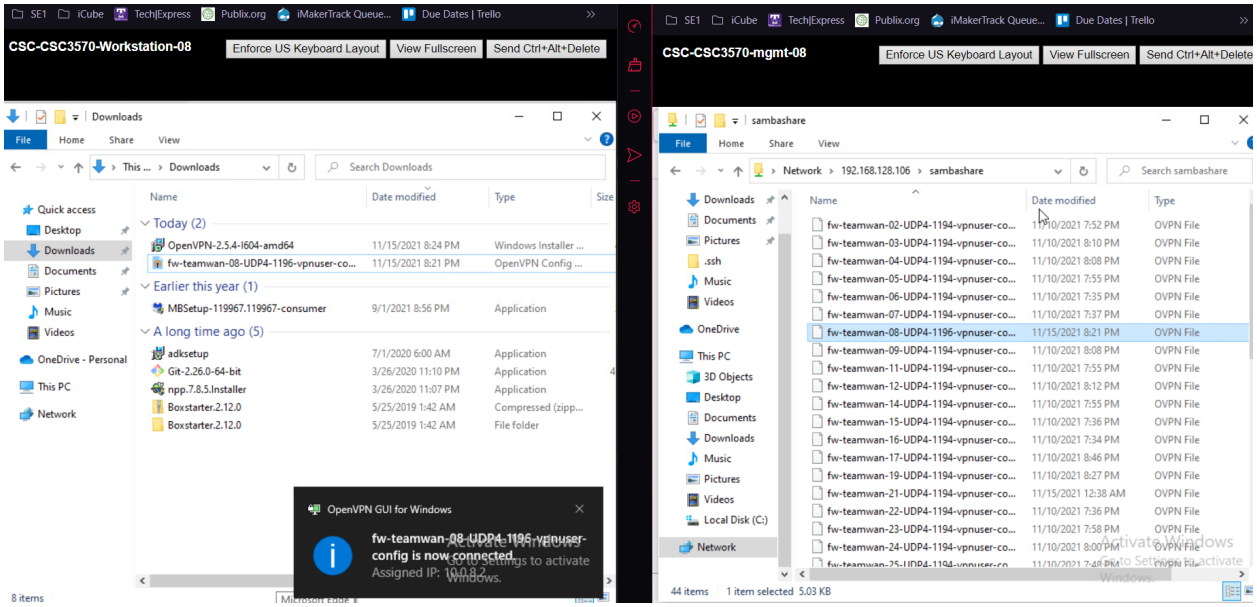
2. WWW
    a. Installed ssh
    b. Changed sshd_config
        i. Set PasswordAuthentication to no
        ii. Set PublicKeyAuthentication to yes
        iii. Set RSAAuthentication to yes
        iv. Set PermitEmptyPassowrds to no
        v. Set ChallengeResponseAuthentication to no
    c. Restarted ssh service for changes to take effect




3. Workstation
    a. Enabled rdp on workstation
4. Deliverables
    a. *above*
    b. The main difference between both technologies is that the SSH connects to a particular computer while a VPN connects to a network.
    c. Connecting to one machine
    d. The ip for the management machine 10.45.70.73
    e. Ssh keys allow users to have a way in while keeping unwanted users out by handing the wanted user a key to the door
    f. ssh FunHost -L 8888:192.168.8.3:443 -N

## Lab 08 11/10/2021

1. pfSense
    a. Added allow rule for WAN on port 1194
    b. Created a vpn user + user certificate
        i. vpnuser
        ii. password123!
    c. Created an openVPN server
    d. Installed openvpn-client-export
    e. Exported the client config to the sambashare
2. MGMT laptop
    a. Install OpenVPN
    b. Import custom config from
3. Workstation
    a. Installed openVPN
    b. Downloaded the config file
    c. Imported the config to openVPN and connected




## Lab 09 11/17/2021

1. WWW Server
    a. Created backups dir in '/'
    b. Created script to archive $HOME and naming it with current date and time
    c. Added crontab to execute script every day at 3:00 AM local machine time

d. Added crontab and scripts to stop Apache2 service at 5pm every day, and start apache2 service at 8am every day

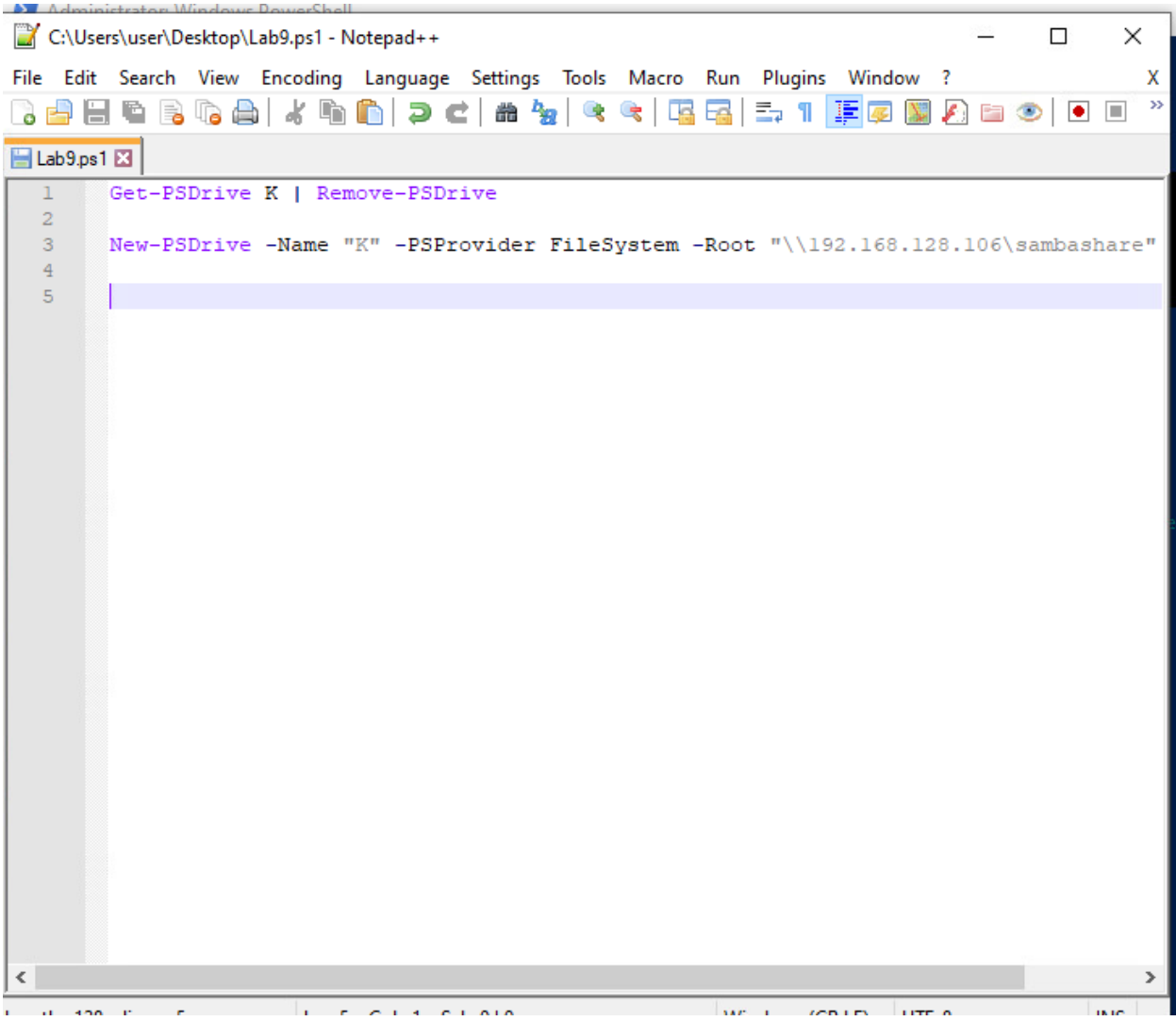
2. Workstation
   a. Attached sambashare to K

```
PS C:\WINDOWS\system32> Get-PSDrive -PSProvider "FileSystem"

Name           Used (GB)     Free (GB) Provider      Root
----           ---------     --------- --------      ----
C                  25.81          5.58 FileSystem    C:\
K                   4.45          7.29 FileSystem    \\192.168.128.106\sambashare


PS C:\WINDOWS\system32>
```

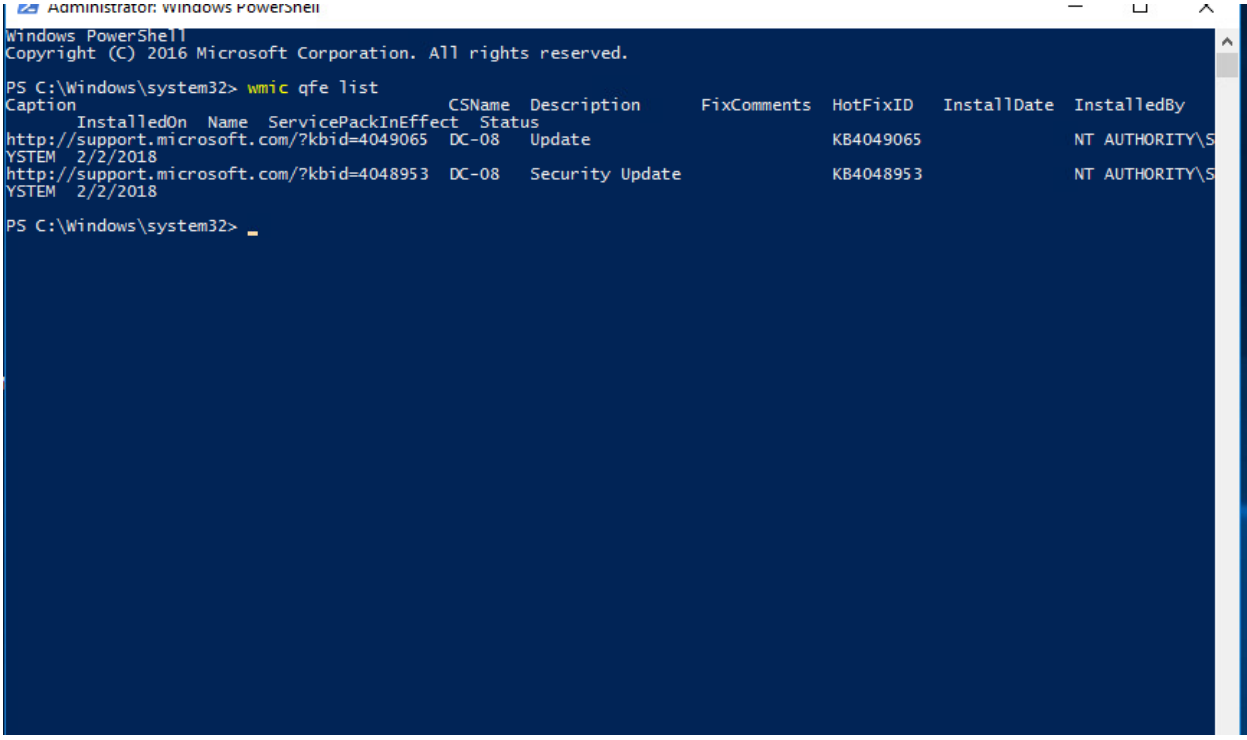
   b. Deleted k drive
   c. Set a scheduler to run at 4 am daily

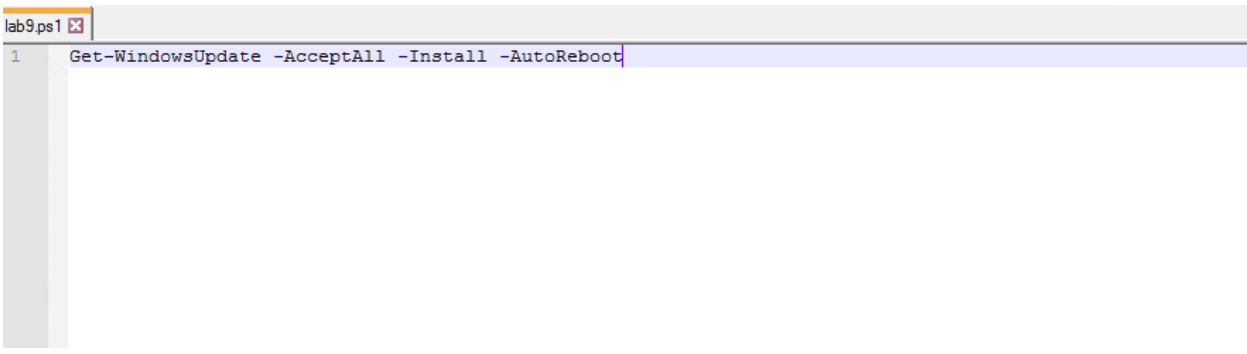



   d.

3. Windows server 2016

a. Used to wmic qfe list to check updates info

b. 


c. 


4. Deliverables
   a. Changelog
   b. Screenshots
   c. Zip of scripts
   d. Update, Security Update
   e. Control Panel > System and Maintenance > Backup and Restore. Built in
   f. -D file