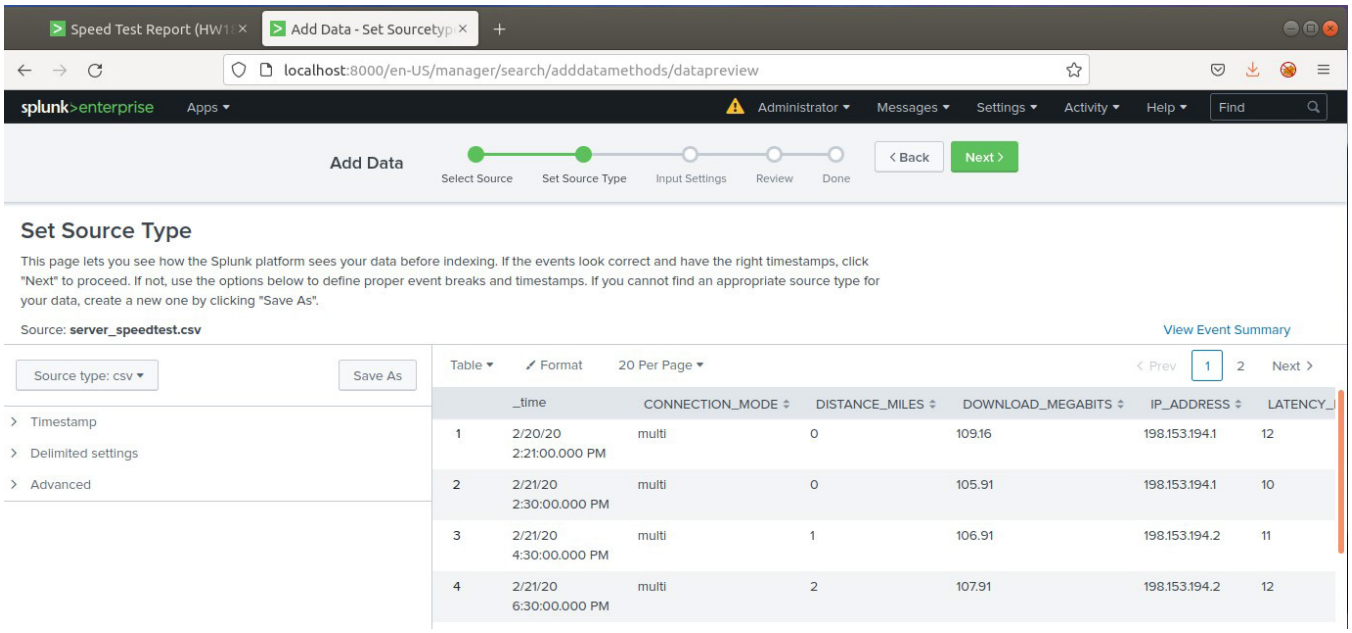
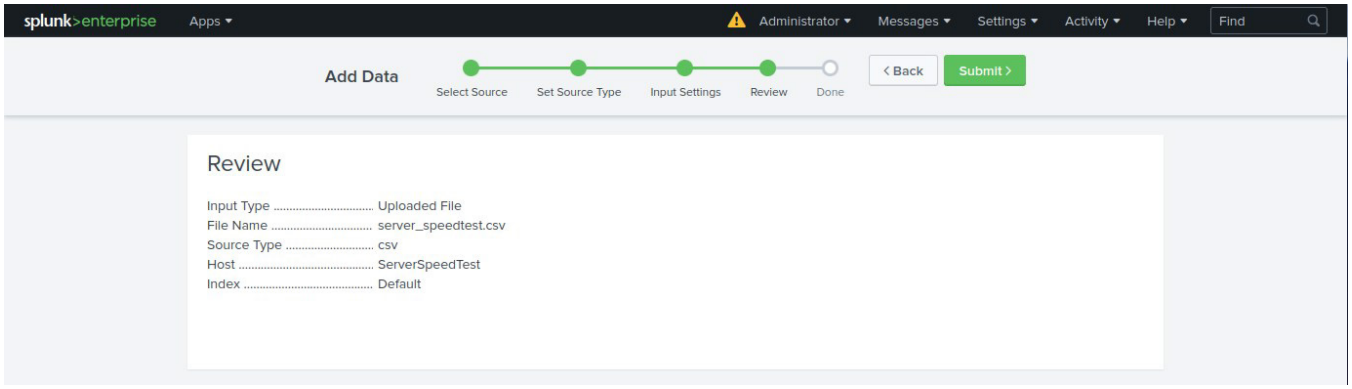
Vandalay Industries Monitoring Activity
Let's Go Splunking!

Task 1: Create a report to determine the impact that the DDOS attack had on download and upload speed. Additionally, create an additional field to calculate the ratio of the upload speed to the download speed.

Server_Speedtest.csv was uploaded and loaded into Splunk Enterprise with the source type set to .csv for proper formatting.

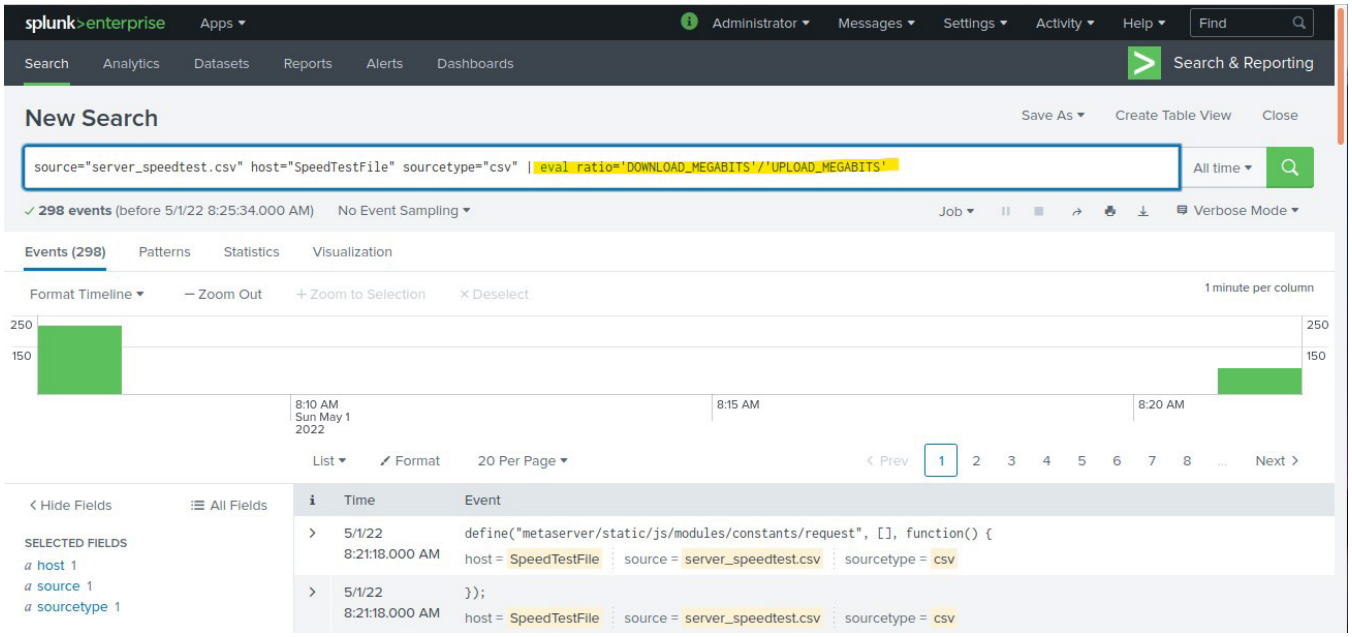




After successfully loading the log file into Splunk, I begin with some search SPL queries related to speeds and bandwidth over time to determine any spikes or possibly abnormal traffic.

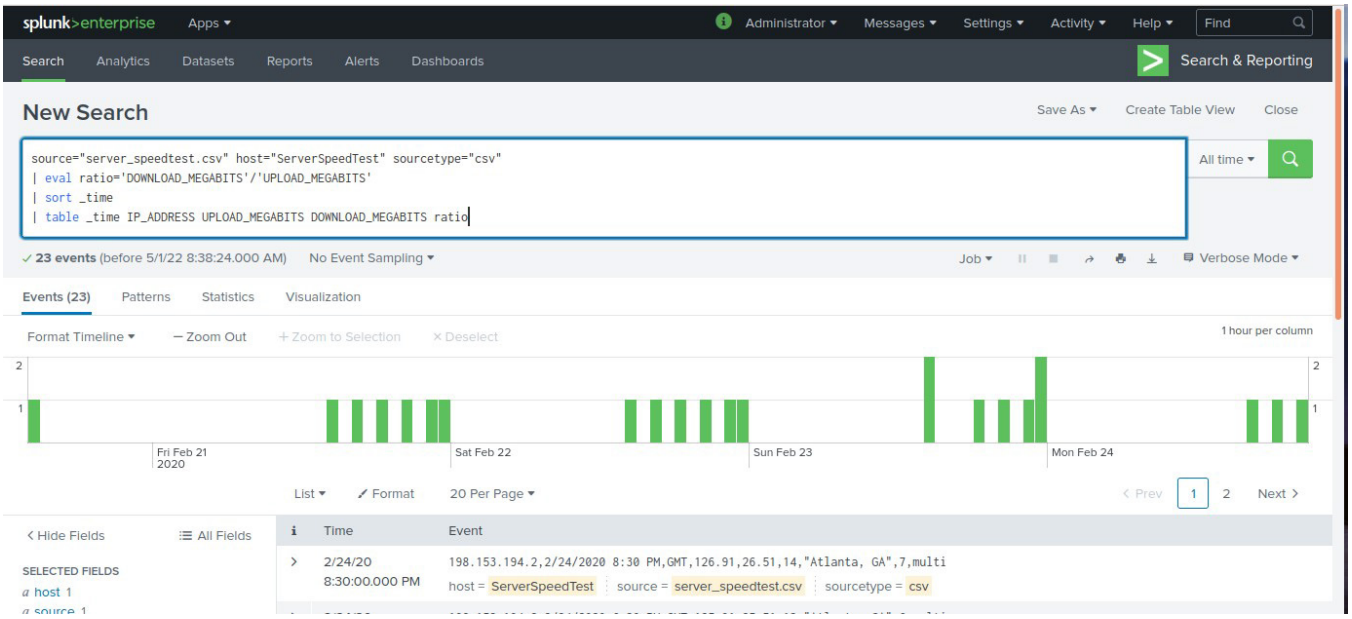
I use the `eval` command and create a new `ratio` field that shows the ratio between the upload and download speeds.

```
source="server_speedtest.csv" host="ServerSpeedTest" sourcetype="csv"
| eval ratio='DOWNLOAD_MEGABITS'/'UPLOAD_MEGABITS'
```

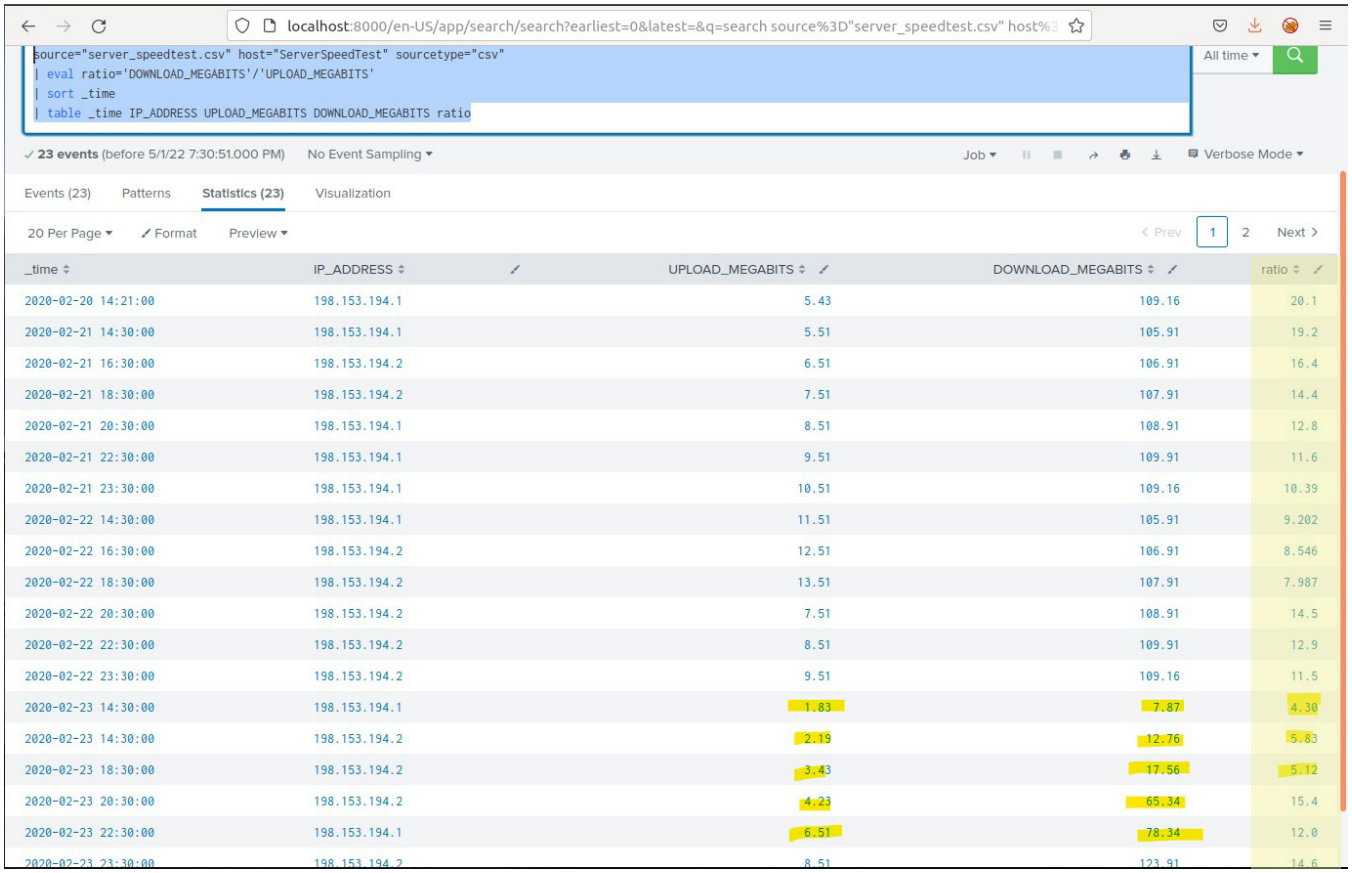


In order to sort the data so that it can be evaluated better, I use the `table` command to create a statistics table with the desired fields and new ratio calculation of upload vs download speeds.

```
source="server_speedtest.csv" host="ServerSpeedTest" sourcetype="csv"
| eval ratio='DOWNLOAD_MEGABITS'/'UPLOAD_MEGABITS'
| sort _time
| table _time IP_ADDRESS UPLOAD_MEGABITS DOWNLOAD_MEGABITS ratio
```



The results of those findings are as follows:



```
source="server_speedtest.csv" host="ServerSpeedTest" sourcetype="csv"
| eval ratio='DOWNLOAD_MEGABITS'/'UPLOAD_MEGABITS'
| sort _time
| table _time IP_ADDRESS UPLOAD_MEGABITS DOWNLOAD_MEGABITS ratio
```

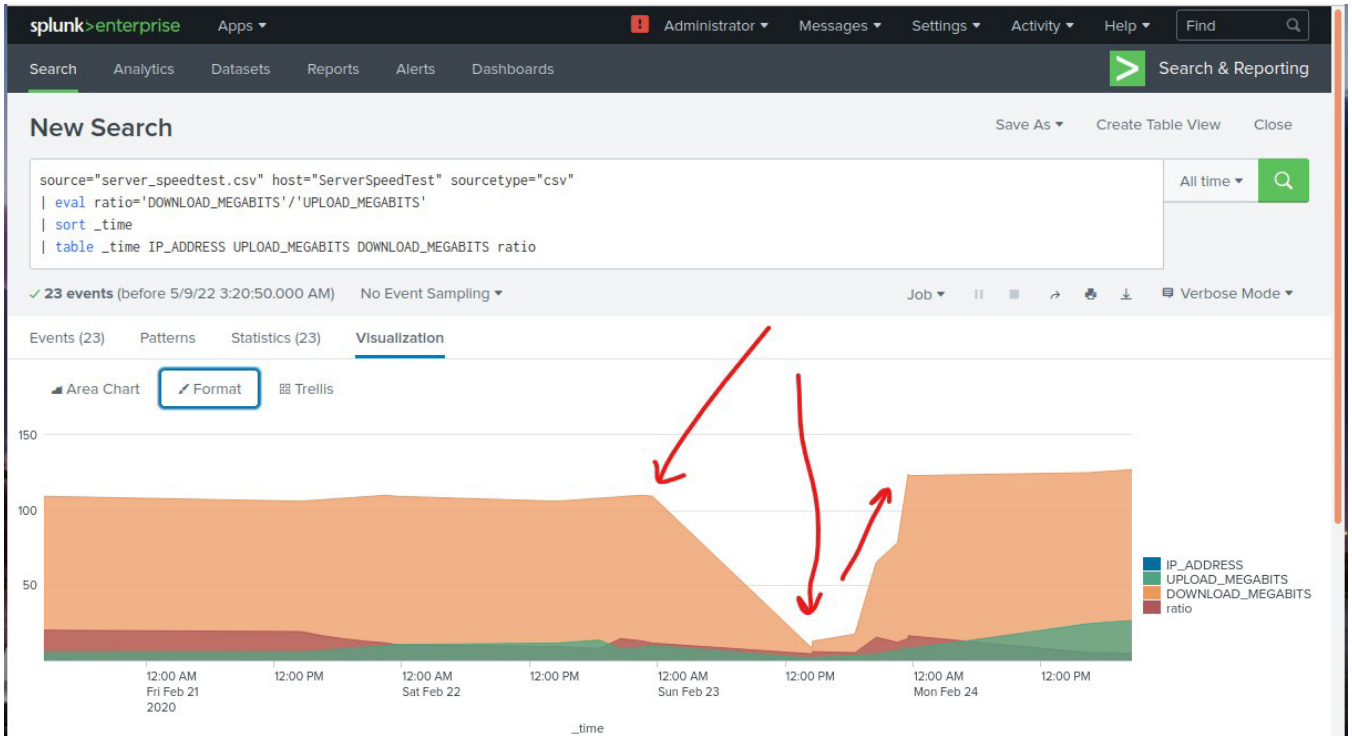
✓ 23 events (before 5/1/22 7:30:51.000 PM) No Event Sampling

Events (23) Patterns Statistics (23) Visualization

20 Per Page ▾ Format Preview ▾ < Prev 1 2 Next >

_time	IP_ADDRESS	UPLOAD_MEGABITS	DOWNLOAD_MEGABITS	ratio
2020-02-20 14:21:00	198.153.194.1	5.43	109.16	20.1
2020-02-21 14:30:00	198.153.194.1	5.51	105.91	19.2
2020-02-21 16:30:00	198.153.194.2	6.51	106.91	16.4
2020-02-21 18:30:00	198.153.194.2	7.51	107.91	14.4
2020-02-21 20:30:00	198.153.194.1	8.51	108.91	12.8
2020-02-21 22:30:00	198.153.194.1	9.51	109.91	11.6
2020-02-21 23:30:00	198.153.194.1	10.51	109.16	10.39
2020-02-22 14:30:00	198.153.194.1	11.51	105.91	9.202
2020-02-22 16:30:00	198.153.194.2	12.51	106.91	8.546
2020-02-22 18:30:00	198.153.194.2	13.51	107.91	7.987
2020-02-22 20:30:00	198.153.194.2	7.51	108.91	14.5
2020-02-22 22:30:00	198.153.194.2	8.51	109.91	12.9
2020-02-22 23:30:00	198.153.194.2	9.51	109.16	11.5
2020-02-23 14:30:00	198.153.194.1	1.83	7.87	4.30
2020-02-23 14:30:00	198.153.194.2	2.19	12.76	5.83
2020-02-23 18:30:00	198.153.194.2	3.43	17.56	5.12
2020-02-23 20:30:00	198.153.194.2	4.23	65.34	15.4
2020-02-23 22:30:00	198.153.194.1	6.51	78.34	12.0
2020-02-23 23:30:00	198.153.194.2	8.51	123.91	14.6

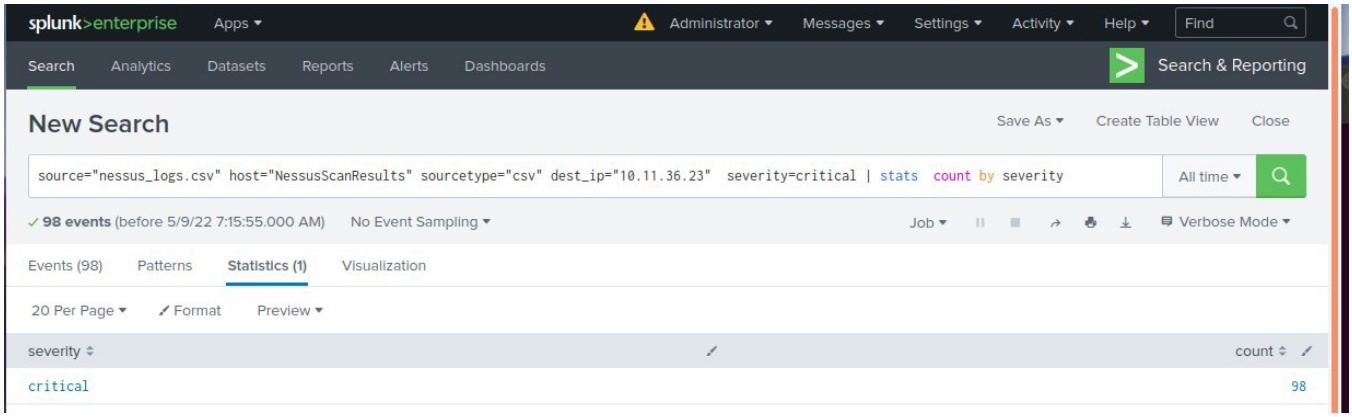
The findings of this search query shows that the internet speeds were affected on February 23, 2020 at around 14:30. It wasn't until about 20:30 when the systems started to recover from the attack, returning to normal at around 23:30. The duration from 14:30 to 23:30 indicates that the systems took almost 9 hours to recover from the attack.



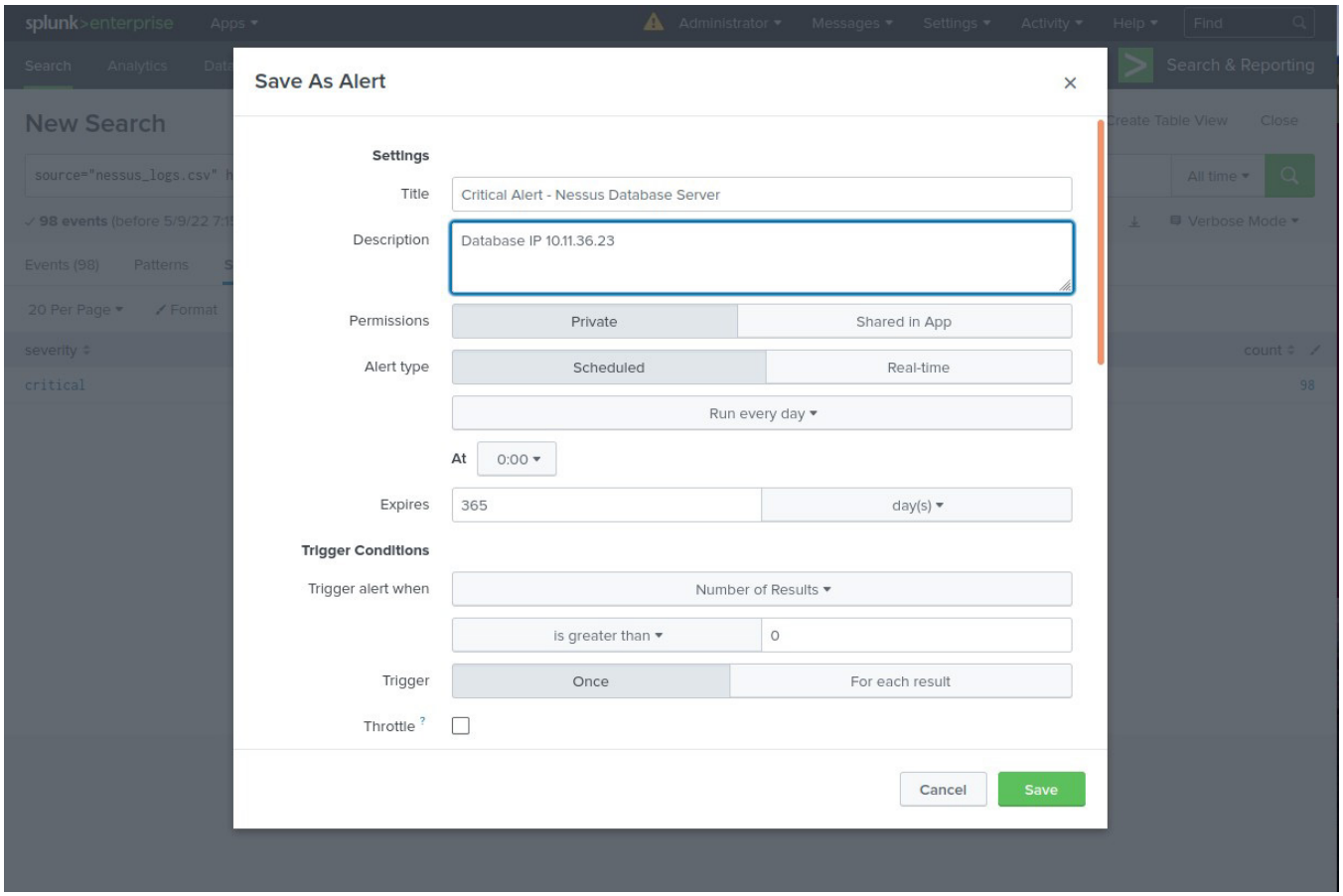
Task 2: Create a report determining how many critical vulnerabilities exist on the customer data server. Then, build an alert to notify your team if a critical vulnerability reappears on this server.

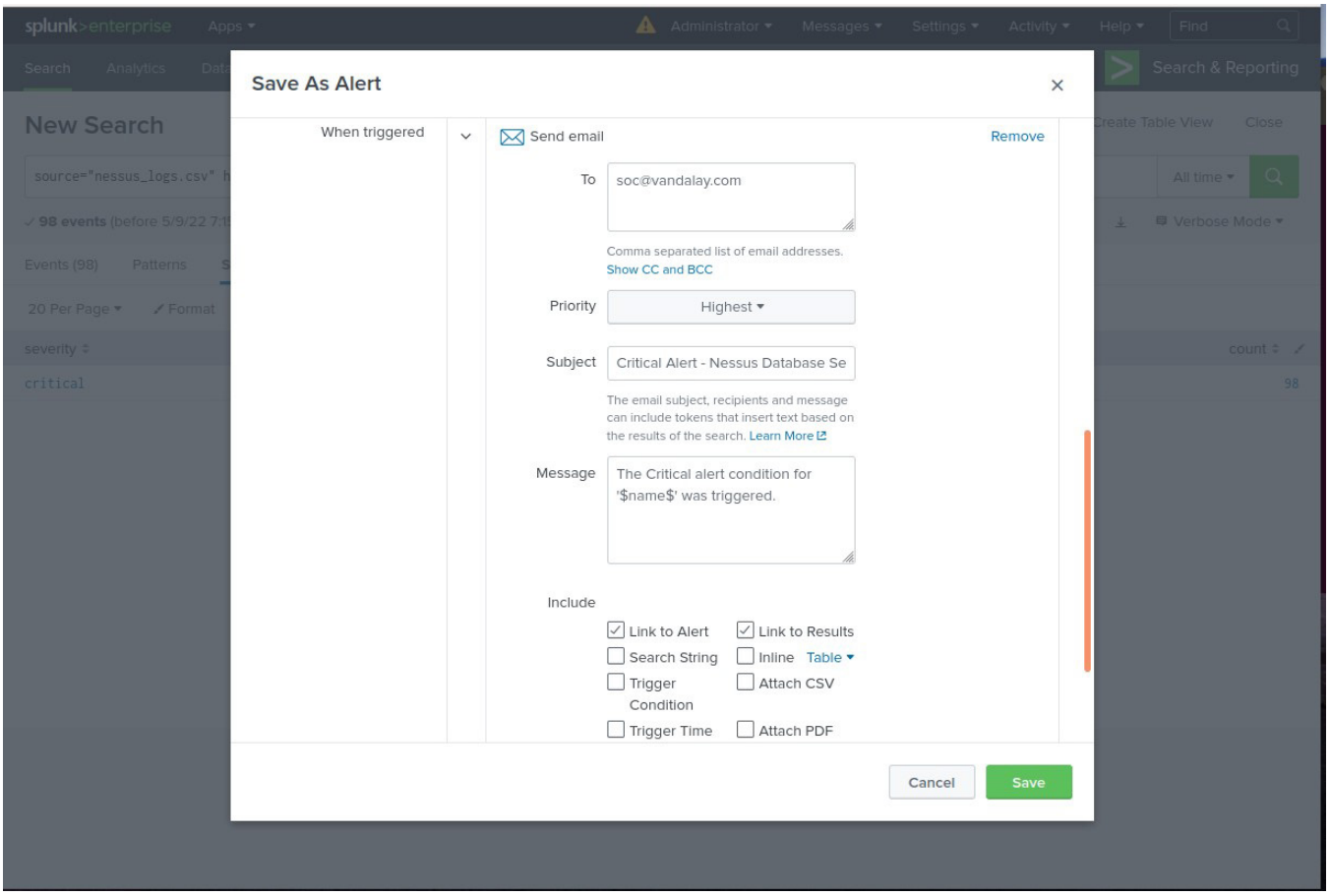
The nessus_logs.csv was uploaded and loaded into Splunk Enterprise with the source type set to .csv for proper formatting. After successfully loading the logs to review, I did a search of any critical vulnerabilities that exist on the customer database server with the following SPL query:

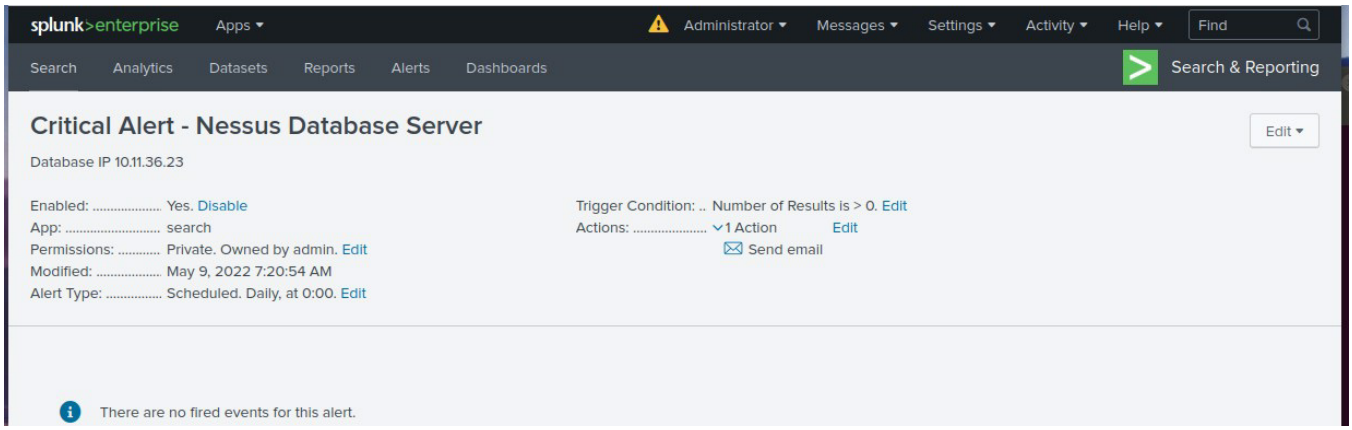
```
source="nessus_logs.csv" host="NessusScanResults" sourcetype="csv"
severity=critical
| stats count by severity
```



98 critical vulnerabilities were discovered. Next was to build an alert that monitors everyday to see if this server has any new critical vulnerabilities and to notify the SOC via email right away. See below.



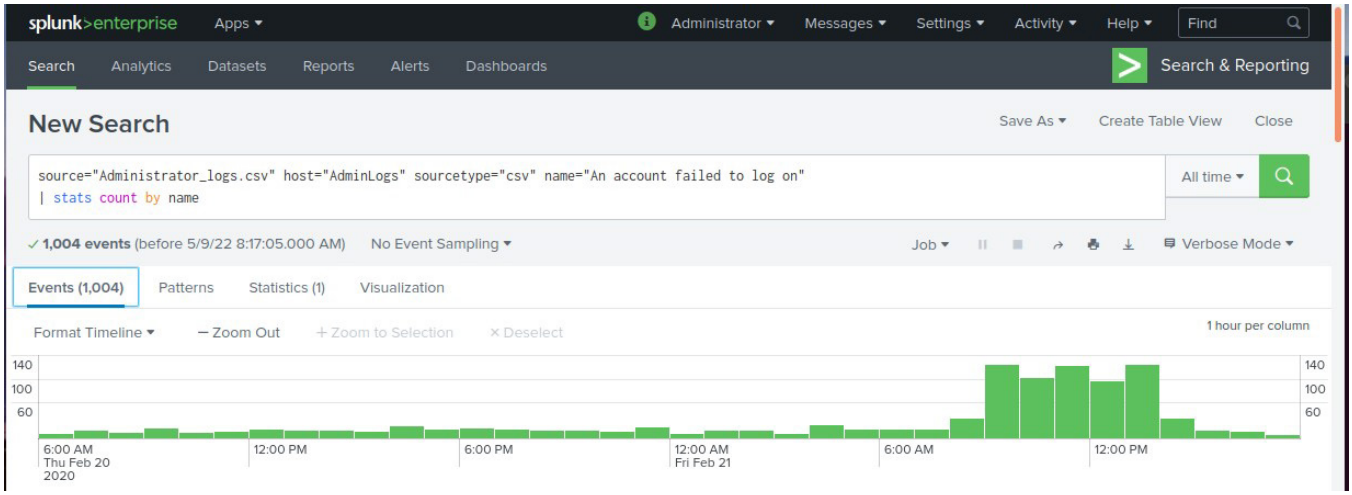




Task 3: Analyze administrator logs that document a brute force attack. Then, create a baseline of the ordinary amount of administrator bad logins and determine a threshold to indicate if a brute force attack is occurring.

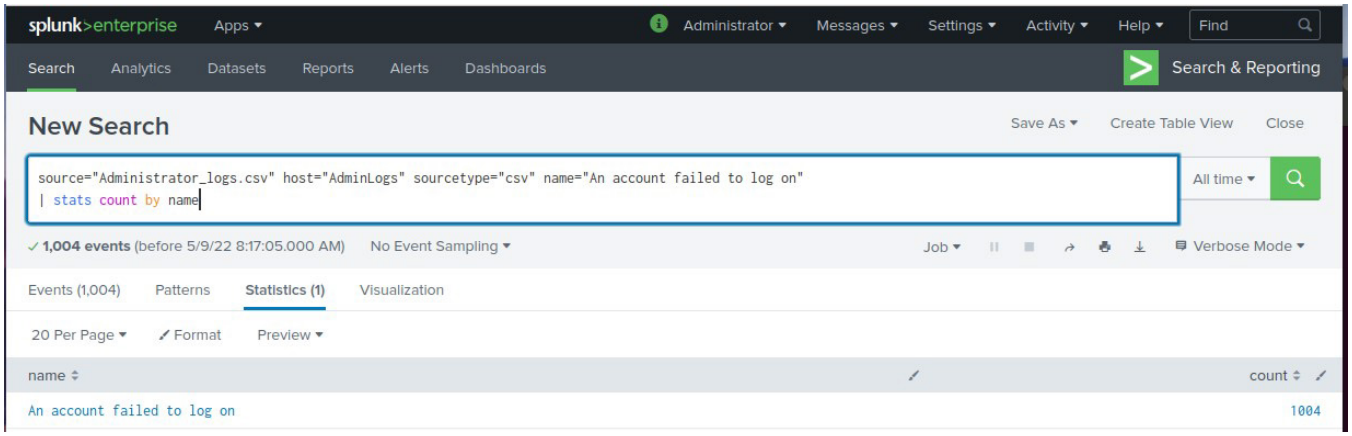
The Aministrator_logs.csv was uploaded and loaded into Splunk Enterprise with the source type set to .csv for proper formatting. After successfully loading the logs to review, I did a search for the brute force attack to see when it had occured.

```
source="Administrator_logs.csv" host="AdminLogs" sourcetype="csv"
name="An account failed to log on"
```



By examining the information gathered from the logs, it appears that the attack occured around 9:00am (some activity may have started a little before 9:00am) and ended around 2:00pm on February 21, 2020. The total timeframe of the attack was about 5 hours.

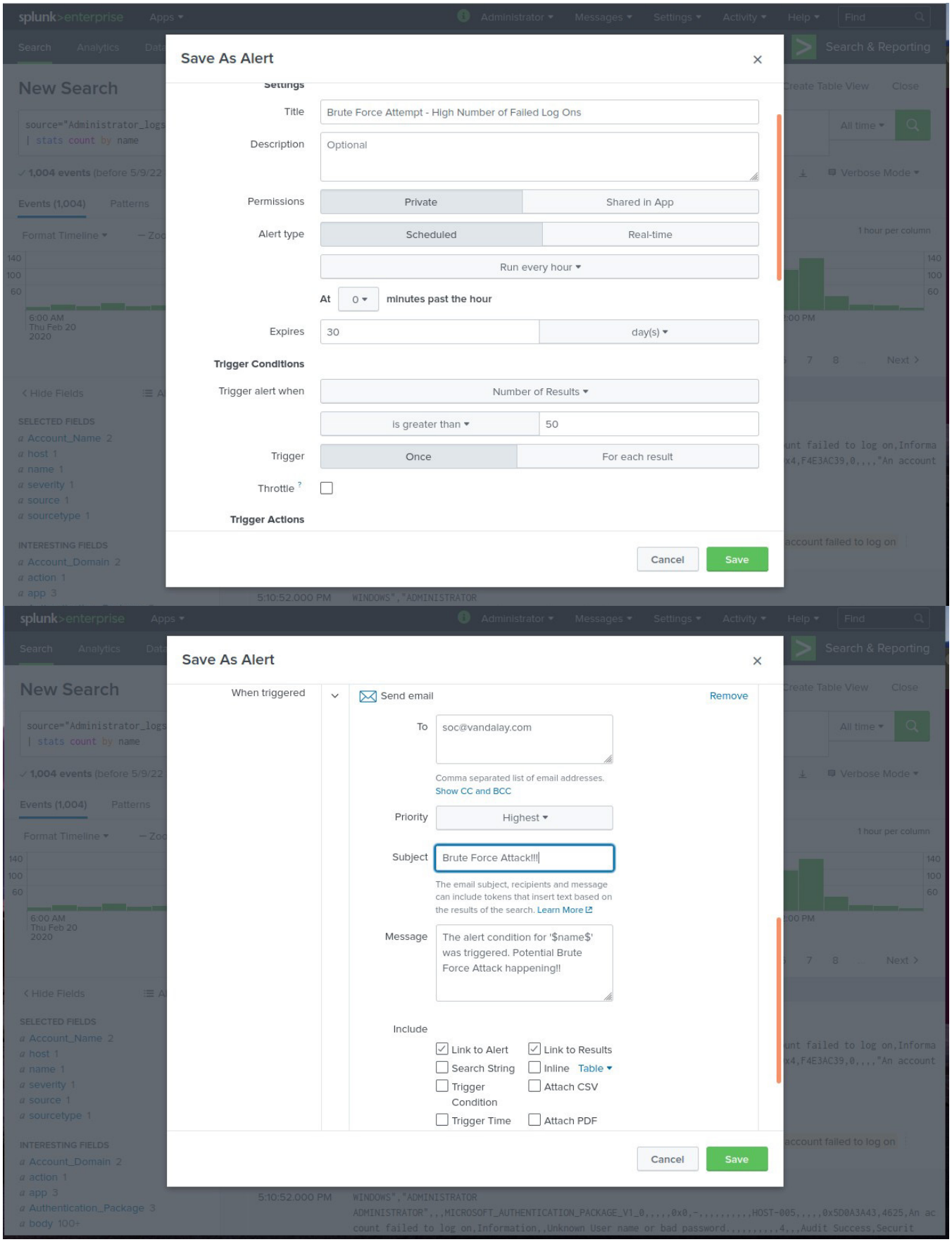
Based on the timeline view of the logs, the baseline of normal activity for failed log ons should be about up to 34 per hour. From the looks of things, I have decieded that it is worth alerting for a brute force attack if about 50 failed log ons occur per hour.

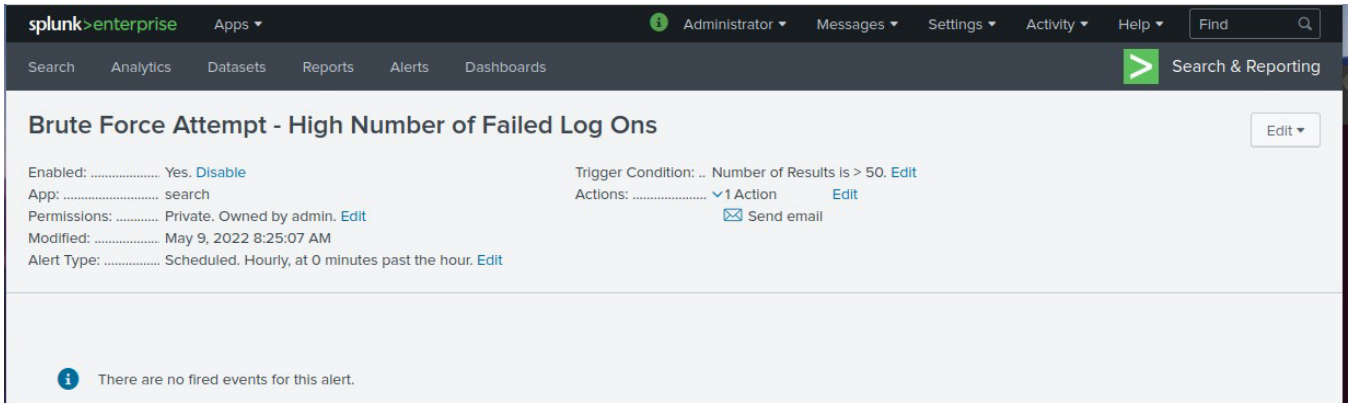


A stats query to sort the failed log on attempts count was created so that I can make an alert based on the event inquiry if there is an abnormal activity count based on the category of log events that contain "An account failed to log on."

Since the SOC team should be notified as soon as possible, an alert was set up to check every hour to see if that threshold determined is surpassed during any hour that would result in a potential brute force attack happening so that they can look into it further and take action.

The alert information screenshots are on the following pages.


Save As Alert
Settings
Title
Brute Force Attempt - High Number of Failed Log Ons
Description
Optional
Permissions
Private
Shared in App
Alert type
Scheduled
Real-time
Run every hour
At 0 minutes past the hour
Expires
30
day(s)
Trigger Conditions
Trigger alert when
Number of Results
is greater than
50
Trigger
Once
For each result
Throttle
Trigger Actions
Cancel
Save
Save As Alert
When triggered
Send email
Remove
To
soc@vandalay.com
Comma separated list of email addresses.
Show CC and BCC
Priority
Highest
Subject
Brute Force Attack!!!
The email subject, recipients and message can include tokens that insert text based on the results of the search. Learn More
Message
The alert condition for '$name$' was triggered. Potential Brute Force Attack happening!!
Include
Link to Alert
Link to Results
Search String
Inline
Table
Trigger Condition
Attach CSV
Trigger Time
Attach PDF
Cancel
Save



Now the SOC team can watch more closely at the administrator account without having to watch it all day long. Another time-saving action that I was able to help contribute for the good people at Vandalay Industries. Gotta love Splunking!