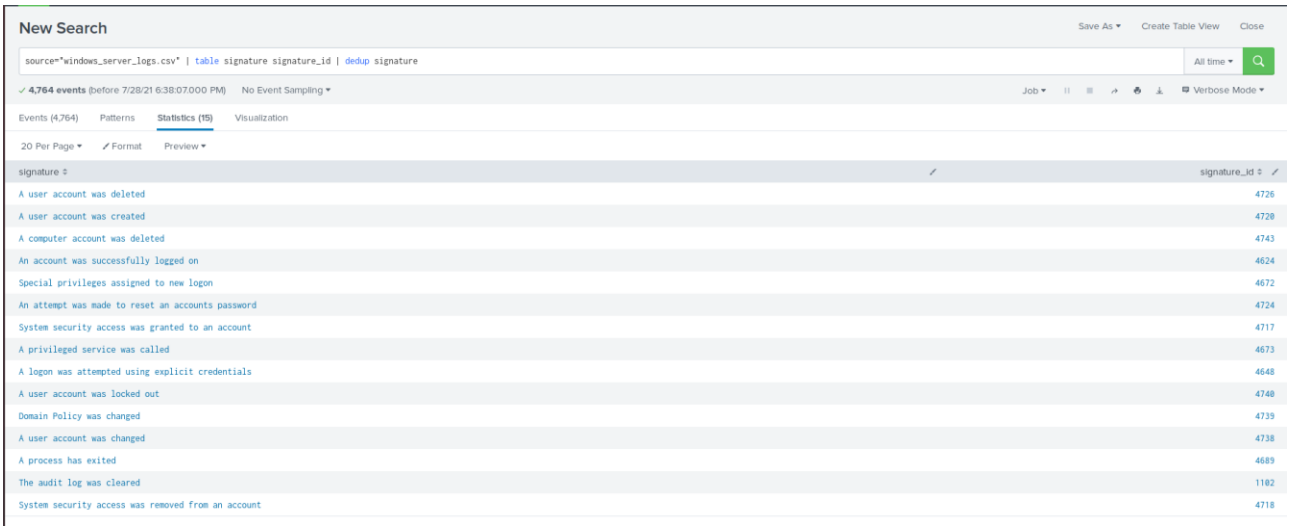
# Solution Guide: Part 1 - Master of the SOC

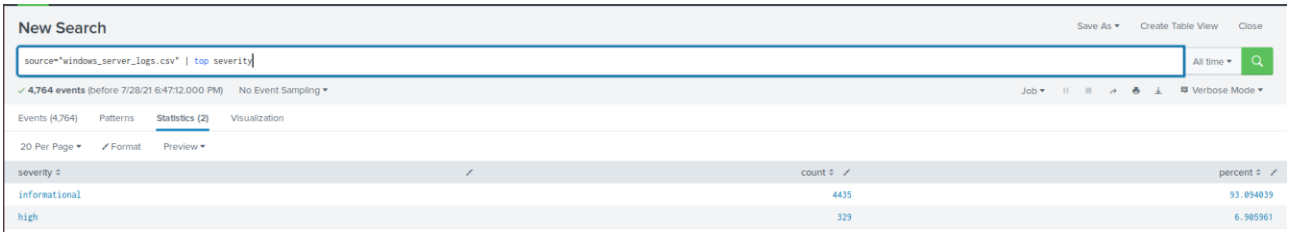
## Windows Server Logs

Reports: Design the following reports to assist VSI with quickly identifying specific information.

1. A report with a table of signatures with associated SignatureID.
    - **source="windows_server_logs.csv" | table signature signature_id | dedup signature**

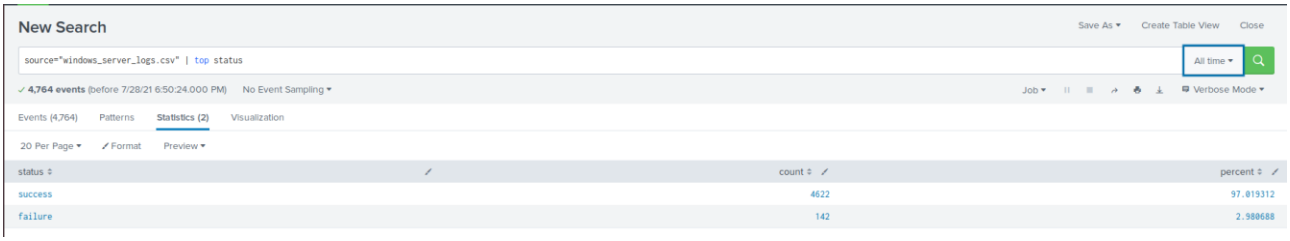



2. A report that provides the count and percent of the severity.
    - **source="windows_server_logs.csv" | top severity**



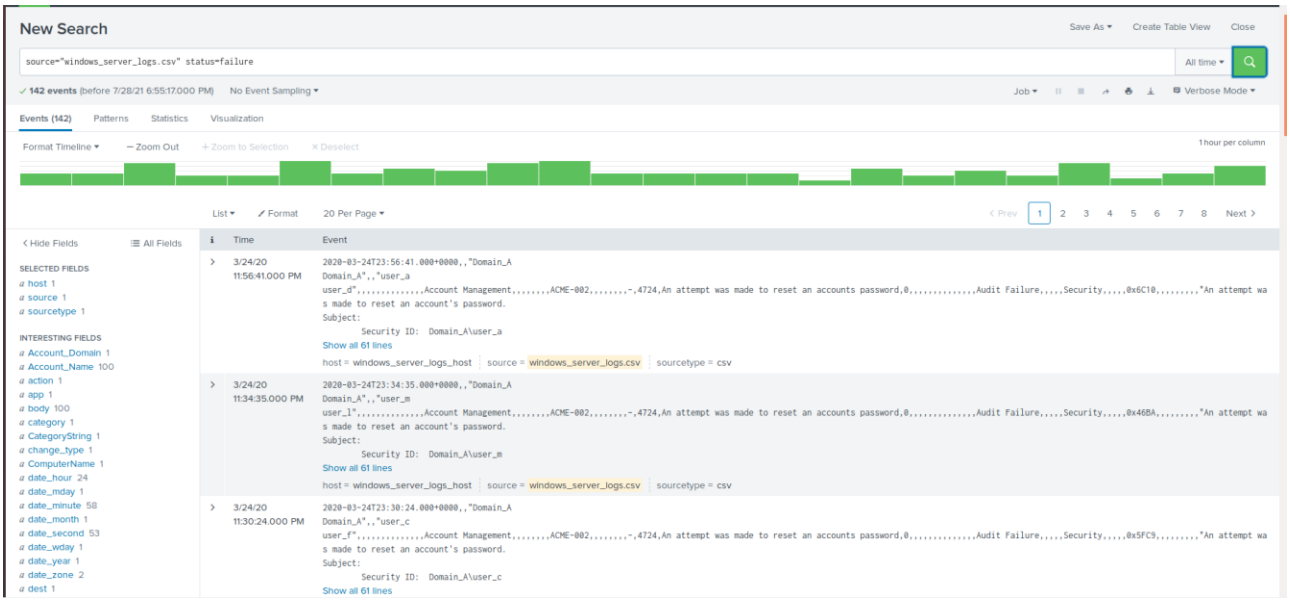


3. A report that provides a comparison between the success and failure of Windows activities.
    - **source="windows_server_logs.csv" | top status**

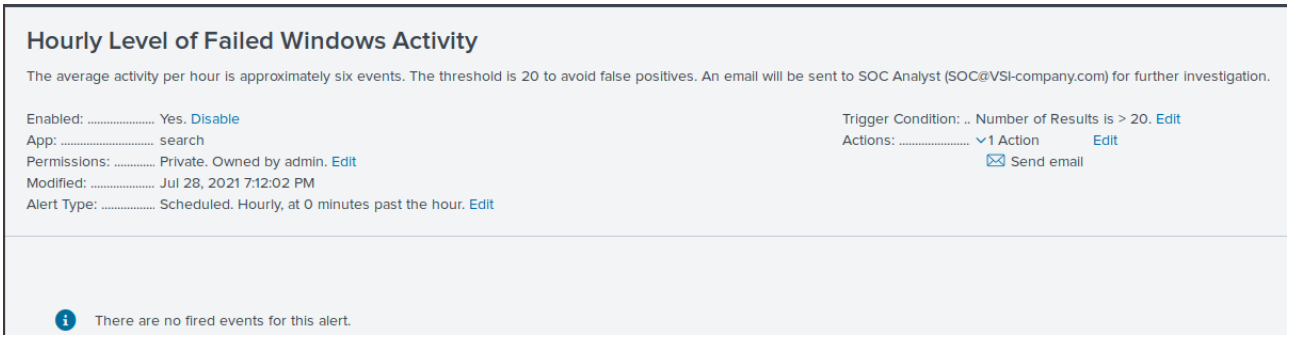



Alerts: Design the following alerts to notify VSI of suspicious activity.

1. Determine an appropriate baseline and threshold for hourly level of failed Windows activity. Create an alert to trigger when the threshold has been reached. The alert should trigger an email to SOC@VSI-company.com.
    - **source="windows_server_logs.csv" status=failure**

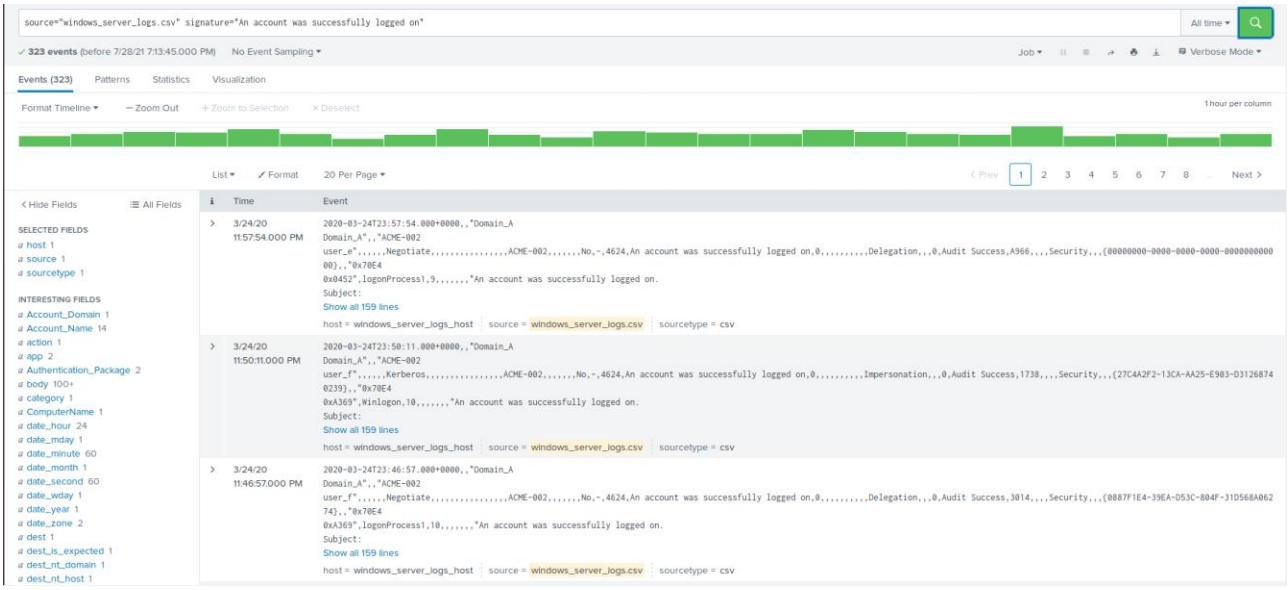



    - The average activity per hour is approximately six events. The threshold is up to each group, but should be in the range of 15-25 to avoid false positives.
    - To create alert, change the search to one hour
    - Set to run every hour.
        - Set alert to trigger when count is greater than chosen threshold.
        - Add action Send email to SOC@VSI-company.com.

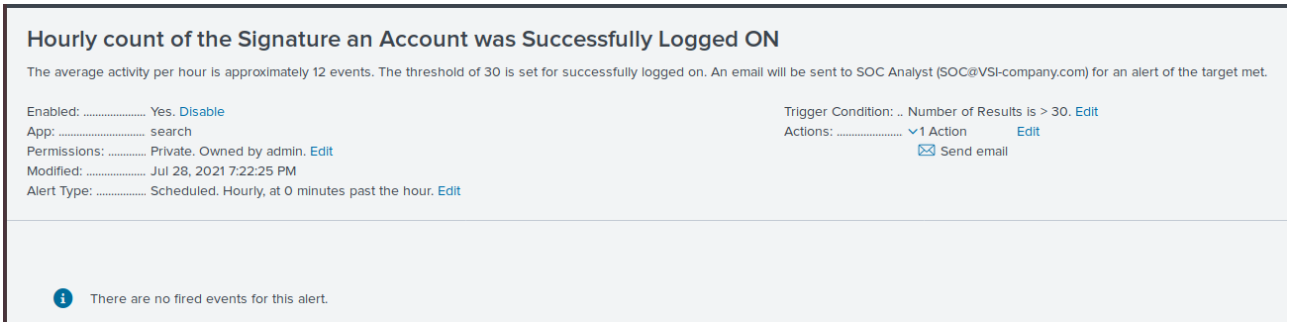



2. Determine a baseline and threshold for hourly count of the signature an account was successfully logged on. Create an alert to trigger when the threshold has been reached. The alert should trigger an email to SOC@VSI-company.com.

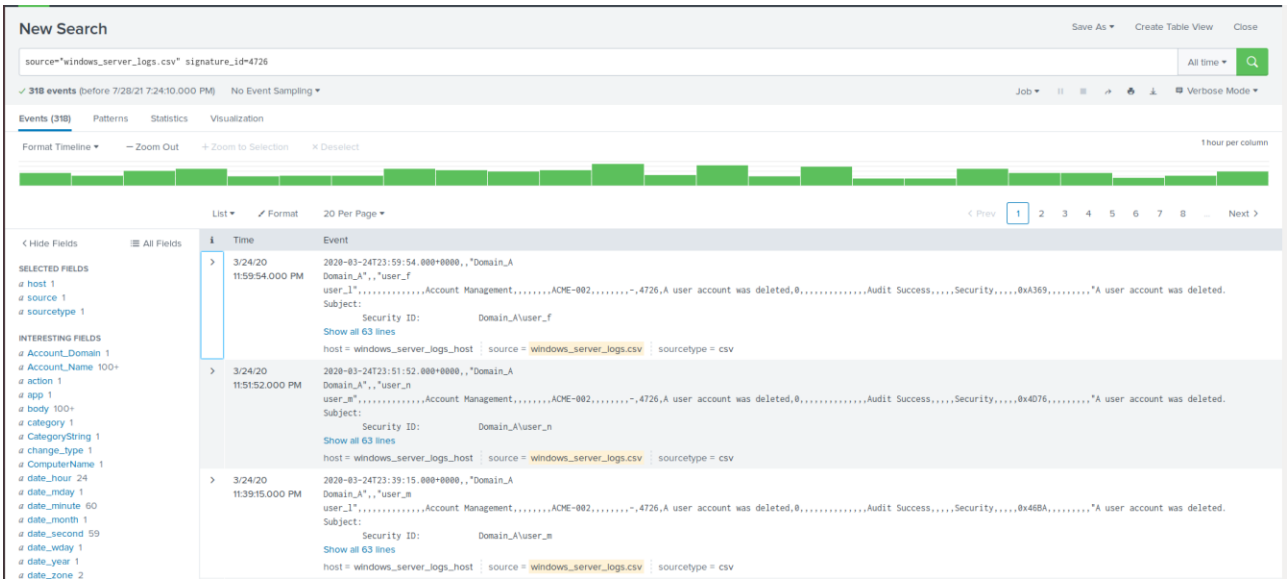
- **source="windows_server_logs.csv" signature="An account was successfully logged on"**



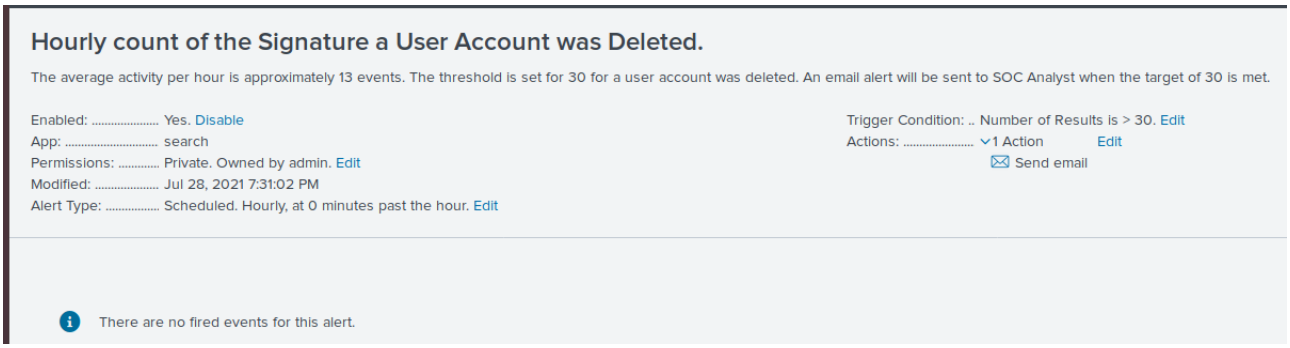

- The average activity per hour is approximately 12 events. The threshold is up to each group, but should be in the range of 30-50.
- To create alert, change the search to one hour and click Save As > Alert.
- Set to run every hour.
- Set alert to trigger when count is greater than chosen threshold.
- Add action Send email to SOC@VSI-company.com.



3. Determine a baseline and threshold for hourly count of the signature a user account was deleted. Design the alert based on the corresponding SignatureID. Create an alert to trigger when the threshold has been reached. The alert should trigger an email to SOC@VSI-company.com.
    - **source="windows_server_logs.csv" signature_id=4726**

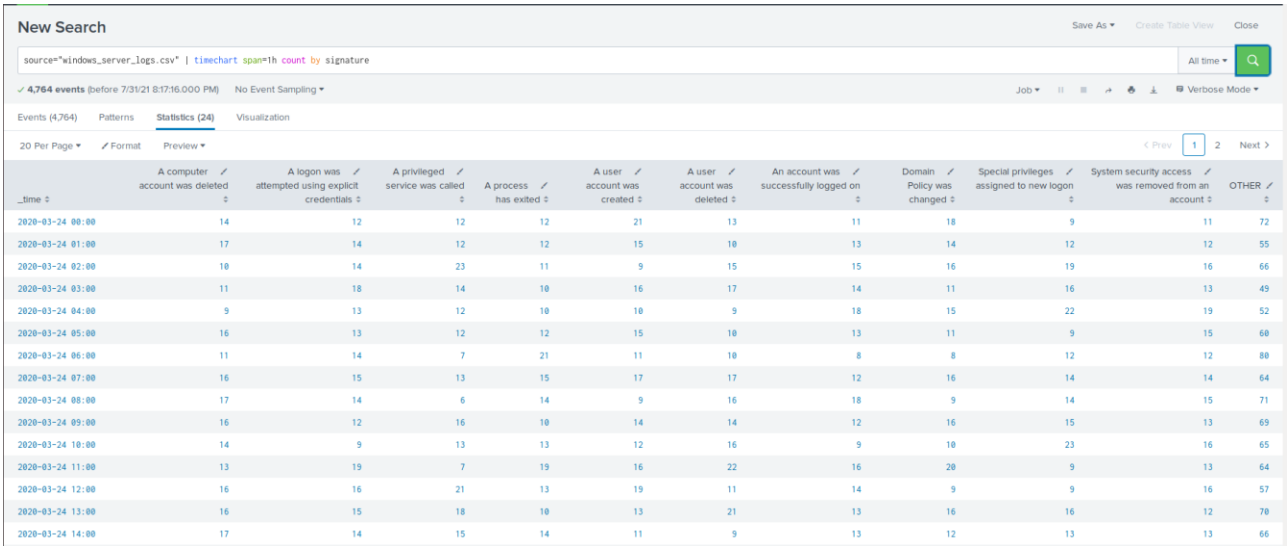



    - The average activity per hour is approximately 13 events.
    - The threshold range should be between 30-50.
    - To create alert, change the search to one hour and click Save As > Alert.
    - Set to run every hour.
    - Set alert to trigger when count is greater than chosen threshold.
    - Add action Send email to SOC@VSI-company.com.



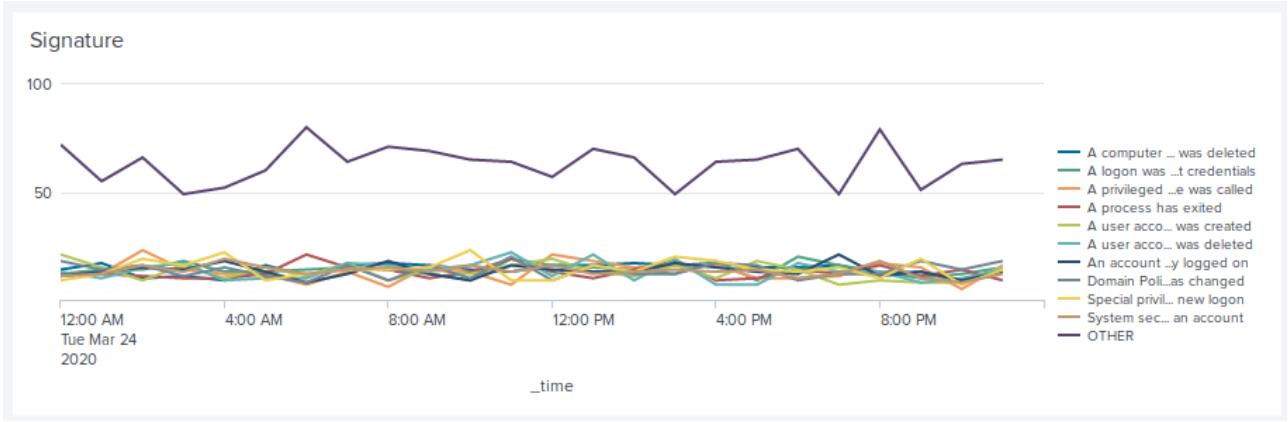
Visualizations and Dashboards: Design the following visualizations and add them to a dashboard called Windows Server Monitoring:

1. A line chart that displays the different `signature` field values over time.
    - **source="windows_server_logs.csv" | timechart span=1h count by signature**

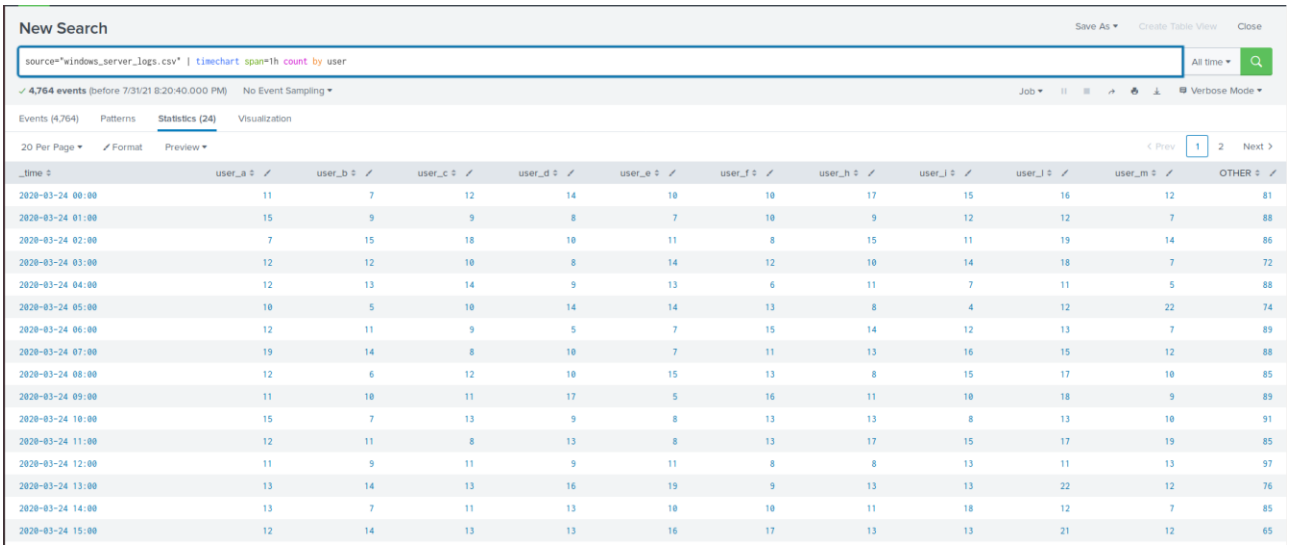



| _time | A computer account was deleted | A logon was attempted using explicit credentials | A privileged service was called | A process has exited | A user account was created | A user account was deleted | An account was successfully logged on | Domain Policy was changed | Special privileges assigned to new logon | System security access was removed from an account | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020-03-24 00:00 | 14 | 12 | 12 | 12 | 21 | 13 | 11 | 18 | 9 | 11 | 72 |
| 2020-03-24 01:00 | 17 | 14 | 12 | 12 | 15 | 10 | 13 | 14 | 12 | 12 | 55 |
| 2020-03-24 02:00 | 10 | 14 | 23 | 11 | 9 | 15 | 15 | 16 | 19 | 16 | 66 |
| 2020-03-24 03:00 | 11 | 18 | 14 | 10 | 16 | 17 | 14 | 11 | 16 | 13 | 49 |
| 2020-03-24 04:00 | 9 | 13 | 12 | 10 | 10 | 9 | 18 | 15 | 22 | 19 | 52 |
| 2020-03-24 05:00 | 16 | 13 | 12 | 12 | 15 | 10 | 13 | 11 | 9 | 15 | 60 |
| 2020-03-24 06:00 | 11 | 14 | 7 | 21 | 11 | 10 | 8 | 8 | 12 | 12 | 80 |
| 2020-03-24 07:00 | 16 | 15 | 13 | 15 | 17 | 17 | 12 | 16 | 14 | 14 | 64 |
| 2020-03-24 08:00 | 17 | 14 | 6 | 14 | 9 | 16 | 18 | 9 | 14 | 15 | 71 |
| 2020-03-24 09:00 | 16 | 12 | 16 | 10 | 14 | 14 | 12 | 16 | 15 | 13 | 69 |
| 2020-03-24 10:00 | 14 | 9 | 13 | 13 | 12 | 16 | 9 | 10 | 23 | 16 | 65 |
| 2020-03-24 11:00 | 13 | 19 | 7 | 19 | 16 | 22 | 16 | 20 | 9 | 13 | 64 |
| 2020-03-24 12:00 | 16 | 16 | 21 | 13 | 19 | 11 | 14 | 9 | 9 | 16 | 57 |
| 2020-03-24 13:00 | 16 | 15 | 18 | 10 | 13 | 21 | 13 | 16 | 16 | 12 | 70 |
| 2020-03-24 14:00 | 17 | 14 | 15 | 14 | 11 | 9 | 13 | 12 | 13 | 13 | 66 |

    - Select Visualizations > Line Chart.

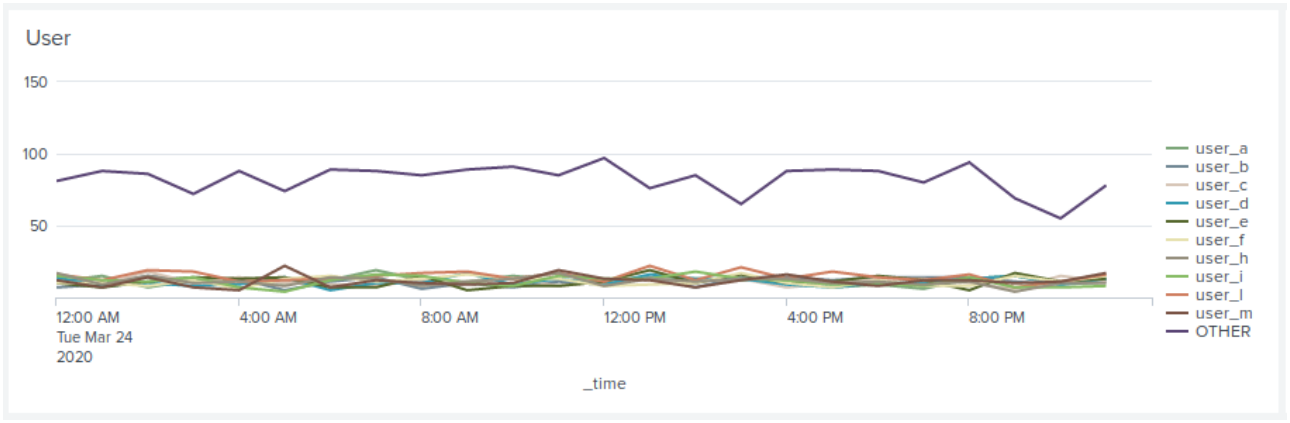


2. A line chart that displays the different `user` field values over time.
    - **source="windows_server_logs.csv" | timechart span=1h count by user**

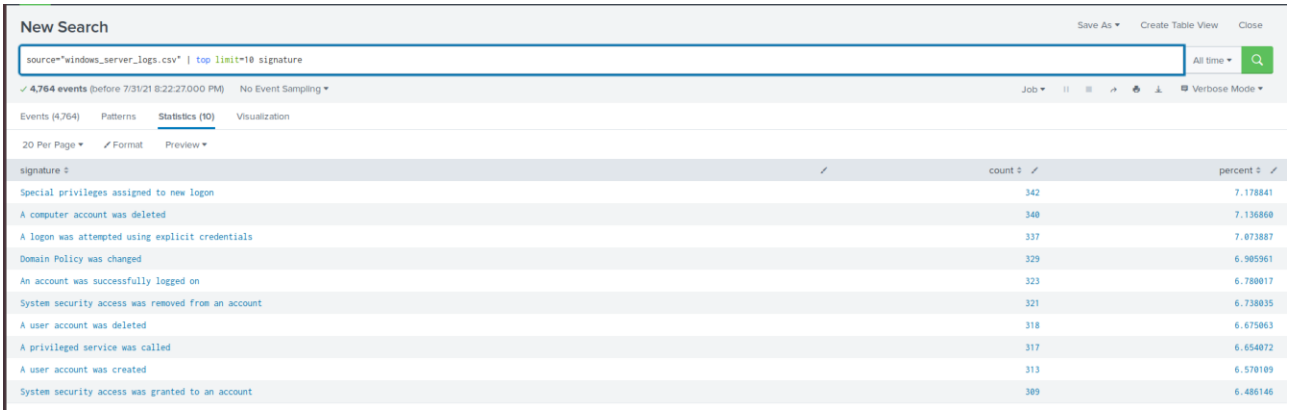



| _time | user_a | user_b | user_c | user_d | user_e | user_f | user_h | user_i | user_l | user_m | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020-03-24 00:00 | 11 | 7 | 12 | 14 | 10 | 10 | 17 | 15 | 16 | 12 | 81 |
| 2020-03-24 01:00 | 15 | 9 | 9 | 8 | 7 | 10 | 9 | 12 | 12 | 7 | 88 |
| 2020-03-24 02:00 | 7 | 15 | 18 | 10 | 11 | 8 | 15 | 11 | 19 | 14 | 86 |
| 2020-03-24 03:00 | 12 | 12 | 10 | 8 | 14 | 12 | 10 | 14 | 18 | 7 | 72 |
| 2020-03-24 04:00 | 12 | 13 | 14 | 9 | 13 | 6 | 11 | 7 | 11 | 5 | 88 |
| 2020-03-24 05:00 | 10 | 5 | 10 | 14 | 14 | 13 | 8 | 4 | 12 | 22 | 74 |
| 2020-03-24 06:00 | 12 | 11 | 9 | 5 | 7 | 15 | 14 | 12 | 13 | 7 | 89 |
| 2020-03-24 07:00 | 19 | 14 | 8 | 10 | 7 | 11 | 13 | 16 | 15 | 12 | 88 |
| 2020-03-24 08:00 | 12 | 6 | 12 | 10 | 15 | 13 | 8 | 15 | 17 | 10 | 85 |
| 2020-03-24 09:00 | 11 | 10 | 11 | 17 | 5 | 16 | 11 | 10 | 18 | 9 | 89 |
| 2020-03-24 10:00 | 15 | 7 | 13 | 9 | 8 | 13 | 13 | 8 | 13 | 10 | 91 |
| 2020-03-24 11:00 | 12 | 11 | 8 | 13 | 8 | 13 | 17 | 15 | 17 | 19 | 85 |
| 2020-03-24 12:00 | 11 | 9 | 11 | 9 | 11 | 8 | 8 | 13 | 11 | 13 | 97 |
| 2020-03-24 13:00 | 13 | 14 | 13 | 16 | 19 | 9 | 13 | 13 | 22 | 12 | 76 |
| 2020-03-24 14:00 | 13 | 7 | 11 | 13 | 10 | 10 | 11 | 18 | 12 | 7 | 85 |
| 2020-03-24 15:00 | 12 | 14 | 13 | 13 | 16 | 17 | 13 | 13 | 21 | 12 | 65 |

    - Select Visualizations > Line Chart.

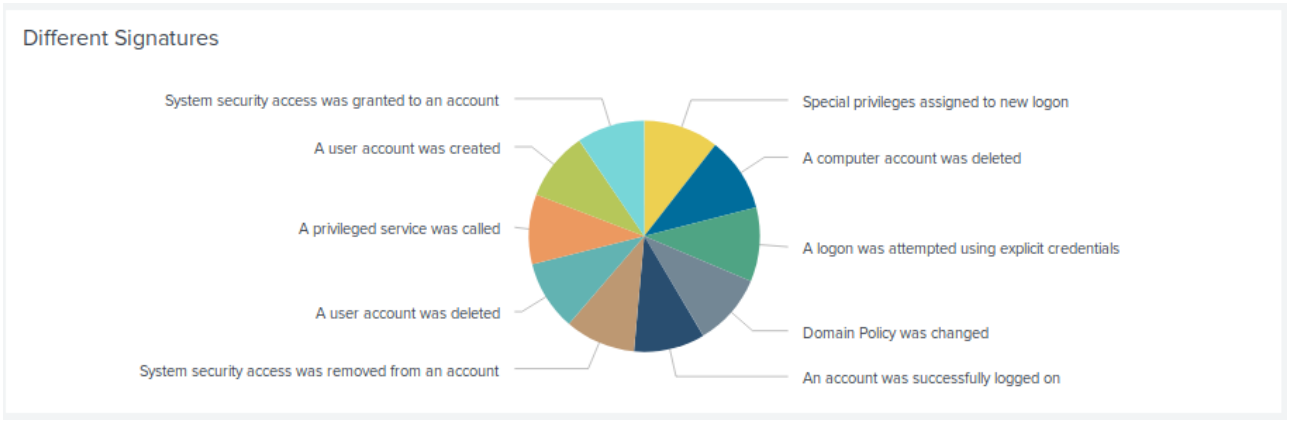


3. A bar, column, or pie chart that illustrates the count of different signatures.
    - **source="windows_server_logs.csv" | top limit=10 signature**

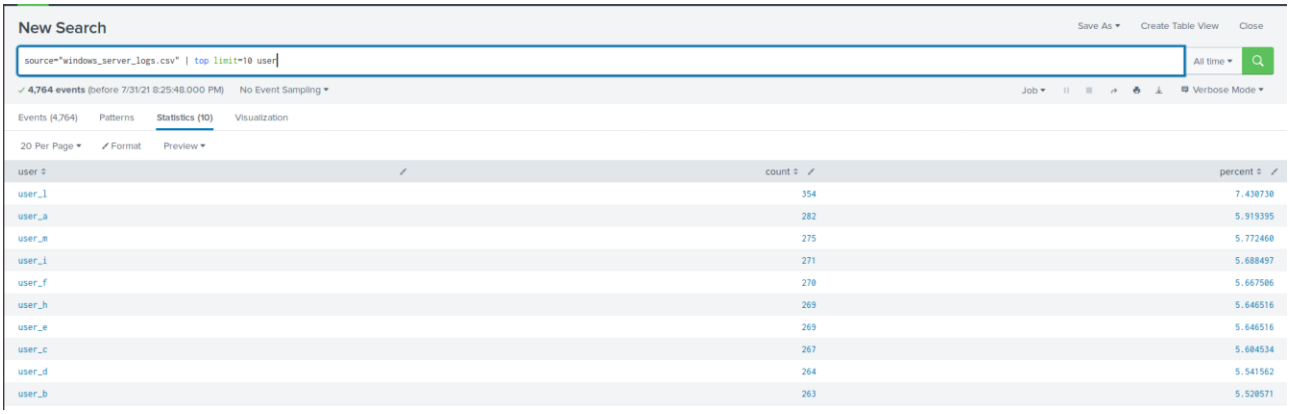



| signature | count | percent |
|---|---|---|
| Special privileges assigned to new logon | 342 | 7.178841 |
| A computer account was deleted | 340 | 7.136860 |
| A logon was attempted using explicit credentials | 337 | 7.073887 |
| Domain Policy was changed | 329 | 6.905961 |
| An account was successfully logged on | 323 | 6.780017 |
| System security access was removed from an account | 321 | 6.738035 |
| A user account was deleted | 318 | 6.675063 |
| A privileged service was called | 317 | 6.654072 |
| A user account was created | 313 | 6.570109 |
| System security access was granted to an account | 309 | 6.486146 |

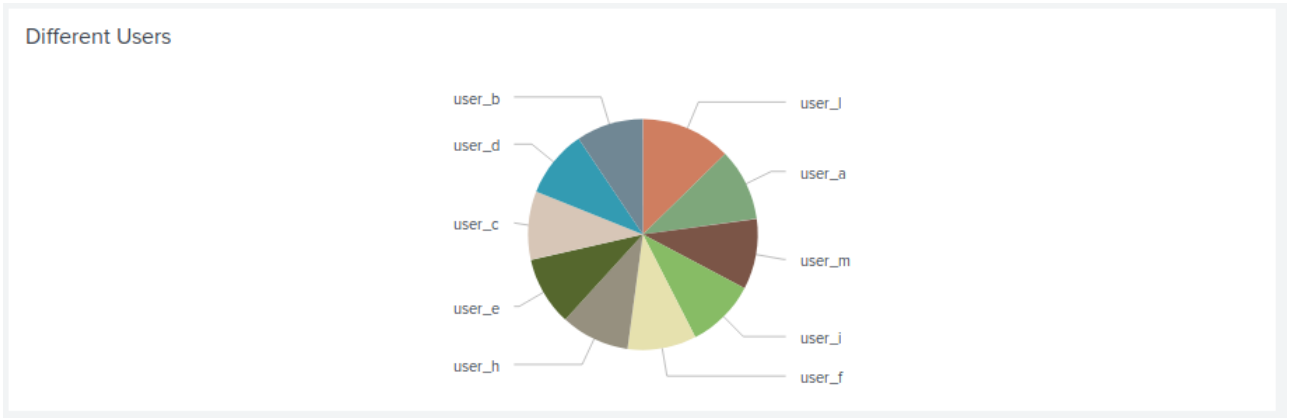
- Select Visualizations > Bar/Column/Pie Chart.



4. A bar, column, or pie chart that illustrates the count of different users.
    - **source="windows_server_logs.csv" | top limit=10 user**




    - Select Visualizations > Bar/Column/Pie Chart.



5. A statistical chart that illustrates the count of different users.
    - **source="windows_server_logs.csv" | top limit=10 user**

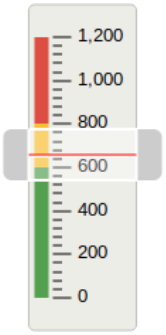
Different Users Stats

<1m ago

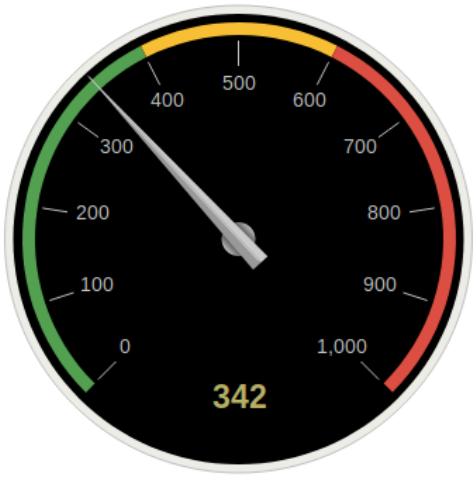
| user | count | percent |
|---|---|---|
| user_l | 354 | 7.430730 |
| user_a | 282 | 5.919395 |
| user_m | 275 | 5.772460 |
| user_i | 271 | 5.688497 |
| user_f | 270 | 5.667506 |
| user_h | 269 | 5.646516 |
| user_e | 269 | 5.646516 |
| user_c | 267 | 5.604534 |
| user_d | 264 | 5.541562 |
| user_b | 263 | 5.520571 |

6. One single value visualization of your choice: radial gauge, marker gauge, etc.
    - Answers will vary.

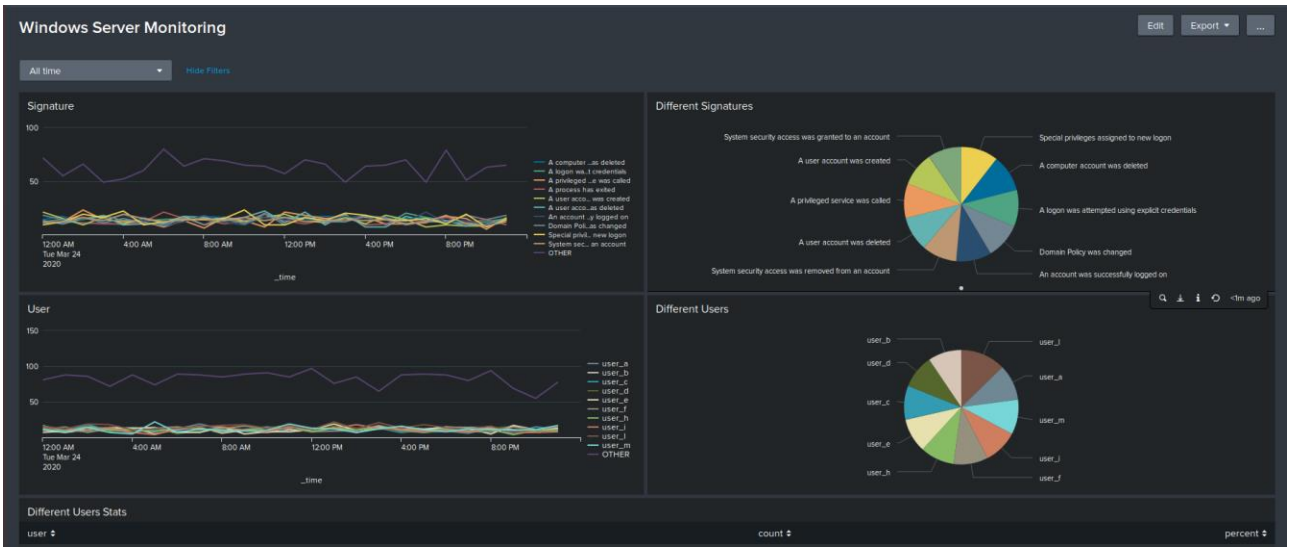
Action=Deleted




EventCode=4672



On your dashboard, add the ability to change the time range for all your visualizations.



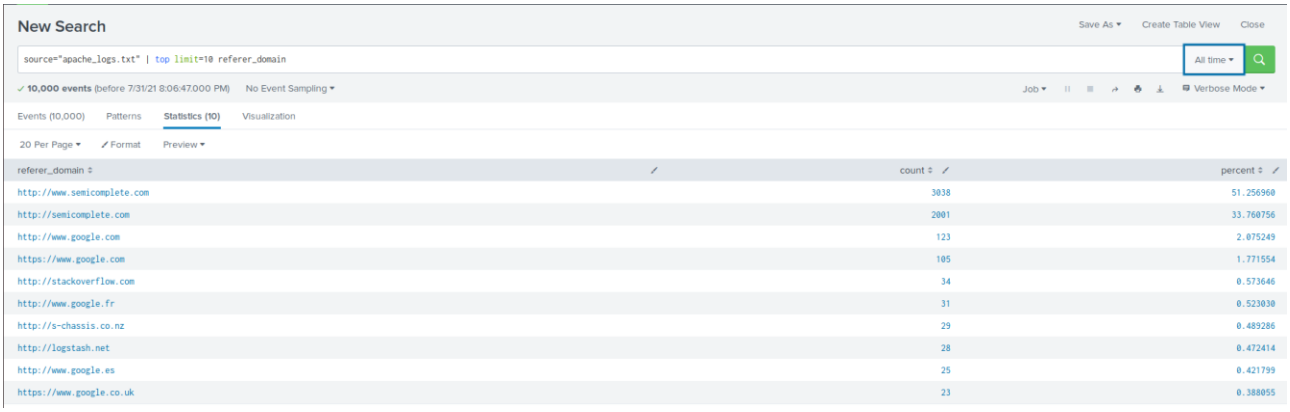
# Apache Web Server Logs

Reports: Design the following reports to assist VSI with quickly identifying specific information.

1. A report that shows a table of the different HTTP methods (GET, POST, HEAD, etc).
    - **source="apache_logs.txt" | top method**



    - A report that shows the top 10 domains that referred to VSI's website.
    - **source="apache_logs.txt" | top limit=10 referer_domain**



Top 10 Domains

The top 10 domains that referred to VSI's website.

Edit | More Info | Add to Dashboard

All time

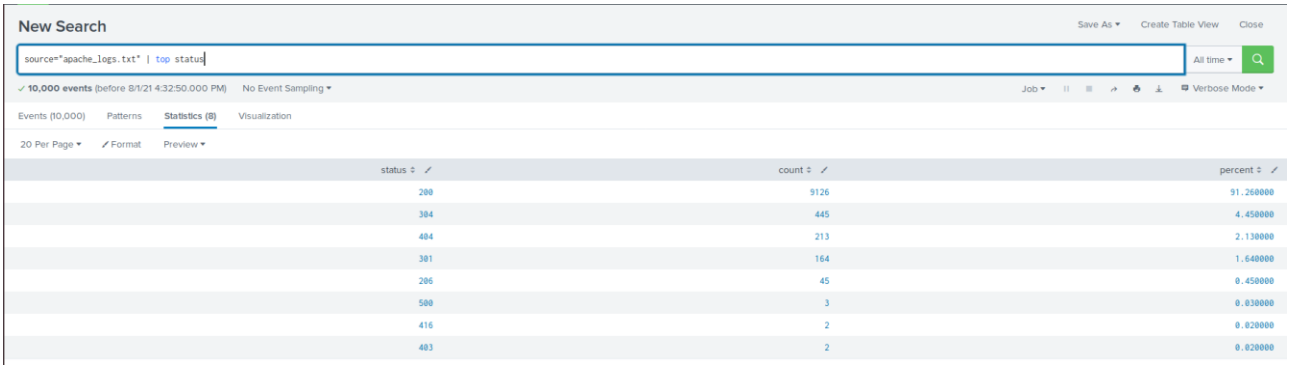
✓ 10,000 events (before 7/31/21 8:06:47.000 PM)

Job

10 results 20 per page

| referer_domain | count | percent |
|---|---|---|
| http://www.semicomplete.com | 3038 | 51.256960 |
| http://semicomplete.com | 2001 | 33.760756 |
| http://www.google.com | 123 | 2.075249 |
| https://www.google.com | 105 | 1.771554 |
| http://stackoverflow.com | 34 | 0.573646 |
| http://www.google.fr | 31 | 0.523030 |
| http://s-chassis.co.nz | 29 | 0.489286 |
| http://logstash.net | 28 | 0.472414 |
| http://www.google.es | 25 | 0.421799 |
| https://www.google.co.uk | 23 | 0.388055 |

2. A report that shows the count of the HTTP response codes.
    - **source="apache_logs.txt" | top status**



New Search

Save As | Create Table View | Close

source="apache_logs.txt" | top status

All time

✓ 10,000 events (before 8/1/21 4:32:50.000 PM) No Event Sampling

Job | Verbose Mode

Events (10,000) Patterns Statistics (8) Visualization

20 Per Page | Format | Preview

| status | count | percent |
|---|---|---|
| 200 | 9126 | 91.260000 |
| 304 | 445 | 4.450000 |
| 404 | 213 | 2.130000 |
| 301 | 164 | 1.640000 |
| 206 | 45 | 0.450000 |
| 500 | 3 | 0.030000 |
| 416 | 2 | 0.020000 |
| 403 | 2 | 0.020000 |

The Count of the HTTP Response Codes

Count of the HTTP response codes

Edit | More Info | Add to Dashboard

All time

✓ 10,000 events (before 8/1/21 4:32:50.000 PM)

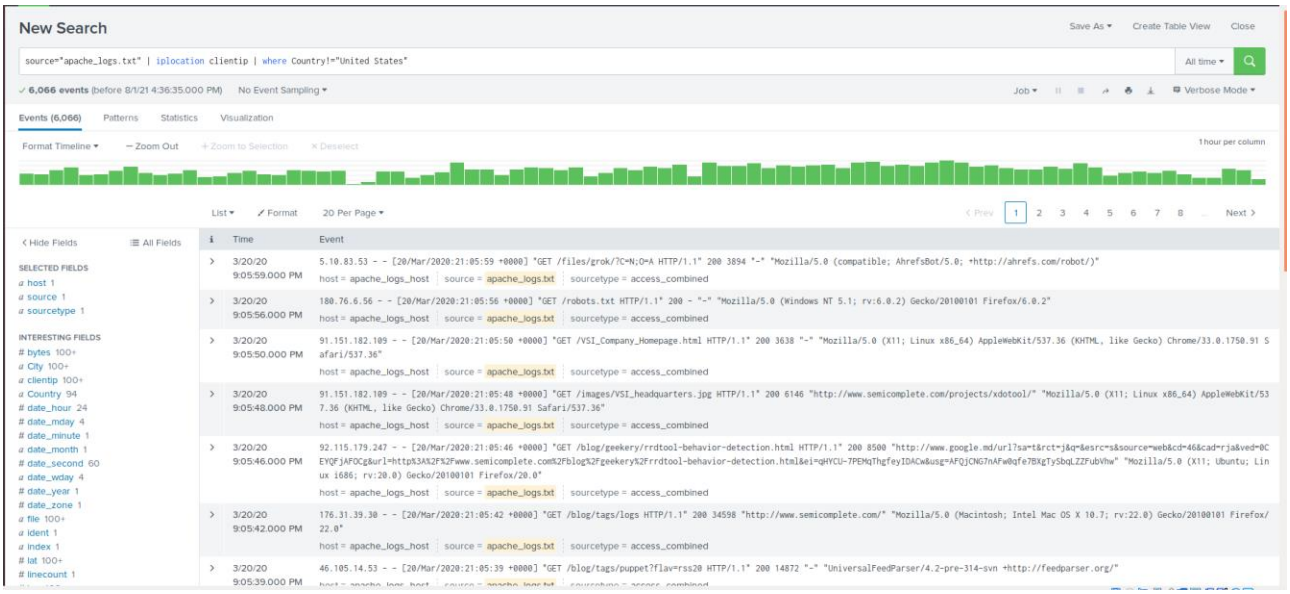
Job

8 results 20 per page

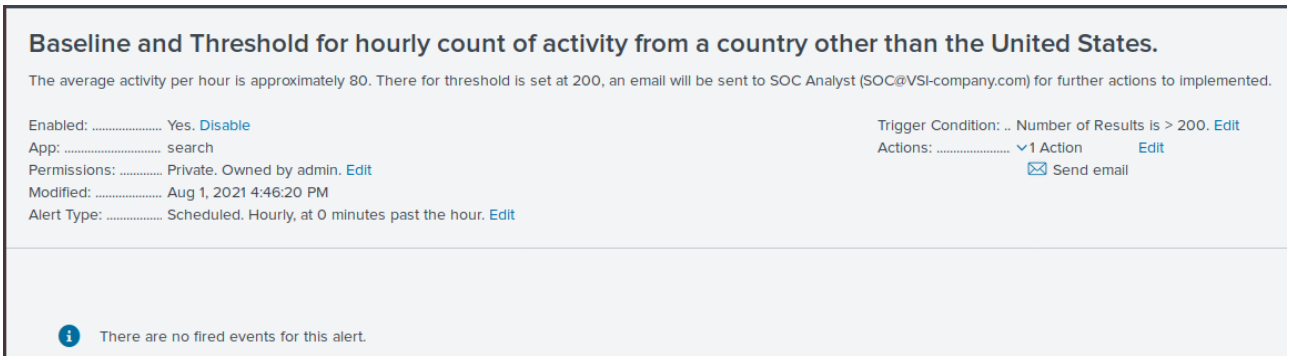
| status | count | percent |
|---|---|---|
| 200 | 9126 | 91.260000 |
| 304 | 445 | 4.450000 |
| 404 | 213 | 2.130000 |
| 301 | 164 | 1.640000 |
| 206 | 45 | 0.450000 |
| 500 | 3 | 0.030000 |
| 416 | 2 | 0.020000 |
| 403 | 2 | 0.020000 |

Alerts: Design the following alerts:

1. Determine a baseline and threshold for hourly count of activity from a country other than the United States. Create an alert to trigger when the threshold has been reached. The alert should trigger an email to SOC@VSI-company.com.
    - **source="apache_logs.txt" | iplocation clientip | where Country!="United States"**

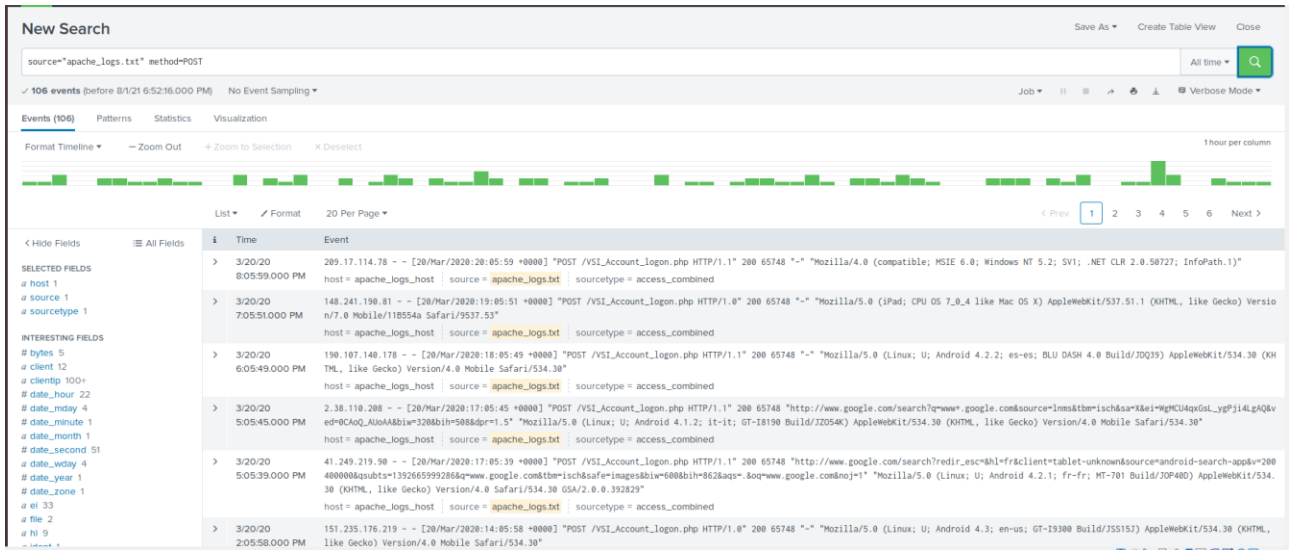



    - The average activity per hour is approximately 80.
    - The threshold should range between 170-250.
    - To create an alert, change the search to one hour.
    - Set to run every hour.
    - Set alert to trigger when count is greater than chosen threshold.
    - Add action Send email to SOC@VSI-company.com.

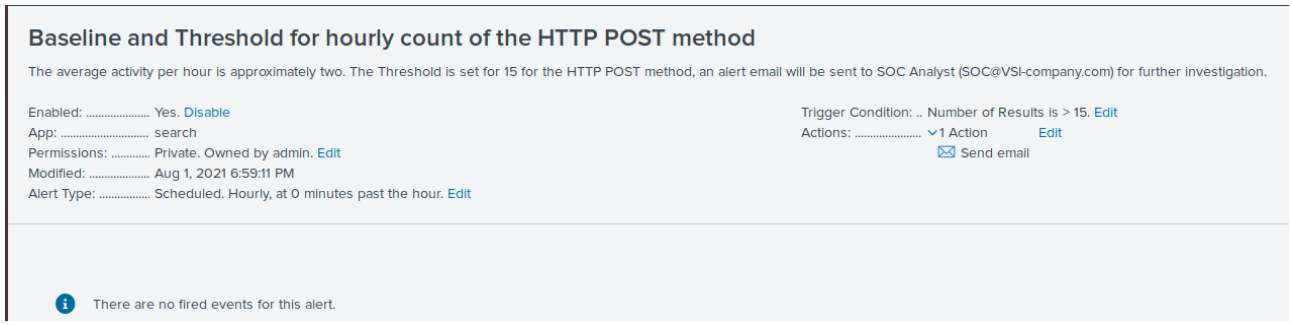



2. Determine a baseline and threshold for hourly count of the HTTP POST method. Create an alert to trigger when the threshold has been reached. The alert should trigger an email to SOC@VSI-company.com.

- **source="apache_logs.txt" method=POST**

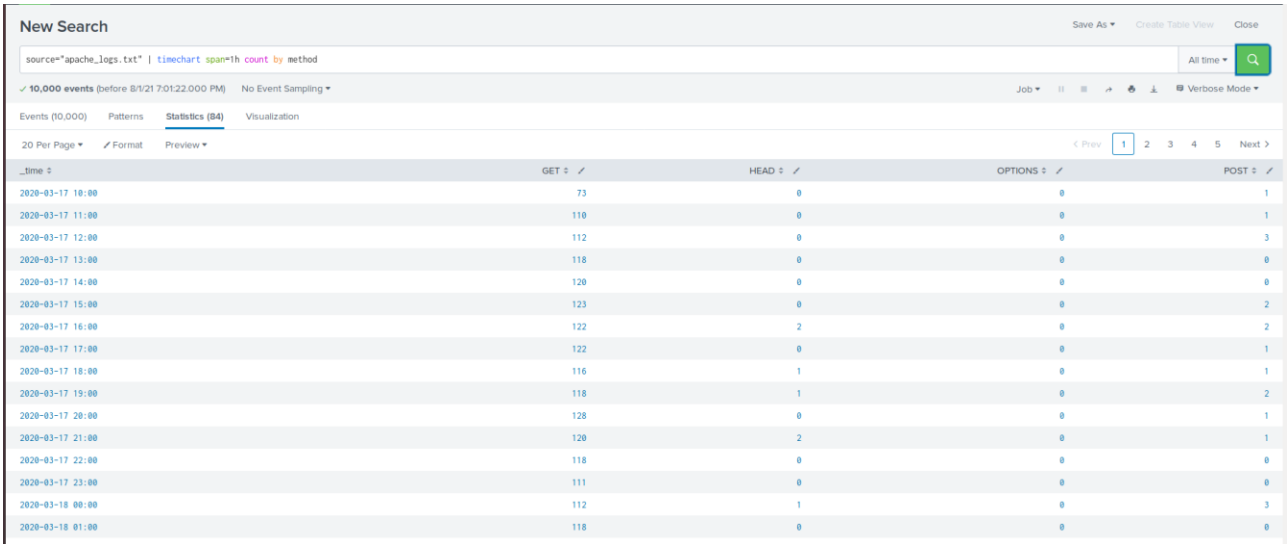



- The average activity per hour is approximately two.
- The threshold should between 12-20.
- To create an alert, change the search to one hour.
- Set to run every hour.
- Set alert to trigger when count is greater than chosen threshold.
- Add action Send email to SOC@VSI-company.com.



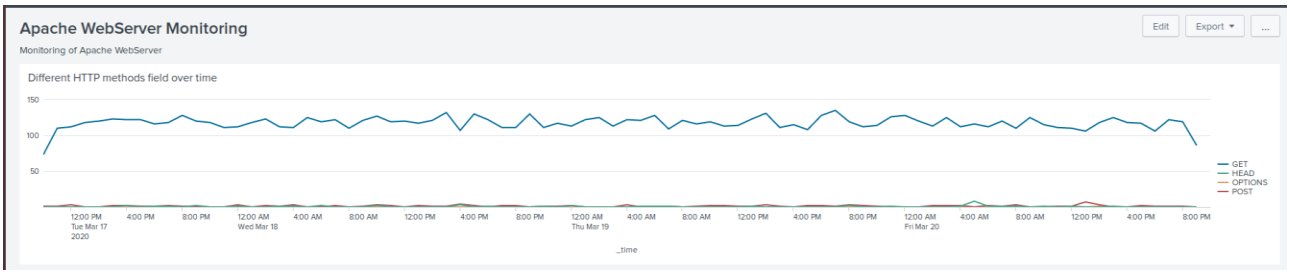
Visualizations and Dashboards: Design the following visualization and add them to a dashboard called Apache WebServer Monitoring.

1. A line chart that displays the different HTTP `methods` field over time.
    - **source="apache_logs.txt" | timechart span=1h count by method**

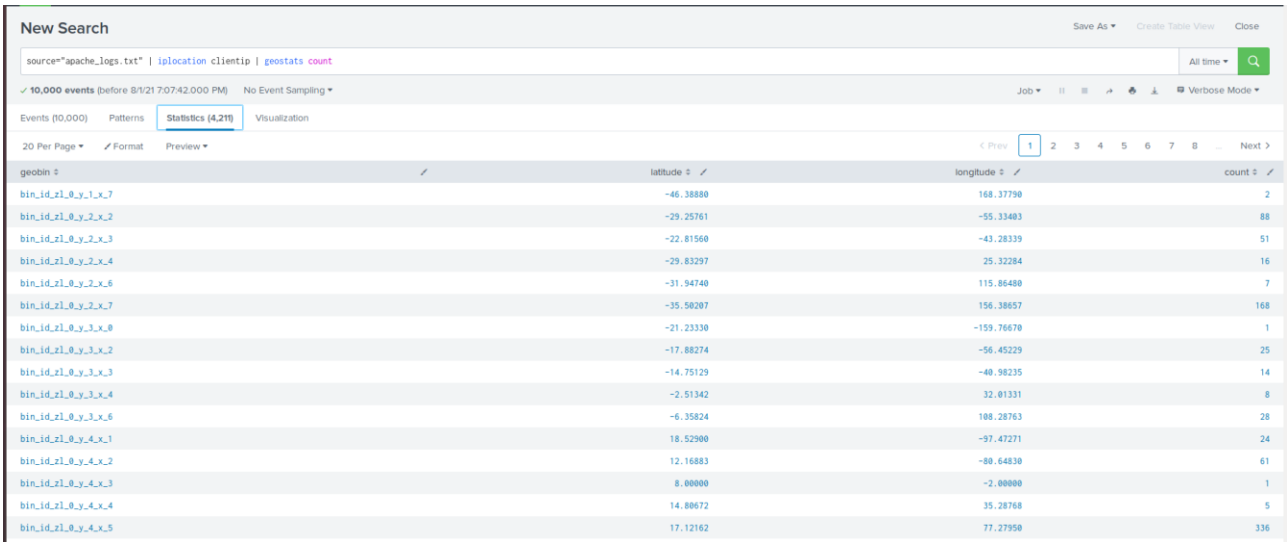



| _time | GET | HEAD | OPTIONS | POST |
|---|---|---|---|---|
| 2020-03-17 10:00 | 73 | 0 | 0 | 1 |
| 2020-03-17 11:00 | 110 | 0 | 0 | 1 |
| 2020-03-17 12:00 | 112 | 0 | 0 | 3 |
| 2020-03-17 13:00 | 118 | 0 | 0 | 0 |
| 2020-03-17 14:00 | 120 | 0 | 0 | 0 |
| 2020-03-17 15:00 | 123 | 0 | 0 | 2 |
| 2020-03-17 16:00 | 122 | 2 | 0 | 2 |
| 2020-03-17 17:00 | 122 | 0 | 0 | 1 |
| 2020-03-17 18:00 | 116 | 1 | 0 | 1 |
| 2020-03-17 19:00 | 118 | 1 | 0 | 2 |
| 2020-03-17 20:00 | 128 | 0 | 0 | 1 |
| 2020-03-17 21:00 | 120 | 2 | 0 | 1 |
| 2020-03-17 22:00 | 118 | 0 | 0 | 0 |
| 2020-03-17 23:00 | 111 | 0 | 0 | 0 |
| 2020-03-18 00:00 | 112 | 1 | 0 | 3 |
| 2020-03-18 01:00 | 118 | 0 | 0 | 0 |

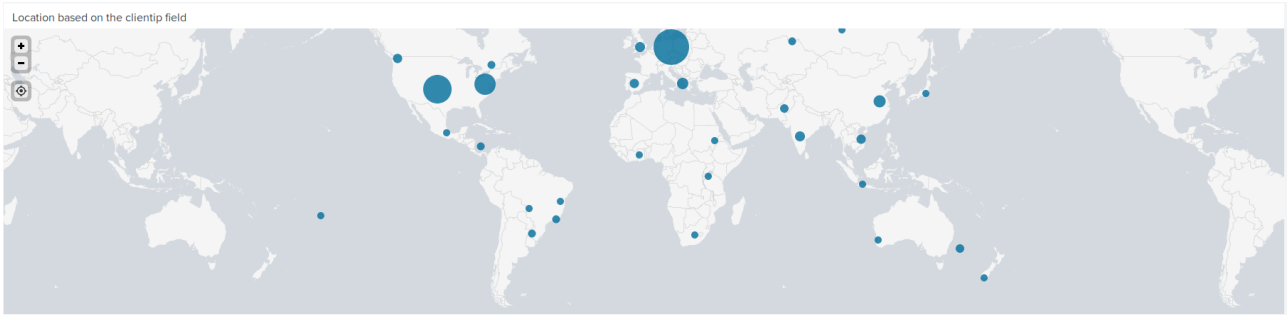
    - Select Visualizations > Line Chart.



2. A geographical map showing the location based on the `clientip` field.
    - **source="apache_logs.txt" | iplocation clientip | geostats count**



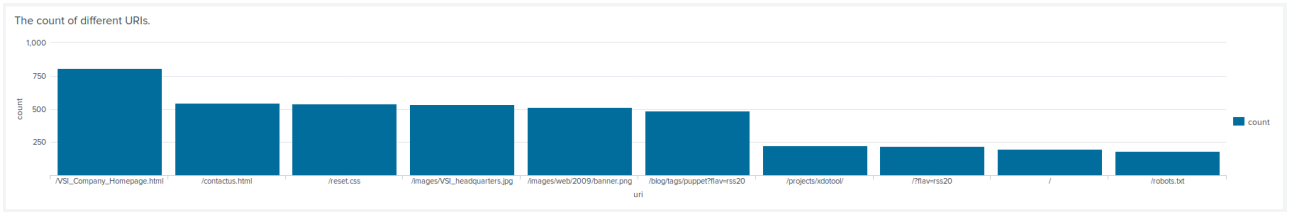

    - Select Visualizations > Line Chart.



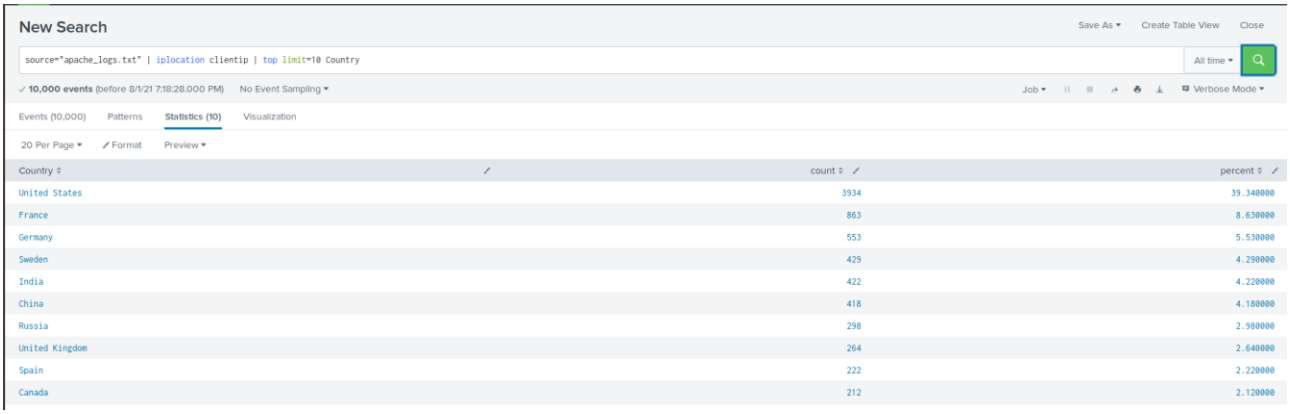
3. A bar, column, or pie chart that displays the count of different URIs.
    - **source="apache_logs.txt" | top limit=10 uri**


| uri | count | percent |
|---|---|---|
| /VSI_Company_Homepage.html | 807 | 8.070000 |
| /contactus.html | 546 | 5.460000 |
| /reset.css | 538 | 5.380000 |
| /images/VSI_headquarters.jpg | 533 | 5.330000 |
| /images/web/2009/banner.png | 516 | 5.160000 |
| /blog/tags/puppet?flav=rss20 | 488 | 4.880000 |
| /projects/xdotool/ | 224 | 2.240000 |
| /?flav=rss20 | 217 | 2.170000 |
| / | 197 | 1.970000 |
| /robots.txt | 180 | 1.800000 |

    - Select Visualizations > Bar/Column/Pie Chart.

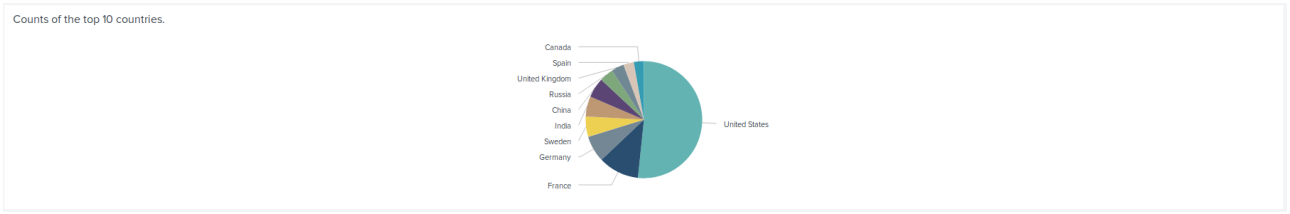


4. A bar, column, or pie chart that displays the counts of the top 10 countries.
    - **source="apache_logs.txt" | iplocation clientip | top limit=10 Country**




| Country | count | percent |
|---|---|---|
| United States | 3934 | 39.340000 |
| France | 863 | 8.630000 |
| Germany | 553 | 5.530000 |
| Sweden | 429 | 4.290000 |
| India | 422 | 4.220000 |
| China | 418 | 4.180000 |
| Russia | 298 | 2.980000 |
| United Kingdom | 264 | 2.640000 |
| Spain | 222 | 2.220000 |
| Canada | 212 | 2.120000 |

    - Select Visualizations > Bar/Column/Pie Chart.



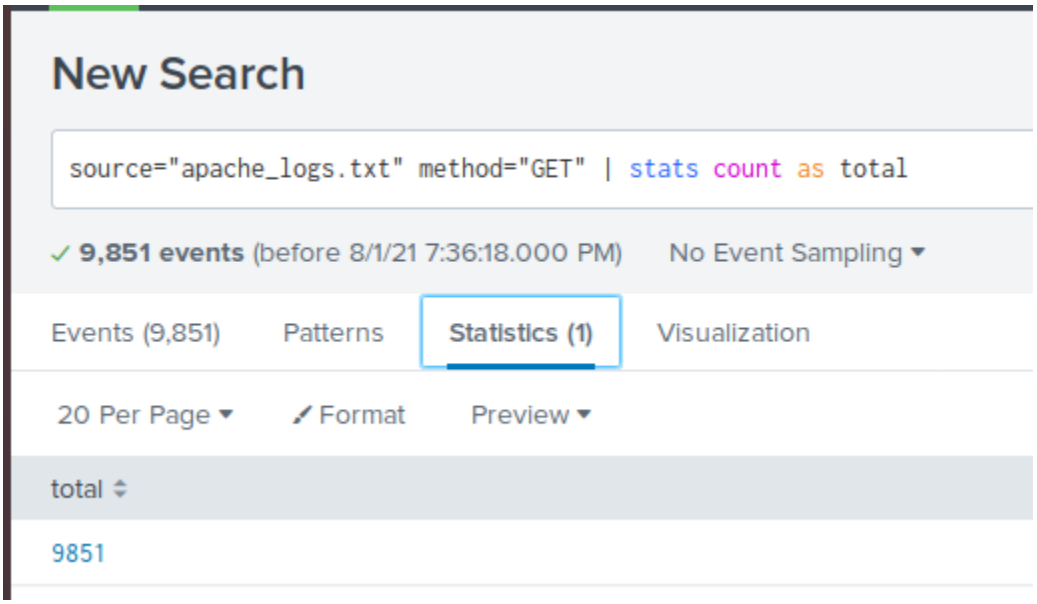
5. A statistical chart that illustrates the count of different user agents.
    - **source="apache_logs.txt" | top limit=10 useragent**

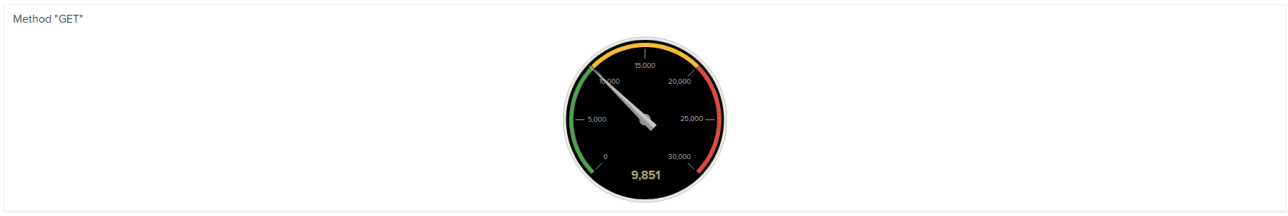

    - Click the following: Save As > Dashboard Panel > Existing > Apache WebServer Monitoring > Create Title for Panel > Save as Statistics Table

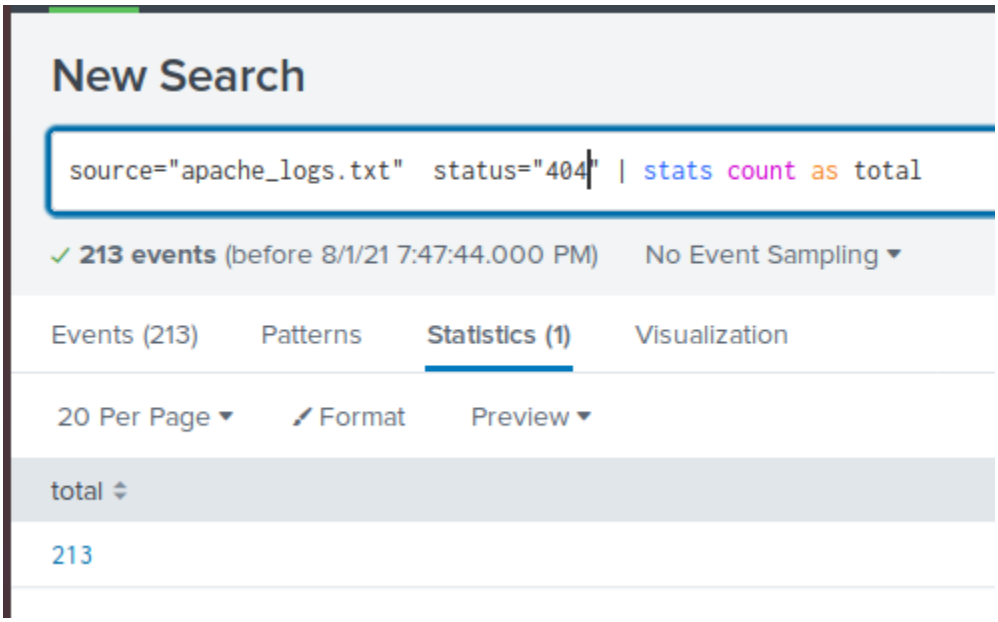
The count of different user agents.

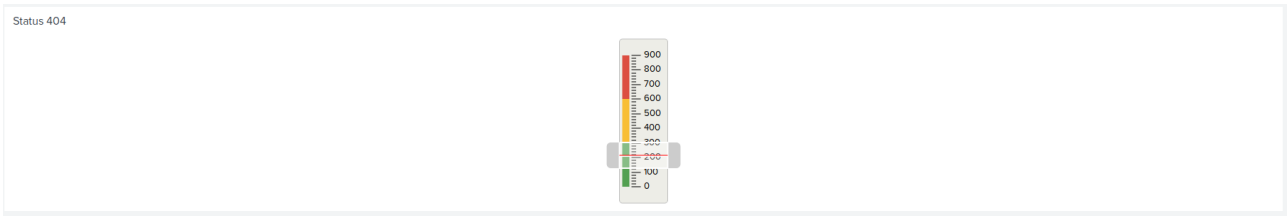
| useragent | count | percent |
|---|---|---|
| Mozilla/5.0 (Windows NT 6.1; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1700.107 Safari/537.36 | 1044 | 10.441044 |
| Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_1) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/33.0.1750.91 Safari/537.36 | 369 | 3.690369 |
| UniversalFeedParser/4.2-pre-314-svn +http://feedparser.org/ | 364 | 3.640364 |
| Mozilla/5.0 (Windows NT 6.1; WOW64; rv:27.0) Gecko/20100101 Firefox/27.0 | 296 | 2.960296 |
| Mozilla/5.0 (iPhone; CPU iPhone OS 6_0 like Mac OS X) AppleWebKit/536.26 (KHTML, like Gecko) Version/6.0 Mobile/10A5376e Safari/8536.25 (compatible; Googlebot/2.1; +http://www.google.com/bot.html) | 271 | 2.710271 |
| Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1700.107 Safari/537.36 | 268 | 2.680268 |
| Mozilla/5.0 (compatible; Googlebot/2.1; +http://www.google.com/bot.html) | 237 | 2.370237 |
| Mozilla/5.0 (X11; Ubuntu; Linux x86_64; rv:27.0) Gecko/20100101 Firefox/27.0 | 236 | 2.360236 |
| Mozilla/5.0 (X11; Linux x86_64; rv:27.0) Gecko/20100101 Firefox/27.0 | 229 | 2.290229 |
| Tiny Tiny RSS/1.11 (http://tt-rss.org/) | 198 | 1.980198 |

6. One single value visualization of your choice: radial gauge, marker gauge, etc.






On your dashboard, add the ability to change the time range for all your visualizations.