Technical Brief

STAMUS NETWORKS

Detection of CVE-2021-44228 using Clear NDR™

On December 10, 2021, NIST published a Common Vulnerabilities and Exposure (CVE) alert identifying a vulnerability in the Java logging library Apache Log4j which can result in full server takeover. This critical alert - CVE-2021-44228 - applies to Java applications that use this library.

We recommend you patch any vulnerable systems as soon as possible. Users who cannot patch their Log4j 2, should consult the Apache 2.15.0 release announcement for potential workarounds

https://lists.apache.org/thread/gzj2jsglvsffzs8zormxyly0vofdxp6j

In the meantime, you may take the following steps to help determine if any of your systems have been attacked in the past, are currently under attack or vulnerable.

DETECTION AND ESCALATION

Please follow the steps listed below in the Stamus ND/NDR (formerly Scirius Security Platform), “Hunt” interface.

Create a Filter

NOTE: Portions of this are not applicable to the Stamus Probe Management license tier

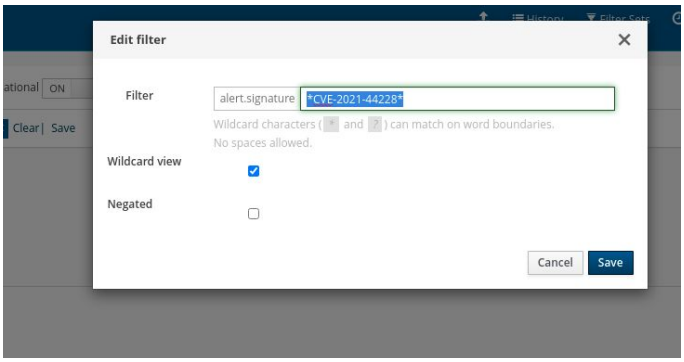
Any CVE number can be searched in the Hunt interface.

To create a filter:

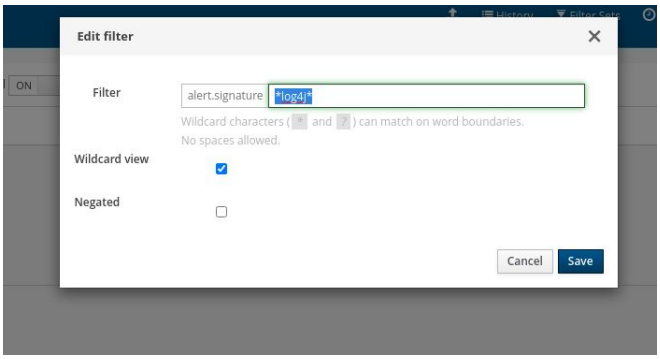
1. In Hunt, click on the magnifying icon next to any signature (first group Signatures on the Dashboard tab).

2. Click on the pencil/Edit icon on the resulting filter displayed as “Active Filters:”.
3. Type the CVE number or a text descriptor with a wildcard (*) it at each end (for example: *CVE-2021-44228* or *log4j*)
4. Select the checkbox “Wildcard view”
5. Click Save
6. You are now ready to review the results and events in the Dashboard,HostID and Alert views”

The example screenshot below shows how to do that for “CVE-2021-44228”



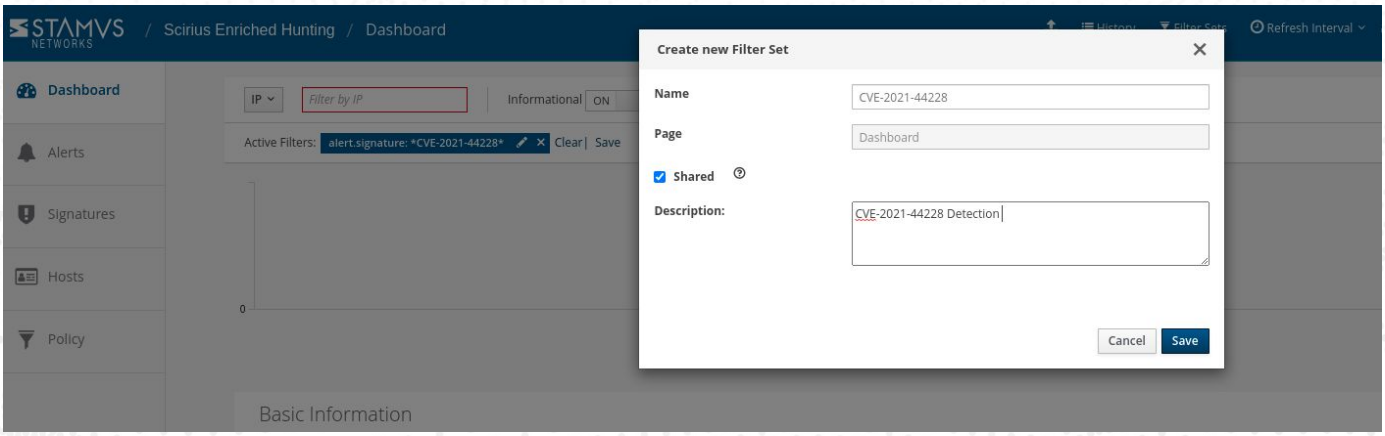
The example screenshot below shows how to do that for “log4j”



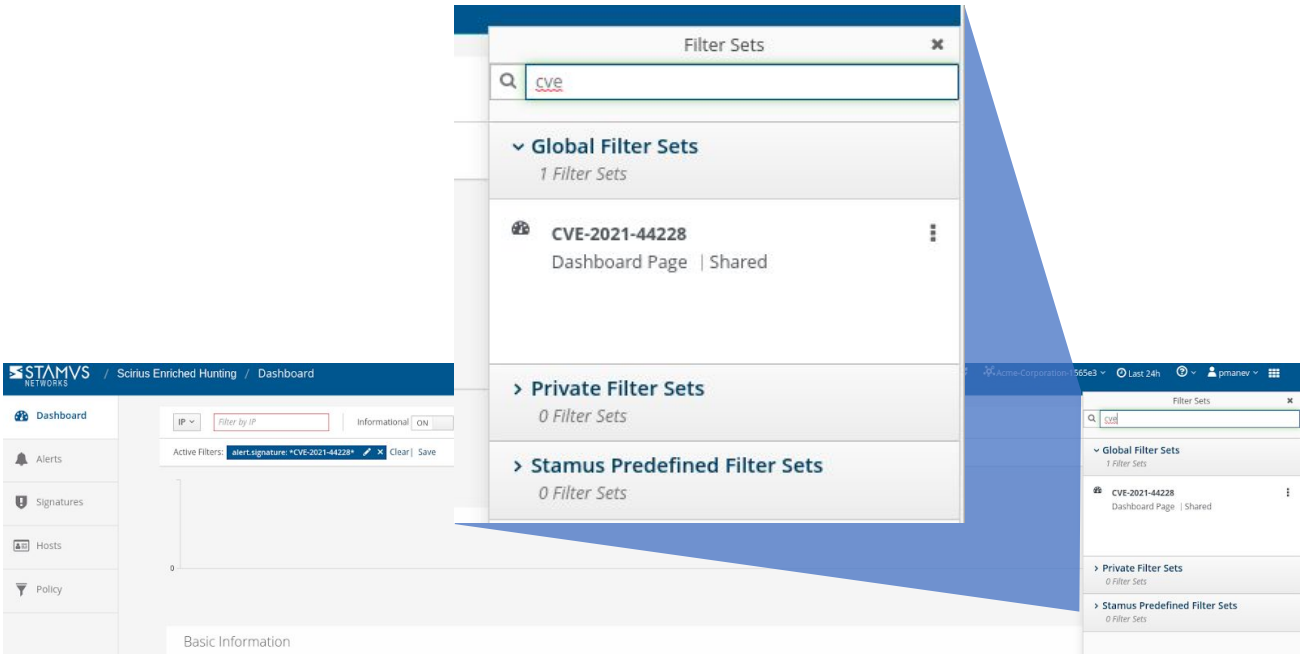
Save the Filter

NOTE: some items described here are not applicable to Stamus Probe Management license tier

The resulting filter can be saved by simply clicking on the “Save” link on the right-hand side of the “Active filter”. Check “Shared” in the resulting dialog box if you want to make the filter available to all users.



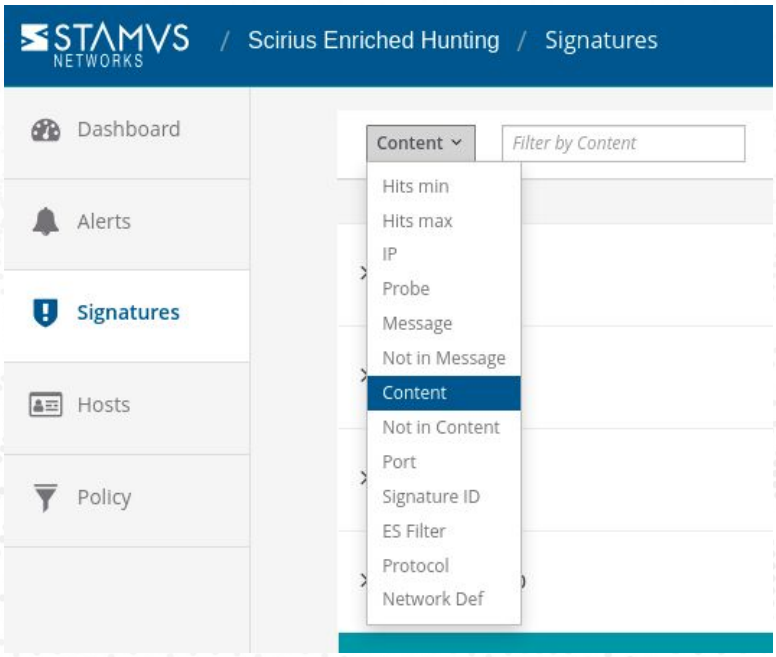
The newly created filter is now available in “Global Filter Sets” or “Private Filter Sets”

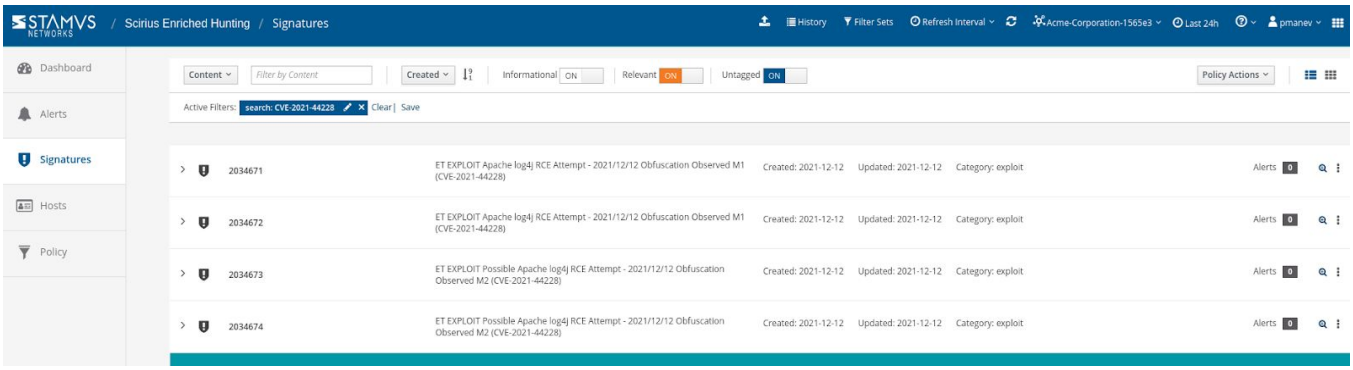


Review Detection Methods in Hunt

To review exactly what detection methods are available in Hunt for that specific vulnerability you can:

1. Head to the Signatures tab on the left-hand side in Hunt.
2. Select the “Content” option from the dropdown menu.
3. Type in the full CVE (i.e. CVE-2021-44228), hit Enter





Automated Escalation and REST API Notification

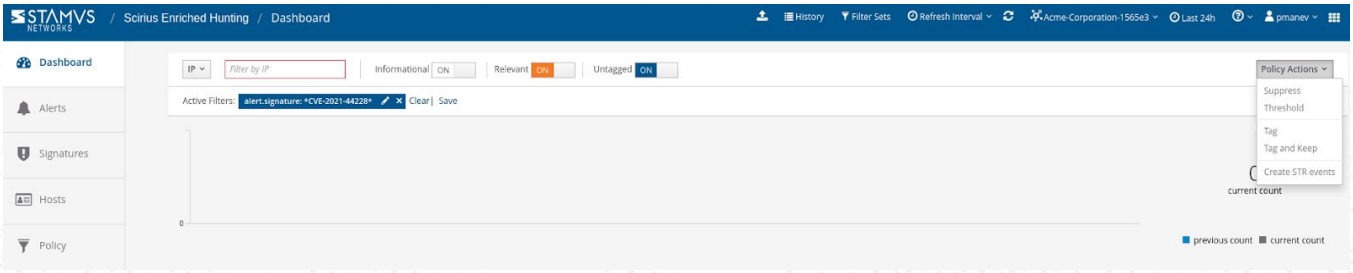
NOTE: Portions are not applicable to Stamus ND or Stamus Probe Management license tiers.

If needed, an automated escalation to a Declaration of Compromise™ (DoC) and webhooks is also possible, including from historical data.

For example, if it happened 24hrs or 7 days ago it will still be detected and escalated based on that custom filter.

To do so:

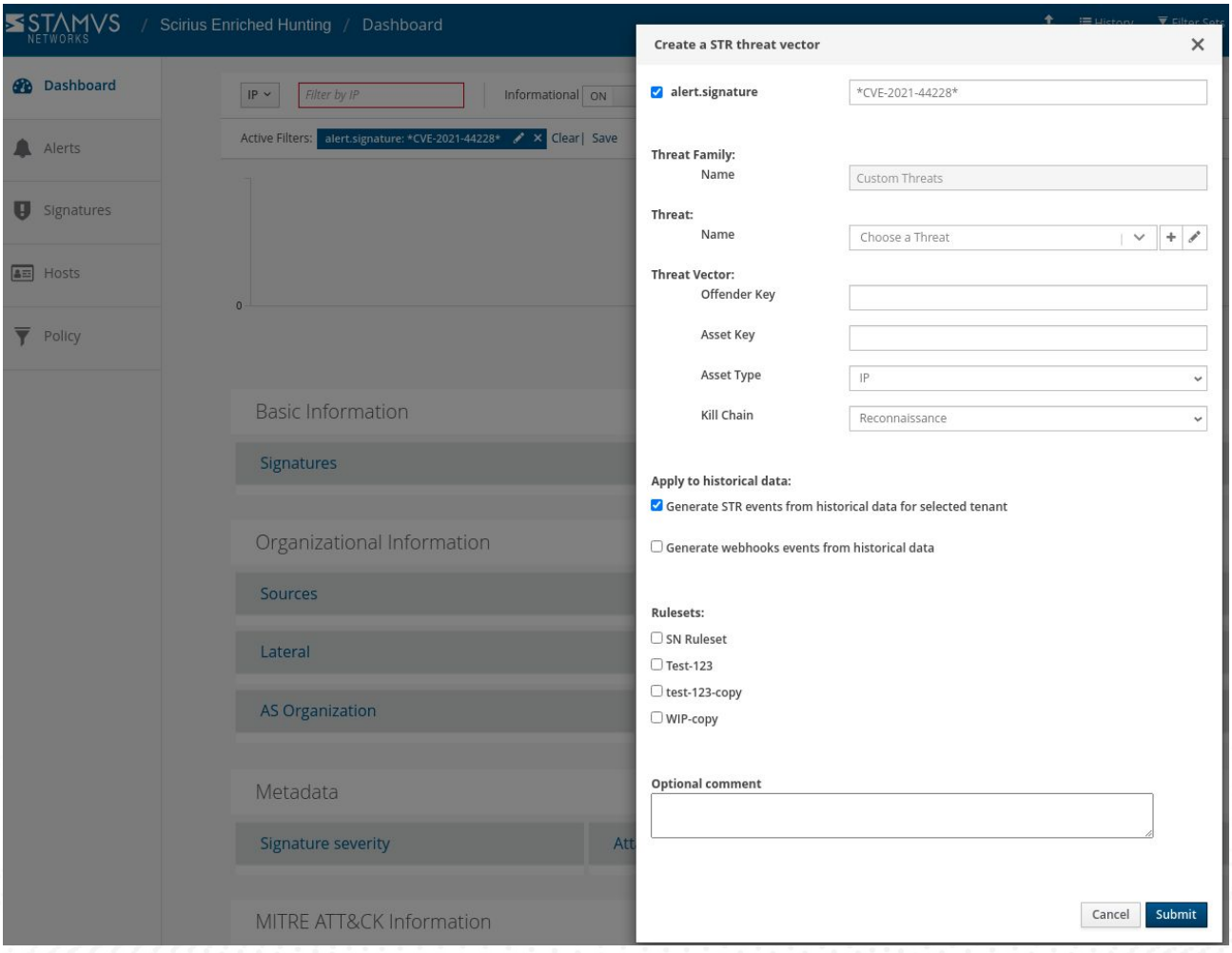
1. After creating your filter as above
2. From the right-hand side drop down menu, *Policy Actions*, select “Create DoC events”.



1. Choose the plus (+) next to the Threat: Name
2. Fill in the Threat Name, Description, and Additional information.
3. Enter an Offender Key (i.e. src_ip)
4. Enter an Asset Key (i.e. dest_ip)
5. Leave Asset Type “IP”
6. Set a Kill Chain phase (i.e. Exploit)

7. Select “Generate DoC events from historical data”. [This will make sure historical events are also checked]
8. If desired and webhooks are setup also select “Generate webhooks events from historical data”

The screenshot below shows the DoC event creation form:



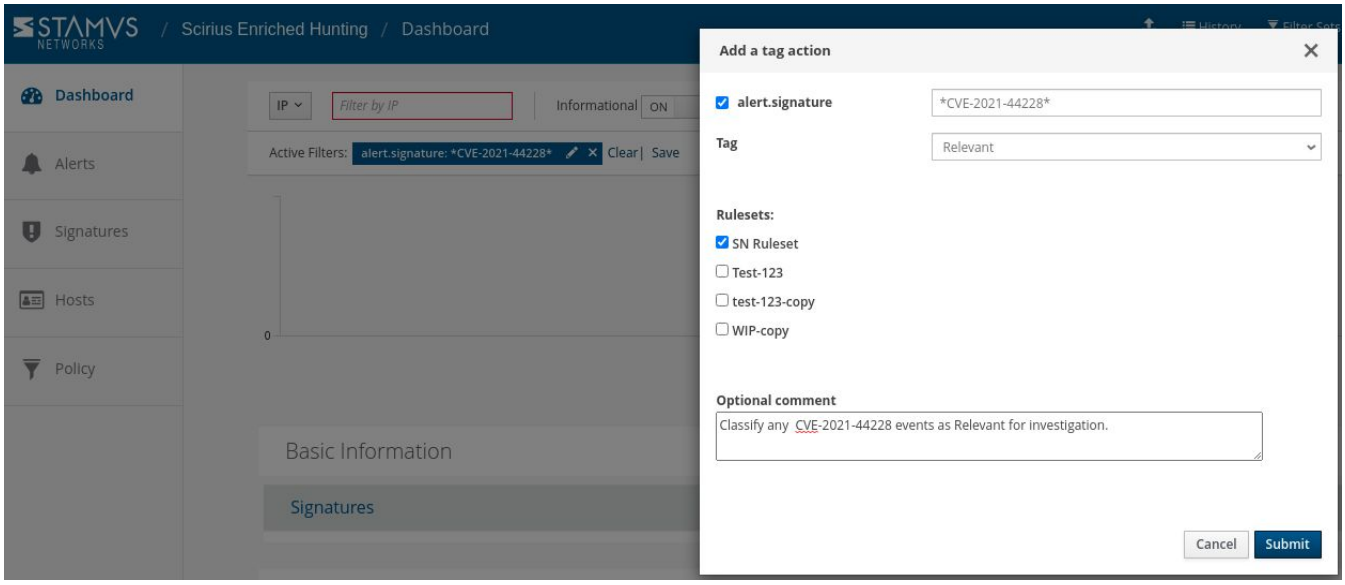
Automated Classification and Tagging

Auto Tagging all relevant events is also an option. This will allow for any logs (alerts or protocol transaction events related to the alerts) to have a “Relevant” tag inserted in the JSON logs:

```
"tag" : "relevant"
```

To do so:

1. After creating your filter as above.
2. From the right-hand side drop down menu - Policy Actions , Select “Tag”.
3. Add in an optional comment and select a ruleset.



4. Update the threat detection (upload button in the middle of the top bar on the Hunt page, on the left-hand side of History, Filter Sets)

Export Data - SIEM / Elasticsearch / Kibana

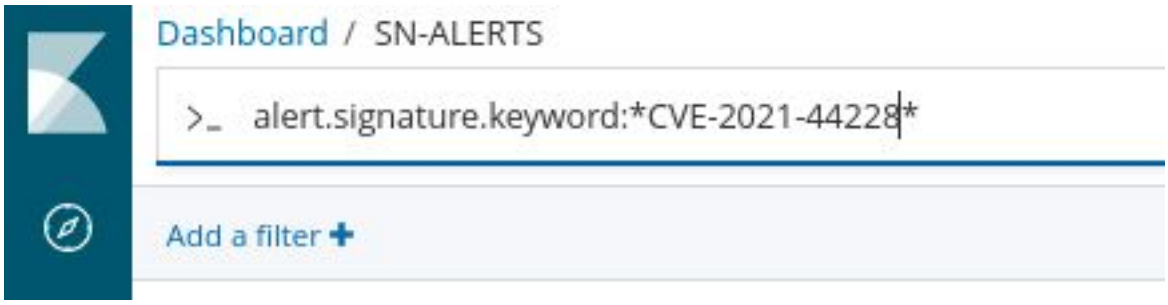
All data generated by Clear NDR such as alerts, protocol transactions, sightings events or HostID information, may be exported and shared with any SIEM or SOAR system.

Over 4000 fields are available -- from domain requests, http user agents used, hostnames, usernames logged in -- to encrypted analysis including JA4/JA4S fingerprinting, TLS certificates and more.

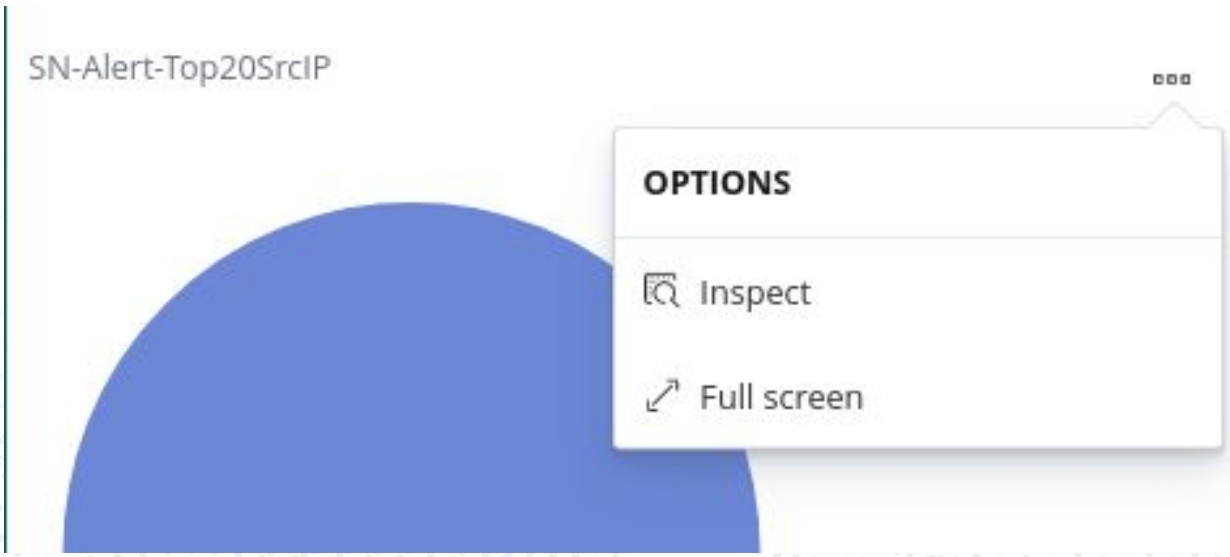
Any query of the Clear NDR data (protocol transaction or alert logs) can be exported via a regular JSON log query or visualization export.

Example of Kibana query on alert events

To export CSV data from any info of the alerts you can open the SN-ALERT dashboard in Kibana, type in the filter “alert.signature.keyword:*CVE-2021-44228*” , then you can export a CSV of any visualization using “Inspect” (see example below):



Click on “Inspect” in any visualization to export a CSV



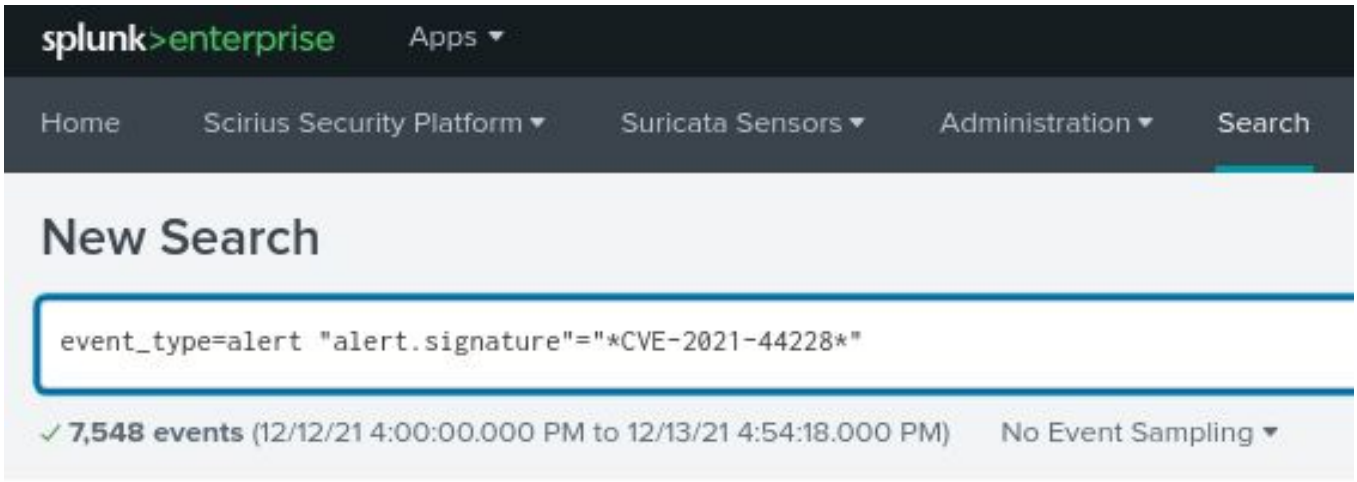
Export Data - Spunk

NOTE: portions of this section are not applicable to Stamus Probe Management.

Any query of the Clear NDR data (protocol transaction or alert logs a like) in Splunk can be exported via a regular Splunk query or visualization export.

Example of a Splunk query on alert events

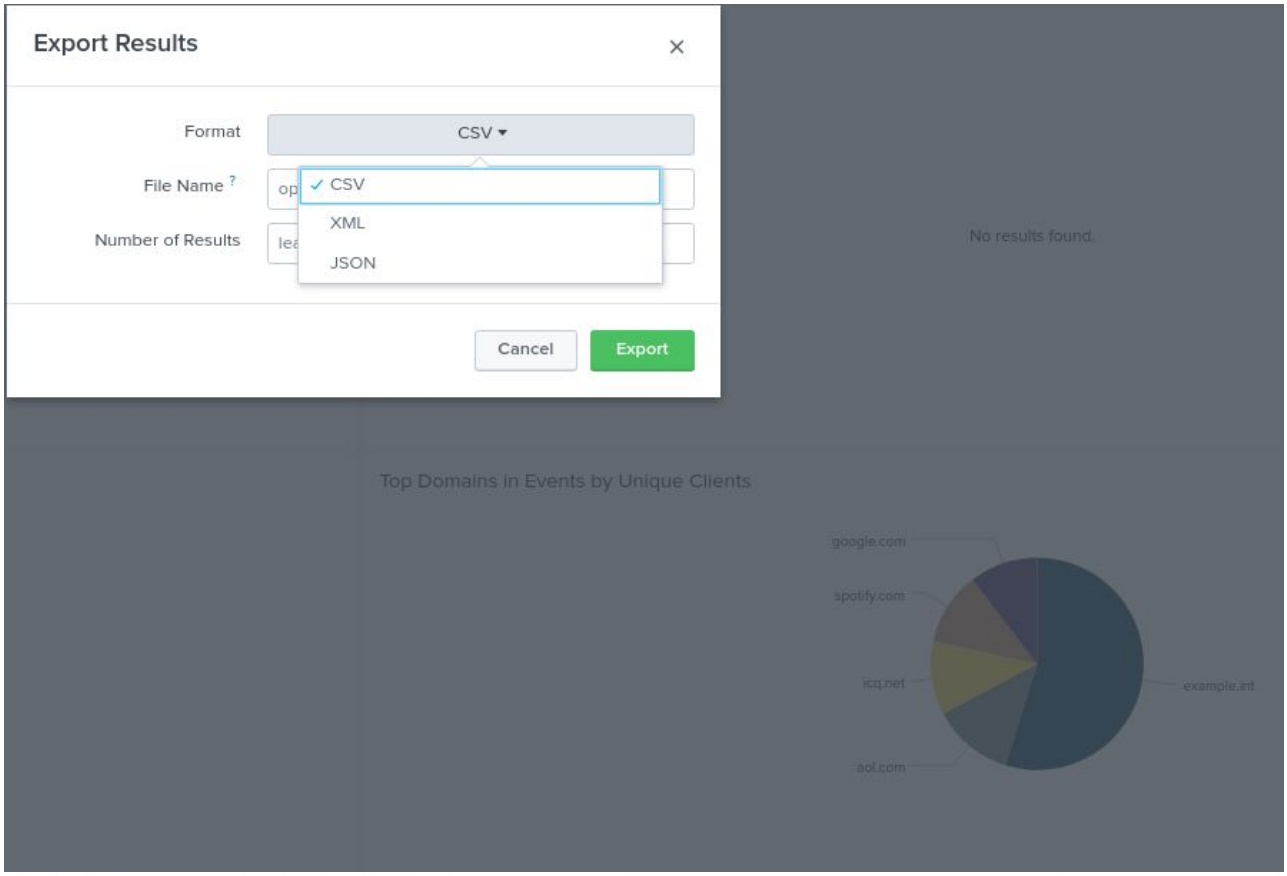
Splunk ”event_type=alert "alert.signature"="*CVE-2021-44228*"



Protocol transactions

Stamus Networks provides a free Splunk app https://splunkbase.splunk.com/app/5262 that can be used to do specific CVE-2021-44228 searches.

If there are any Splunk visualizations queries that have supporting information for the CVE that needs to be exported, it can be done so by the native Splunk export functionality.



Troubleshooting and Help

Please feel free to reach out to support@stamus-networks.com with any questions or feedback.

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