PALO ALTO NETWORKS - EDU-210

Lab 5.2: Content ID Malware/Virus Protection

Document Version: 2017-09-29

Contents

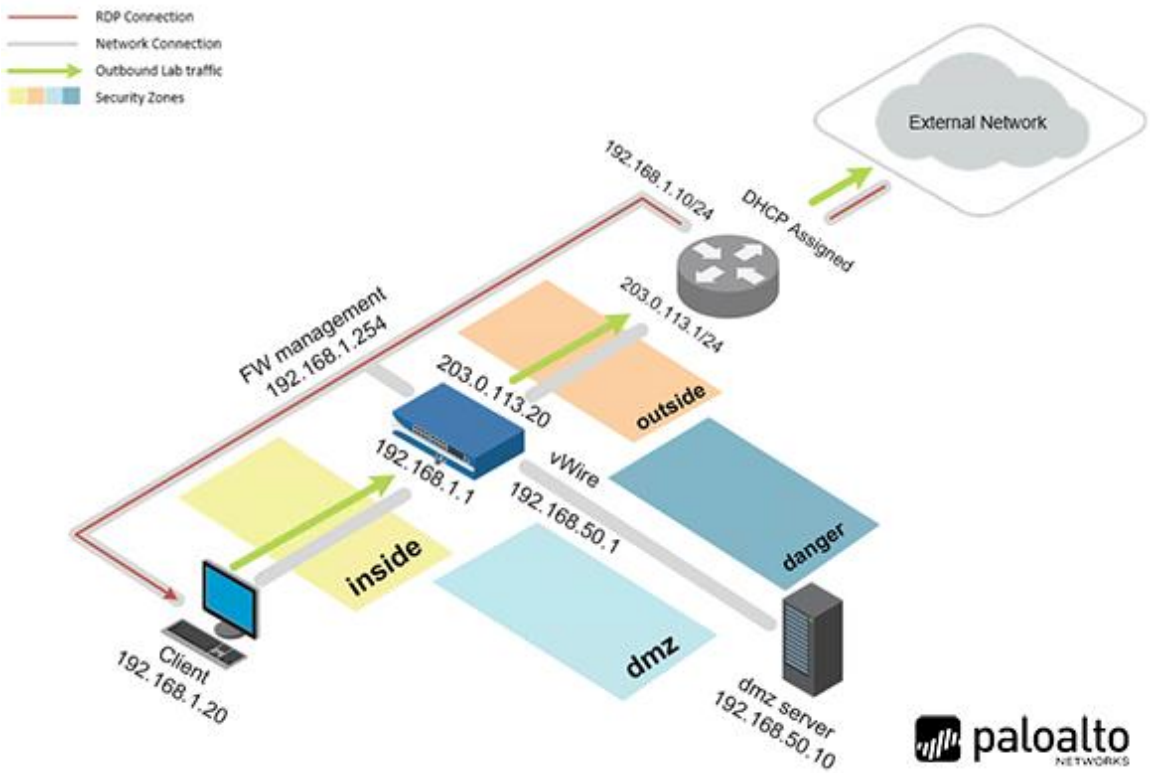
Introduction

We have enabled virus scanning and spyware blocking. Now we need to look at block users from downloading certain types of files and stopping exploits. We can do this with file blocking and vulnerability profiles.

Objectives

- Configure and test a Vulnerability Security Profile.
- Configure and test a File Blocking Security Profile.
- Use the Virtual Wire mode and configure the danger zone.
- Generate threats and observe the actions taken.

Lab Topology



Lab Settings

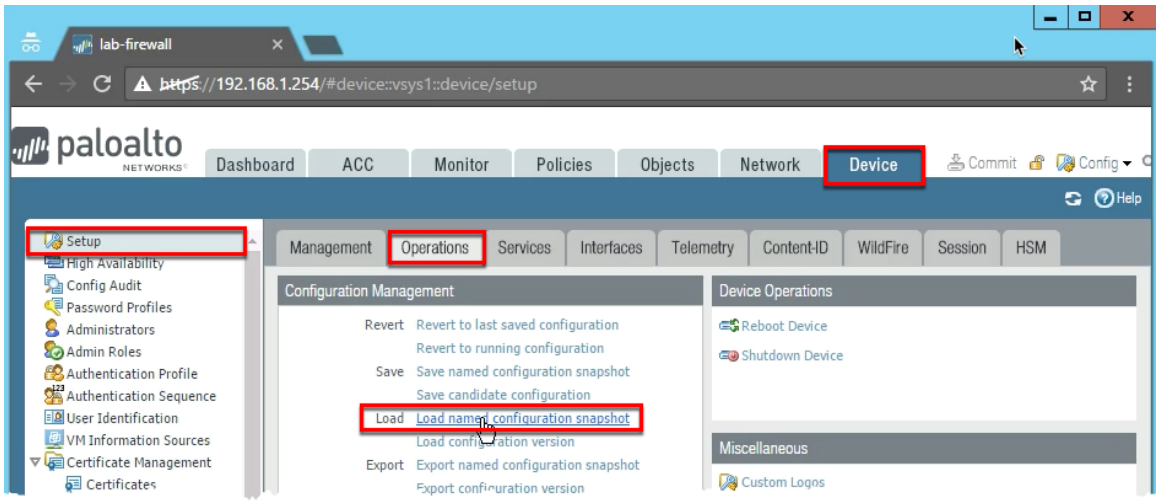
The information in the table below will be needed in order to complete the lab. The task sections below provide details on the use of this information.

Virtual Machine	IP Address	Account (if needed)	Password (if needed)
Client – Windows 2012 R2	192.168.1.20	lab-user	Pal0Alt0
Firewall – PA-VM	192.168.1.254	admin	admin

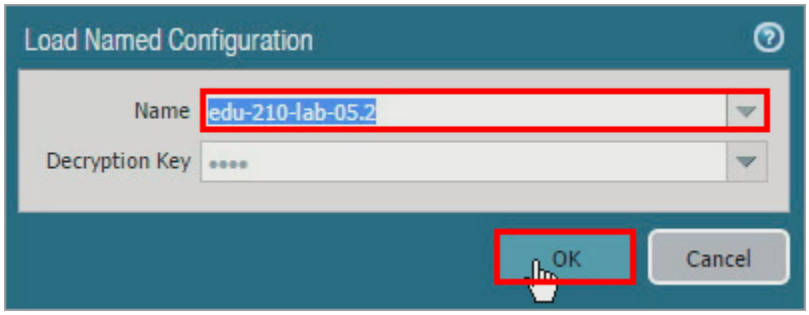
5.2 Lab: Interface Configuration

5.2.0 Load Lab Configuration

1. In the WebUI select **Device > Setup > Operations**.
2. Click **Load named configuration snapshot**:



3. Select **edu-210-lab-05.2** and click **OK**.

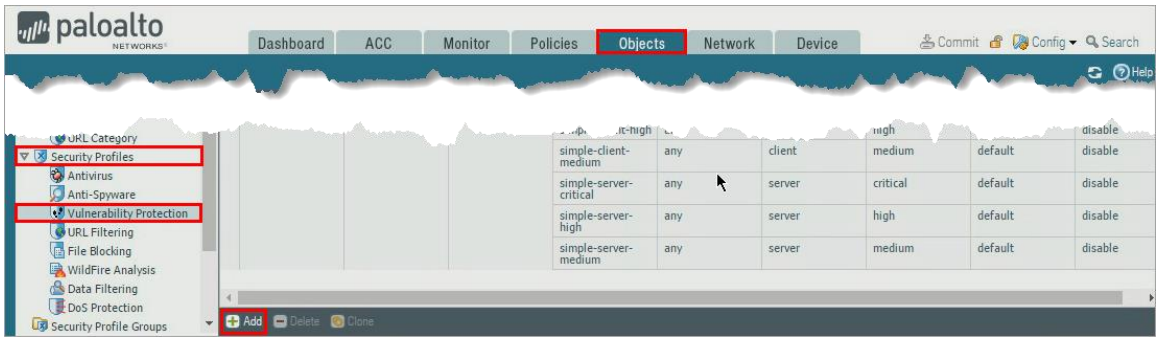


4. Click **Close**.
5. **Commit** all changes.

5.2.10 Create Security Policy Rule with a Vulnerability Protection Profile

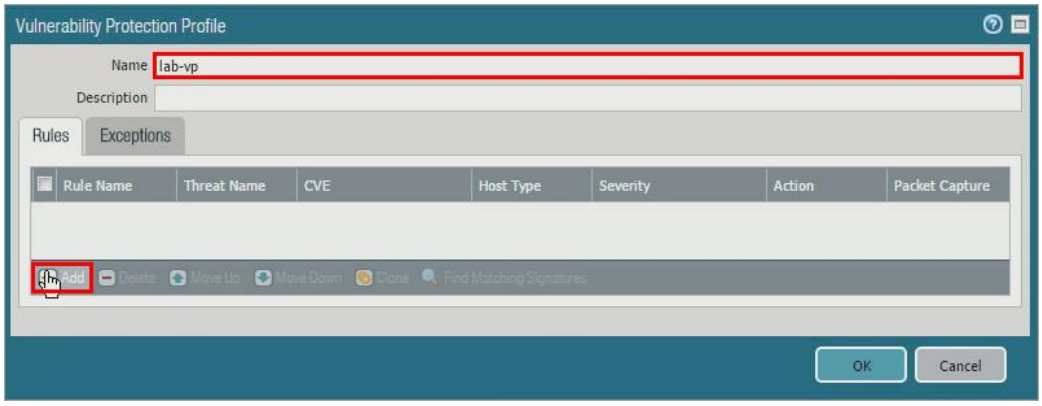
A Security policy rule can include specification of a Vulnerability Protection Profile that determines the level of protection against buffer overflows, illegal code execution, and other attempts to exploit system vulnerabilities.

1. Select **Objects > Security Profiles > Vulnerability Protection** then click **A dd** to create a Vulnerability Protection Profile.



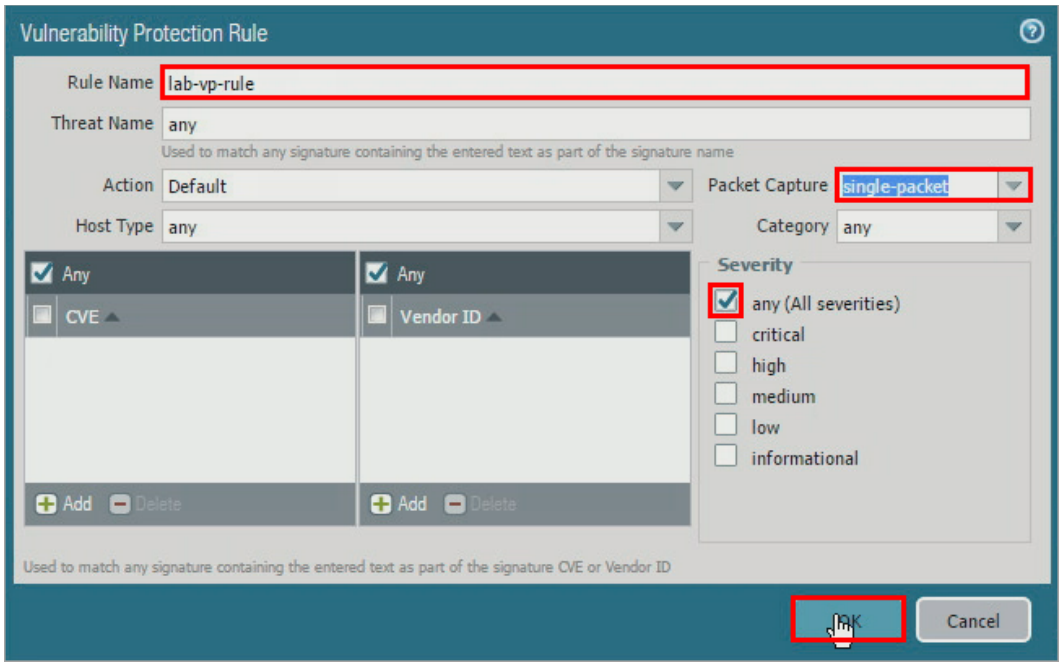
2. On the Vulnerability Protection Profile window configure the following, then under the Rules tab click **Add**.

Parameter	Value
Name	`lab-vp`



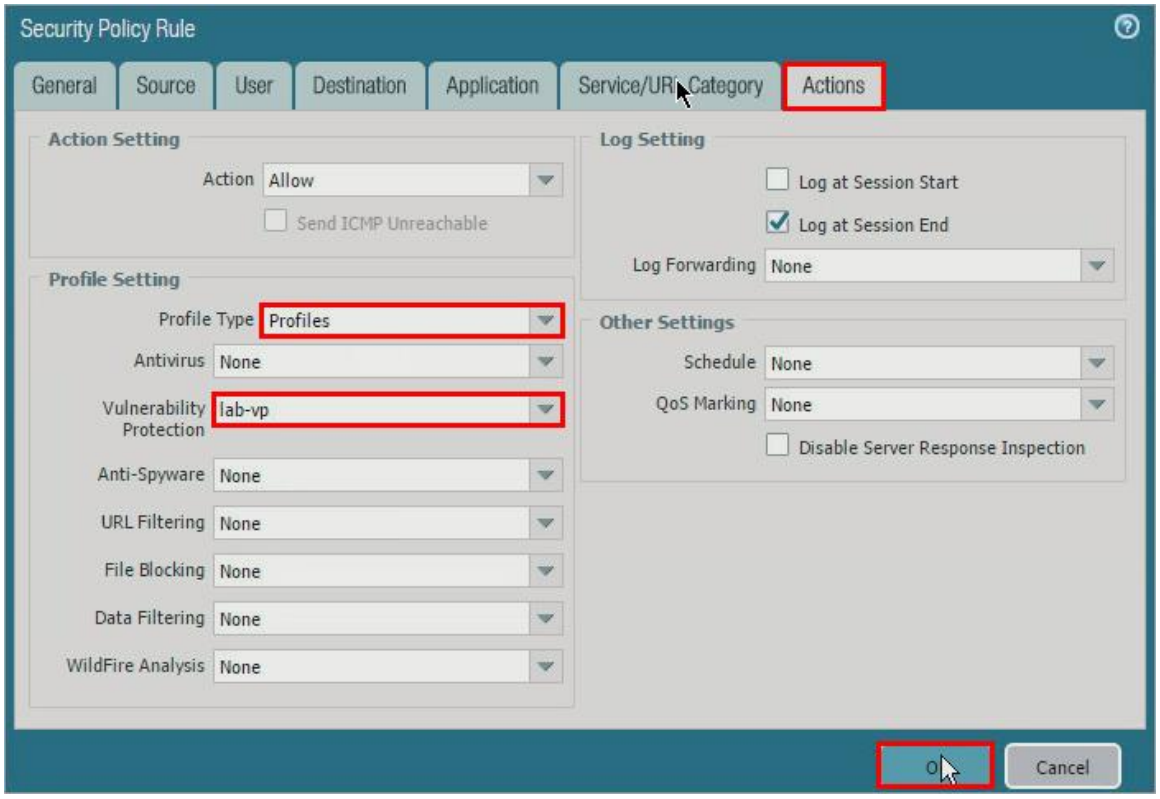
3. Configure the following then click **OK** twice.

Parameter	Value
Name	`lab-vp-rule`
Packer Capture	**`single-packet`**
Severity	**`any`**



4. Select **Policies > Security**.
5. Click to open the **internal-inside-dmz** Security policy rule.
6. Click the **Actions** tab and configure the following then click **OK**.

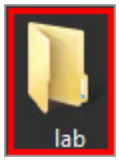
Parameter	Value
Profile Type	`Profiles`
Profile Setting	
Vulnerability Protection	`lab-vp`



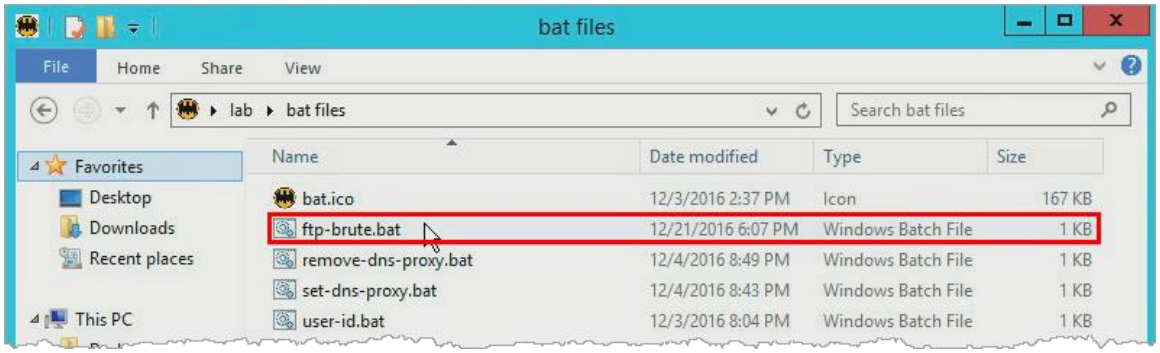
7. **Commit** all changes.

5.2.11 Test Security Policy Rule

1. On the Windows desktop, double-click the **lab** folder and then the bat files folder.



2. Double-click **ftp-brute.bat** and wait until you see the *Press any key to continue…* response before continuing.




```
C:\Users\lab-user\Desktop\lab\bat files>nmap --script ftp-brute 192.168.50.10 -p
 21

Starting Nmap 7.31 ( https://nmap.org ) at 2017-09-08 23:11 Coordinated Universa
l Time
Nmap scan report for 192.168.50.10
Host is up (0.0010s latency).
PORT   STATE SERVICE
21/tcp open  ftp
| ftp-brute:
|   Accounts: No valid accounts found
|_  Statistics: Performed 1255 guesses in 604 seconds, average tps: 2.1

Nmap done: 1 IP address (1 host up) scanned in 605.29 seconds

C:\Users\lab-user\Desktop\lab\bat files>pause
Press any key to continue . . .
```

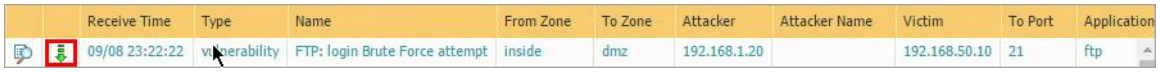
Note: This action launches an FTP brute force attack at the DMZ FTP server. The script is expected to take about 10 minutes to complete.

5.2.12 Review Logs

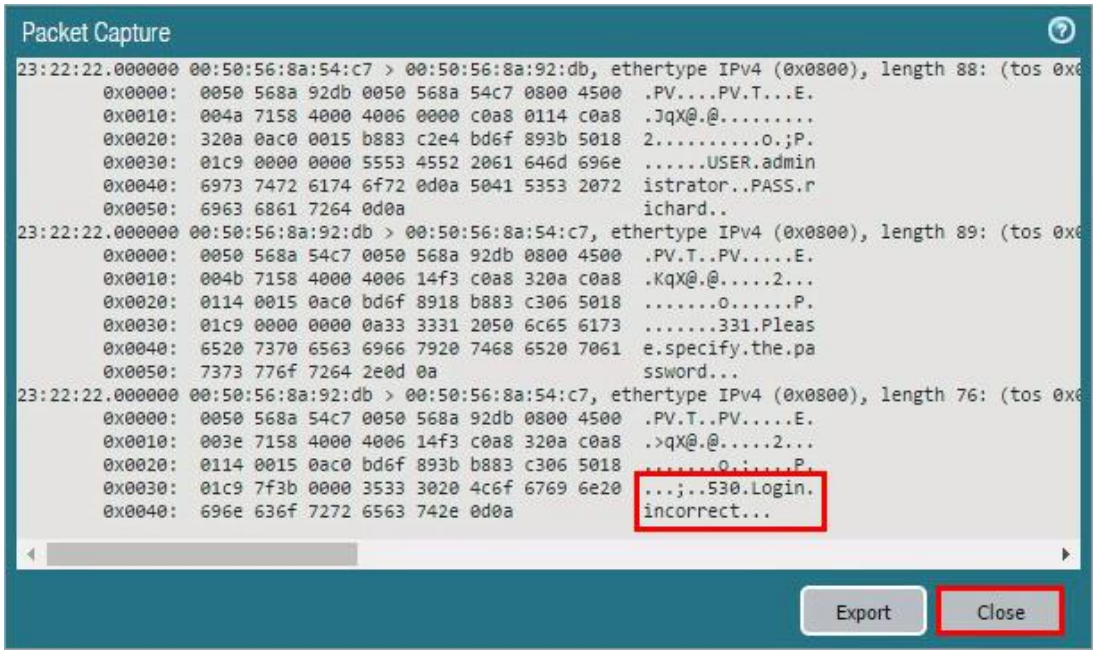
1. Select **Monitor > Logs > Threat**.

Notice that you now have logs reflecting the FTP brute force attempt. However, the firewall is only set to alert.

2. Click the **Download Packet Capture** icon to the left of any log entry to open the packet capture.

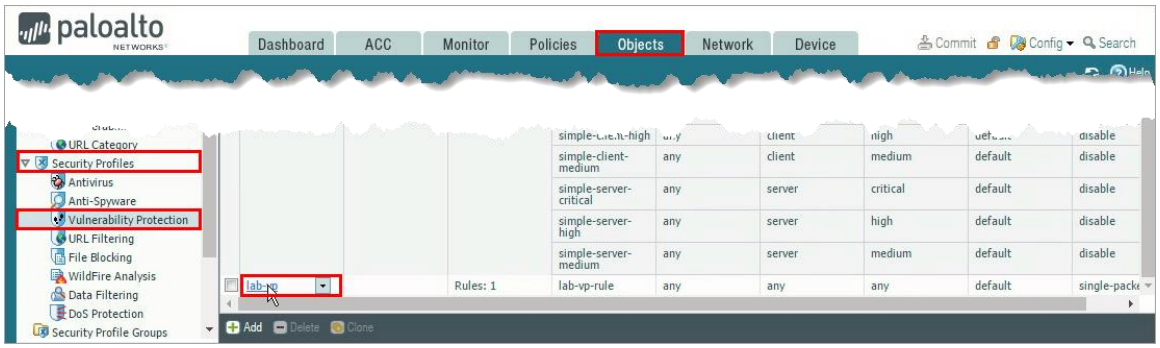


Notice the username and password that was attempted along with the 530 response from the FTP server.



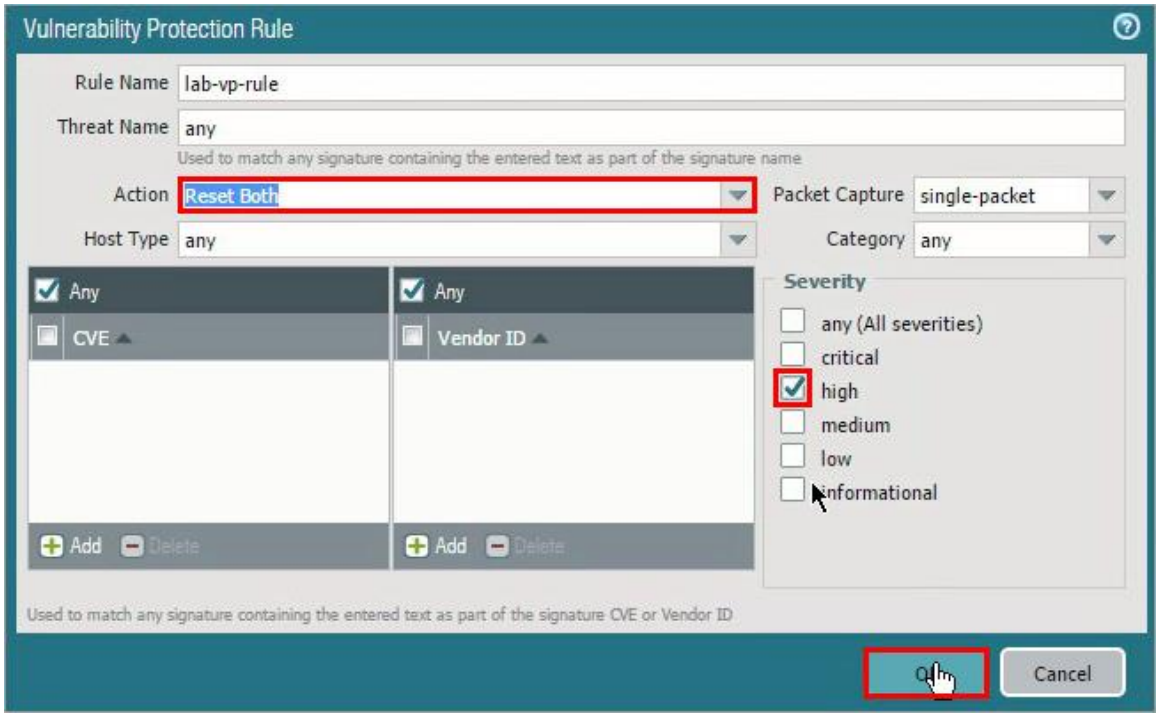
5.2.13 Update Vulnerability Profile

1. Select **Objects > Security Profiles > Vulnerability Protection** then click **lab-vp** to open the profile.



2. Click to open the **lab-vp-rule** rule and configure the following:

Parameter	Value
Action	`Reset Both`
Severity	`high`



3. Click **OK** twice.
4. **Commit** all changes.
5. Rerun **ftp-brute.bat** and review the logs to confirm that the new FTP brute force attempts are reset.

	From Zone	To Zone	Attacker	Attacker Name	Victim	To Port	Application	Action	Severity	File Name	URL
Brute Force attempt	inside	dmz	192.168.1.20		192.168.50.10	21	ftp	reset-both	high		
Brute Force attempt	inside	dmz	192.168.1.20		192.168.50.10	21	ftp	reset-both	high		

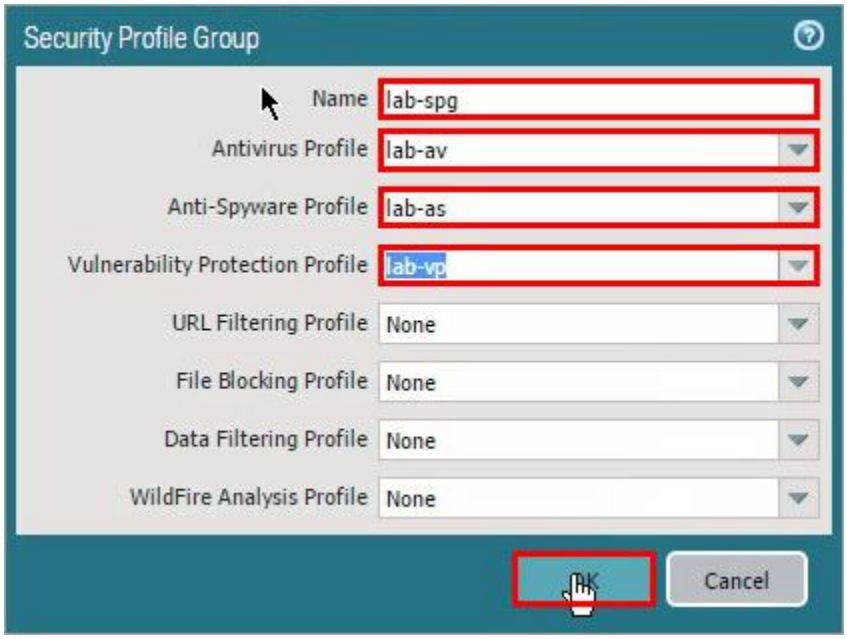
5.2.14 Group Security Profiles

The firewall supports the ability to create Security Profile Groups, which specify sets of Security Profiles that can be treated as a unit and then added to Security policy rules.

1. Select **Objects > Security Profile Groups** then click **Add** to open the Security Profile Group configuration window.

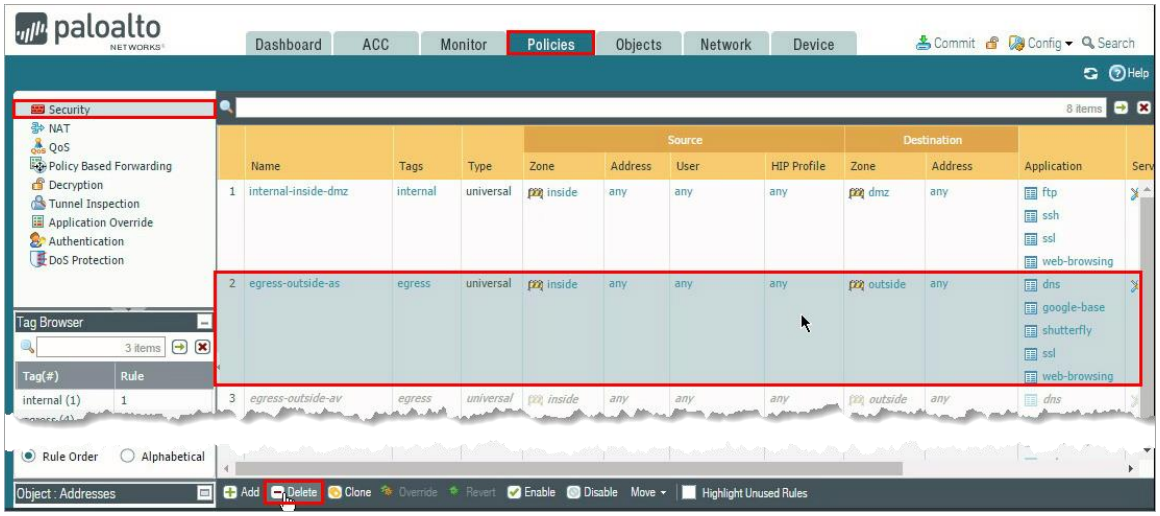
2. Configure the following then click **OK**.

Parameter	Value
Name	`lab-spg`
Antivirus Profile	`lab-av`
Ant-Spyware Profile	`lab-as`
Vulnerability Protection Profile	`lab-vp`

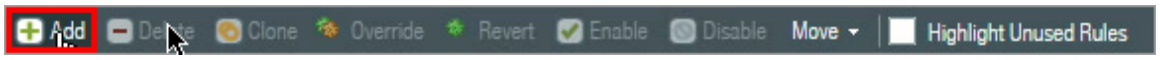


3. Select **Policies > Security**.
4. Click the **Delete** button after selecting each of the following rules.

Parameter	Value
Security Policy Rules	`egress-outside-as` `egress-outside-av`

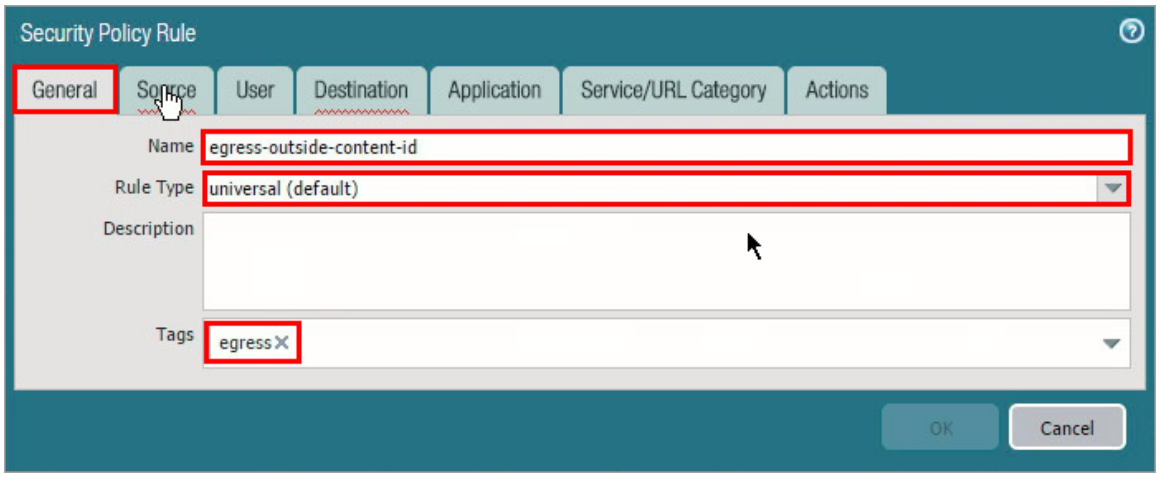


5. Click **Add** to define a Security policy rule.



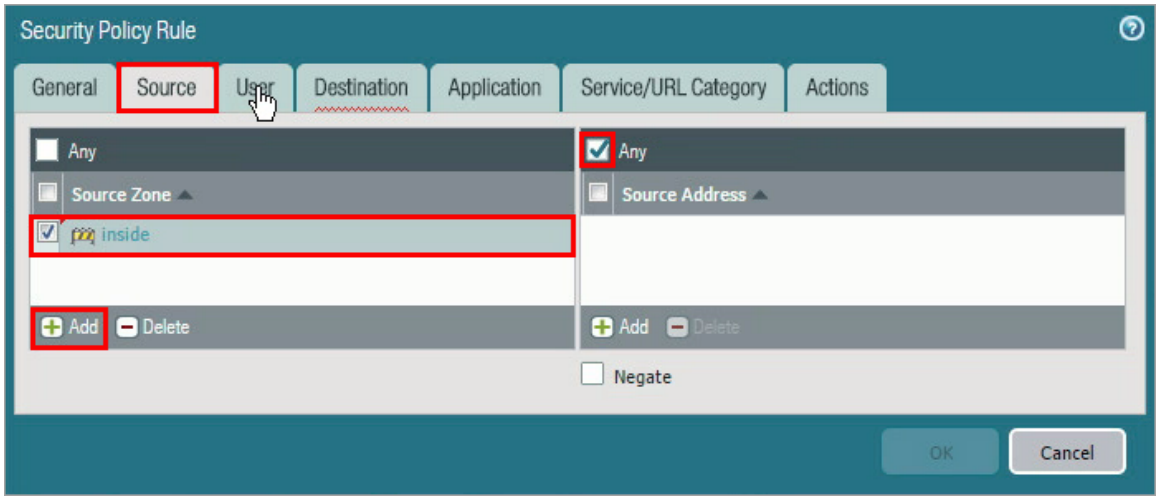
6. Under the **General** tab configure the following.

Parameter	Value
Name	`egress-outside-content-id`
Rule Type	**`universal (default)`**
Tags	**`egress`**



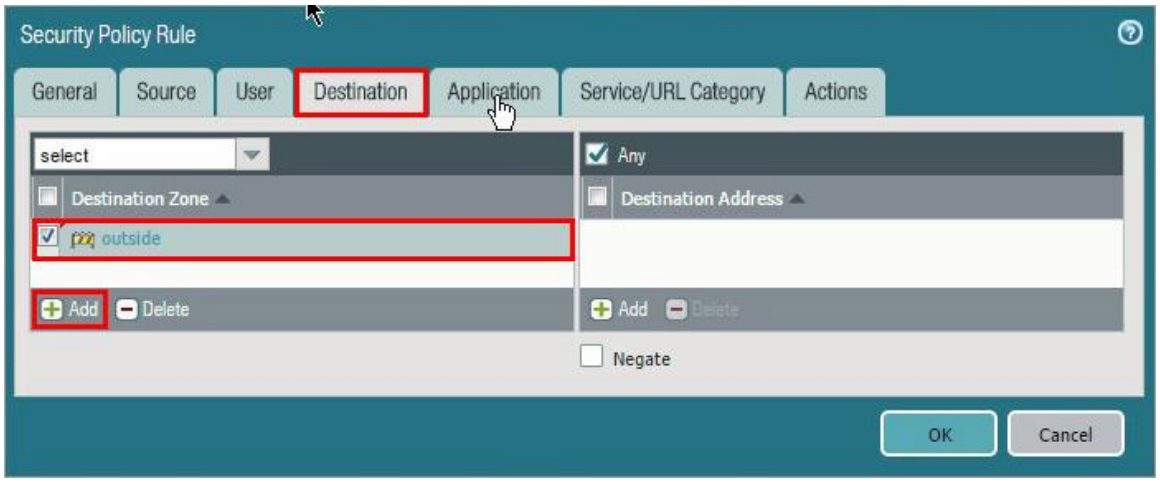
7. Click the **Source** tab and configure the following.

Parameter	Value
Source Zone	**`inside`**
Source Address	**`Any`**



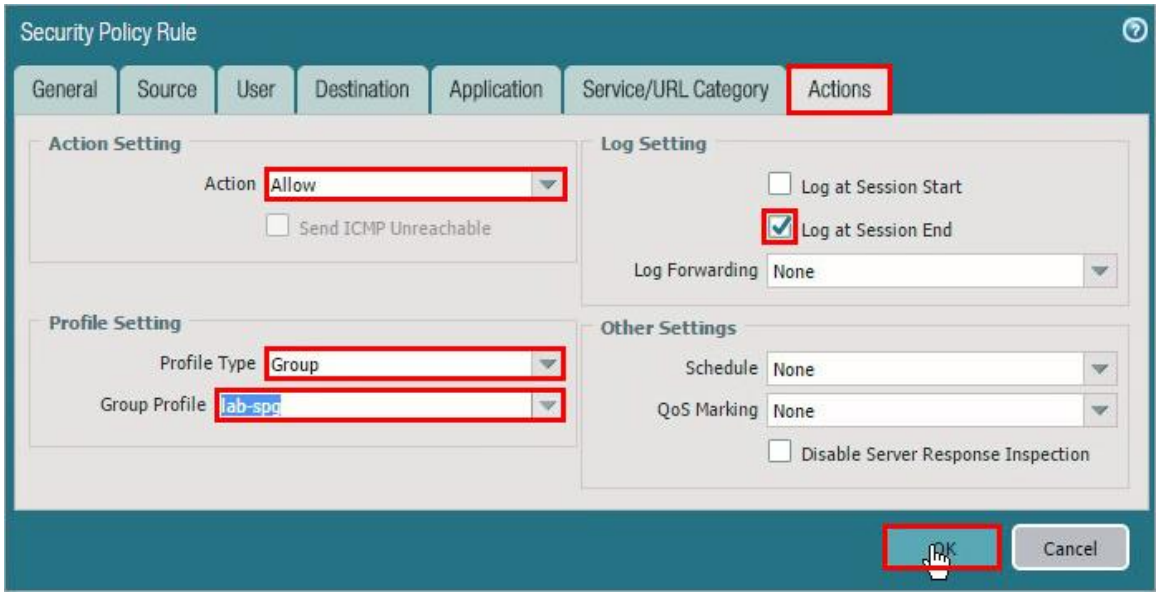
8. Click the **Destination** tab and configure the following.

Parameter	Value
Destination Zone	`outside`
Destination Address	`Any`



9. Click the **Application** tab and verify that **Any** is checked.
10. Click the **Service/URL Category** tab and verify that **application-default** is selected.
11. Click the **Actions** tab to configure the following then click **OK**.

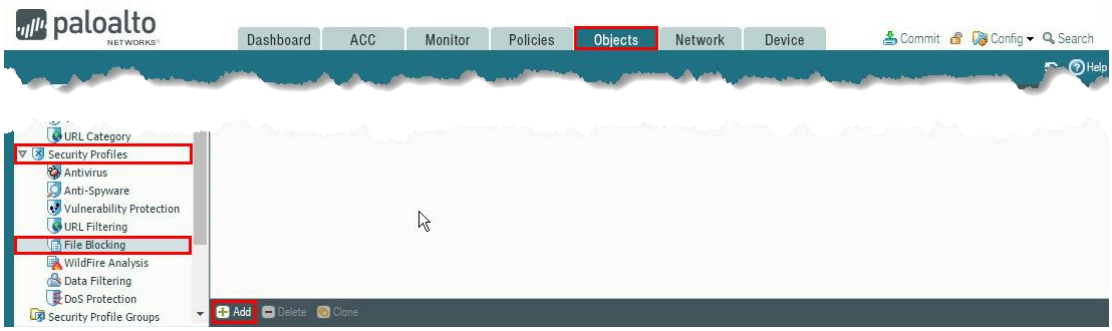
Parameter	Value
Action Setting	`Allow`
Log Setting	`Log at Session End`
Profile Setting	
Profile Type	`Group`
Group Profile	`lab-spg`



5.2.15 Create a File Blocking Profile

A Security policy rule can include specification of a File Blocking Profile that blocks selected file types from being uploaded or downloaded, or generates an alert when the specified file types are detected.

1. In the WebUI select **Objects > Security Profiles > File Blocking** then click **Add** to open the File Blocking Profile configuration window.

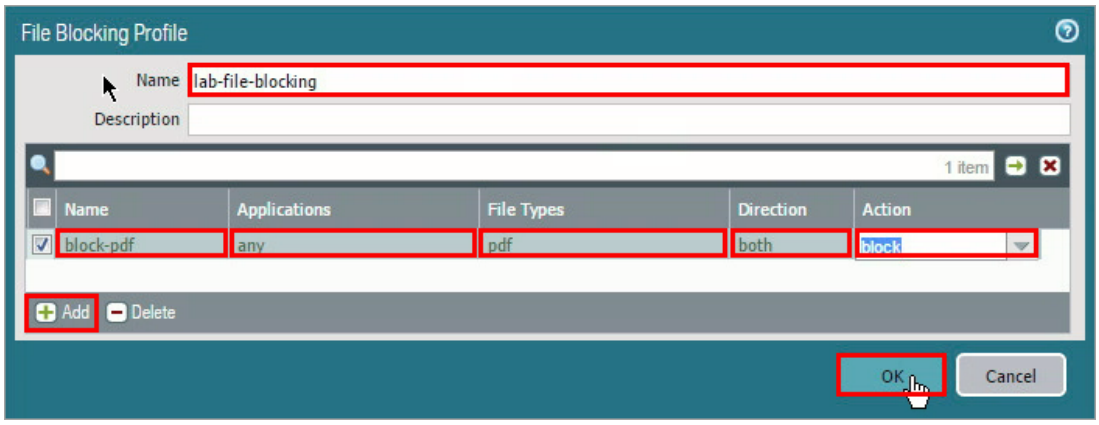


2. In the **File Blocking Profile** window configure the following:

Parameter	Value
Name	`lab-file-blocking`

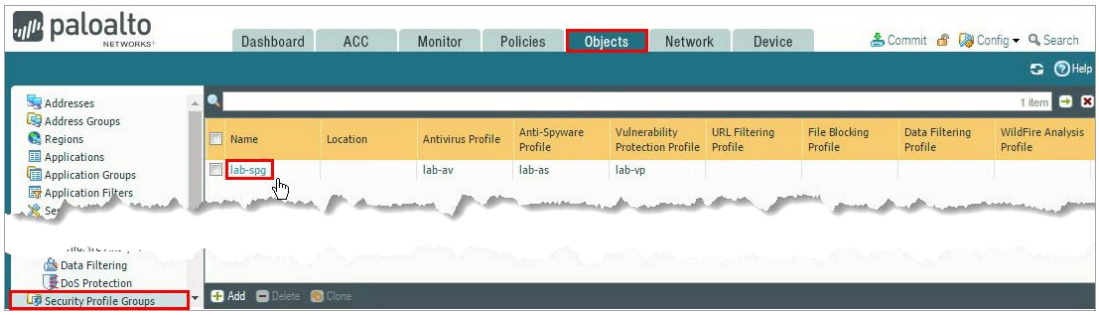
3. Click **Add** and configure the following then click **OK**.

Parameter	Value
Name	`block-pdf`
Applications	**`any`**
File Types	**`pdf`**
Direction	**`both`**
Action	**`block`**

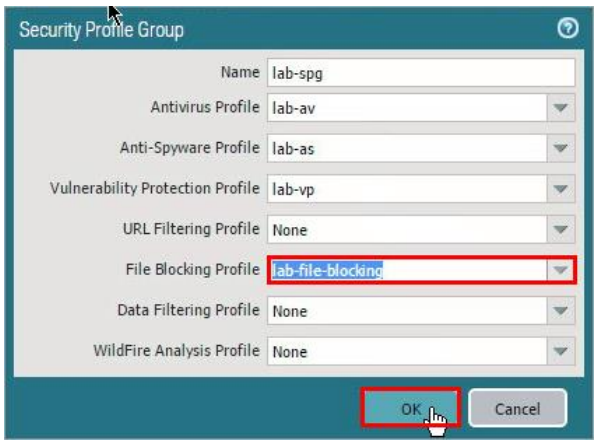


5.2.16 Modify Security Profile Group

1. Select **Objects > Security Profile Groups** then click lab-spg.



2. In the **File Blocking Profile** box select **lab-file-blocking** then click **OK**.



3. **Commit** all changes.

5.2.17 Test the File Blocking Profile

1. Open a new browser window in private/incognito mode and browse to **`http://www.panedufiles.com/`**.
2. Click the **Panorama_AdminGuide.pdf** link. The download fails.

Note: If you get "failed to download pdf" and not the block page, then refresh the browser window.

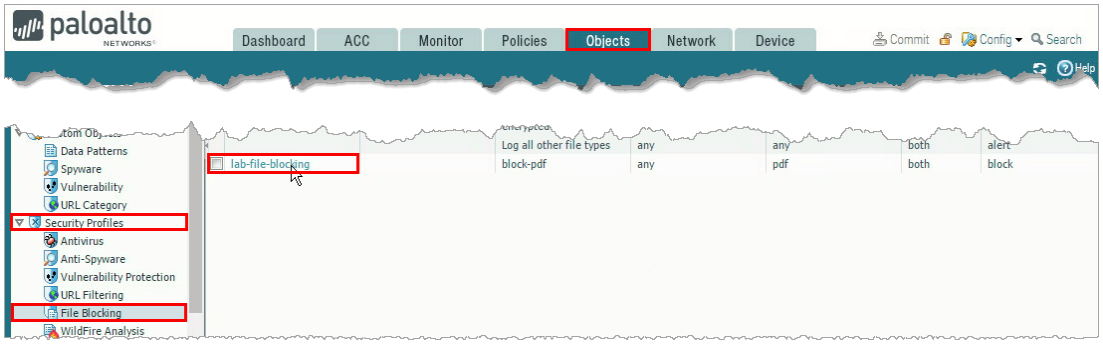
3. Select **Monitor > Logs > Data Filtering** then find the log entry for the PDF file that has been blocked.

Note: The Action column is located on the far right. The column can be moved via drag-and-drop using the mouse cursor.

5.2.18 Multi-Level-Encoding

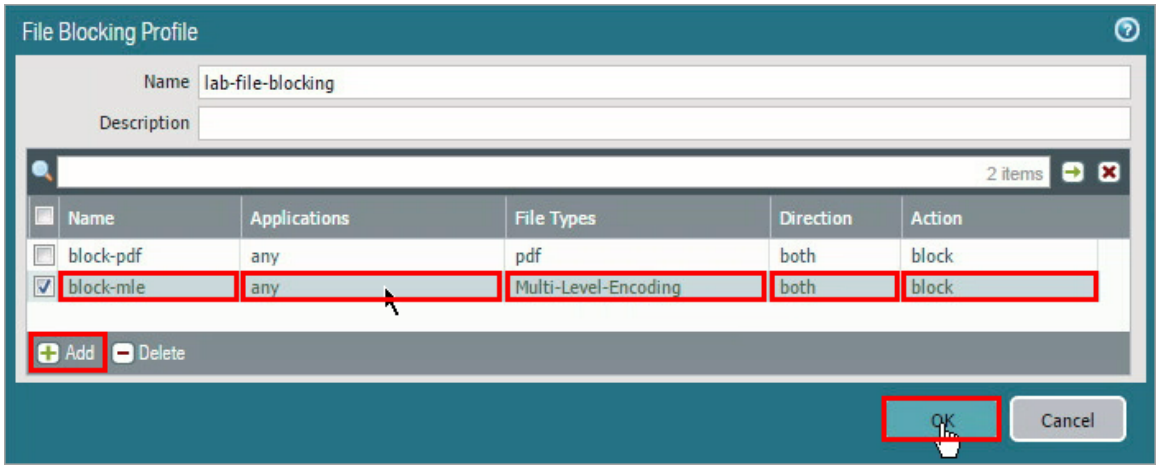
Multi-Level-Encoding can be used to block content that is not inspected by the firewall because of the file being encoded five or more times.

1. In the WebUI select **Objects > Security Profiles > File Blocking**.
2. Click to open the **lab-file-blocking** File Blocking Profile.



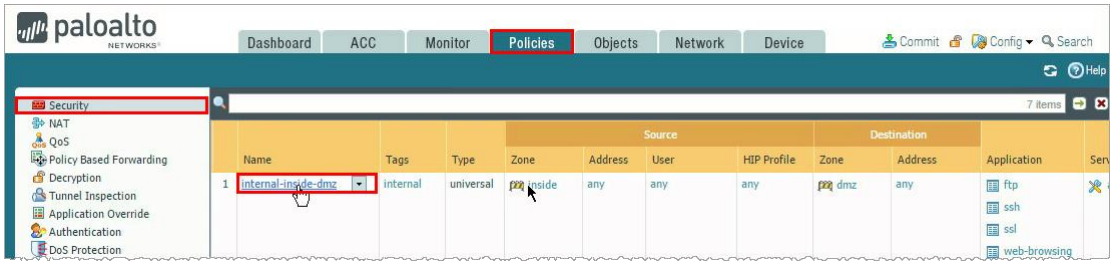
3. In the File Blocking Profile window click **Add** to configure the following then click **OK**.

Parameter	Value
Name	`block-mle`
Applications	**`any`**
File Types	`Multi-Level-Encoding`
Direction	**`both`**
Action	**`block`**



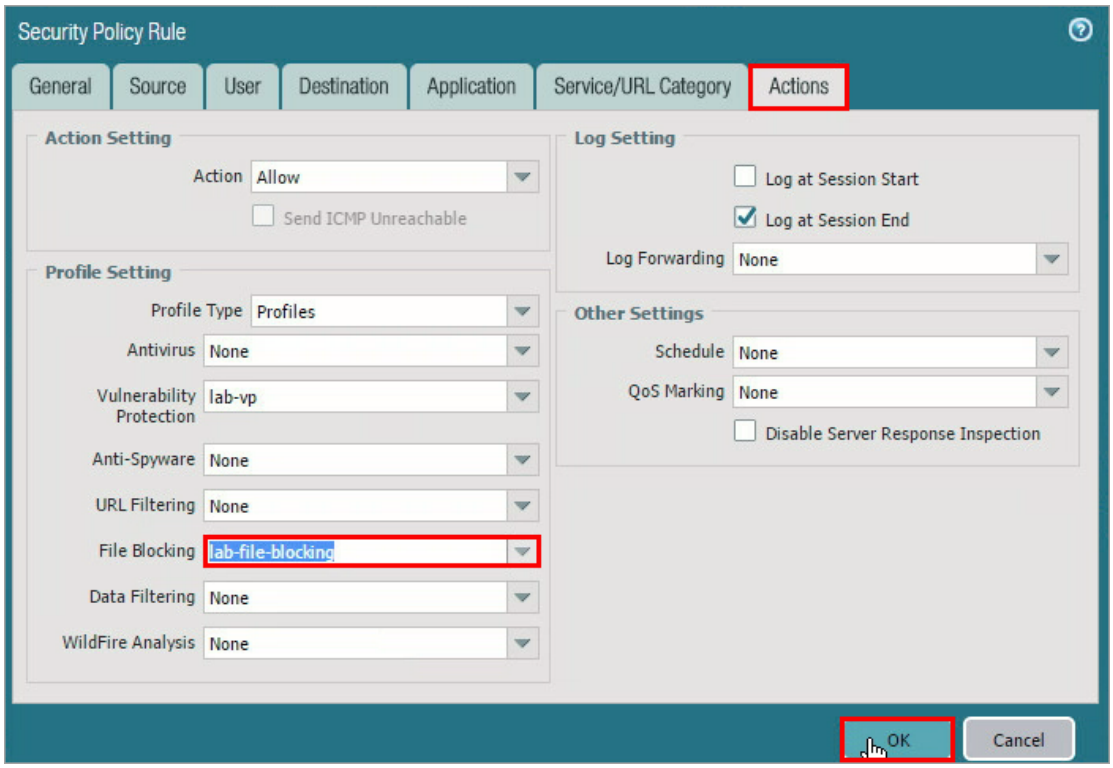
5.2.19 Modify Security Policy Rule

1. In the WebUI select **Policies > Security** click on **internal-inside-dmz** to open the Security policy rule.



2. Under the **Actions** tab configure the following then click **OK**.

Parameter	Value
File Blocking	`lab-file-blocking`



3. **Commit** all changes.

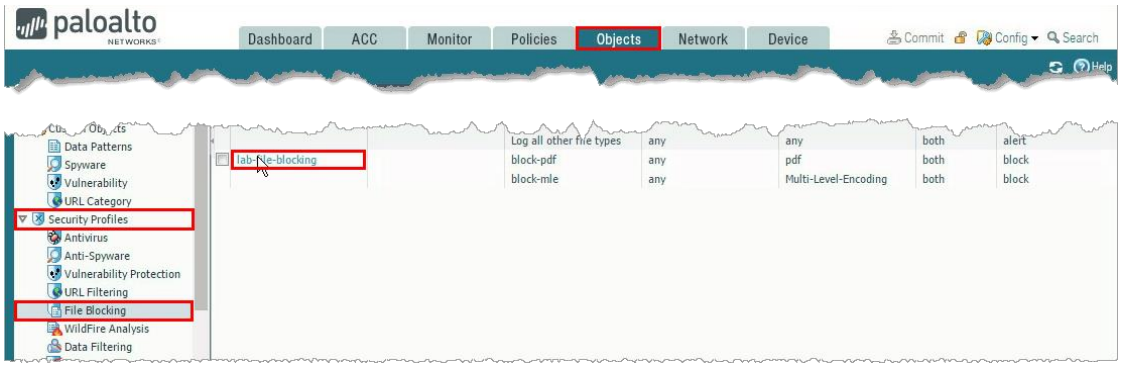
5.2.20 Test the File Blocking Profile with Multi-Level-Encoding

1. Open a new browser in private/incognito mode and browse to `http://192.168.50.10/mle.zip`. The URL links to a file that is compressed five times.

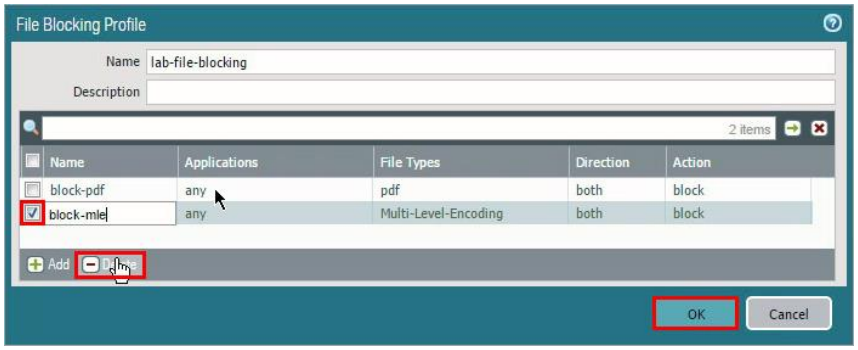
2. The file is blocked in accordance with the new file blocking rule.

5.2.21 Modify Security Policy Rule

1. In the WebUI select **Objects > Security Profiles > File Blocking** then click on **lab-file-blocking** to open the File Blocking Profile.



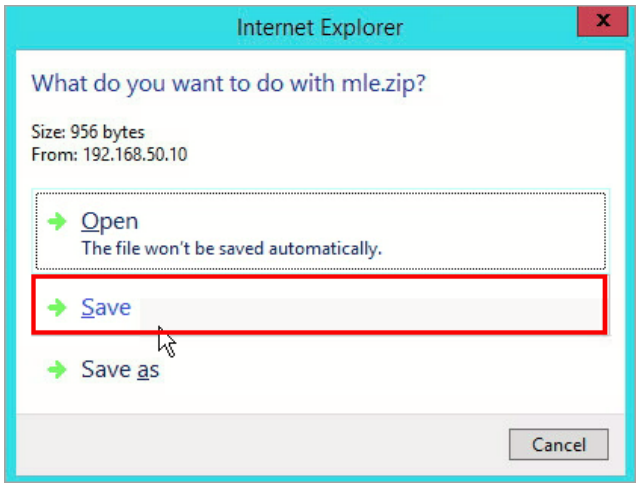
2. Select the **block-mle** rule then click **Delete**.



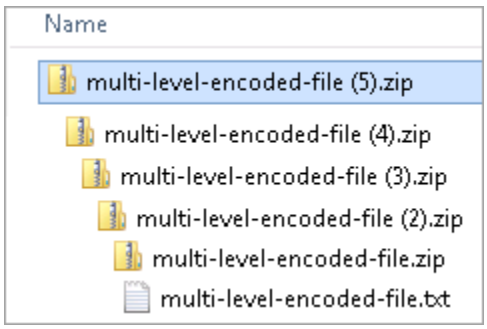
3. Click **OK** to close the File Blocking Profile configuration window.
4. **Commit** all changes.

5.2.22 Test the File Blocking Profile with Multi-Level-Encoding

1. Open a new browser in private/incognito mode and browse to `http://192.168.50.10/mle.zip`. The URL links to a file that is compressed five times. The file is no longer blocked. Save the file.



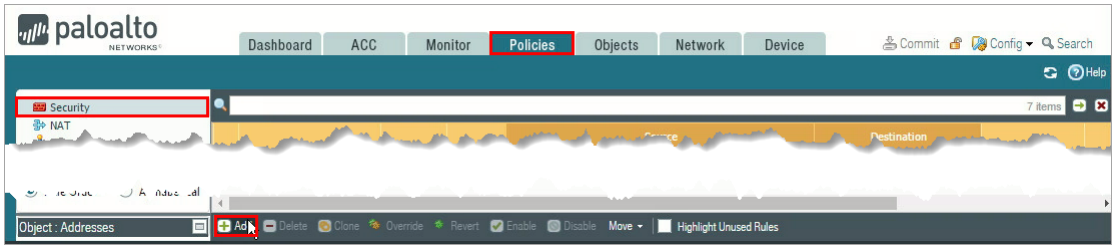
2. Open the file to exam the contents.



5.2.23 Create Danger Security Policy Rule

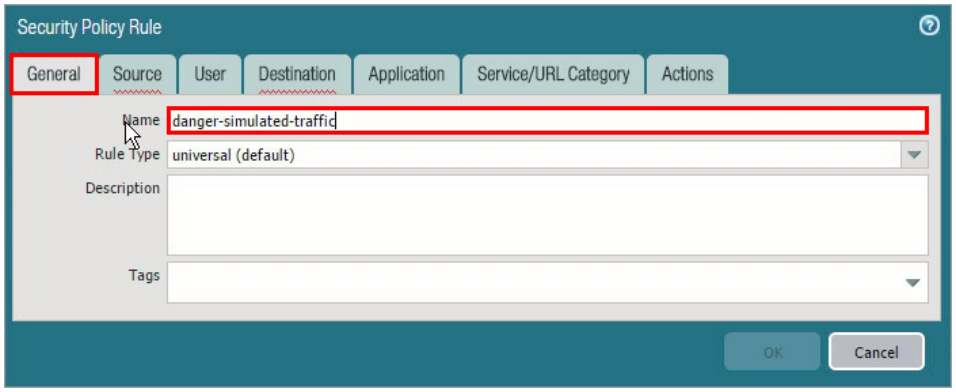
Create a Security policy rule that references the danger Security zone for threat and traffic generation.

1. Select **Policies > Security** then click **Add**.



2. Under the **General** tab configure the following.

Parameter	Value
Name	`danger-simulated-traffic`

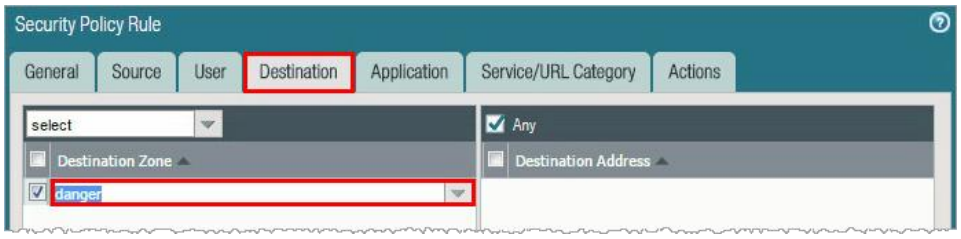


3. Under the **Source** tab and configure the following.

Parameter	Value
Source Zone	**`danger`**

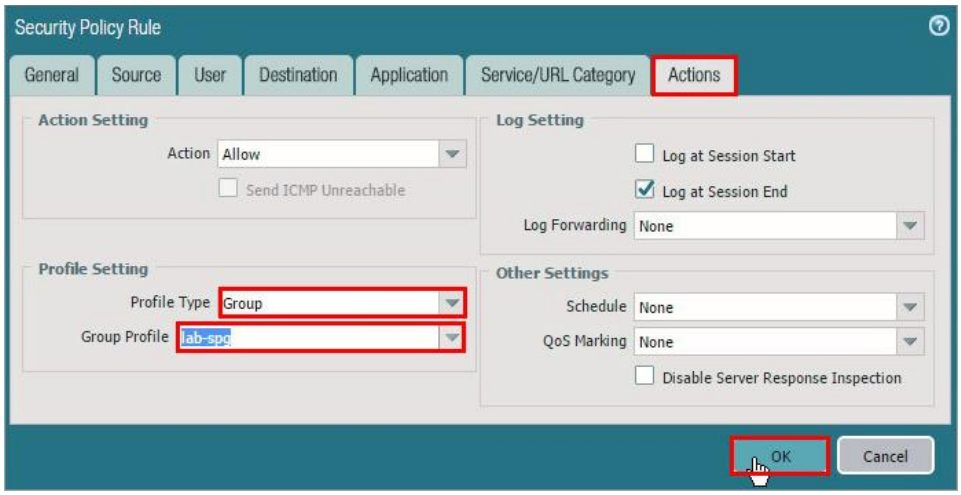
4. Under the **Destination** tab and configure the following.

Parameter	Value
Destination Zone	**`danger`**

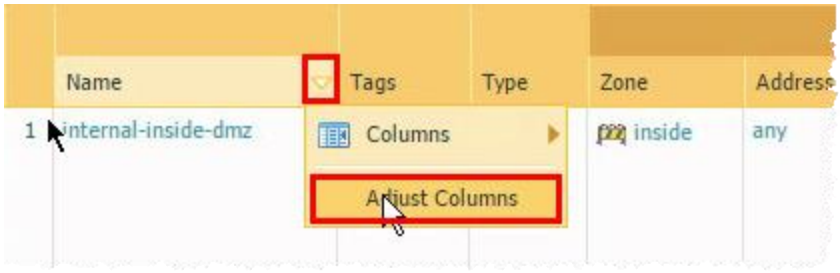


5. Under the **Actions** tab and configure the following then click **OK**.

Parameter	Value
Profile Type	**`group`**
Group Profile	**`lab-spg`**



6. Hover over the Name column header and select Adjust Columns from the drop-down list.

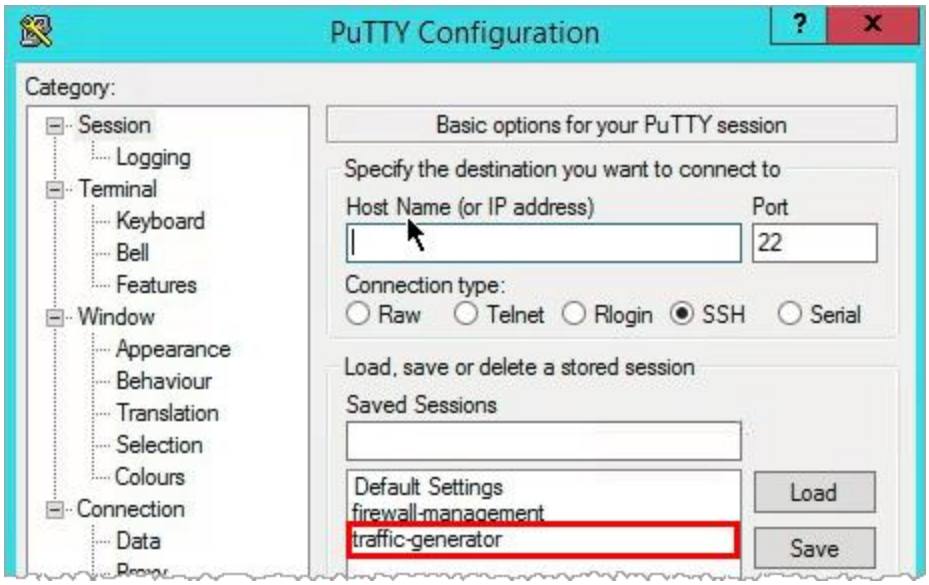


Notice that the width of all the columns were adjusted to fit the text in the columns.

7. **Commit** all changes.

5.2.24 Generate Threats

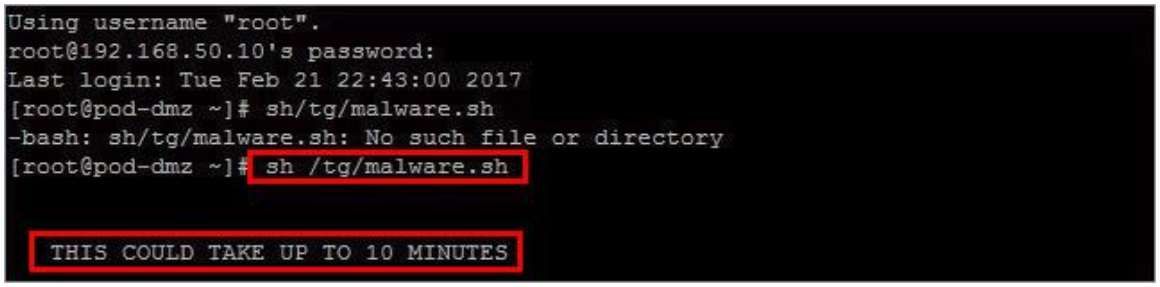
1. On the Windows desktop, open **PuTTY** and double-click **traffic-generator**.



2. Enter the following information when prompted:

Parameter	Value
Password	**Pal0Alt0**

3. In the PuTTY window, type the command **`sh /tg/malware.sh`**



Note: The script can take up to 10 minutes to complete. Wait until the script complete prior to continuing.

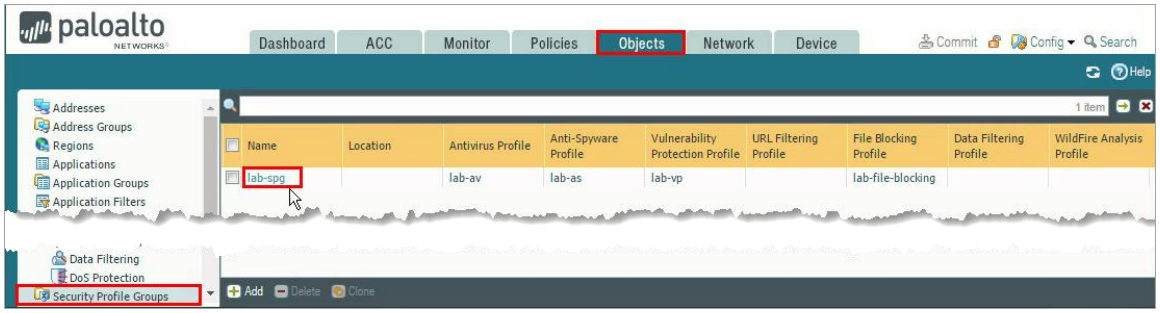
4. Select **Monitor > Logs > Threat** then type the following filter **`(severity neq informational)`** `and execute.`

5. Notice the threats currently listed from the generated traffic.
6. Select **Monitor > Logs > Data Filtering**.

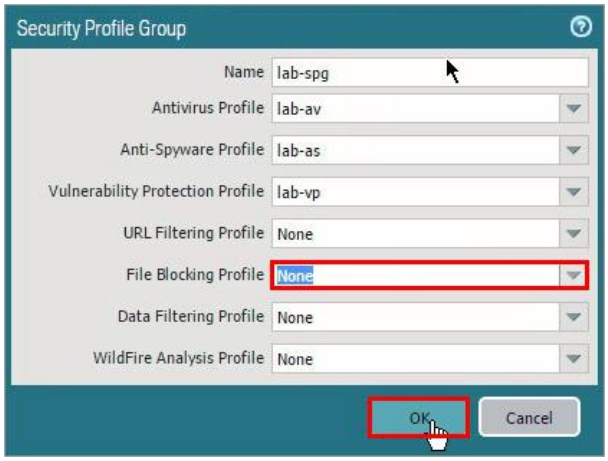
7. Notice the blocked files.

5.2.25 Modify Security Profile Group

1. Select **Objects > Security Profile Groups** then click on **lab-spg** to open the Security Profile Group.



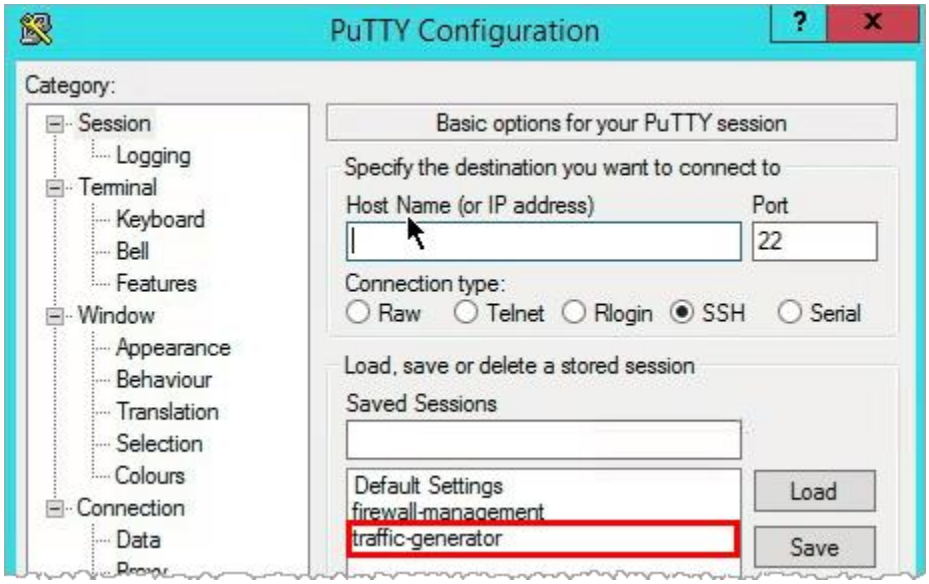
2. Set the File Blocking Profile field to **None** then click **OK**.



3. **Commit** all changes.

5.2.26 Generate Threats

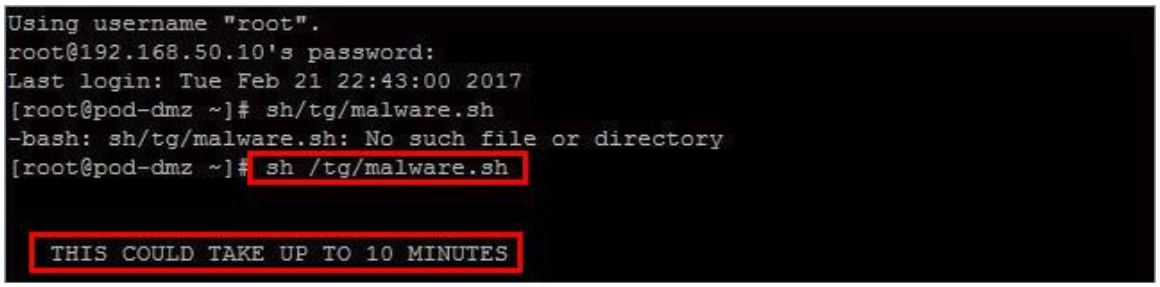
1. On the Windows desktop, open **PuTTY** and double-click **traffic-generator**.



2. Enter the following information when prompted.

Parameter	Value
Password	`Pal0Alt0`

3. In the **PuTTY** window, type the command `sh /tg/malware.sh`



Note: The script can take up to 10 minutes to complete. Wait until the script complete prior to continuing.

4. Select **Monitor > Logs > Threat** then input the following filter `(severity neq informational)` and execute.

5. Notice the blocked files.

Stop. This is the end of the 5.2 Content ID Malware/Virus Protection lab.

