Wazuh SIEM Lab and Rule Modification

Overview

I wanted to gain experience in Wazuh and Linux by setting up an SIEM lab. This included generating telemetry, rule modification, and lab setup. I used a Ubuntu 22.04 VM on the cloud and a Windows 10 VM with sysmon using VMbox.

What is Wazuh?

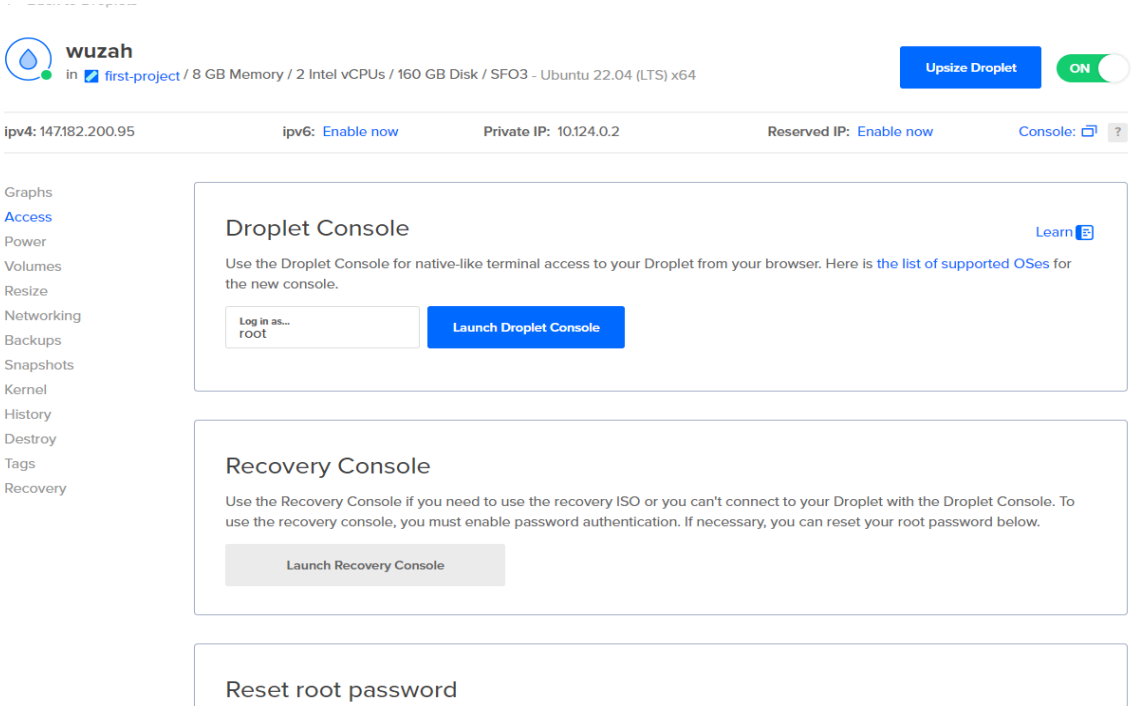
Wazuh is an open-source security platform that covers SIEM and unified XDR for the cloud and endpoints.

How I used Wazuh

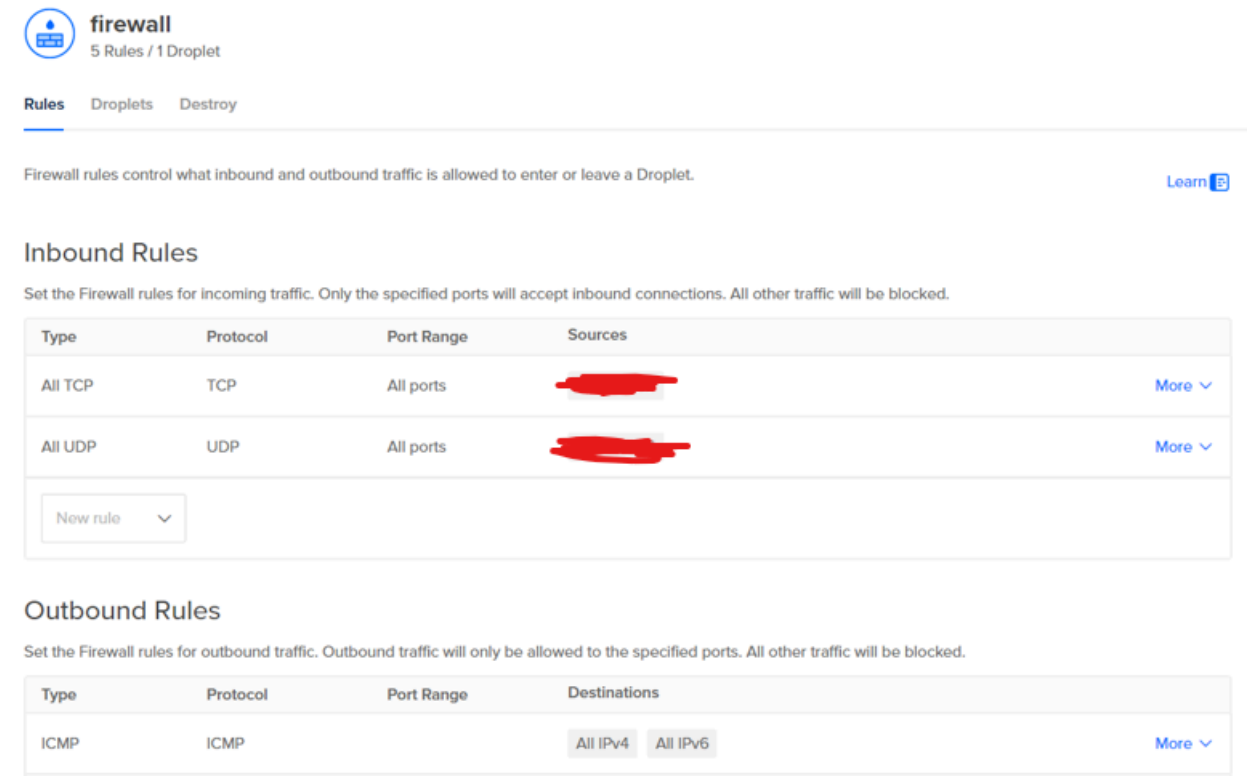
I used Wazuh as the platform for the SIEM. From the Wazuh dashboard, I was able to monitor the virtual machine. After generating telemetry, I was able to see the events and the data regarding it. Additionally, I modified the rules of Wazuh to increase detection and my understanding.

Setting Up Wazuh

To set up Wazuh I used a free trial of Digital Ocean to host Ubuntu 22.04. The closest region was San Fransisco and I picked the specs that would be appropriate for this project.

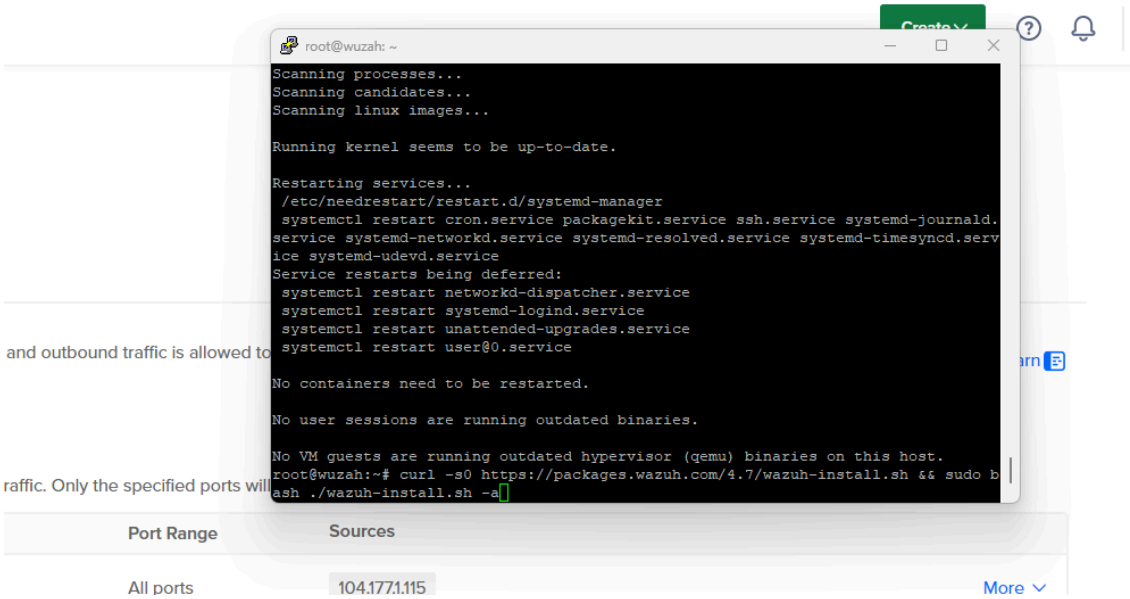


I used Digital Ocean again to make a firewall and prevent the machine from being pinged. I set the inbound TCP and UDP to my IP address to prevent this.



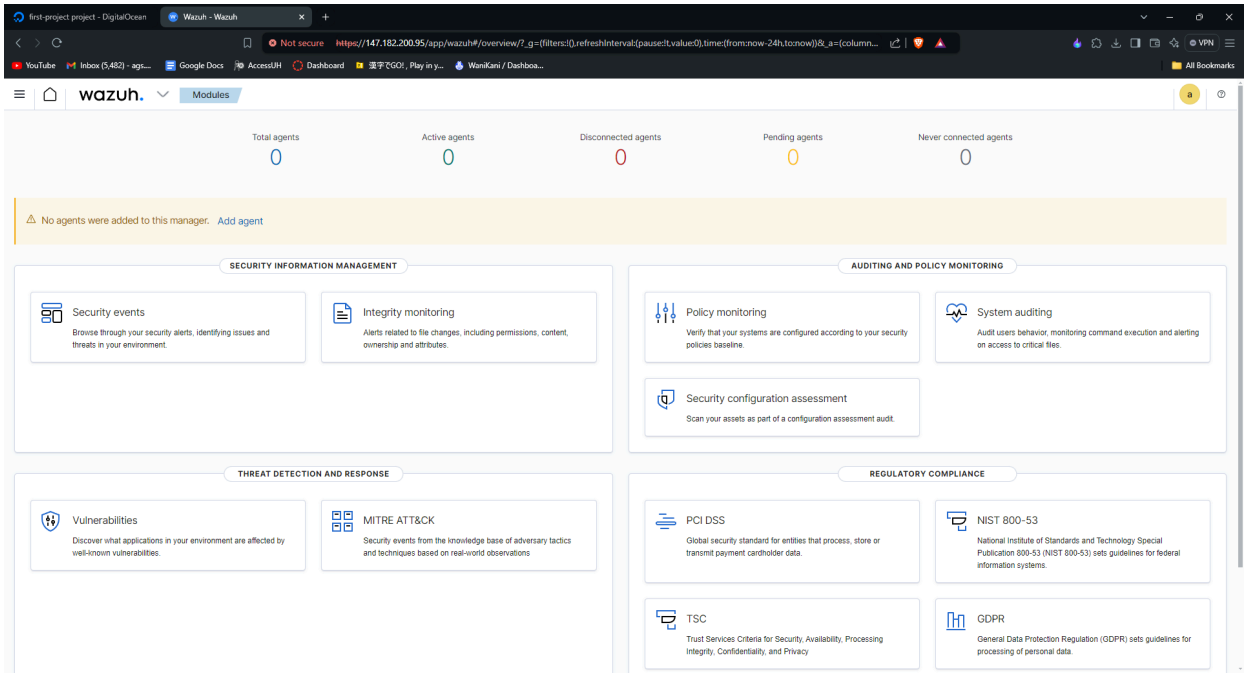
Error

I was having trouble connecting to the SSH when using the Digital Ocean launcher. To fix this I download Putty. With Putty, I just inputted my IP for the Wazuh and connected to port 9000.



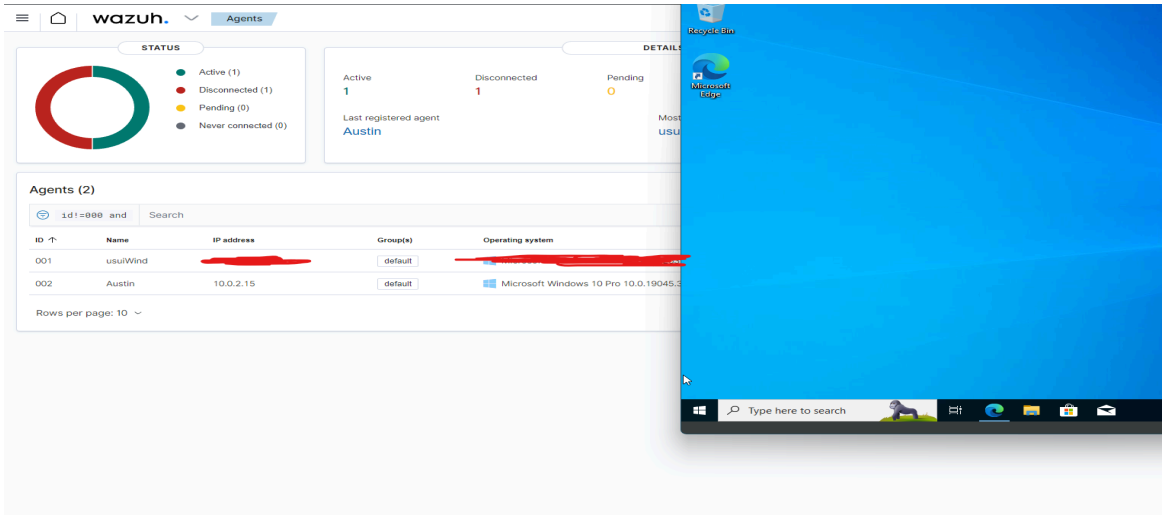
Installing Wazuh

After stalling Wazuh using the kurl command available on their website and “apt-get update && apt-get upgrade”. I typed in the IP address into my search engine which takes me to my Wazuh login. Wazuh provides login info after the app is installed. Using this info I was able to access the dashboard.



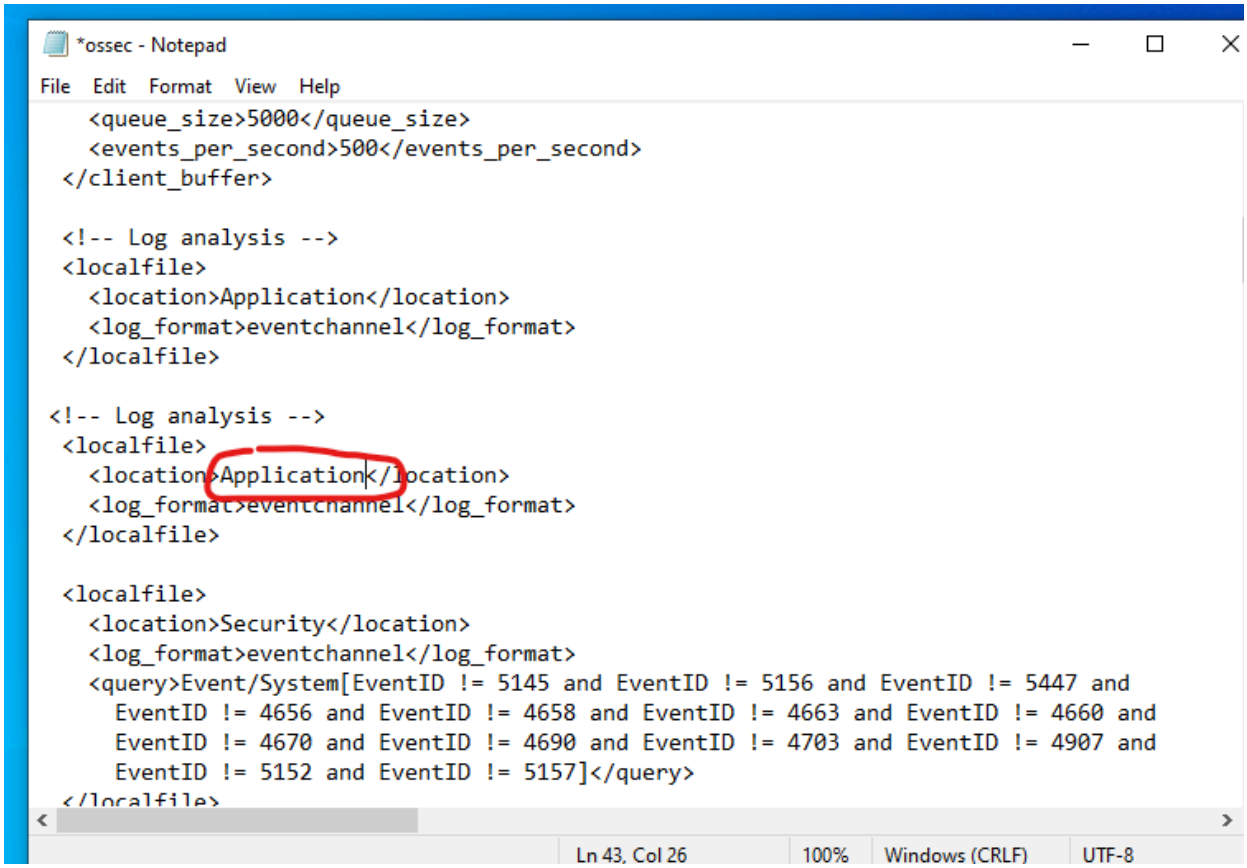
Wazuh Agent on VM

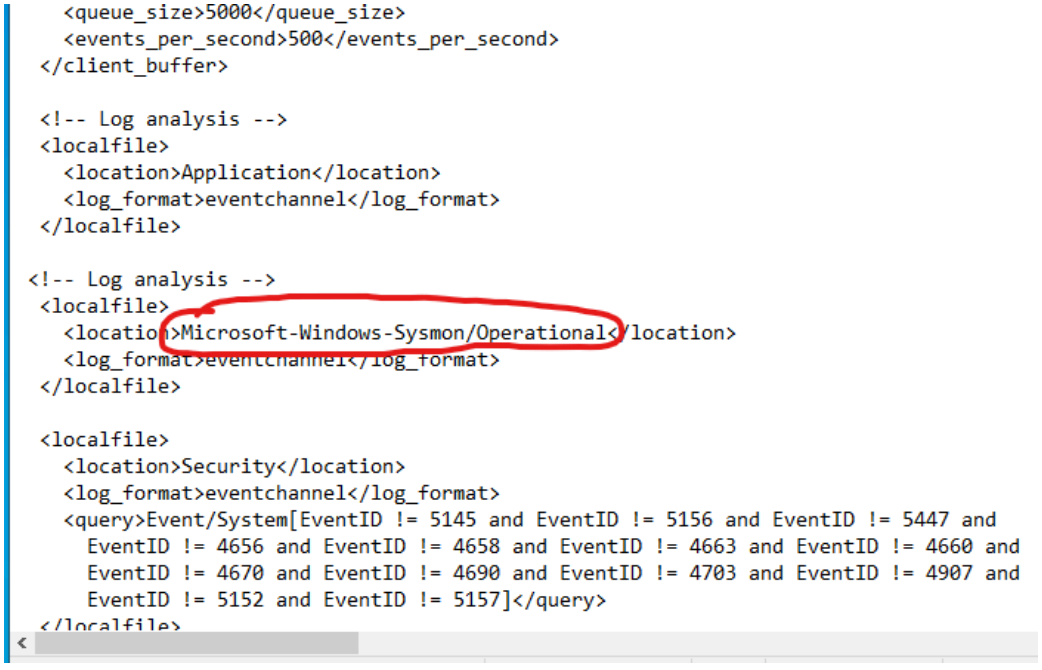
To get the agent on wazuh. I simply go to the agent's tab from the hamburger menu. After clicking add agent. I will input my IP address since it is shared for the VM. I think copy pasted the commands to add the Wazuh agent. After accidentally adding it to my home computer and the VM. I have Wazuh on the Windows 10 VM.



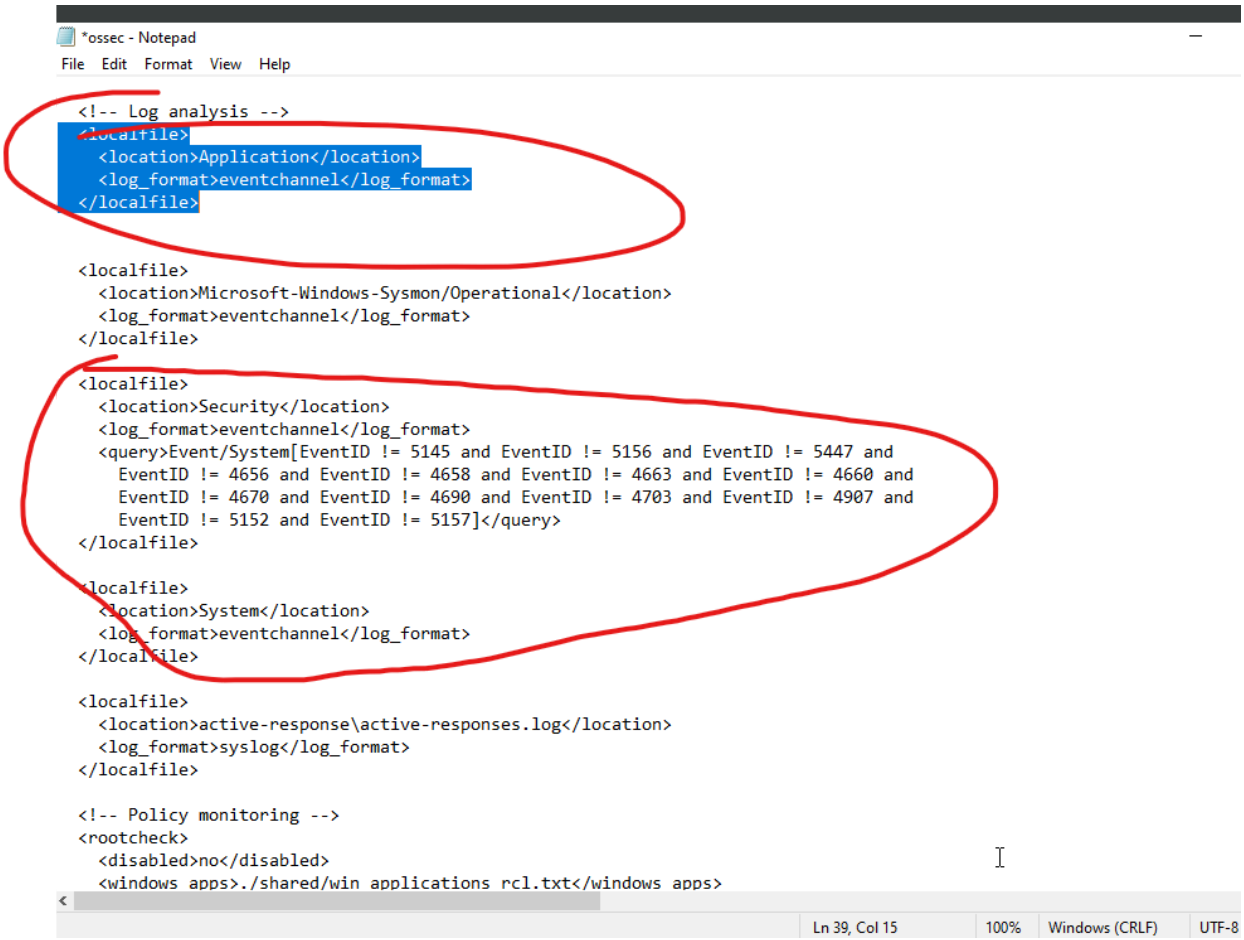
Modifying Wazuh

I modify the Wazuh files to create a log for Sysmon. Replacing ‘application’ for application location for sysmon.



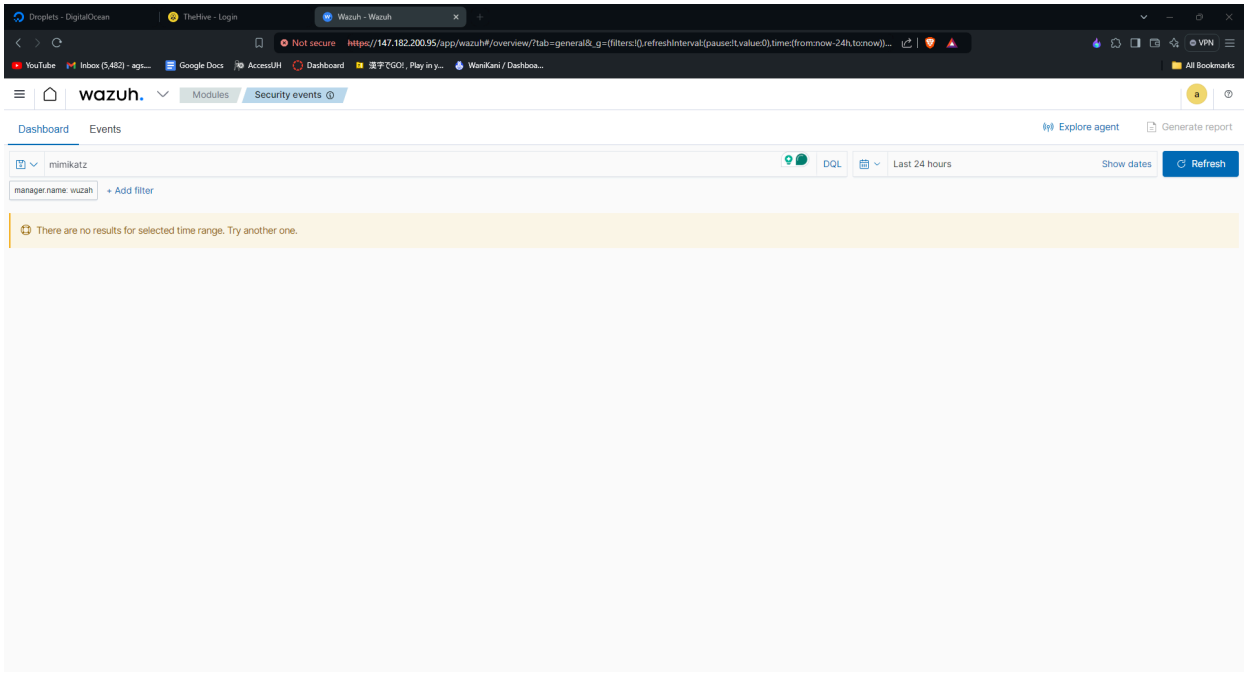


I then delete all these parts of the Wazuh so only sysmon events are stored.



Data Problem

There are no events on mimikatz or sysmon. This is because there are no rules for mimikatz and Wazuh does not log everything. Consequently, I changed Wazuh to log all. Additionally, I changed the filebeat to ingest all of the logs.




```
root@wuzah:~# cp /var/ossec/etc/ossec.conf ~ossec-backup.conf
root@wuzah:~# nano /var/ossec/etc/ossec.conf
root@wuzah:~# systemctl restart wazuh-manager.service
root@wuzah:~# cd /var/ossec/logs/archives# ls
-bash: cd: too many arguments
root@wuzah:~# cd /var/ossec/logs/archives/
root@wuzah:/var/ossec/logs/archives# ls
2024  archives.json  archives.log
root@wuzah:/var/ossec/logs/archives# ^C
root@wuzah:/var/ossec/logs/archives# nano /etc/filebeat/filebeat.yml
```

```
root@wuzah:~# cp /var/ossec/etc/ossec.conf ~ossec-backup.conf
root@wuzah:~# nano /var/ossec/etc/ossec.conf
```

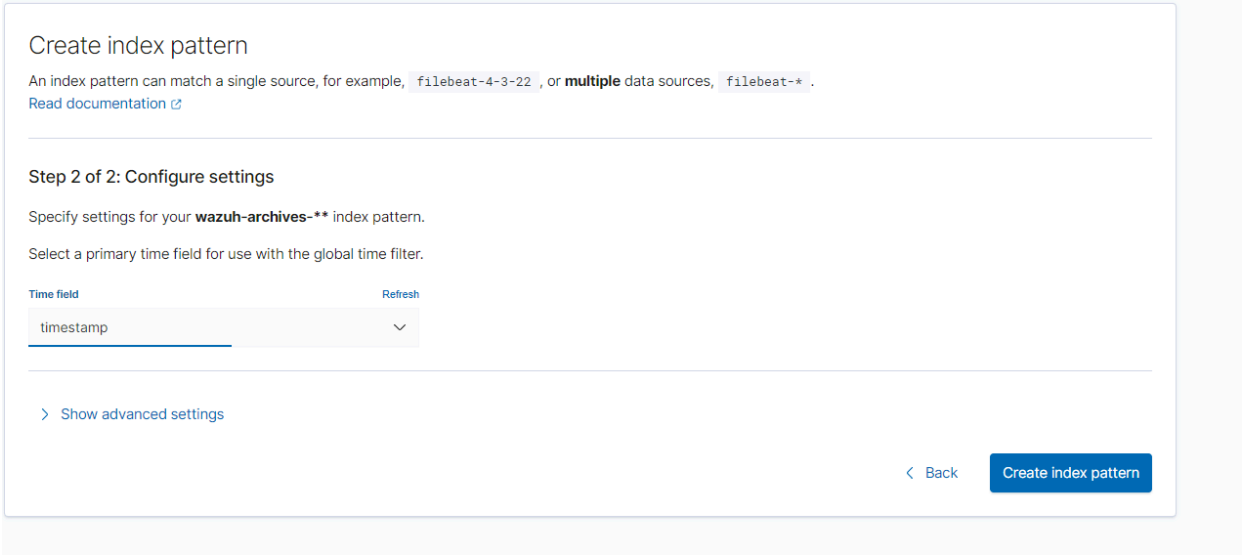
```
<global>
  <jsonout_output>yes</jsonout_output>
  <alerts_log>yes</alerts_log>
  <logall>yes</logall>
  <logall_json>yes</logall_json>
  <email_notification>no</email_notification>
  <smtp_server>smtp.example.wazuh.com</smtp_se
  <email_from>wazuh@example.wazuh.com</email_f
  <email_to>recipient@example.wazuh.com</email
  <email_maxperhour>12</email_maxperhour>
```

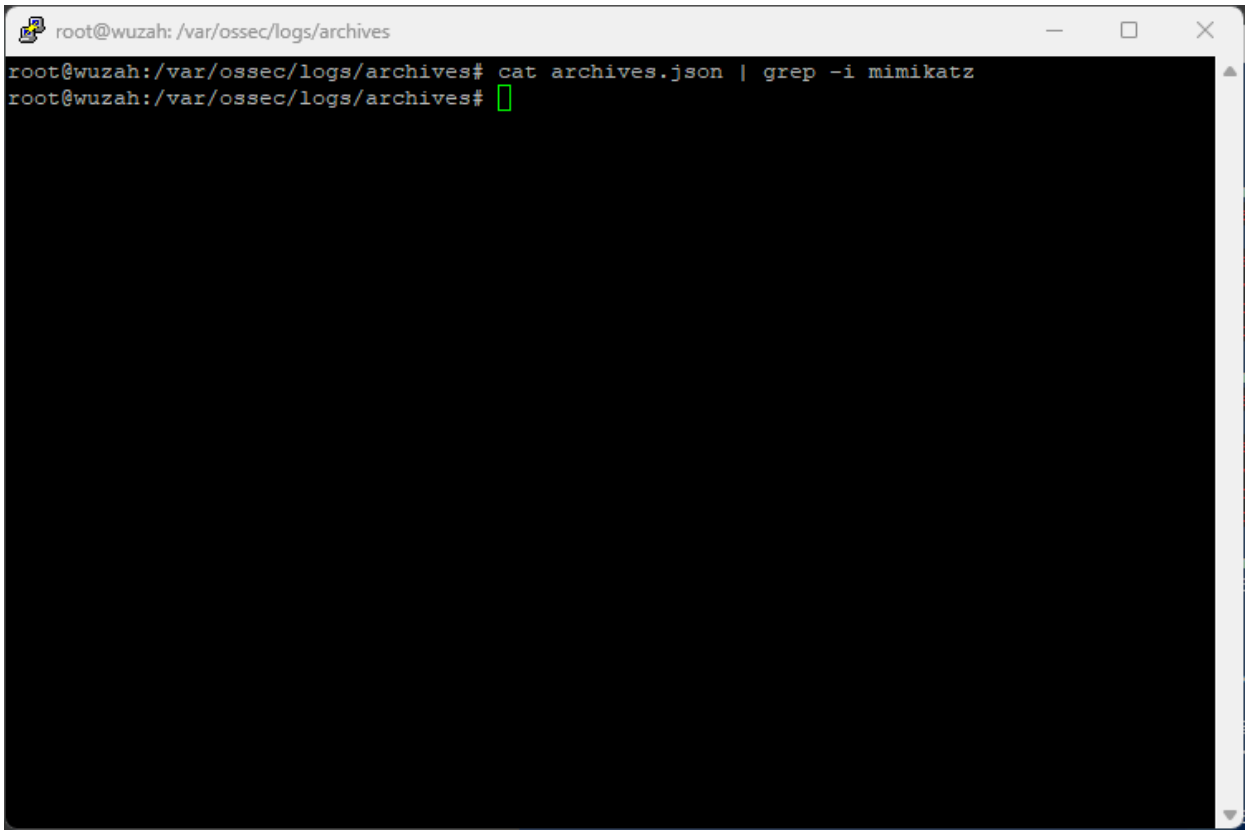
```
filebeat.modules:
  - module: wazuh
    alerts:
      enabled: true
    archives:
      enabled: true

logging.level: info
```

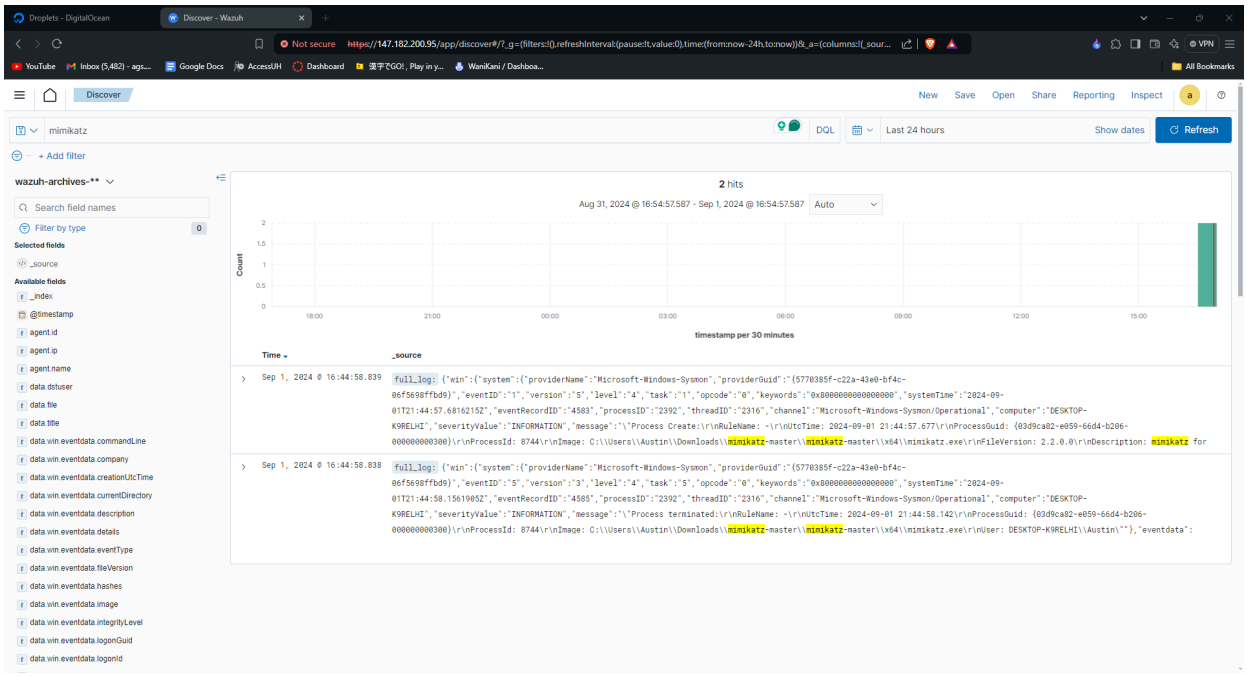
Index Creation:

Next I created an index for all the logs.Then execute bash commands to see that mimikatz is in

the output of the archives (mimikatz in the red).



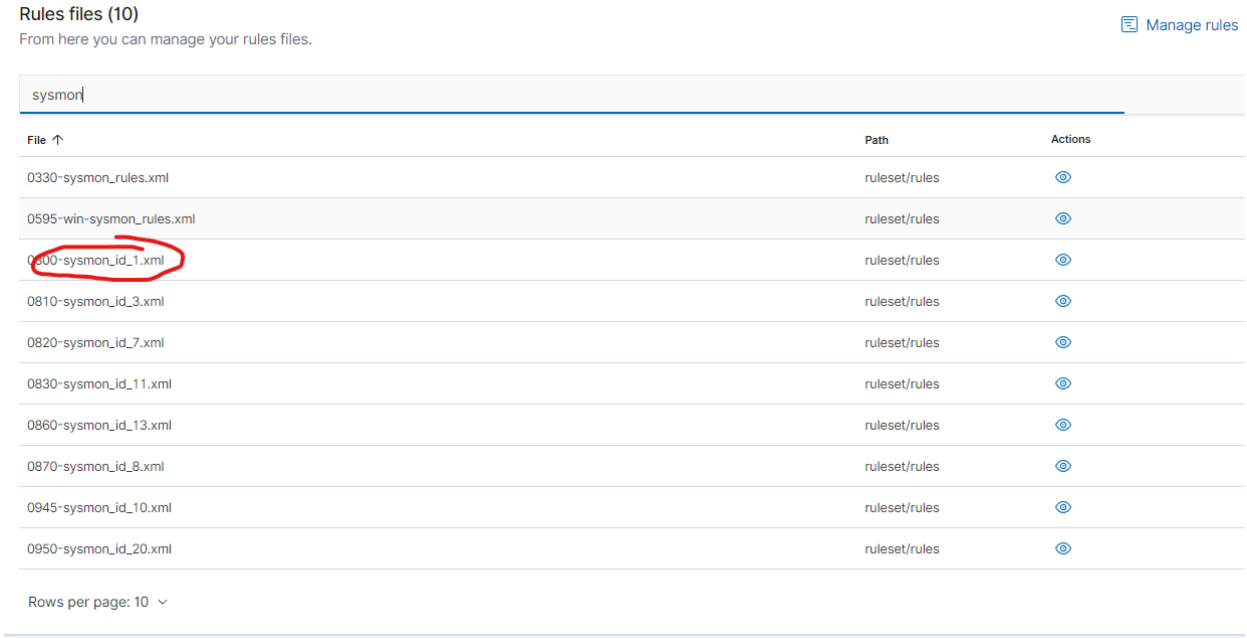




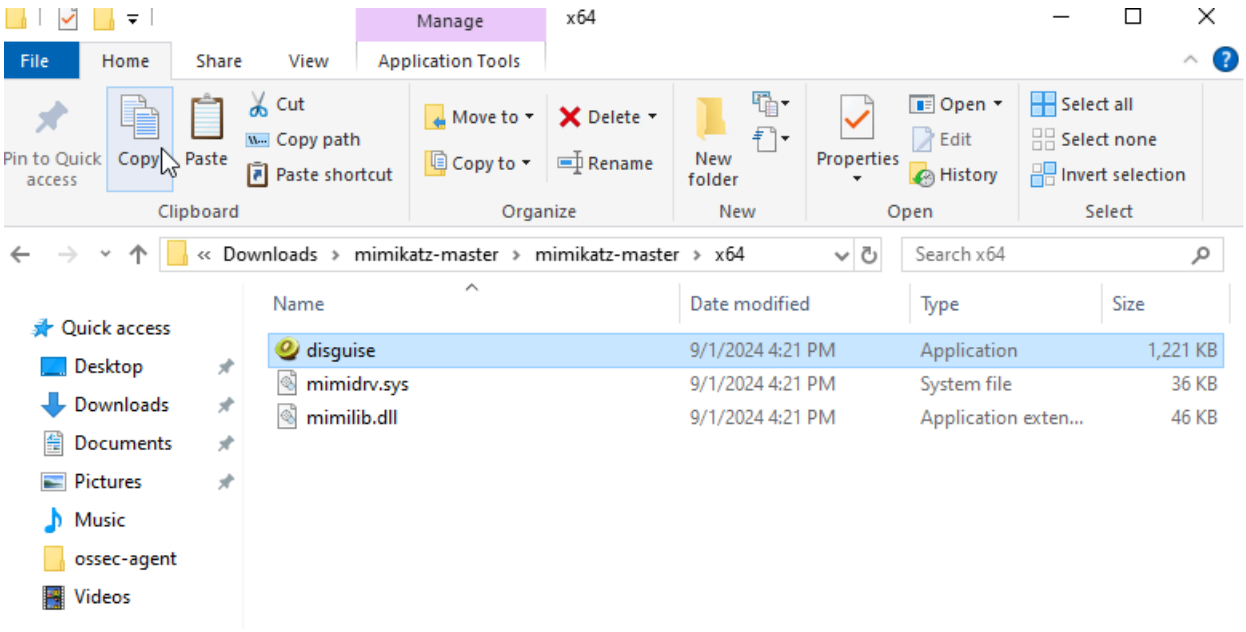
Rule creation:

Next is the rule creation. Copying an existing sysmon rule then changing the rule id, field name, description, and id gave me a custom rule to detect mimikatz. Then after running mimikatz after changing

the name of the file still yielded results showing our rule was a success.




```
<!-- Local rules -->

<!-- Modify it at your will. -->
<!-- Copyright (C) 2015, Wazuh Inc. -->

<!-- Example -->
<group name="local,syslog,sshd,">

  <!--
  Dec 10 01:02:02 host sshd[1234]: Failed none for root from 1.1.1.1 port 1066 ssh2
  -->
  <rule id="100001" level="5">
    <if_sid>5716</if_sid>
    <srcip>1.1.1.1</srcip>
    <description>sshd: authentication failed from IP 1.1.1.1.</description>
    <group>authentication_failed,pci_dss_10.2.4,pci_dss_10.2.5,</group>
  </rule>

  <rule id="100002" level="15">
    <if_group>sysmon_event1</if_group>
    <field name="win.eventdata.originalFileName" type="pcre2">(?i)mimikatz\.exe</field>
    <description>Mimikatz Detected</description>
    <mitre>
      <id>T1003</id>
    </mitre>
  </rule>

</group>
```



ty Alerts

Time ↓	Agent	Agent name	Technique(s)	Tactic(s)	Description
Sep 1, 2024 @ 17:07:20.021	002	Austin	T1003	Credential Access	Mimikatz Detected
Sep 1, 2024 @ 17:04:04.444	000	wuzah			Wazuh server started.