SECURITY OPERATIONS FUNDAMENTALS V2

Lab 3: Analyzing Firewall Logs

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Contents

Introduction

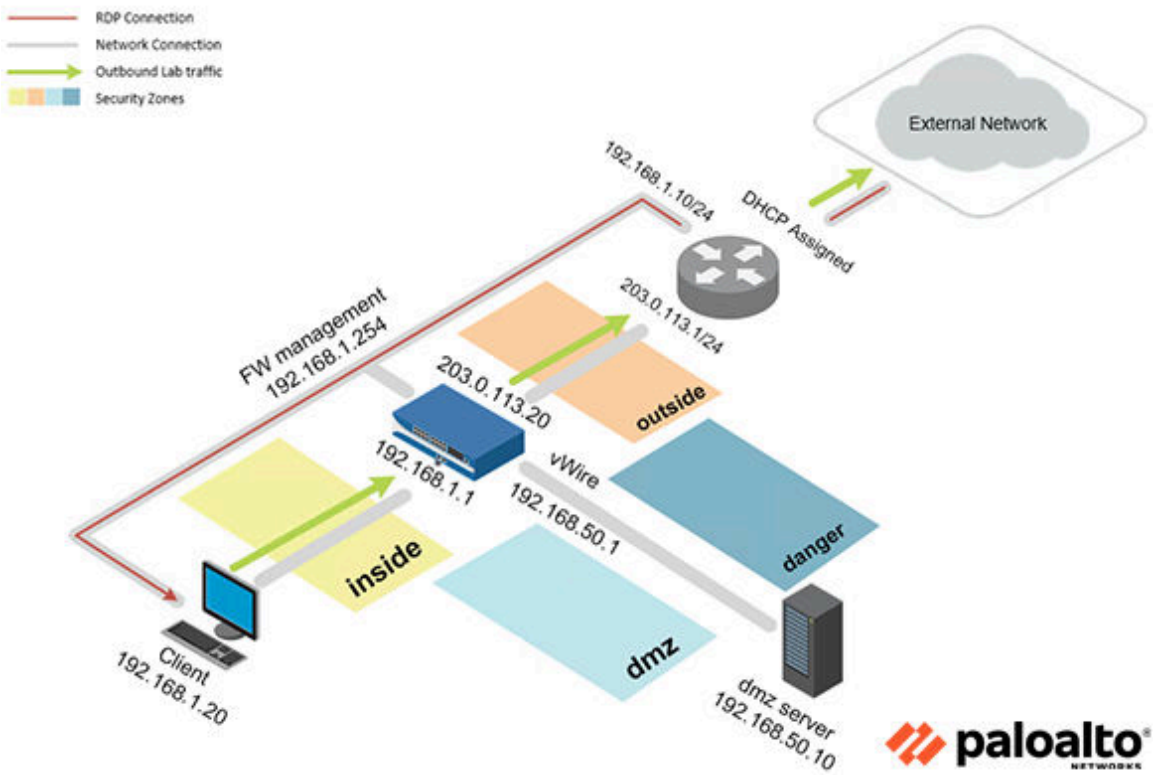
In this lab, you will generate traffic and use the Firewall logs to analyze the traffic.

Objective

In this lab, you will perform the following tasks:

- Generate Traffic to the Firewall
- Review Traffic in the Firewall Logs

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.

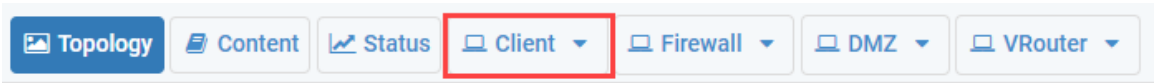
Virtual Machine	IP Address	Account (if needed)	Password (if needed)
Client	192.168.1.20	`lab-user`	`Pal0Alt0!`
DMZ	192.168.50.10	`root`	`Pal0Alt0!`
Firewall	192.168.1.254	`admin`	`Pal0Alt0!`

1 Analyzing Firewall Logs

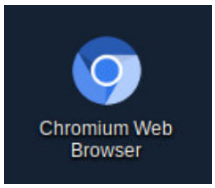
1.0 Load Lab Configuration

In this section, you will load the Firewall configuration file.

1. Click on the **Client** tab to access the client PC.

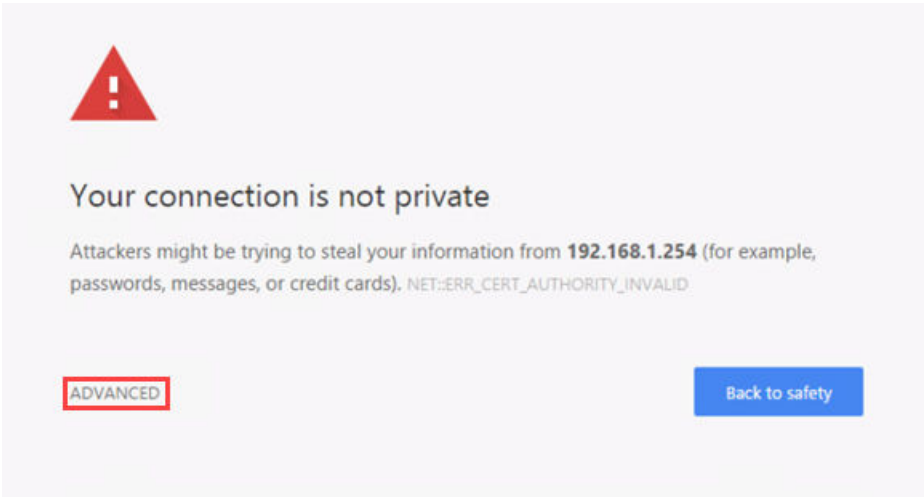


2. Log in to the client PC with the username `lab-user` and password `Pal0Alt0!`.
3. Double-click the **Chromium Web Browser** icon located on the desktop.



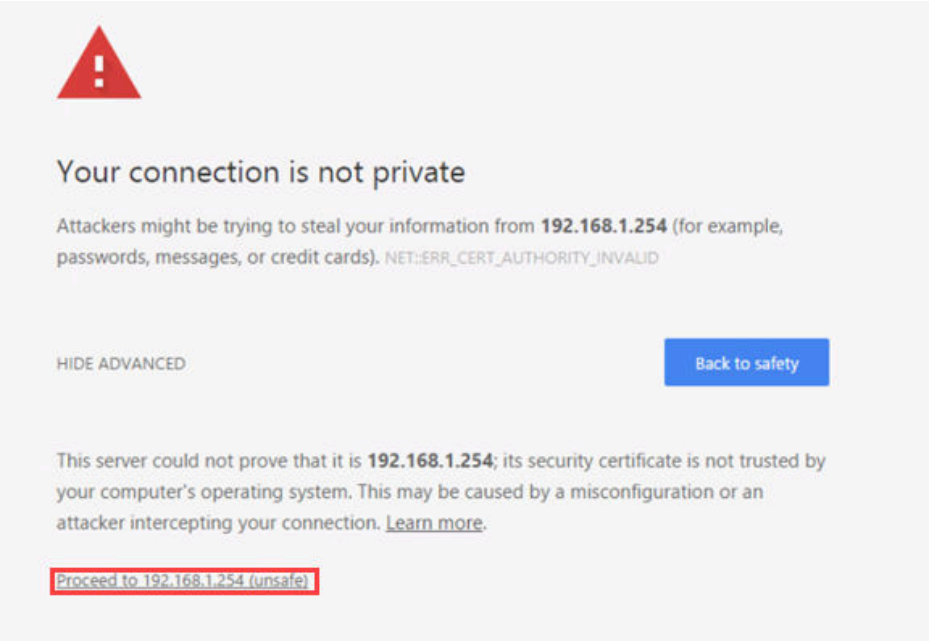
4. In the *Chromium* address field, type `https://192.168.1.254` and press **Enter**.

5. You will see a "*Your connection is not private*" message. Click on the **ADVANCED** link.



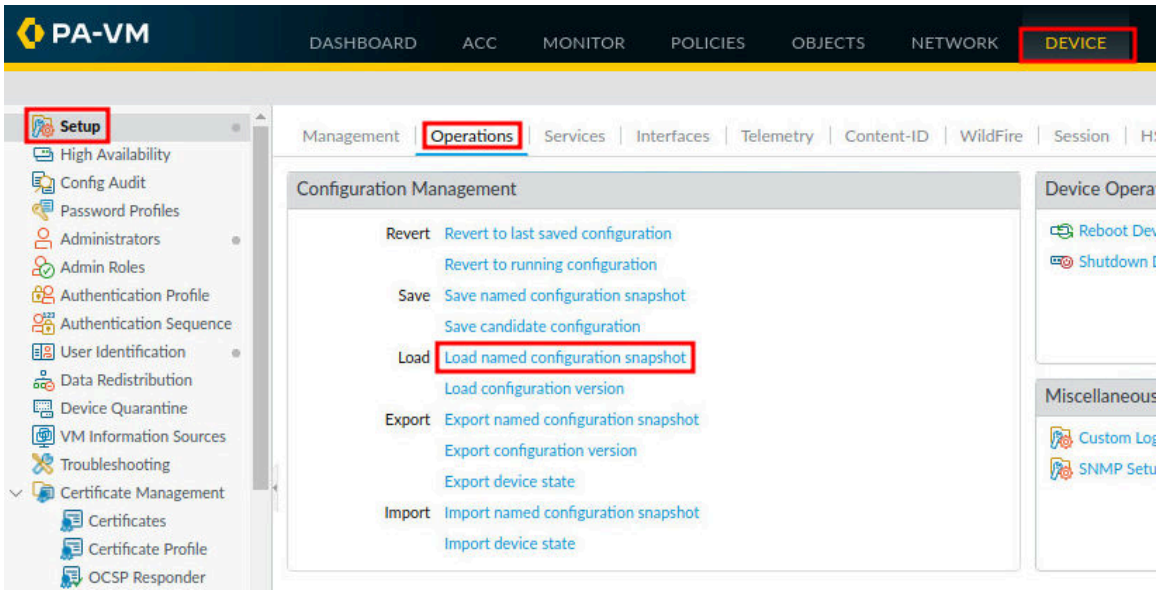
If you encounter the *"Unable to connect"* or *"502 Bad Gateway"* message while attempting to connect to the IP specified above, please wait an additional 1-3 minutes for the Firewall to fully initialize. Refresh the page to continue.

6. Click on **Proceed to 192.168.1.254 (unsafe)**.

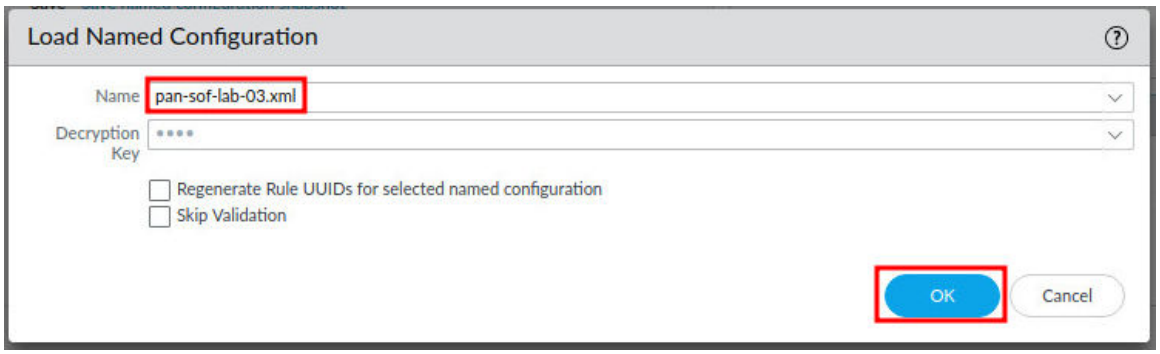


7. Log in to the Firewall web interface as username `admin`, password `Pal0Alt0!`.

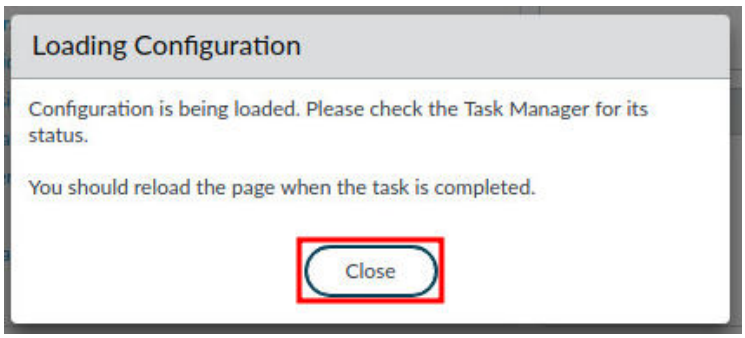
8. In the web interface, navigate to **Device > Setup > Operations** and click on **Load named configuration snapshot** underneath the *Configuration Management* section.



9. In the *Load Named Configuration* window, select **pan-sof-lab-03.xml** from the *Name* drop-down box and click **OK**.

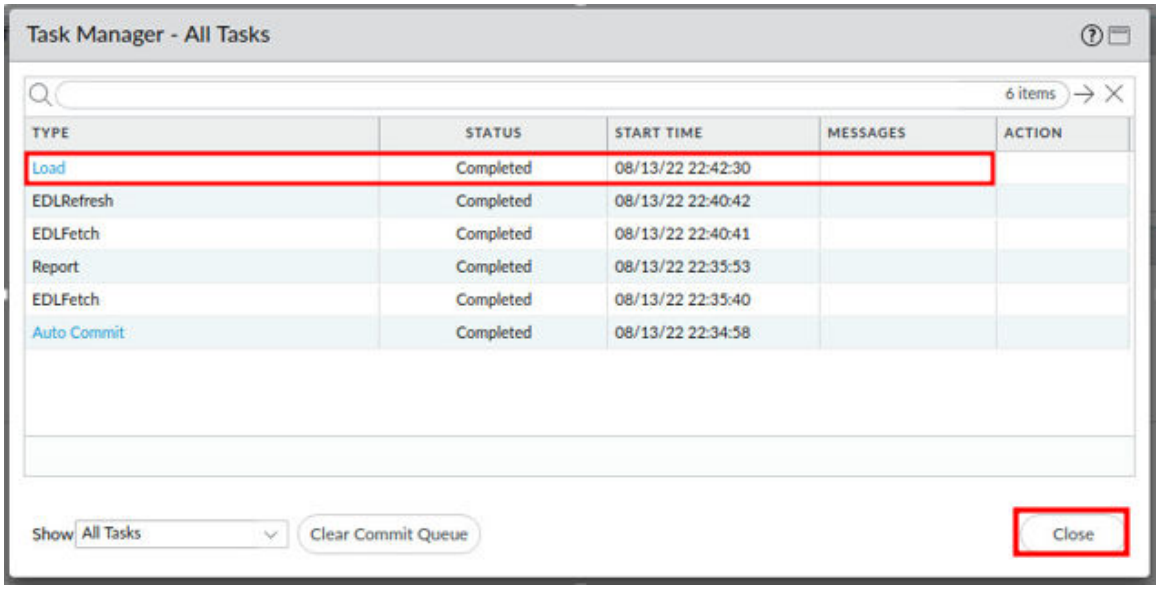


10. In the *Loading Configuration* window, a message will say *Configuration is being loaded. Please check the Task Manager for its status. You should reload the page when the task is completed.* Click **Close** to continue.

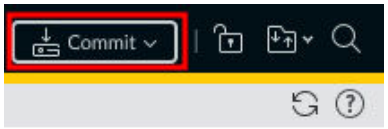


11. Click the **Tasks** icon located at the bottom-right of the web interface.

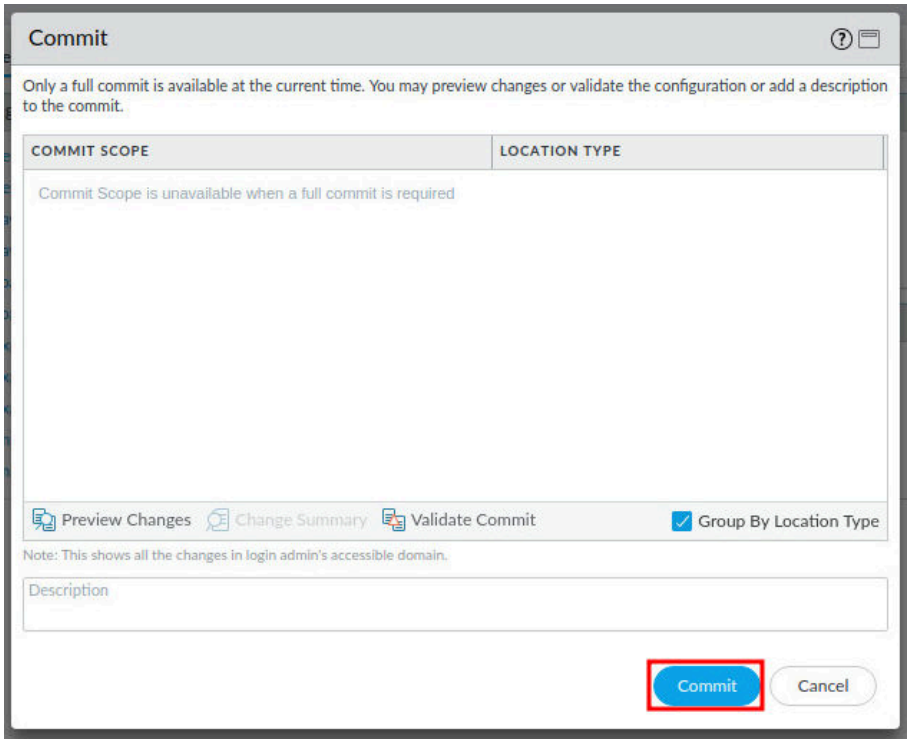
12. In the *Task Manager – All Tasks* window, verify that the *Load* type has successfully completed. Click **Close.**



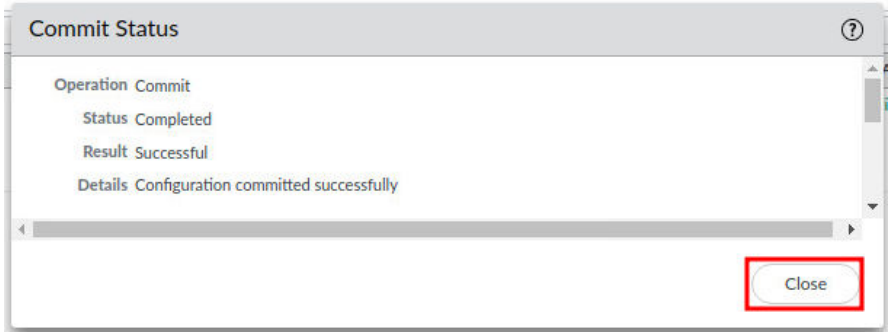
13. Click the **Commit** link located at the top-right of the web interface.



14. In the *Commit* window, click **Commit** to proceed with committing the changes.



15. When the commit operation successfully completes, click **Close** to continue.



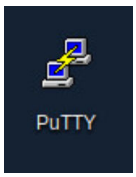
The commit process takes changes made to the Firewall and copies them to the running configuration, which will activate all configuration changes since the last commit.

1.1 Generate Traffic to the Firewall

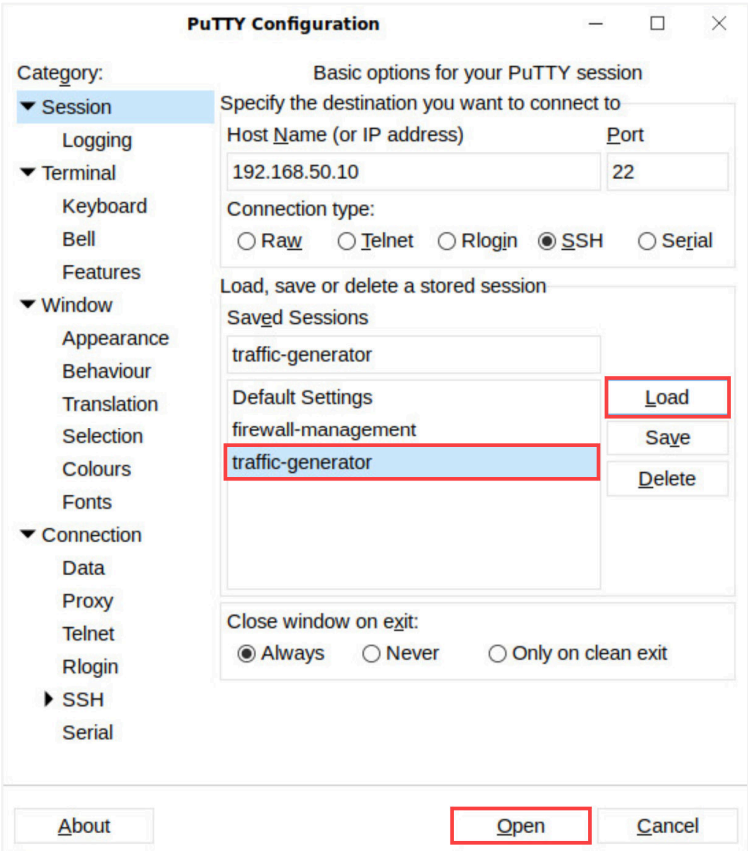
In this section, you will generate traffic to the Firewall using a script that is replaying previously-captured traffic.

1. Minimize *Chromium* in the upper-right corner.

2. Double-click the **PuTTY** application on the desktop.



3. From the *PuTTY Configuration* window, select **traffic-generator** from the *Saved Sessions* section. Then, click the **Load** button. Finally, click the **Open** button.

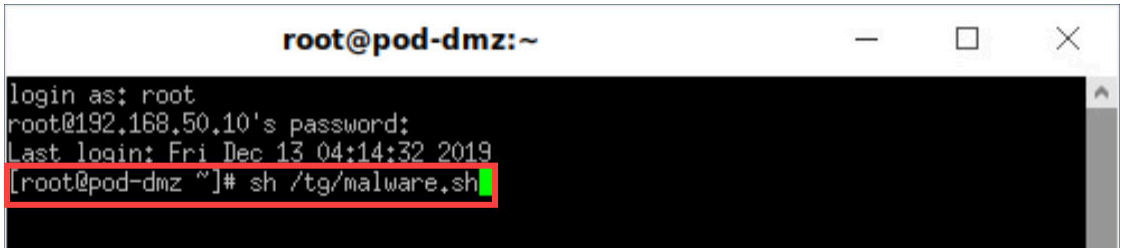


4. At the *login as:* prompt, type `root`. Type `Pal0Alt0!` for the password, and press **Enter**.

The cursor will not move while you type the password.

5. Type `sh /tg/malware.sh` and press **Enter**.

```
[root@pod-dmz ~]# sh /tg/malware.sh
```



6. Allow the script to generate malware traffic. Notice it says it will take less than 45 seconds to complete. You may experience different time spans when doing this step. It is important that you allow the **malware.sh** script to finish.

7. The script will generate test malware traffic to the Firewall so that you can see malware traffic in the Firewall. You will see the following output when the script has generated the traffic.

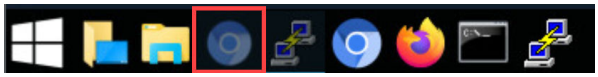
```
root@pod-dmz:~
login as: root
root@192.168.50.10's password:
Last login: Fri Dec 13 04:14:32 2019
[root@pod-dmz ~]# sh /tg/malware.sh


   THIS COULD TAKE UP TO 10 MINUTES

      Actual: 822 packets (735581 bytes) sent in 134.03 seconds.
Rated: 5400.0 Bps, 0.043 Mbps, 6.11 pps
Flows: 27 flows, 0.20 fps, 822 flow packets, 0 non-flow
Statistics for network device: ens224
        Successful packets:        822
        Failed packets:            0
        Truncated packets:         0
        Retried packets (ENOBUFS): 0
        Retried packets (EAGAIN):  0
Actual: 67 packets (47535 bytes) sent in 17.04 seconds.
Rated: 2700.0 Bps, 0.021 Mbps, 3.83 pps
Flows: 6 flows, 0.34 fps, 67 flow packets, 0 non-flow
Statistics for network device: ens224
        Successful packets:        67
        Failed packets:            0
        Truncated packets:         0
        Retried packets (ENOBUFS): 0
        Retried packets (EAGAIN):  0
Actual: 372 packets (264661 bytes) sent in 0.259538 seconds.
Rated: 1019700.0 Bps, 8.15 Mbps, 1433.31 pps
Flows: 2 flows, 7.70 fps, 372 flow packets, 0 non-flow
Statistics for network device: ens224
        Successful packets:        372
        Failed packets:            0
        Truncated packets:         0
        Retried packets (ENOBUFS): 0
        Retried packets (EAGAIN):  0
Actual: 44 packets (11666 bytes) sent in 0.118690 seconds.
Rated: 98200.0 Bps, 0.785 Mbps, 370.71 pps
Flows: 2 flows, 16.85 fps, 44 flow packets, 0 non-flow
Statistics for network device: ens224
        Successful packets:        44
        Failed packets:            0
        Truncated packets:         0
        Retried packets (ENOBUFS): 0
        Retried packets (EAGAIN):  0
[root@pod-dmz ~]#
```

Notice that you have successfully generated malware packets by initializing the **malware.sh** file.

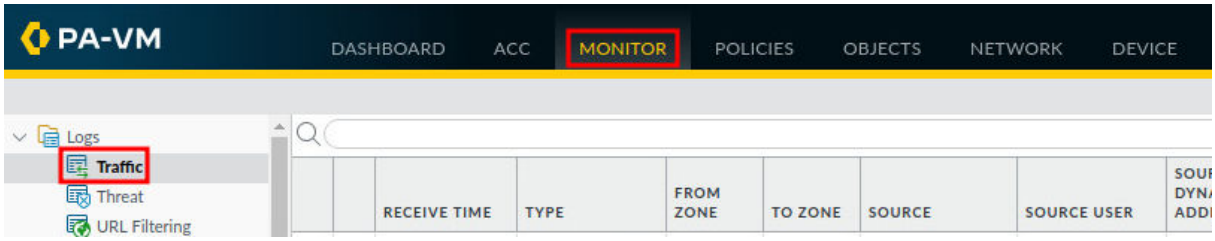
1.2 Review Traffic in the Firewall Logs

In this section, you will explore the *Traffic* logs in the Firewall.

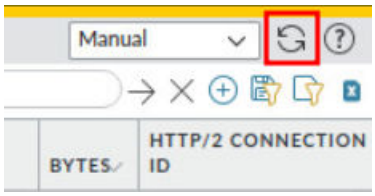
1. Maximize *Chromium* from the taskbar.

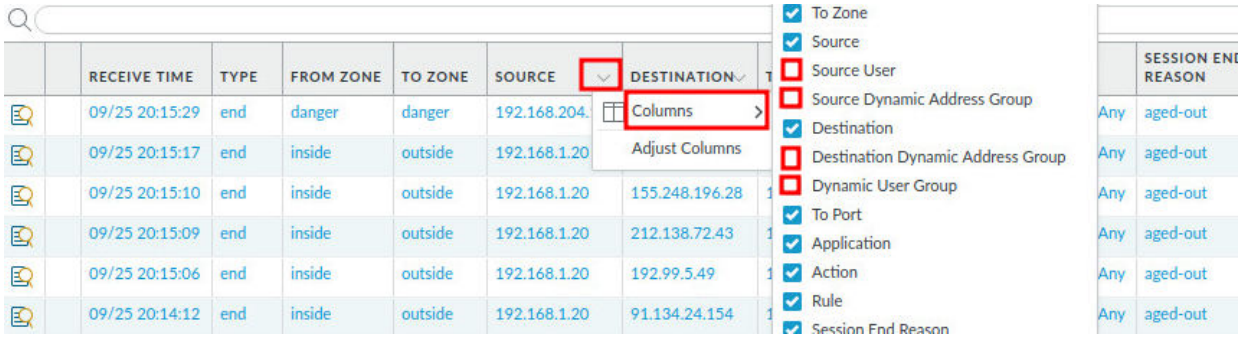


2. Navigate to the **Monitor > Logs > Traffic**.

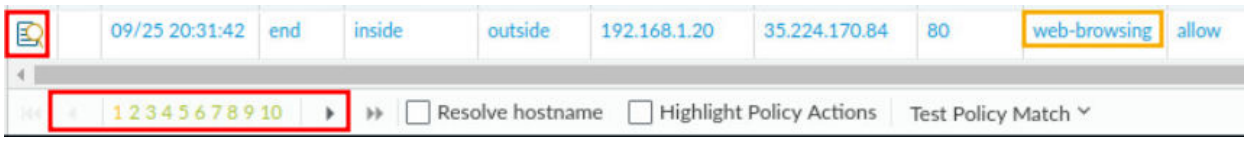


3. You will see traffic from the Firewall. You may need to refresh the Firewall interface for the most recent traffic by clicking the **Refresh** icon at the top-right of the web interface. For easier navigation, you may remove columns by clicking on the drop-down arrow next to a column header, then **Columns**. Uncheck selections like **Source User, Source Dynamic Address Group, Destination Dynamic Address Group,** and **Dynamic User Group**, watch the columns dynamically disappear, then press **Esc** key to clear the popup box.



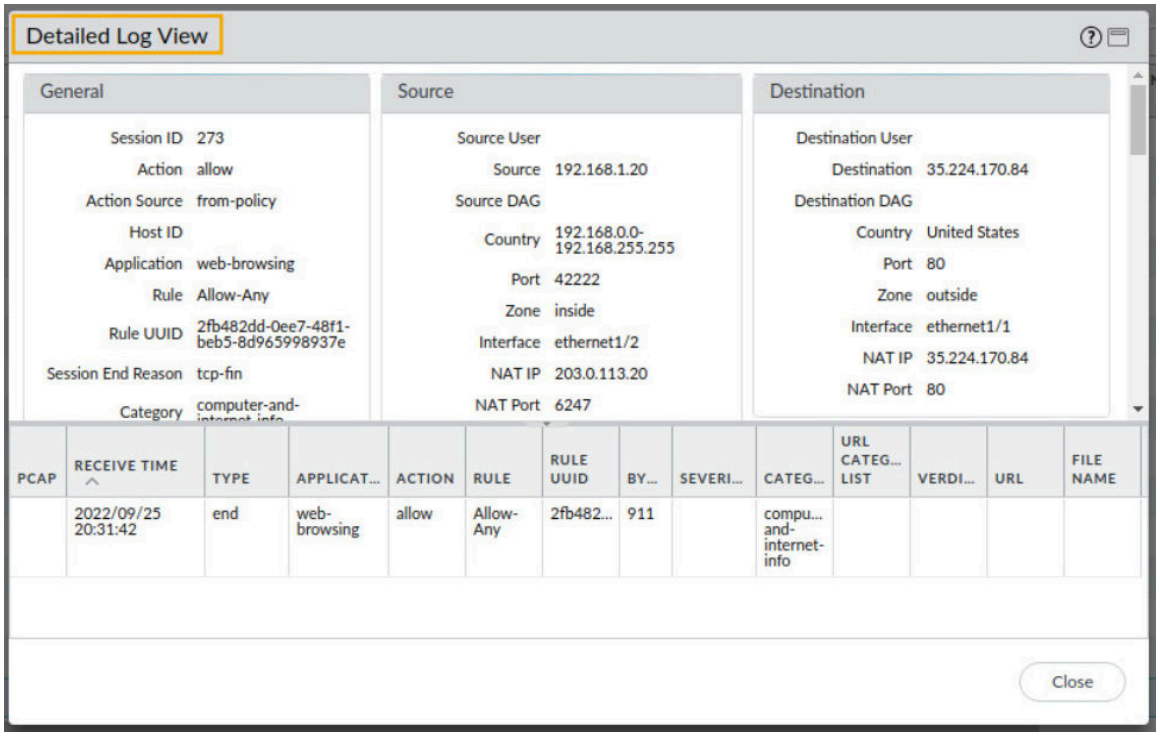


4. Look under the *Application* column and find traffic that is categorized as **web-browsing**. You may need to select the next page in the lower-left. Click on the **Magnifying Glass** icon on the left to view the traffic.

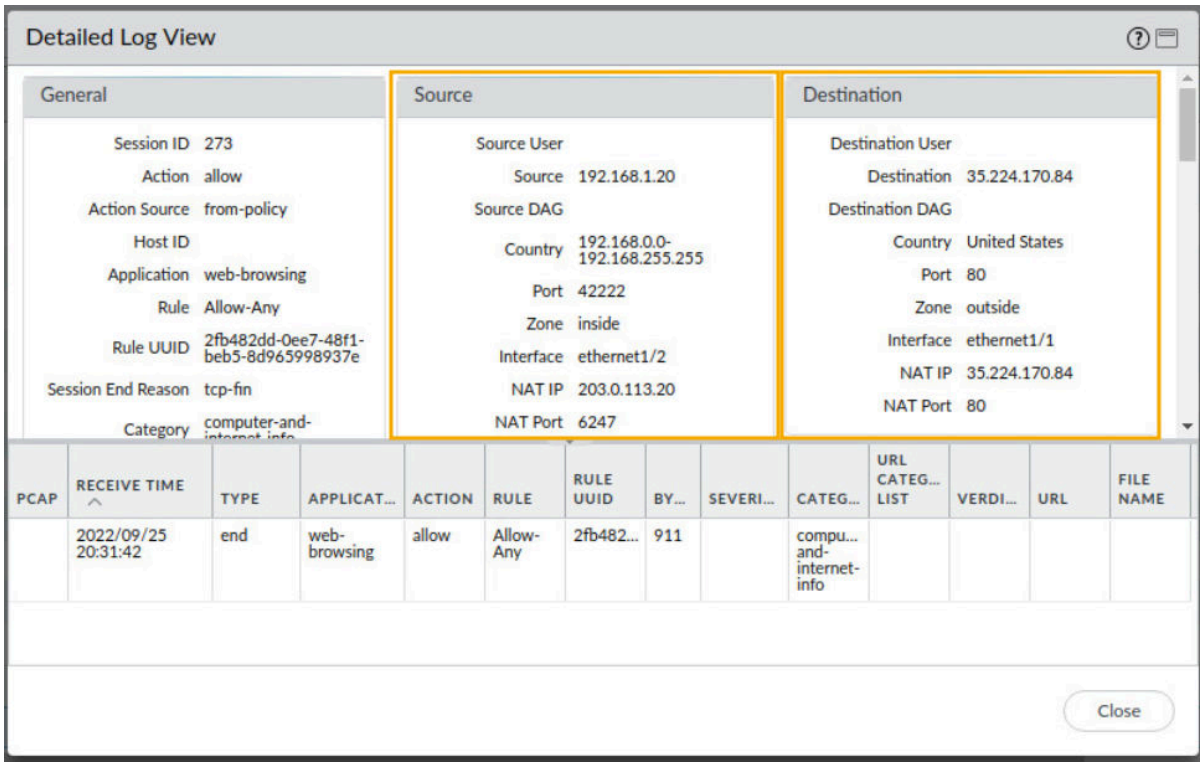


Due to the nature of the lab environment, you may get different results depending on the traffic log you choose.

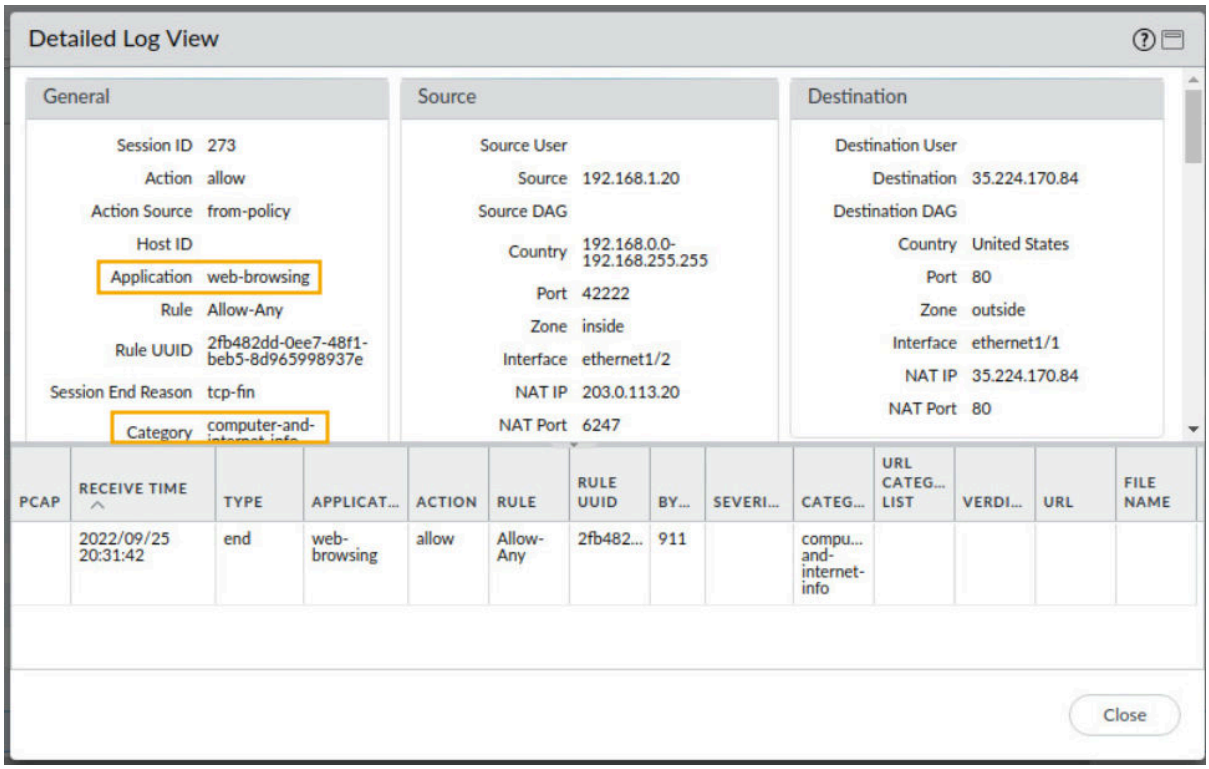
5. Review the *Detailed Log View* window.



6. You can see the details of the **Source** and **Destination**.



7. You can see the **Application** and **Category** in the *General* section.



8. The lab is now complete; you may end the reservation

