SOC Tier 2 Investigation Report
Log Source: `access_combined`
Platform: Splunk Enterprise (Kali Linux VM)
Index: `main`
Analyst: SOC Tier 2
Date: August 1, 2025

Objective

Perform deep-dive analysis of HTTP access logs from `access_combined` sourcetype to identify patterns of malicious activity and anomalous web behavior. The goal is to develop detection hypotheses, confirm benign behavior, and isolate suspicious patterns.

Initial Recon & Data Validation

- Verified that data is being indexed in `main` and not `web`.
- Confirmed `sourcetype=access_combined` has log records present.
- Validated fields such as `clientip`, `uri`, `status`, `method`, `referer`, `useragent`, and `JSESSIONID` are parsed correctly.
- Ensured time range was set to "All Time" during exploratory phases to avoid missing older logs.

Phase 1: Unique Page Requests by Client IP

Objective: Identify IPs making high numbers of unique page requests — possible indicators of scanning.

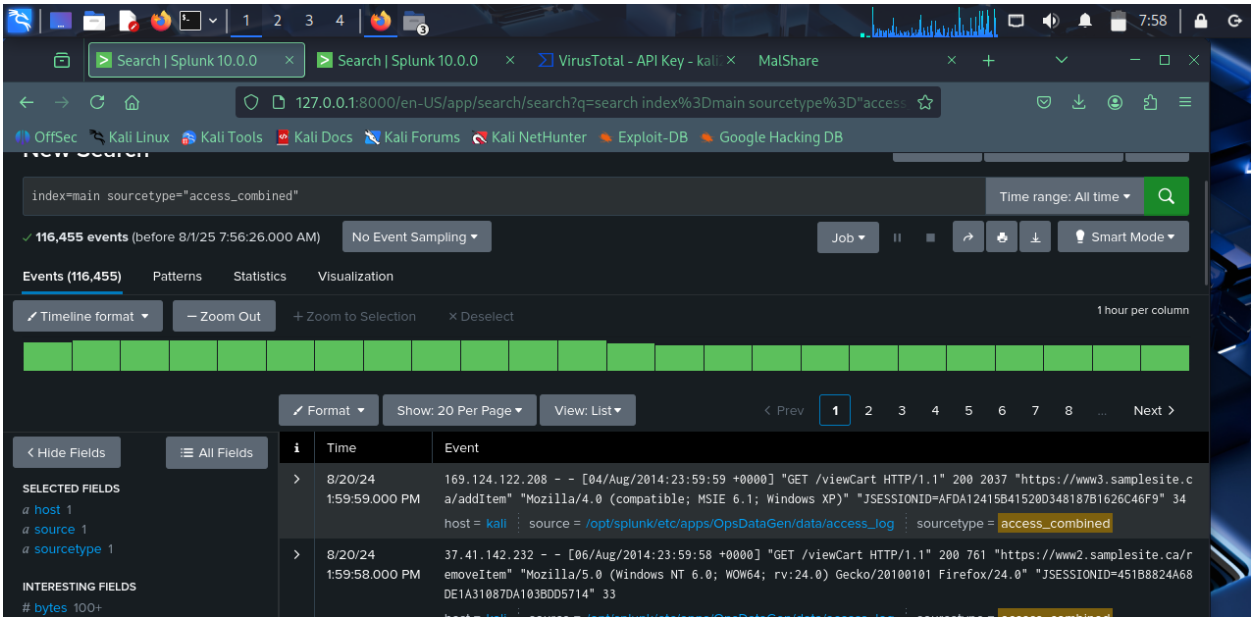
Search Example:

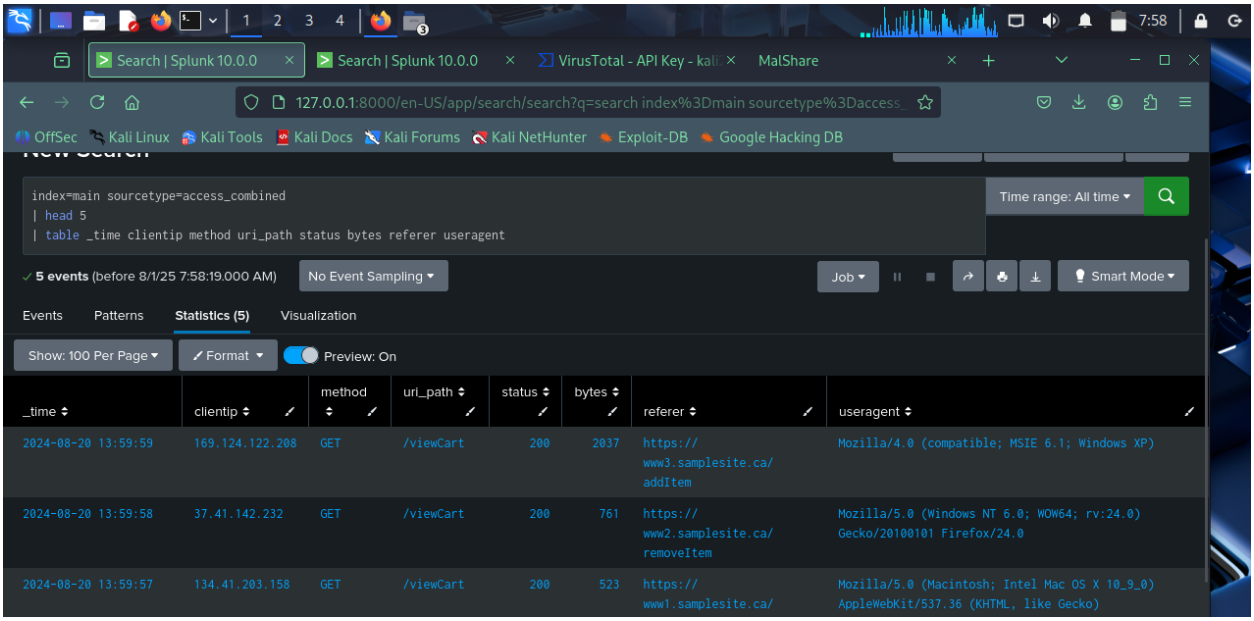
```
index=main sourcetype=access_combined
| stats dc(uri_path) as unique_pages by clientip
| where unique_pages > 10
| sort -unique_pages
```

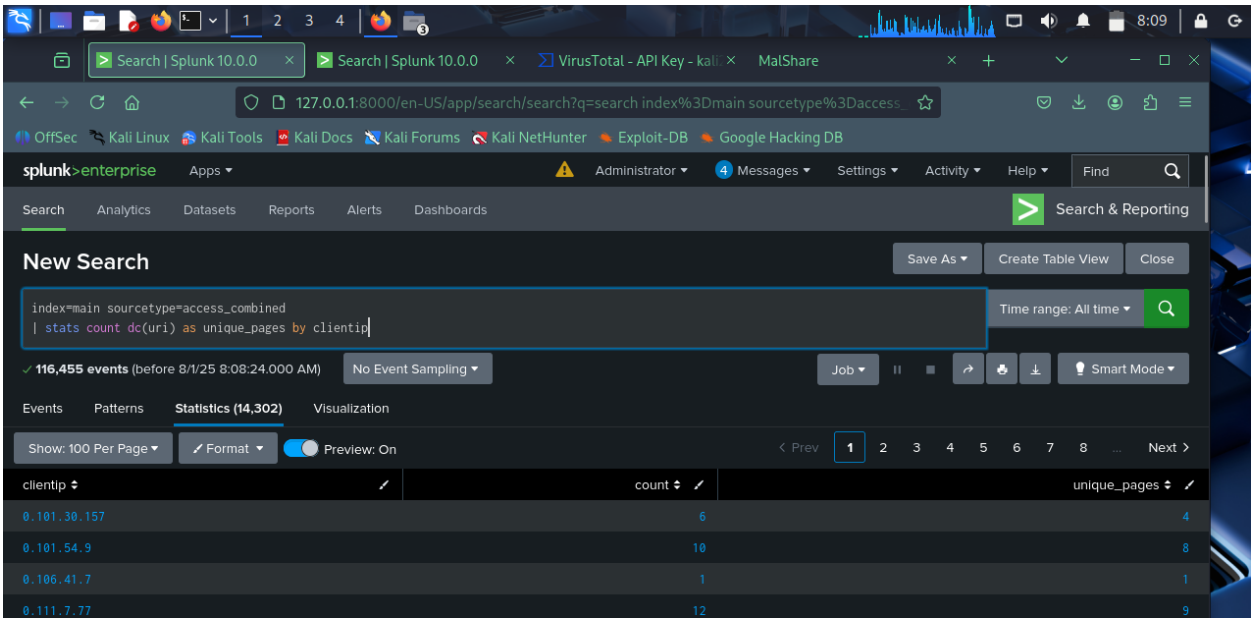
Findings:

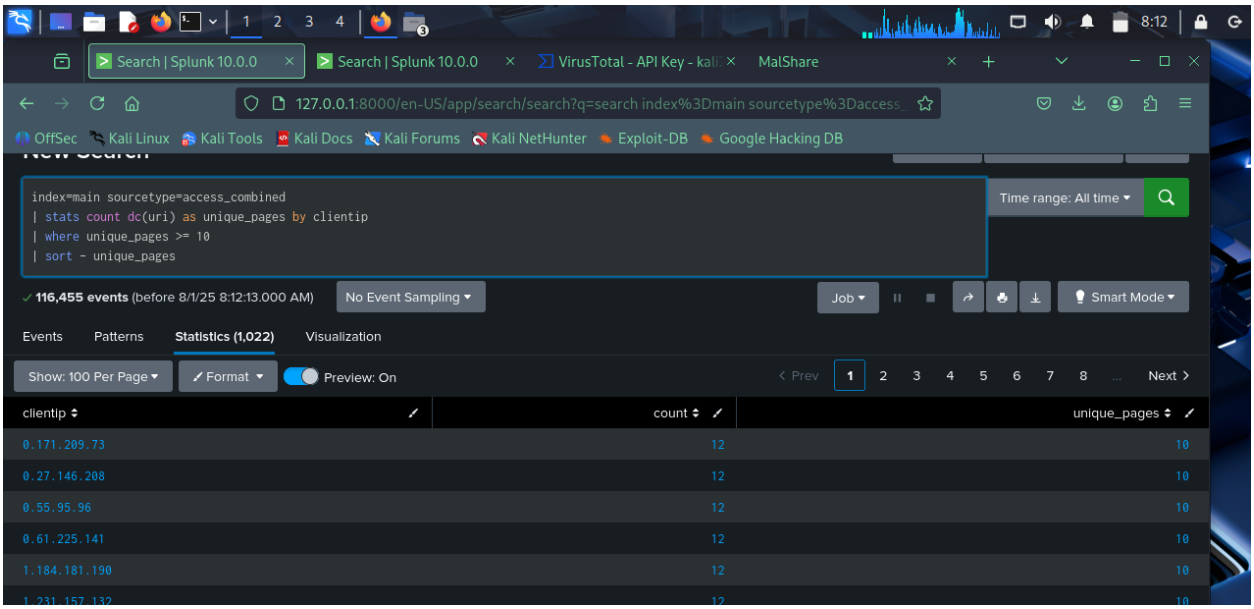
- Maximum `unique_pages` was **10**.
- No client had more than 10, indicating low variation and possible normal browsing.
- Sample IPs were examined manually. User behavior appeared legitimate (e.g., normal referers, consistent user agents).

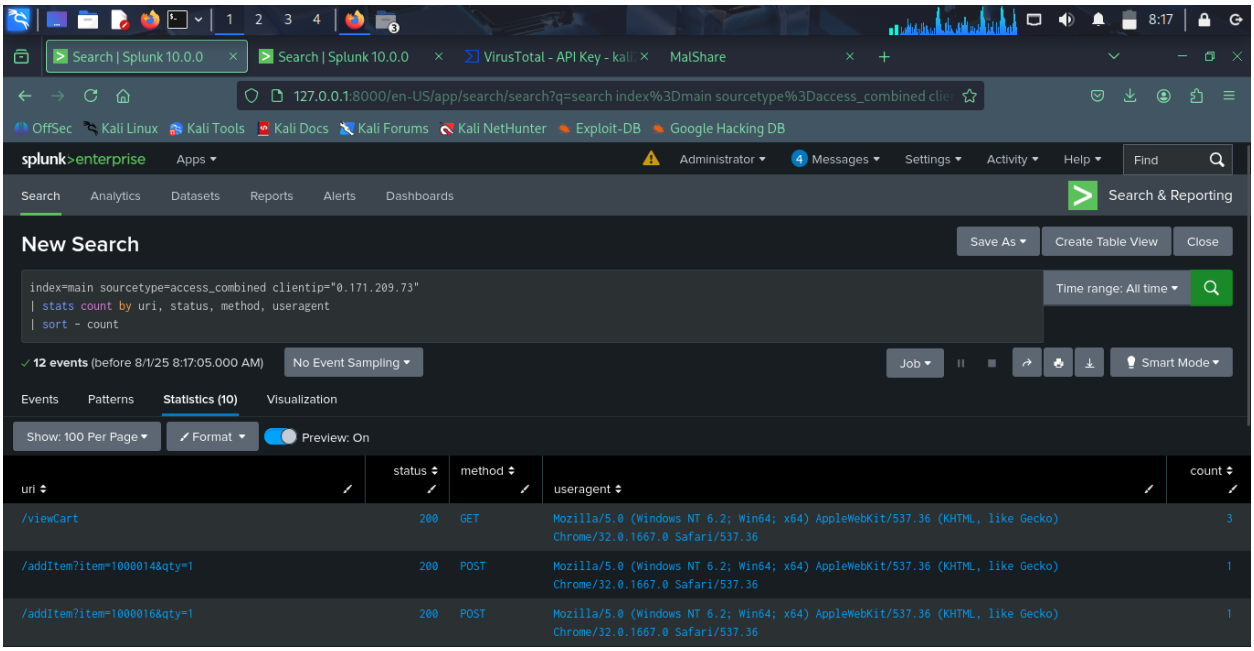
Conclusion: This activity was **normal web behavior**, likely non-malicious.

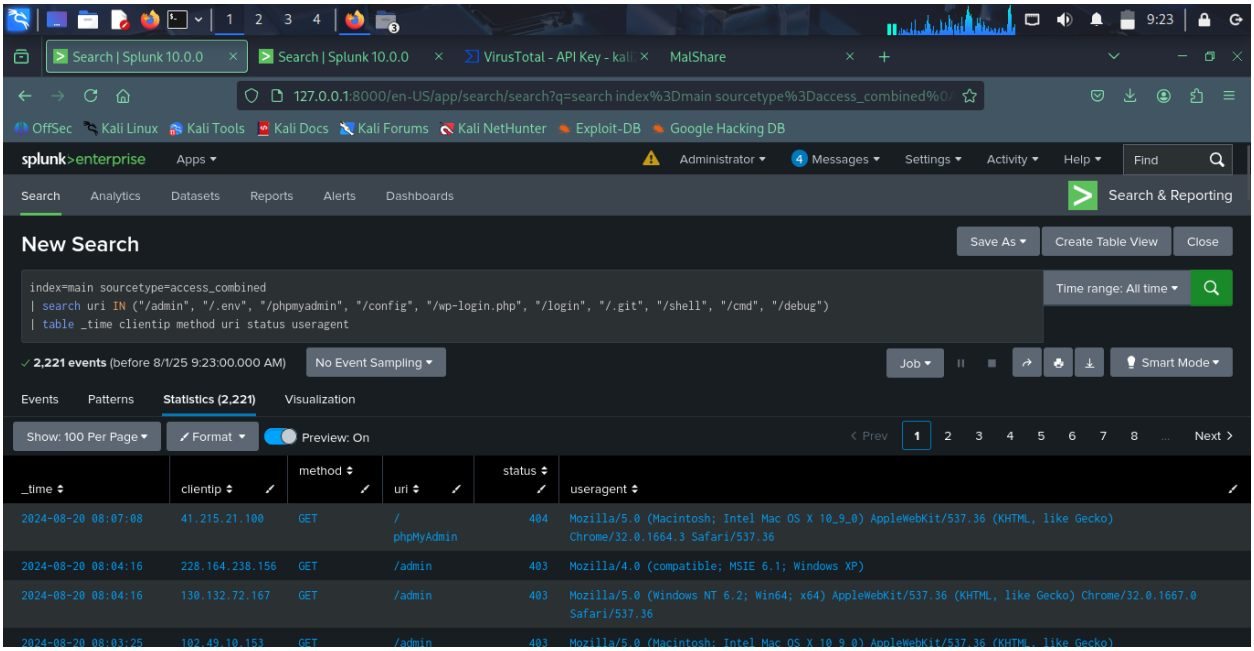


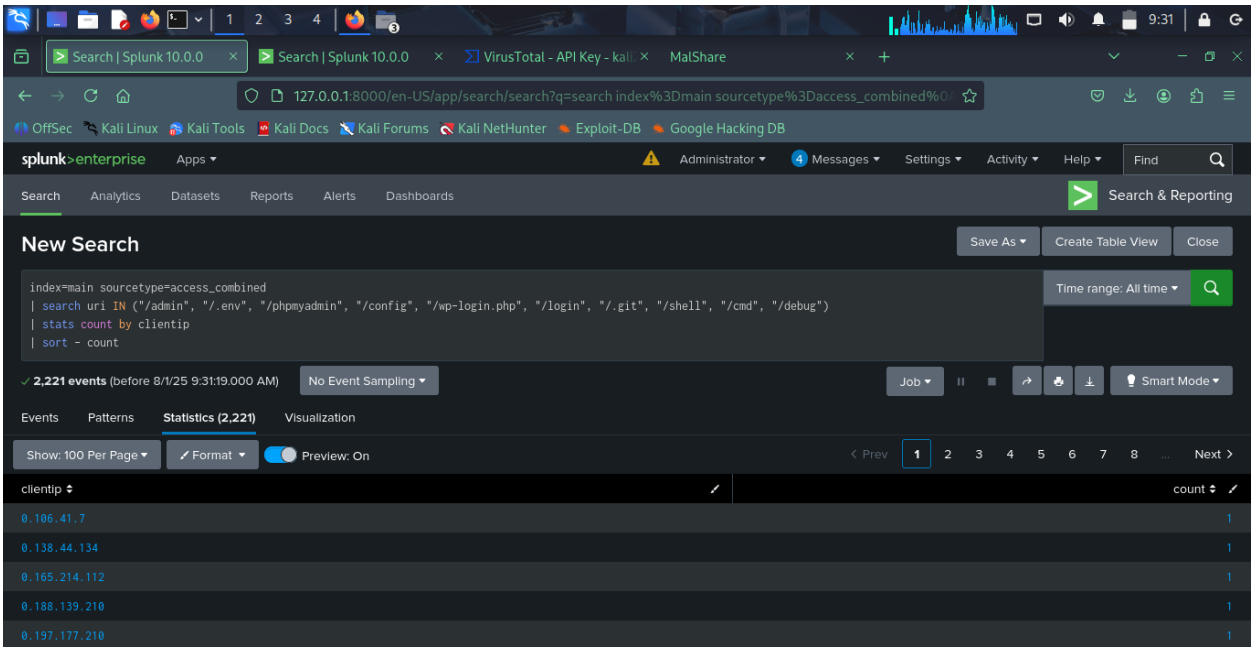


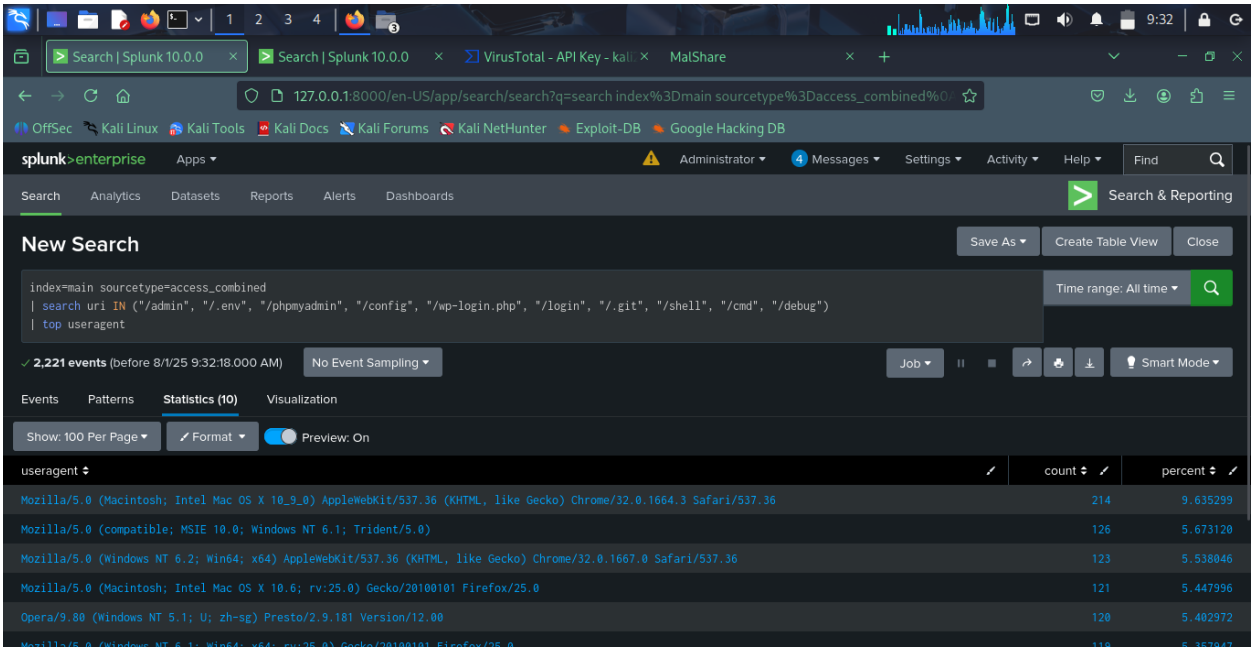

8:09
Search | Splunk 10.0.0
Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_
OffSec
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
splunk>enterprise
Apps
Administrator
4 Messages
Settings
Activity
Help
Find
Search
Analytics
Datasets
Reports
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
index=main sourcetype=access_combined
| stats count dc(uri) as unique_pages by clientip
Time range: All time
116,455 events (before 8/1/25 8:08:24.000 AM)
No Event Sampling
Job
Smart Mode
Events
Patterns
Statistics (14,302)
Visualization
Show: 100 Per Page
Format
Preview: On
Prev
1
2
3
4
5
6
7
8
Next
clientip
count
unique_pages
0.101.30.157
6
4
0.101.54.9
10
8
0.106.41.7
1
1
0.111.7.77
12
9


8:12
Search | Splunk 10.0.0
Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_
OffSec
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
index=main sourcetype=access_combined
| stats count dc(uri) as unique_pages by clientip
| where unique_pages >= 10
| sort - unique_pages
Time range: All time
116,455 events (before 8/1/25 8:12:13.000 AM)
No Event Sampling
Job
Smart Mode
Events
Patterns
Statistics (1,022)
Visualization
Show: 100 Per Page
Format
Preview: On
Prev
1
2
3
4
5
6
7
8
Next
clientip
count
unique_pages
0.171.209.73
12
10
0.27.146.208
12
10
0.55.95.96
12
10
0.61.225.141
12
10
1.184.181.190
12
10


Search | Splunk 10.0.0
Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_combined clie
OffSec Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB
splunk>enterprise Apps Administrator 4 Messages Settings Activity Help Find
Search Analytics Datasets Reports Alerts Dashboards Search & Reporting
New Search
Save As Create Table View Close
index=main sourcetype=access_combined clientip="0.171.209.73"
| stats count by uri, status, method, useragent
| sort - count
Time range: All time
12 events (before 8/1/25 8:17:05.000 AM) No Event Sampling Job Smart Mode
Events Patterns Statistics (10) Visualization
Show: 100 Per Page Format Preview: On
uri status method useragent count
/viewCart 200 GET Mozilla/5.0 (Windows NT 6.2; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1667.0 Safari/537.36 3
/addItem?item=1000014&qty=1 200 POST Mozilla/5.0 (Windows NT 6.2; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1667.0 Safari/537.36 1
/addItem?item=1000016&qty=1 200 POST Mozilla/5.0 (Windows NT 6.2; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1667.0 Safari/537.36 1


Search | Splunk 10.0.0
Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_combined%0
OffSec Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB
splunk>enterprise Apps Administrator 4 Messages Settings Activity Help Find
Search Analytics Datasets Reports Alerts Dashboards Search & Reporting
New Search
Save As Create Table View Close
index=main sourcetype=access_combined
| search uri IN ("/admin", "/.env", "/phpmyadmin", "/config", "/wp-login.php", "/login", "/.git", "/shell", "/cmd", "/debug")
| table _time clientip method uri status useragent
Time range: All time
2,221 events (before 8/1/25 9:23:00.000 AM) No Event Sampling Job Smart Mode
Events Patterns Statistics (2,221) Visualization
Show: 100 Per Page Format Preview: On
Prev 1 2 3 4 5 6 7 8 Next
_time clientip method uri status useragent
2024-08-20 08:07:08 41.215.21.100 GET /phpMyAdmin 404 Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1664.3 Safari/537.36
2024-08-20 08:04:16 228.164.238.156 GET /admin 403 Mozilla/4.0 (compatible; MSIE 6.1; Windows XP)
2024-08-20 08:04:16 130.132.72.167 GET /admin 403 Mozilla/5.0 (Windows NT 6.2; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1667.0 Safari/537.36
2024-08-20 08:03:25 102.49.10.153 GET /admin 403 Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (KHTML, like Gecko)


Search | Splunk 10.0.0
Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_combined%0A
OffSec
Kali Linux
Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
splunk>enterprise
Apps
Administrator
Messages
Settings
Activity
Help
Find
Search
Analytics
Datasets
Reports
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
index=main sourcetype=access_combined
| search uri IN ("/admin", "/.env", "/phpmyadmin", "/config", "/wp-login.php", "/login", "/.git", "/shell", "/cmd", "/debug")
| stats count by clientip
| sort - count
Time range: All time
2,221 events (before 8/1/25 9:31:19.000 AM)
No Event Sampling
Job
Smart Mode
Events
Patterns
Statistics (2,221)
Visualization
Show: 100 Per Page
Format
Preview: On
Prev
1
2
3
4
5
6
7
8
Next
clientip
count
0.106.41.7
1
0.138.44.134
1
0.165.214.112
1
0.188.139.210
1
0.197.177.210
1


Search | Splunk 10.0.0
Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_combined%0A
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Kali Tools
Kali Docs
Kali Forums
Kali NetHunter
Exploit-DB
Google Hacking DB
splunk>enterprise
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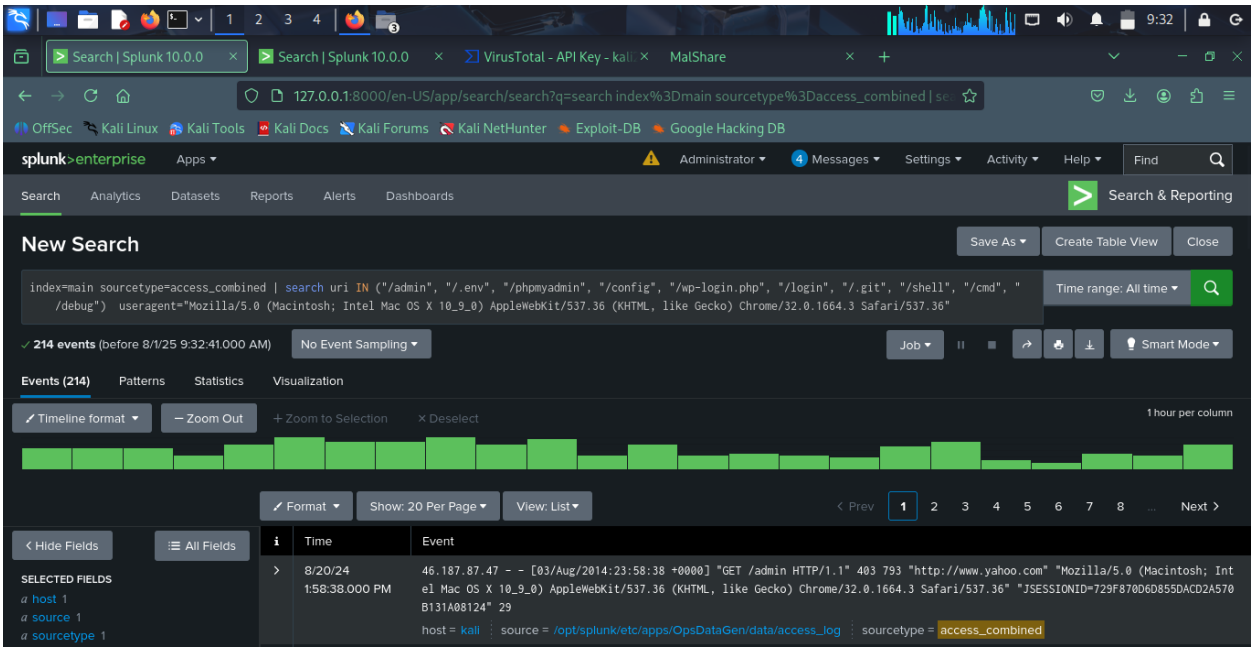
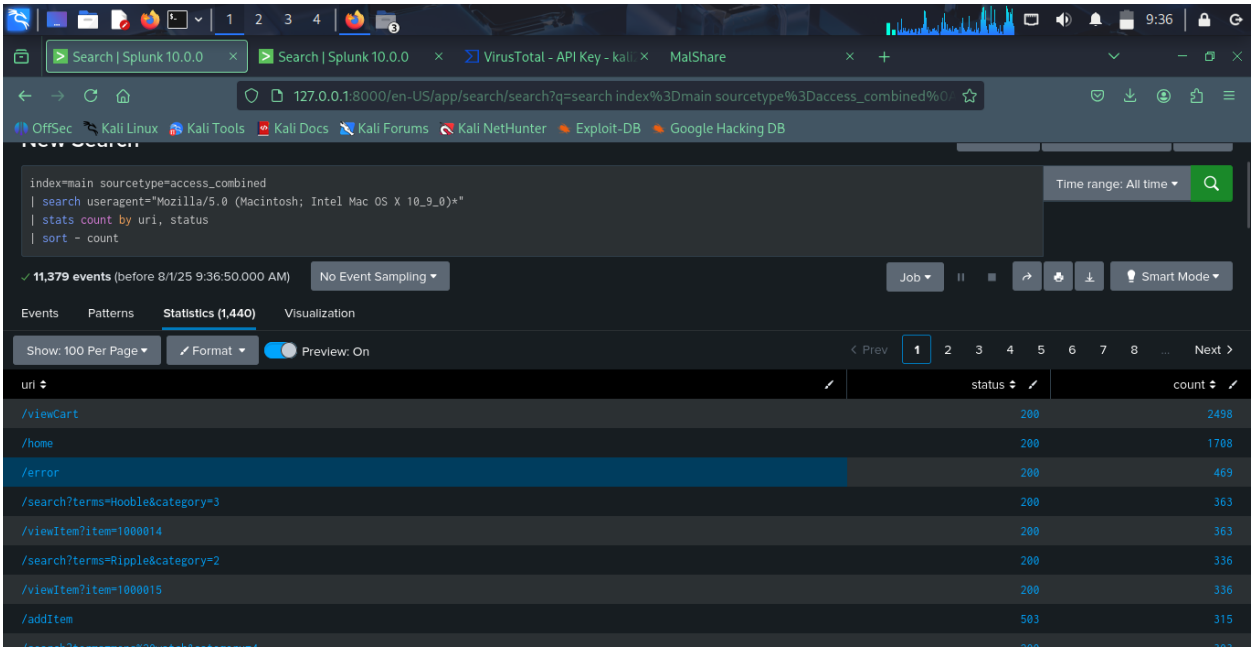
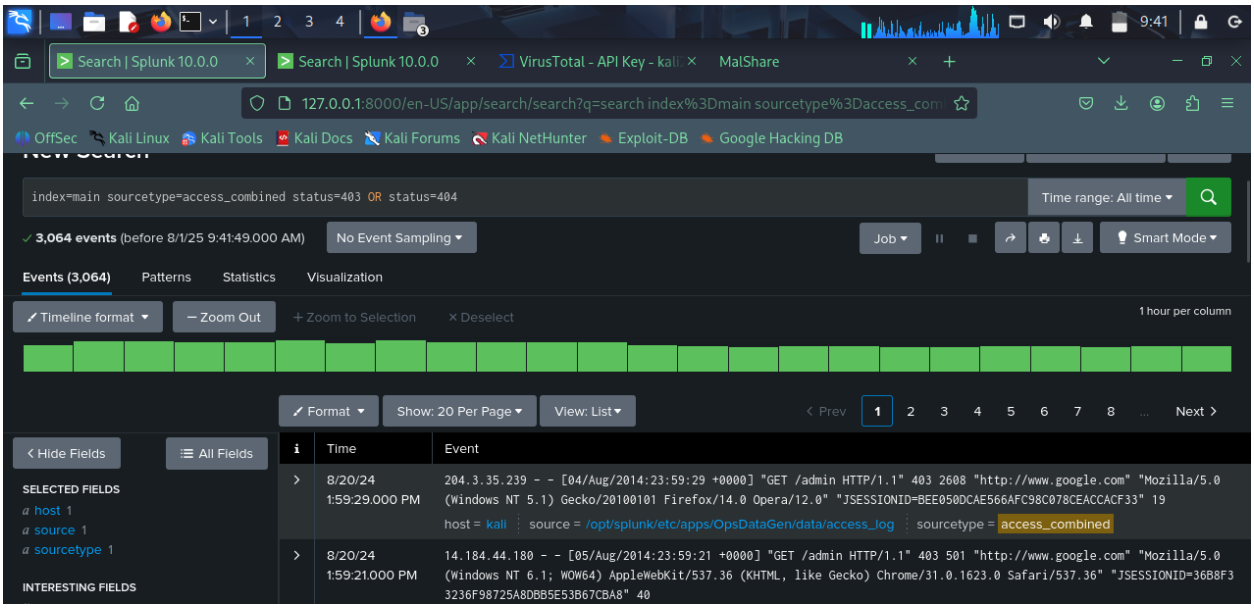
Administrator
Messages
Settings
Activity
Help
Find
Search
Analytics
Datasets
Reports
Alerts
Dashboards
Search & Reporting
New Search
Save As
Create Table View
Close
index=main sourcetype=access_combined
| search uri IN ("/admin", "/.env", "/phpmyadmin", "/config", "/wp-login.php", "/login", "/.git", "/shell", "/cmd", "/debug")
| top useragent
Time range: All time
2,221 events (before 8/1/25 9:32:18.000 AM)
No Event Sampling
Job
Smart Mode
Events
Patterns
Statistics (10)
Visualization
Show: 100 Per Page
Format
Preview: On
useragent
count
percent
Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1664.3 Safari/537.36
214
9.635299
Mozilla/5.0 (compatible; MSIE 10.0; Windows NT 6.1; Trident/5.0)
126
5.673120
Mozilla/5.0 (Windows NT 6.2; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1667.0 Safari/537.36
123
5.538046
Mozilla/5.0 (Macintosh; Intel Mac OS X 10.6; rv:25.0) Gecko/20100101 Firefox/25.0
121
5.447996
Opera/9.80 (Windows NT 5.1; U; zh-sg) Presto/2.9.181 Version/12.00
120
5.402972


Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_combined
OffSec Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB
splunk>enterprise
Search & Reporting
New Search
Save As
Create Table View
Close
index=main sourcetype=access_combined | search uri IN ("/admin", "/.env", "/phpmyadmin", "/config", "/wp-login.php", "/login", "/.git", "/shell", "/cmd", "/debug") useragent="Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1664.3 Safari/537.36"
Time range: All time
214 events (before 8/1/25 9:32:41.000 AM)
No Event Sampling
Job
Smart Mode
Events (214)
Patterns
Statistics
Visualization
Timeline format
Zoom Out
Zoom to Selection
Deselect
1 hour per column
Format
Show: 20 Per Page
View: List
Prev
Next
Hide Fields
All Fields
SELECTED FIELDS
a host 1
a source 1
a sourcetype 1
Time
Event
8/20/24 1:58:38.000 PM
46.187.87.47 - - [03/Aug/2014:23:58:38 +0000] "GET /admin HTTP/1.1" 403 793 "http://www.yahoo.com" "Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/32.0.1664.3 Safari/537.36" "JSESSIONID=729F870D6D855DACD2A570B131A08124" 29
host = kali
source = /opt/splunk/etc/apps/OpsDataGen/data/access_log
sourcetype = access_combined


Search | Splunk 10.0.0
VirusTotal - API Key - kali
MalShare
127.0.0.1:8000/en-US/app/search/search?q=search index%3Dmain sourcetype%3Daccess_combined%0A
OffSec Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB
index=main sourcetype=access_combined
| search useragent="Mozilla/5.0 (Macintosh; Intel Mac OS X 10_9_0)*"
| stats count by uri, status
| sort - count
Time range: All time
11,379 events (before 8/1/25 9:36:50.000 AM)
No Event Sampling
Job
Smart Mode
Events
Patterns
Statistics (1,440)
Visualization
Show: 100 Per Page
Format
Preview: On
Prev
Next
uri
status
count
/viewCart 200 2498
/home 200 1708
/error 200 469
/search?terms=Hoodie&category=3 200 363
/viewItem?item=1000014 200 363
/search?terms=Ripple&category=2 200 336
/viewItem?item=1000015 200 336
/addItem 503 315



Phase 2: Targeted Enumeration Detection

Objective: Identify probing attempts for known admin paths, suspicious tools, and status codes.

Search:

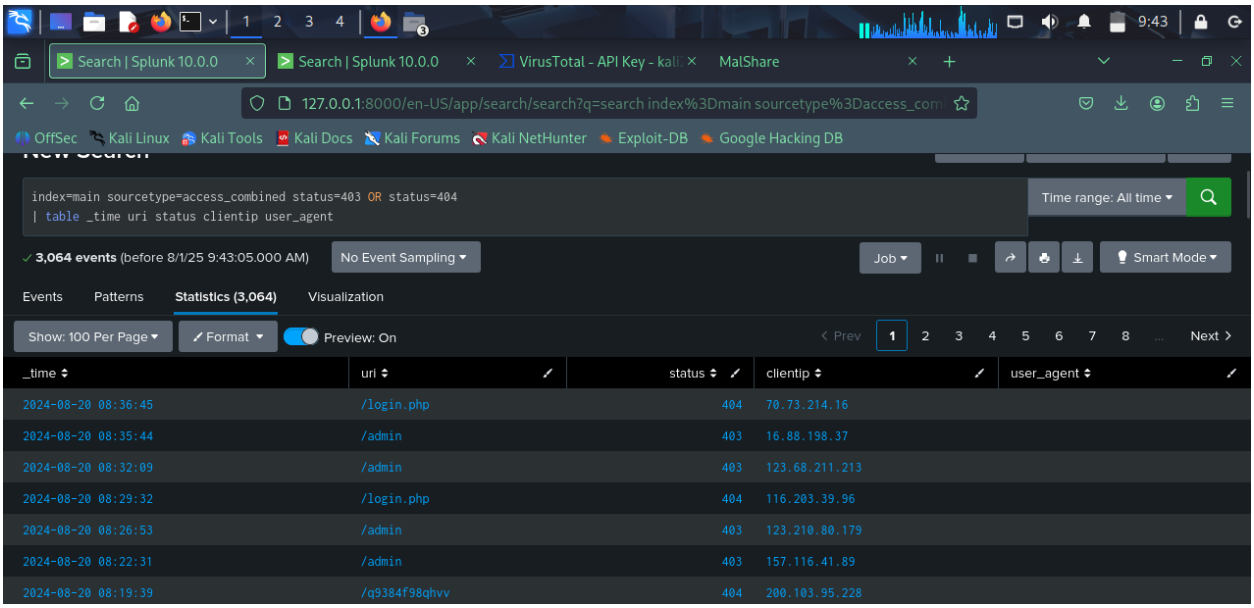
```
index=main sourcetype=access_combined status=403 OR status=404
| table _time uri status clientip user_agent
```

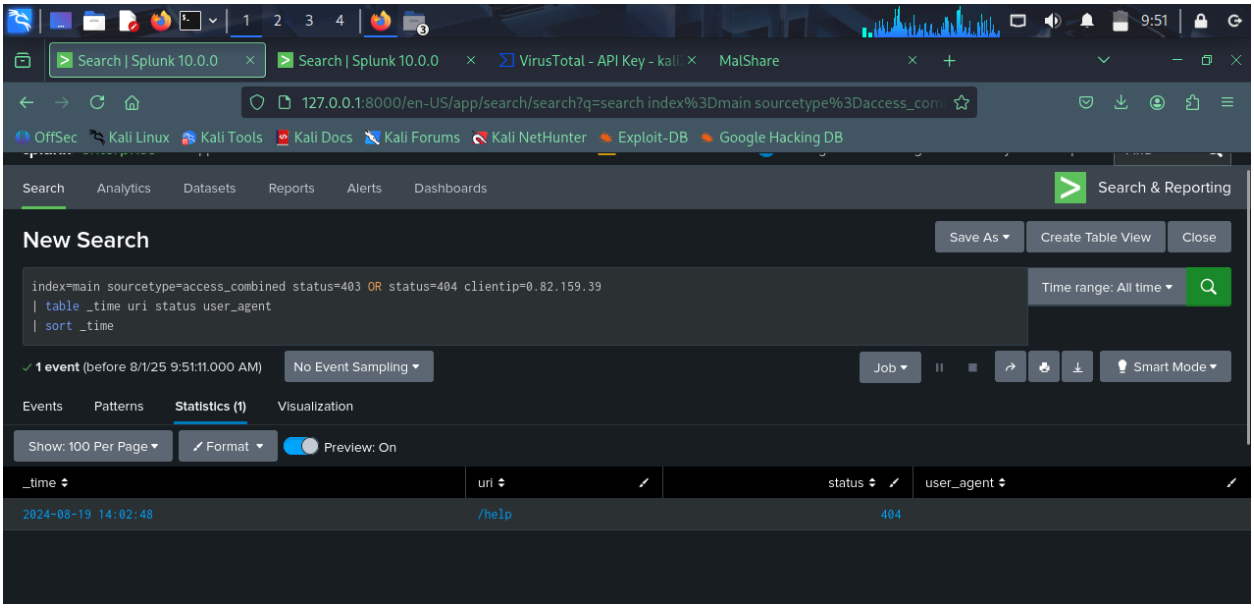
Result: 3,064 events with URIs like:

- `/phpMyAdmin`
- `/admin`
- `/help`

Observation:

- Most URIs are common brute-force and scan targets.
- Status codes primarily `403` (forbidden) and `404` (not found).
- Methods were mostly `GET`.





Phase 3: Top Aggressors by Count

Search:

```
index=main sourcetype=access_combined status=403 OR status=404
| stats count by clientip
| sort -count
```

Result:

- All IPs had `count=1`, suggesting scanning by **many unique IPs** — consistent with mass scan behavior (e.g., botnets or Shodan-like tools).

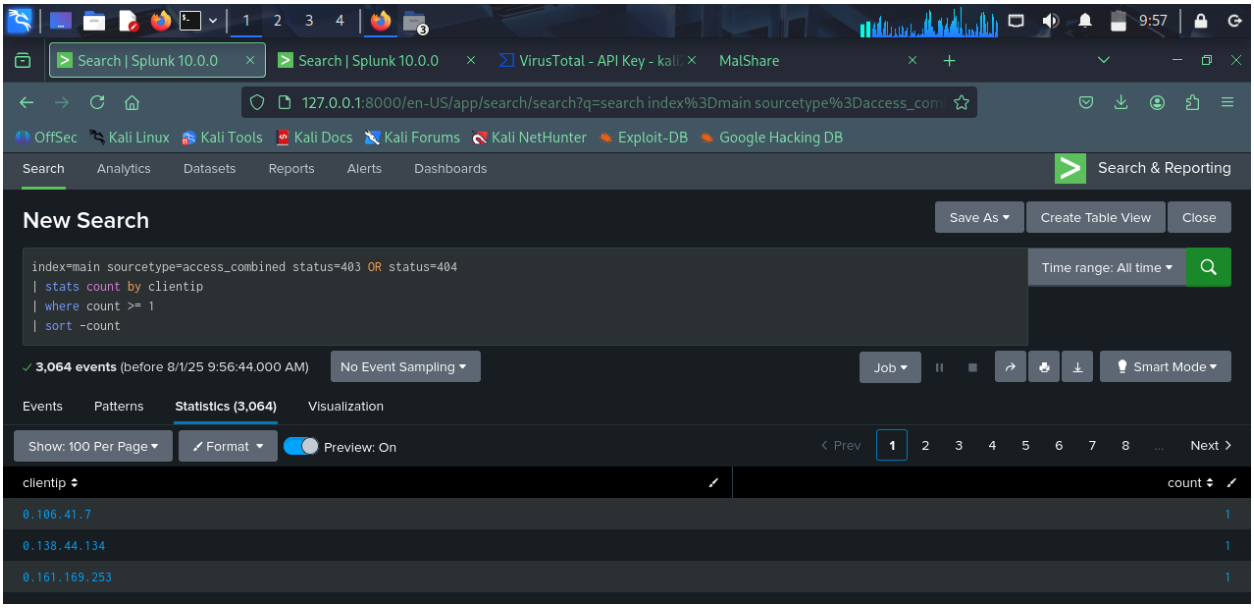
Alternative Pivot:

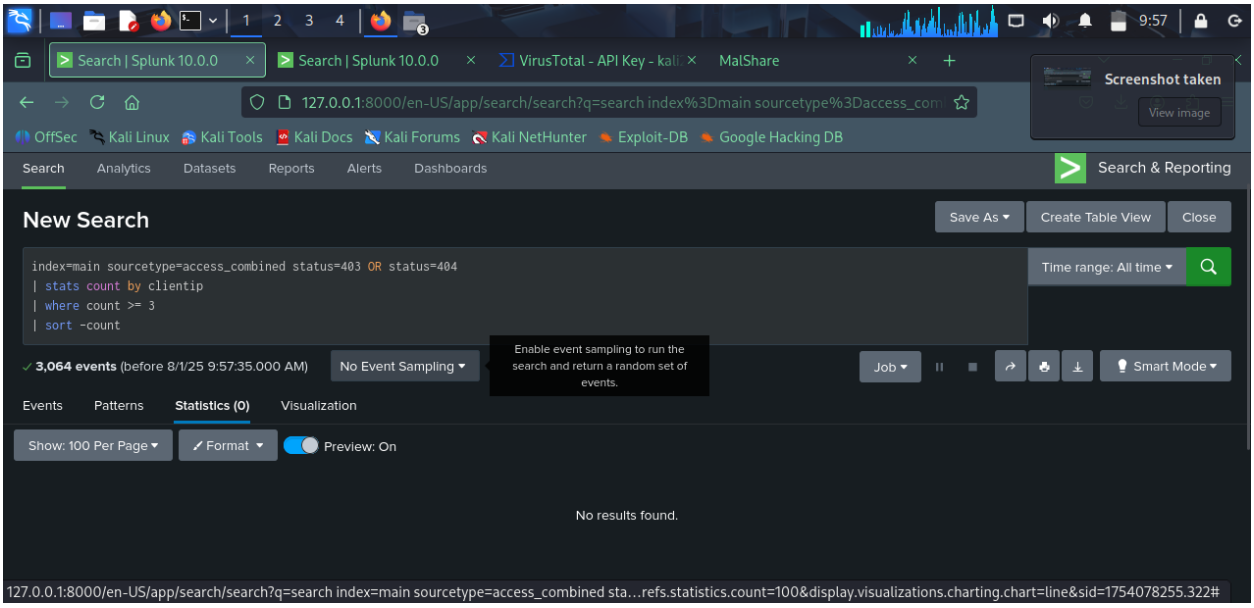
```
index=main sourcetype=access_combined status=403 OR status=404
| top clientip
```

Outcome:

- Top IPs still had count=1. Activity not concentrated from a single source.

Hypothesis: Distributed scanning (slow, stealthy enumeration).





Phase 4: User Agent Analysis

Search:

```
index=main sourcetype=access_combined status=403 OR status=404
| top useragent
```

Result:

- Detected aggressive user agent strings (e.g., legacy browsers, known bot UAs).
- Sample: Firefox 25.0, Chrome 32.0 — unusual in 2025.

Manual Inspection:

- One such UA used over 200 times.
- IP `46.187.87.47` accessed `/admin`, received 403, used Yahoo as referer.

Conclusion: Behavior indicative of **automated scanner with spoofed headers**.

Final Observation: Lack of Multi-Request Patterns

- All IPs had a single event in statistics (`count=1`).
- Even high-volume URIs didn't correlate to repeated requests from same IP.

Theory: Noise from wide IP scanning or vulnerability mapping bots.

Recommendations

1. **Whitelist/Ignore** known benign patterns (e.g., Yahoo/Hotmail referers).
2. **Flag** unusual user agents or legacy browsers accessing sensitive paths.
3. **Build detection rules** for high `dc(uri_path)` per IP over short period.
4. **Alert** on sequences like `/phpMyAdmin`, `/admin`, `/setup`, `/help` by same IP.
5. **Rate-limit** or block high-entropy URI scans.