Synapse Bootcamp - Module 18

Reports, Articles, and the Spotlight Tool - Exercises

Objectives

In these exercises you will learn:

- How to use the Spotlight Tool to load, parse, model, and tag a report

Note: We are constantly updating Synapse and its Power-Ups! We do our best to make sure our course documents (slides, exercises, and answer keys) are up-to-date. However, you may notice small differences (such as between a screen capture in the documents and the appearance of your current instance of Synapse).

If something is unclear or if you identify an error, please reach out to us so we can assist!

Exercises

- All exercises use the **Research Tool** with the **Storm Mode Selector** set to **Storm mode.**
- Some example queries may wrap due to length.

Using Spotlight to Model Reports

Exercise 1

Objective:

- **Use Synapse Spotlight to load, parse, add, and tag data related to a public report.**

For this exercise, we will use the following blog from Fortinet:

"Guard Your Drive from DriveGuard: Moses Staff Campaigns Against Israeli Organizations Span Several Months"

```
https://www.fortinet.com/blog/threat-research/guard-your-drive-from-driveguard
```

The blog describes activity by a threat group Fortinet calls **Moses Staff.**

To get started:

- **Open** the blog link in your web browser.

Part 1 - Load the Report

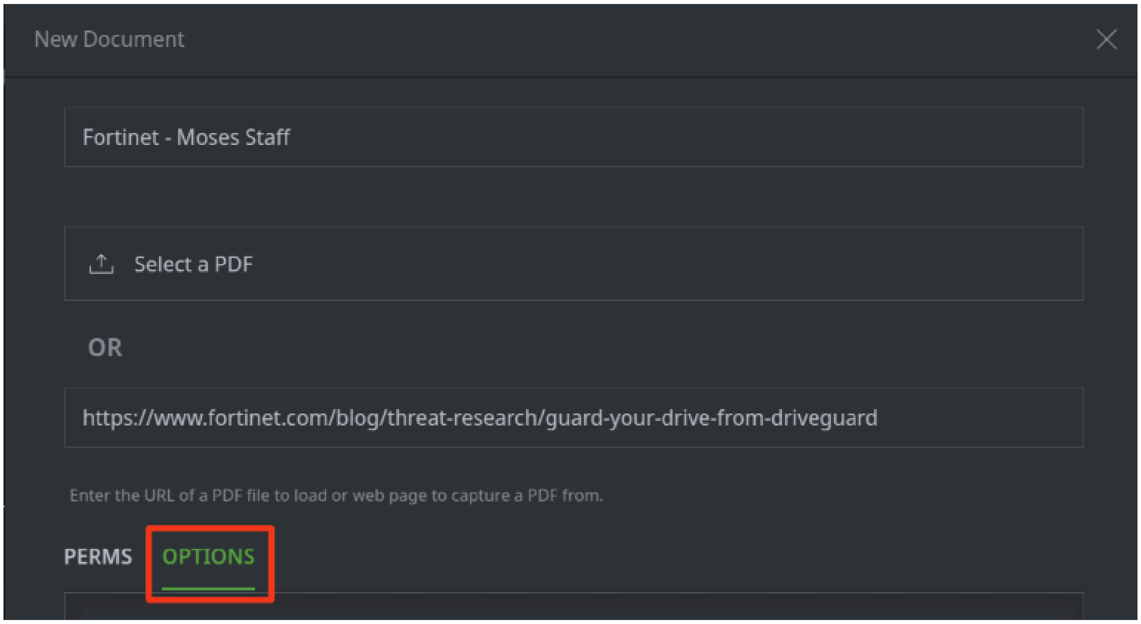
- In the **Spotlight Tool,** click the **+ New Document** button.
- In the **New Document** dialog, enter the following in the *Name* field:

```
Fortinet - Moses Staff
```

- Enter the following in the *URL* field:

https://www.fortinet.com/blog/threat-research/guard-your-drive-from-driveguard

- Select the **OPTIONS** tab:



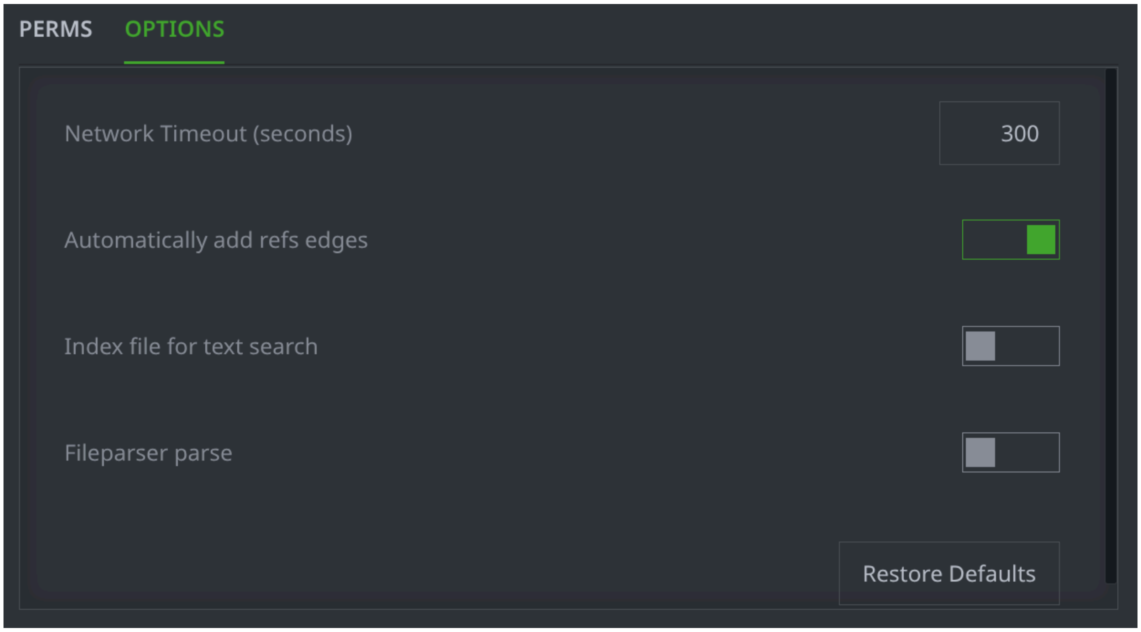
New Document

Fortinet - Moses Staff

https://www.fortinet.com/blog/threat-research/guard-your-drive-from-driveguard

Enter the URL of a PDF file to load or web page to capture a PDF from.

- Review the available settings. Set the toggles as shown below (these are the **default** settings):



Network Timeout (seconds) 300

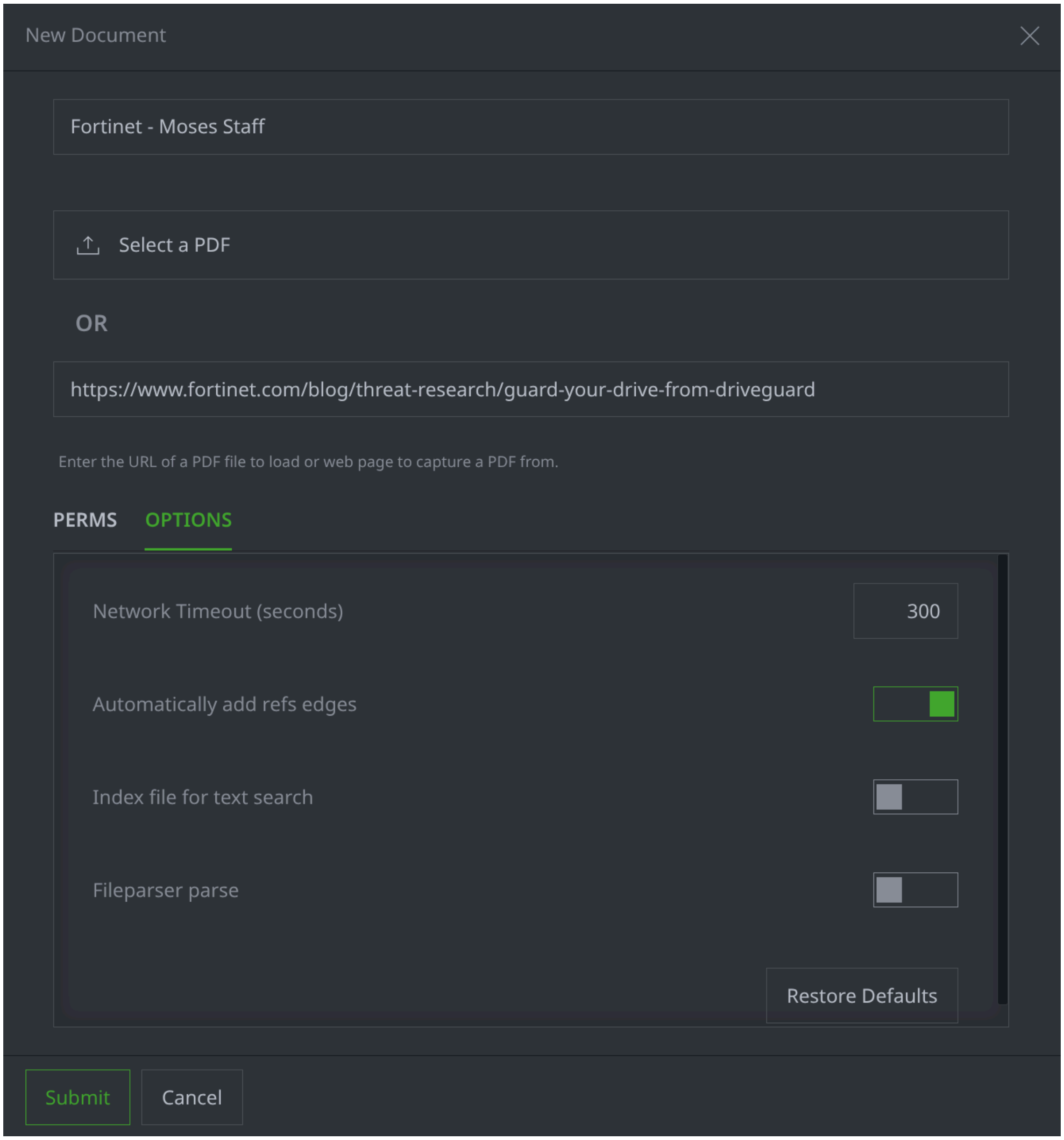
Automatically add refs edges ☑

Index file for text search □

Fileparser parse □

Tip: The settings you choose here will **persist** for any new Spotlight documents you create (unless you change the settings again). If you always work with Spotlight in the same way, you can set these once and forget about them.

- The dialog should look similar to this. Click the **Submit** button to continue:



New Document

Fortinet - Moses Staff

Select a PDF

OR

https://www.fortinet.com/blog/threat-research/guard-your-drive-from-driveguard

Enter the URL of a PDF file to load or web page to capture a PDF from.

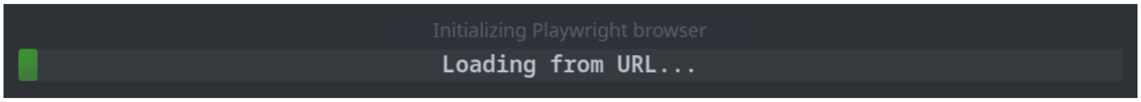
Network Timeout (seconds) 300

Automatically add refs edges ●

Index file for text search ○

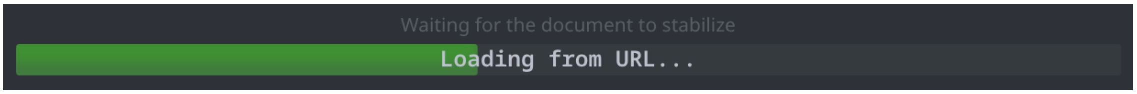
Fileparser parse ○

- You will see various progress bars while Spotlight loads the document:



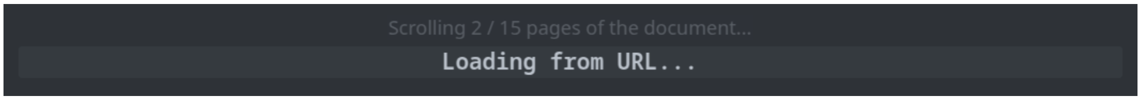
Initializing Playwright browser

Loading from URL...



Waiting for the document to stabilize

Loading from URL...



Scrolling 2 / 15 pages of the document...

Loading from URL...

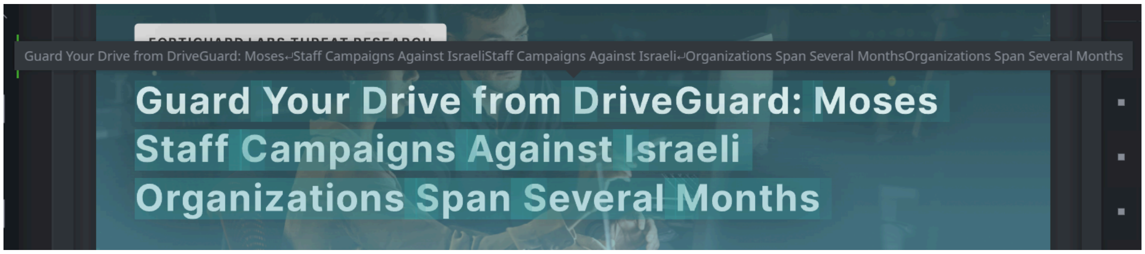
Note: every website is different; this process may take several seconds to complete, depending on the size and format of the HTML document.

Question 1: What does Spotlight display after loading the PDF?

Question 2: What kinds of indicators (forms) did Spotlight recognize, based on its initial parsing of the PDF?

Part 2 - Set Document (media:news node) Properties

- In the **Spotlight Tool,** in the document window, use your mouse to highlight the text of the article's title:

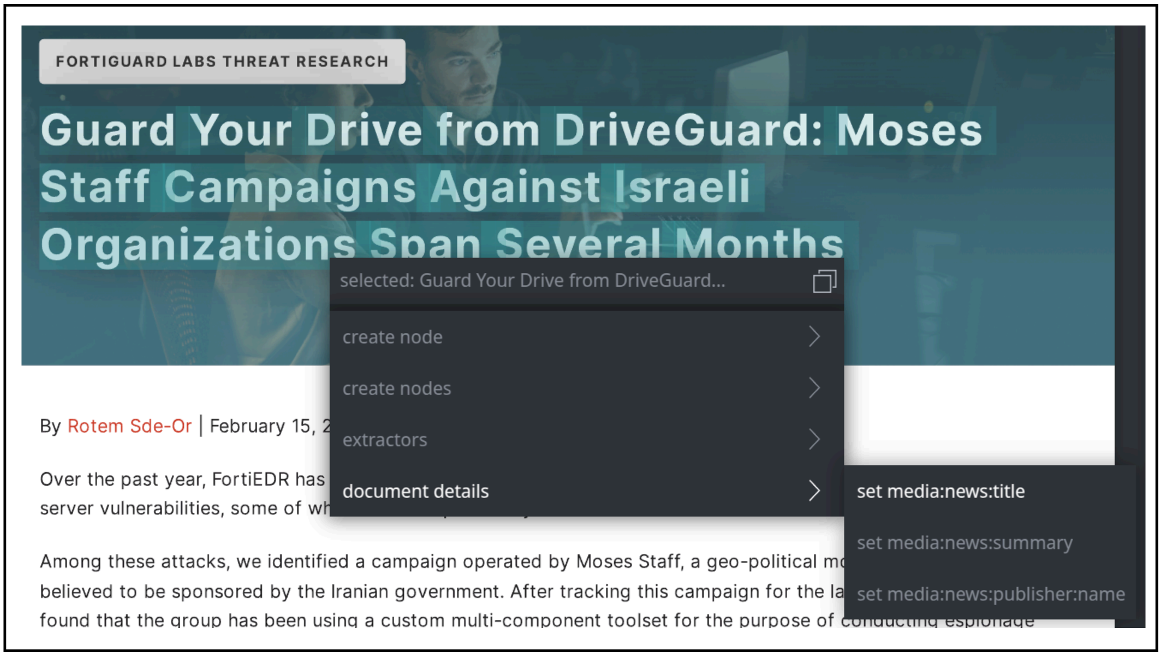


Guard Your Drive from DriveGuard: Moses↵Staff Campaigns Against IsraeliStaff Campaigns Against Israeli↵Organizations Span Several MonthsOrganizations Span Several Months

Guard Your Drive from DriveGuard: Moses
Staff Campaigns Against Israeli
Organizations Span Several Months

Tip: Synapse will display a tooltip containing the highlighted text.

- **Right-click** the highlighted text and select **document details > set media:news:title:**



FORTIGUARD LABS THREAT RESEARCH

Guard Your Drive from DriveGuard: Moses Staff Campaigns Against Israeli Organizations Span Several Months

By Rotem Sde-Or | February 15, 2

Over the past year, FortiEDR has

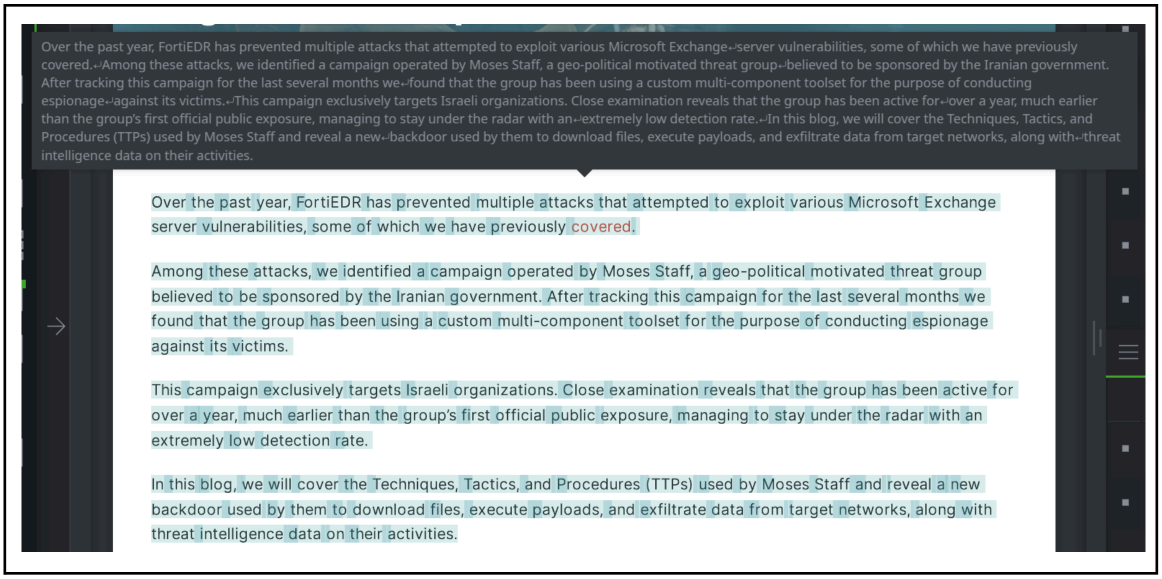
server vulnerabilities, some of wh

Among these attacks, we identified a campaign operated by Moses Staff, a geo-political mo

believed to be sponsored by the Iranian government. After tracking this campaign for the la

found that the group has been using a custom multi-component toolset for the purpose of conducting espionage

- In the document window, use your mouse to highlight the first four paragraphs of the article (from below the author's name to just above "Affected Platforms"):



Over the past year, FortiEDR has prevented multiple attacks that attempted to exploit various Microsoft Exchange↵server vulnerabilities, some of which we have previously covered.↵Among these attacks, we identified a campaign operated by Moses Staff, a geo-political motivated threat group↵believed to be sponsored by the Iranian government. After tracking this campaign for the last several months we↵found that the group has been using a custom multi-component toolset for the purpose of conducting espionage↵against its victims.↵This campaign exclusively targets Israeli organizations. Close examination reveals that the group has been active for↵over a year, much earlier than the group's first official public exposure, managing to stay under the radar with an↵extremely low detection rate.↵In this blog, we will cover the Techniques, Tactics, and Procedures (TTPs) used by Moses Staff and reveal a new↵backdoor used by them to download files, execute payloads, and exfiltrate data from target networks, along with↵threat intelligence data on their activities.

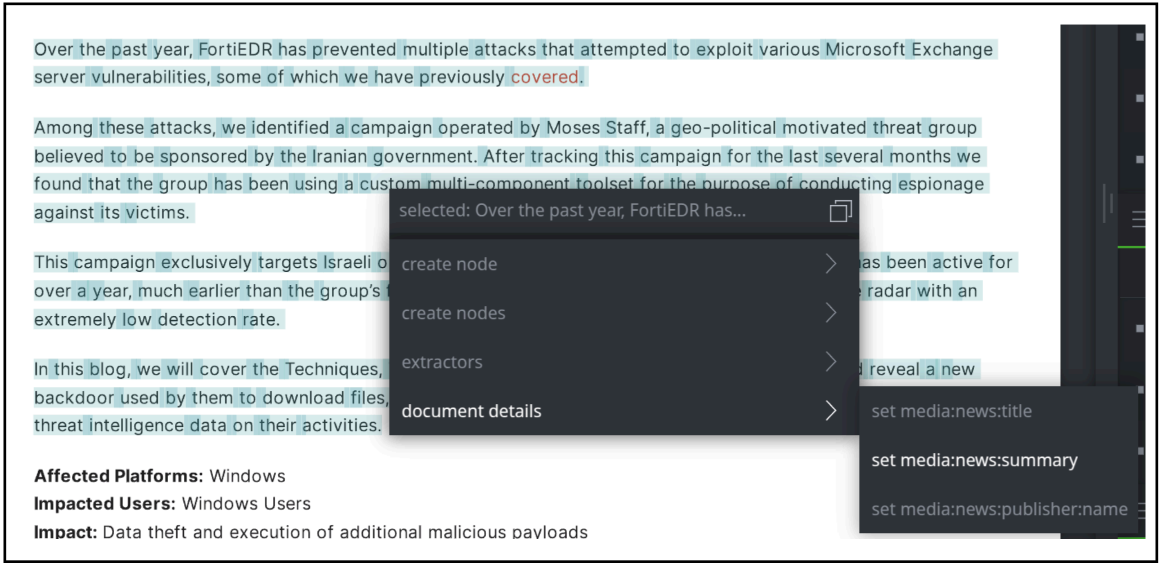
Over the past year, FortiEDR has prevented multiple attacks that attempted to exploit various Microsoft Exchange server vulnerabilities, some of which we have previously covered.

Among these attacks, we identified a campaign operated by Moses Staff, a geo-political motivated threat group believed to be sponsored by the Iranian government. After tracking this campaign for the last several months we found that the group has been using a custom multi-component toolset for the purpose of conducting espionage against its victims.

This campaign exclusively targets Israeli organizations. Close examination reveals that the group has been active for over a year, much earlier than the group's first official public exposure, managing to stay under the radar with an extremely low detection rate.

In this blog, we will cover the Techniques, Tactics, and Procedures (TTPs) used by Moses Staff and reveal a new backdoor used by them to download files, execute payloads, and exfiltrate data from target networks, along with threat intelligence data on their activities.

- **Right-click** the highlighted text and select **document details > set media:news:summary:**



Over the past year, FortiEDR has prevented multiple attacks that attempted to exploit various Microsoft Exchange server vulnerabilities, some of which we have previously covered.

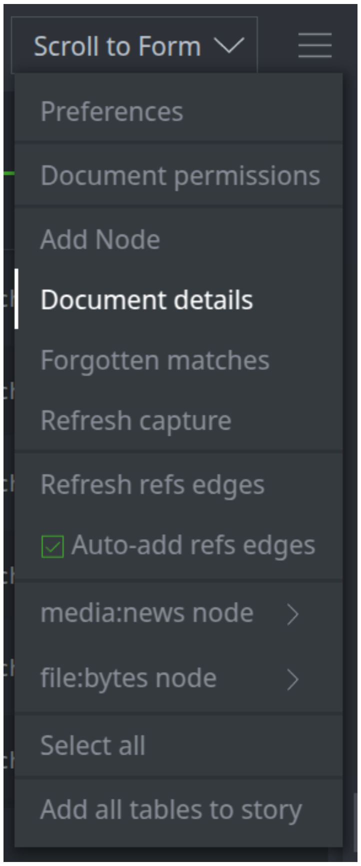
Among these attacks, we identified a campaign operated by Moses Staff, a geo-political motivated threat group believed to be sponsored by the Iranian government. After tracking this campaign for the last several months we found that the group has been using a custom multi-component toolset for the purpose of conducting espionage against its victims.

This campaign exclusively targets Israeli o … as been active for over a year, much earlier than the group's f … radar with an extremely low detection rate.

In this blog, we will cover the Techniques, … reveal a new backdoor used by them to download files, … threat intelligence data on their activities.

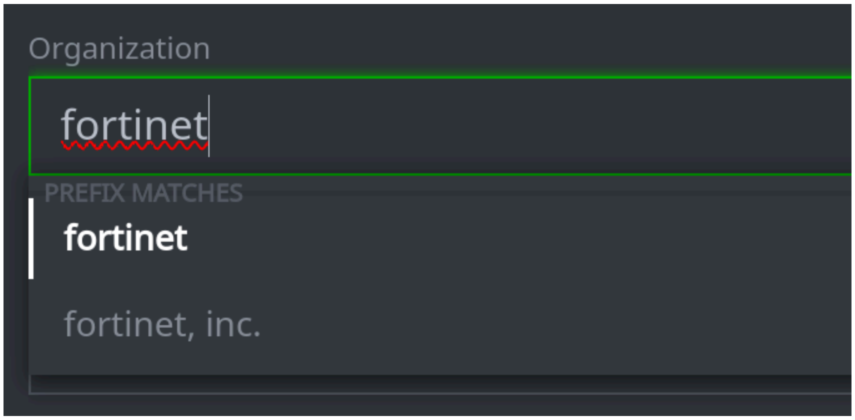
Affected Platforms: Windows
Impacted Users: Windows Users
Impact: Data theft and execution of additional malicious payloads

- In the **Spotlight Tool,** click the **main hamburger menu** (next to the **Scroll to Form** button) and select **document details:**



You want to add more information in the **Edit Document media:news node** dialog.

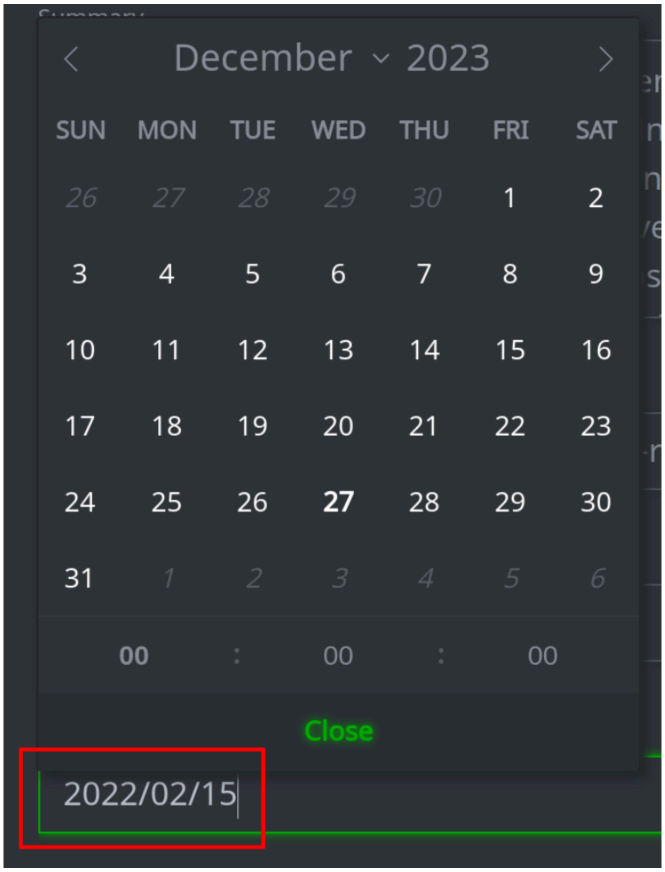
- In the **Organization** field, enter the name **fortinet**:



Organization

fortinet

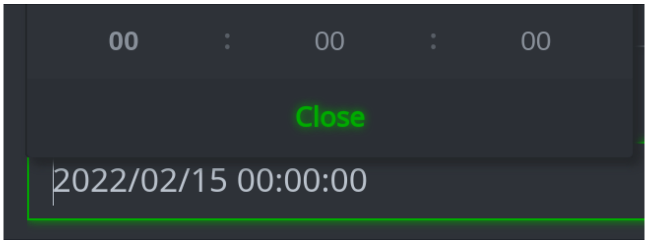
- In the **Published** field, **type** the publication date of the blog (**2022/02/15**):



2022/02/15

(You can also use the **Date Picker** to select the date.)

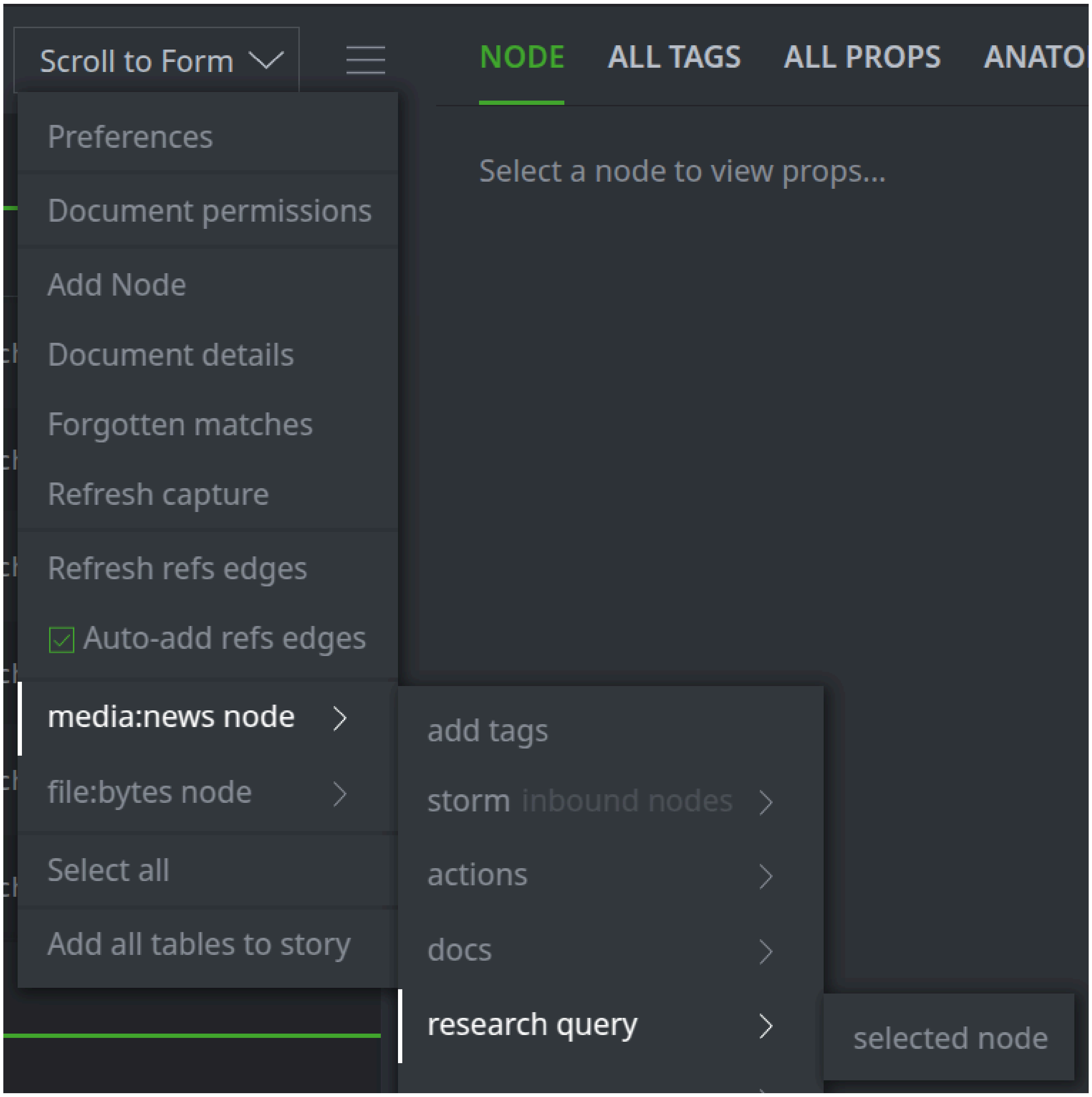
- Click **Close** to close the Date Picker:



2022/02/15 00:00:00

- Click the **Save** button when finished:

- Click the **main hamburger menu** and select the **media:news node > query > selected node** option:



This option switches you to the **Research Tool** and lifts the **`media:news`** node.

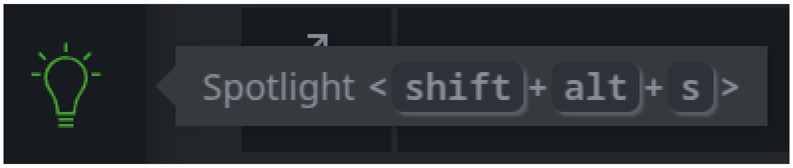
- **Select** the **`media:news`** node in the Results Panel and view its properties.

Question 4: What does your **`media:news`** node look like after setting the document properties in Spotlight?

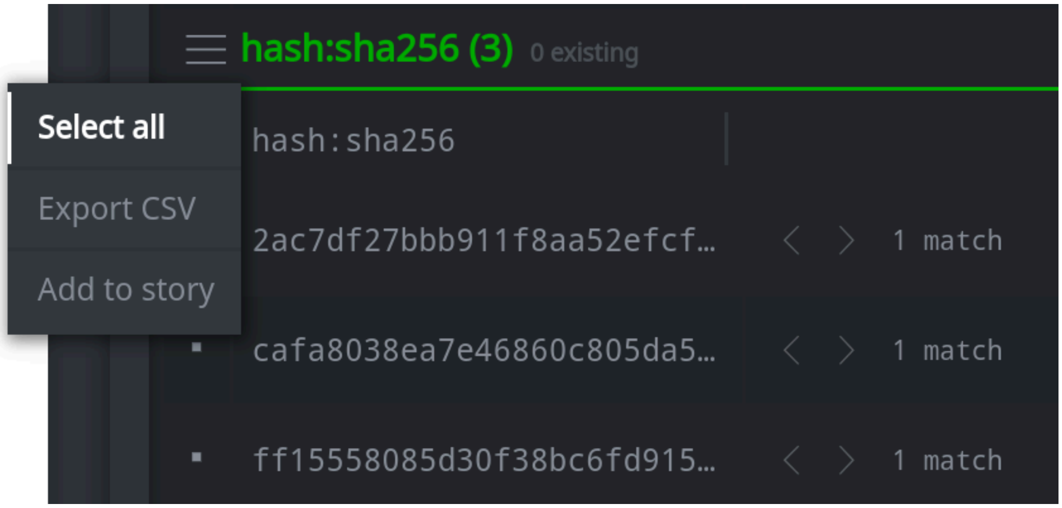
Part 3 - Create and Tag Indicators

> We want to add and tag any common indicators before reviewing other data in more detail.

- Return to the **Spotlight Tool:**

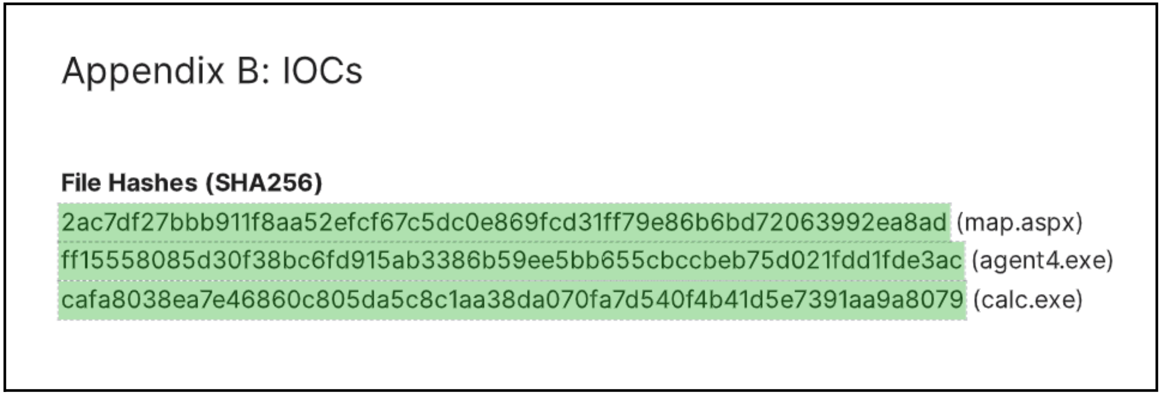


- In the **Spotlight Results,** click the **hamburger menu** next to the **hash:sha256** header and choose **Select all**:



```
hash:sha256
2ac7df27bbb911f8aa52efcf…   < >  1 match
cafa8038ea7e46860c805da5…   < >  1 match
ff15558085d30f38bc6fd915…   < >  1 match
```

- Spotlight shows you the hashes in the document:



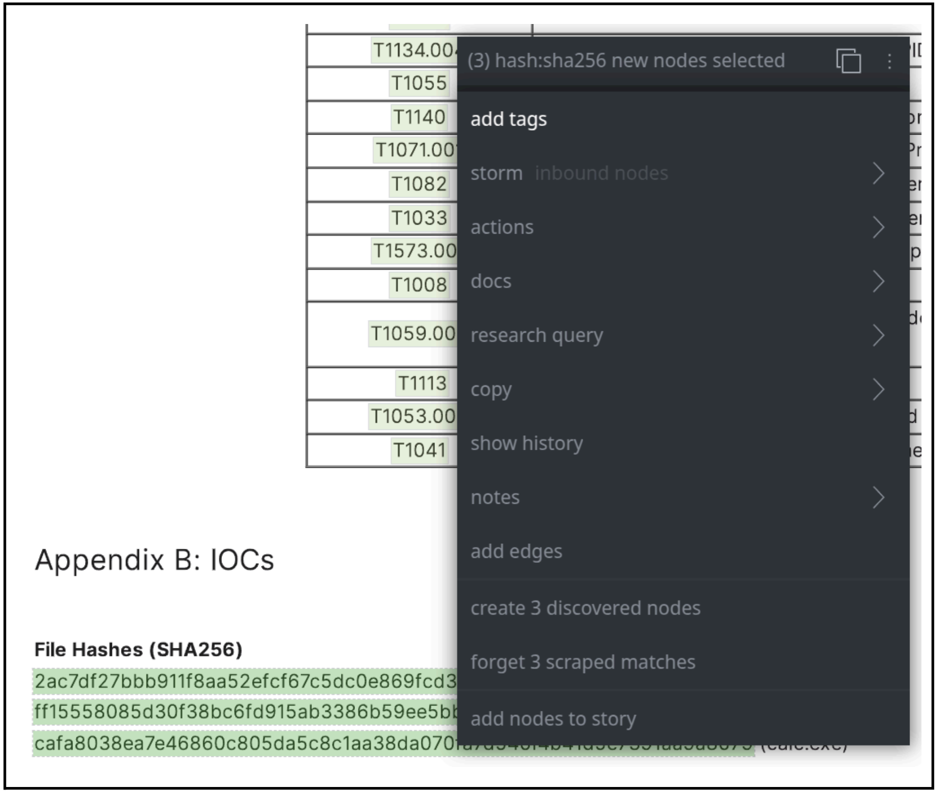
Appendix B: IOCs

File Hashes (SHA256)

2ac7df27bbb911f8aa52efcf67c5dc0e869fcd31ff79e86b6bd72063992ea8ad (map.aspx)
ff15558085d30f38bc6fd915ab3386b59ee5bb655cbccbeb75d021fdd1fde3ac (agent4.exe)
cafa8038ea7e46860c805da5c8c1aa38da070fa7d540f4b41d5e7391aa9a8079 (calc.exe)

We want to create the hashes and tag them to show Fortinet associates them with Moses Staff. Tagging the nodes will also create them.

- **Right-click** the hashes and select **add tags:**

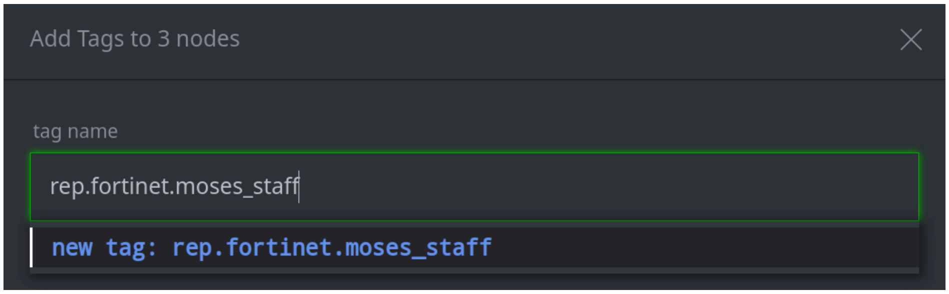


Appendix B: IOCs

File Hashes (SHA256)

2ac7df27bbb911f8aa52efcf67c5dc0e869fcd3
ff15558085d30f38bc6fd915ab3386b59ee5bb
cafa8038ea7e46860c805da5c8c1aa38da070

- In the **Add Tags** dialog, enter the new tag **rep.fortinet.moses_staff:**

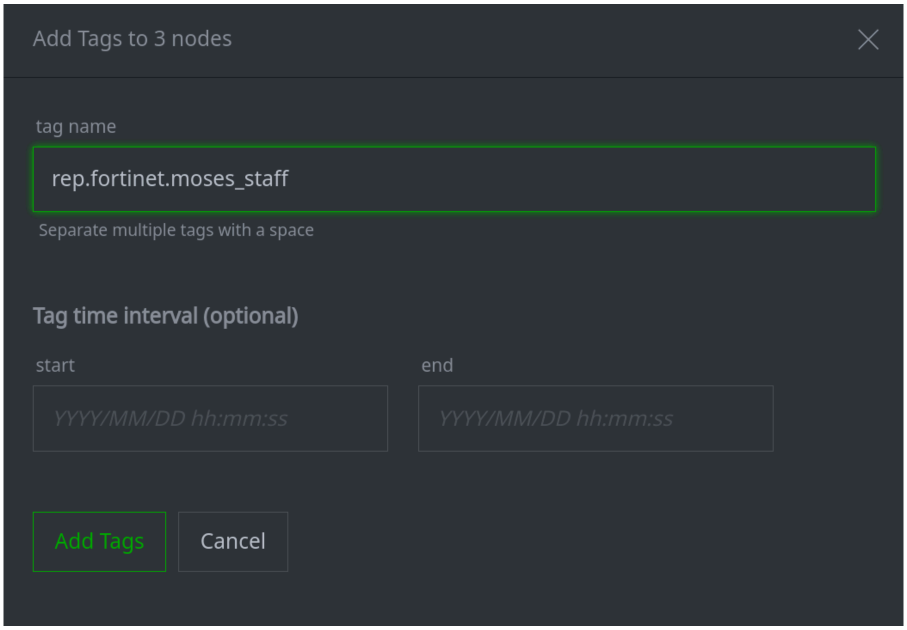


tag name

rep.fortinet.moses_staff

`new tag: rep.fortinet.moses_staff`

- Click the **Add Tags** button to apply the tags:



Add Tags to 3 nodes

tag name

rep.fortinet.moses_staff

Separate multiple tags with a space

Tag time interval (optional)

start

YYYY/MM/DD hh:mm:ss

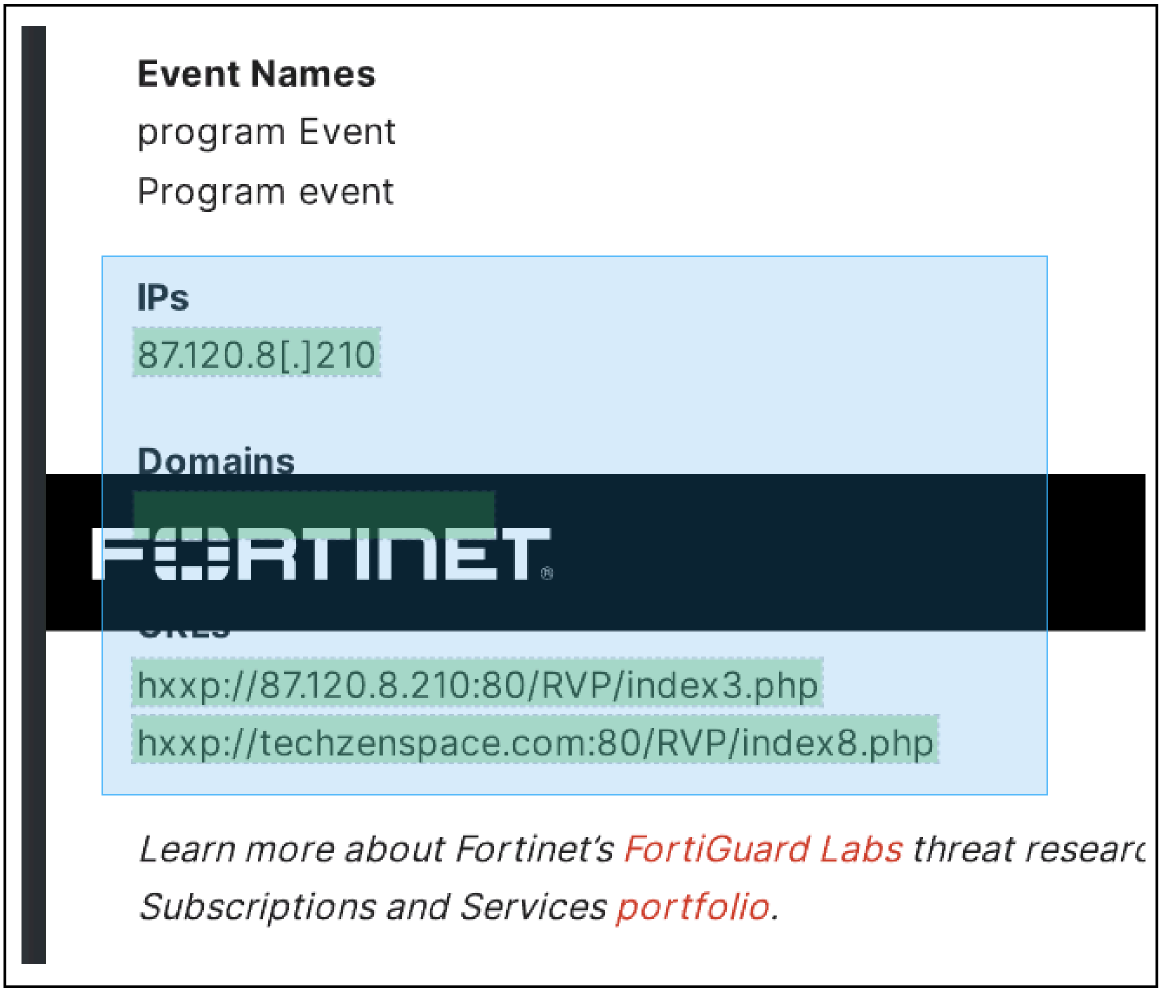
end

YYYY/MM/DD hh:mm:ss

Question 4: What happened to the hashes?

We want to add the rest of the indicators from Fortinet's IOC list.

- In the document use **Shift-click and drag** to draw a box around the IP address, Domains, and URLs:



Event Names

program Event

Program event

IPs

87.120.8[.]210

Domains

hxxp://87.120.8.210:80/RVP/index3.php

hxxp://techzenspace.com:80/RVP/index8.php

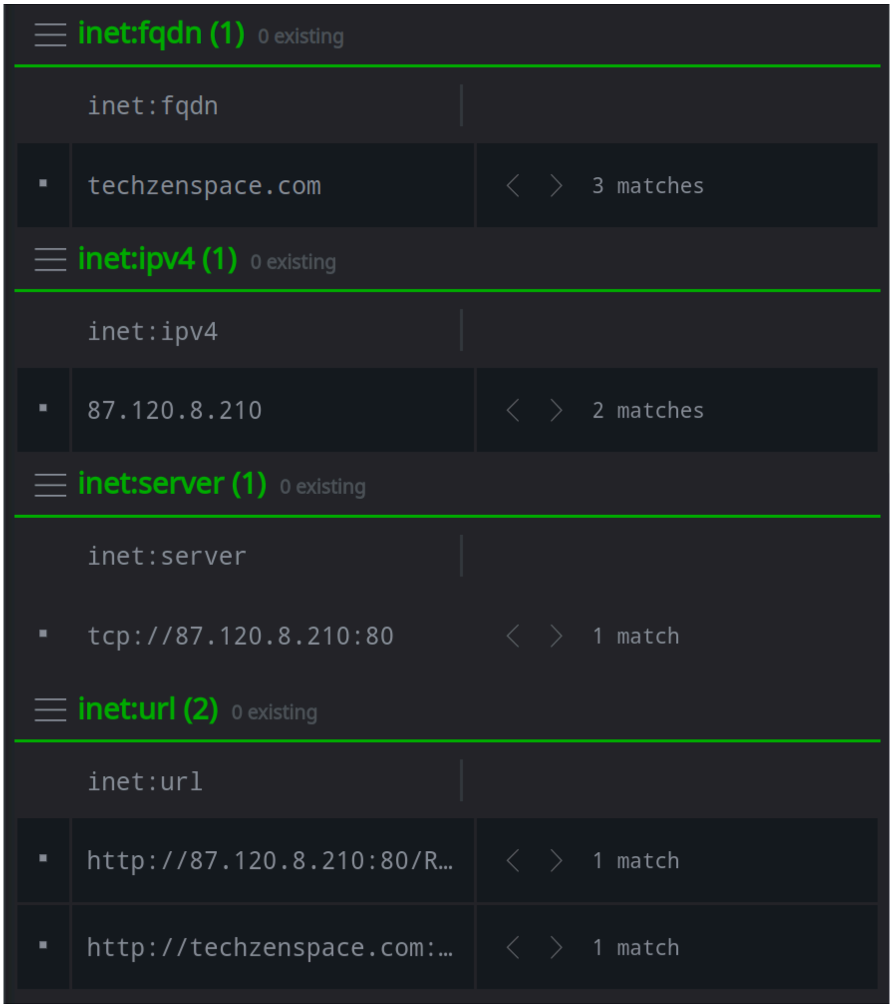
Learn more about Fortinet's FortiGuard Labs threat researc

Subscriptions and Services portfolio.

You can also use **ctrl-click** to multi-select the indicators.

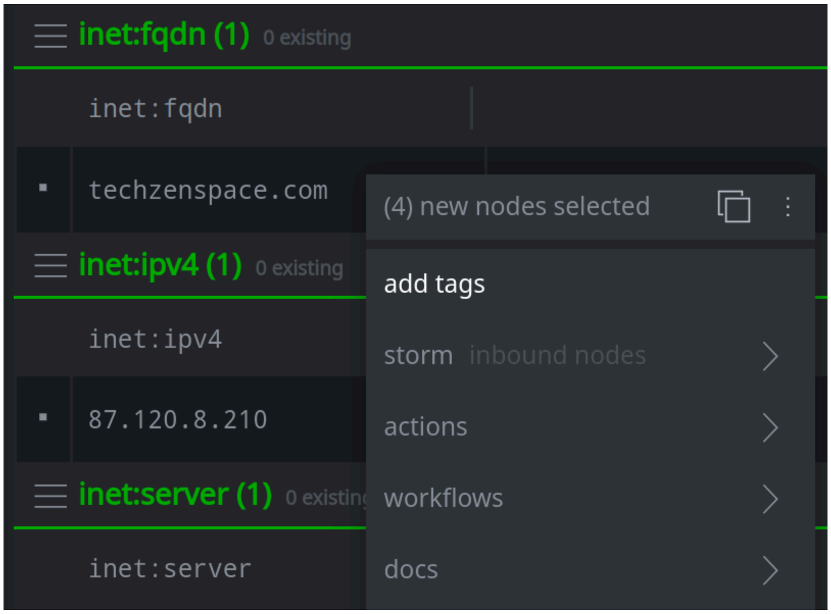
Note: Depending on how Spotlight captured Fortinet's website, a banner may cover some of the IOCs. In the image above, the FQDN `techzenspace.com` is "behind" the banner but still recognized by Spotlight.

- Note that Spotlight also **selects** the four nodes in the Results:

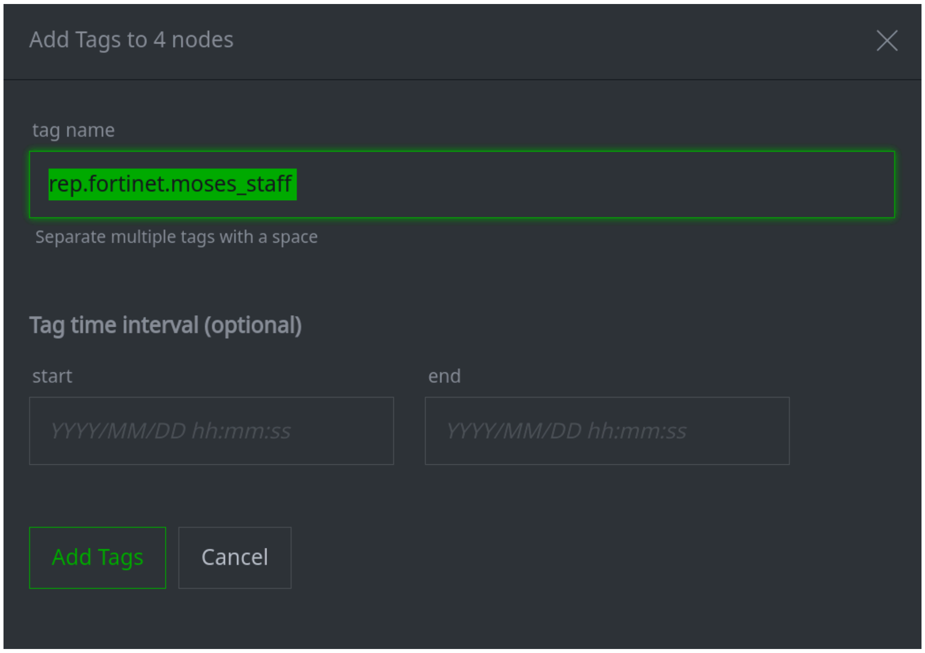


```
inet:fqdn (1)  0 existing
    inet:fqdn
▪   techzenspace.com              <  >  3 matches
inet:ipv4 (1)  0 existing
    inet:ipv4
▪   87.120.8.210                  <  >  2 matches
inet:server (1)  0 existing
    inet:server
▪   tcp://87.120.8.210:80         <  >  1 match
inet:url (2)  0 existing
    inet:url
▪   http://87.120.8.210:80/R…     <  >  1 match
▪   http://techzenspace.com:…     <  >  1 match
```

- **Right-click** any of the selected nodes and choose **add tags:**



- Use the **Add Tags** dialog to add the tag **rep.fortinet.moses_staff**:



tag name

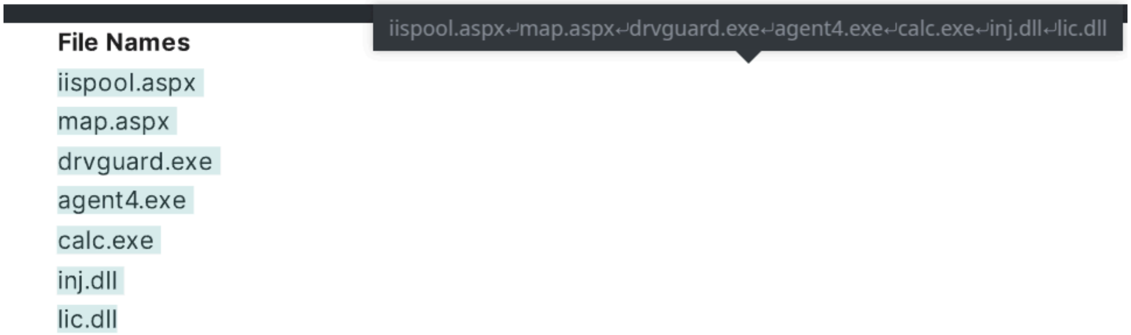
rep.fortinet.moses_staff

Part 4 - Highlight and Add Nodes with Quick Forms

The IOCs include a list of file names. Spotlight cannot recognize ("scrape") file names, so we need to create them manually.

Spotlight can recognize 'lists' of forms that are separated by either newlines (line breaks) or commas. So we can create all the file names (`file:base` nodes) at once.

- In the document, **click and drag** to highlight the file names:

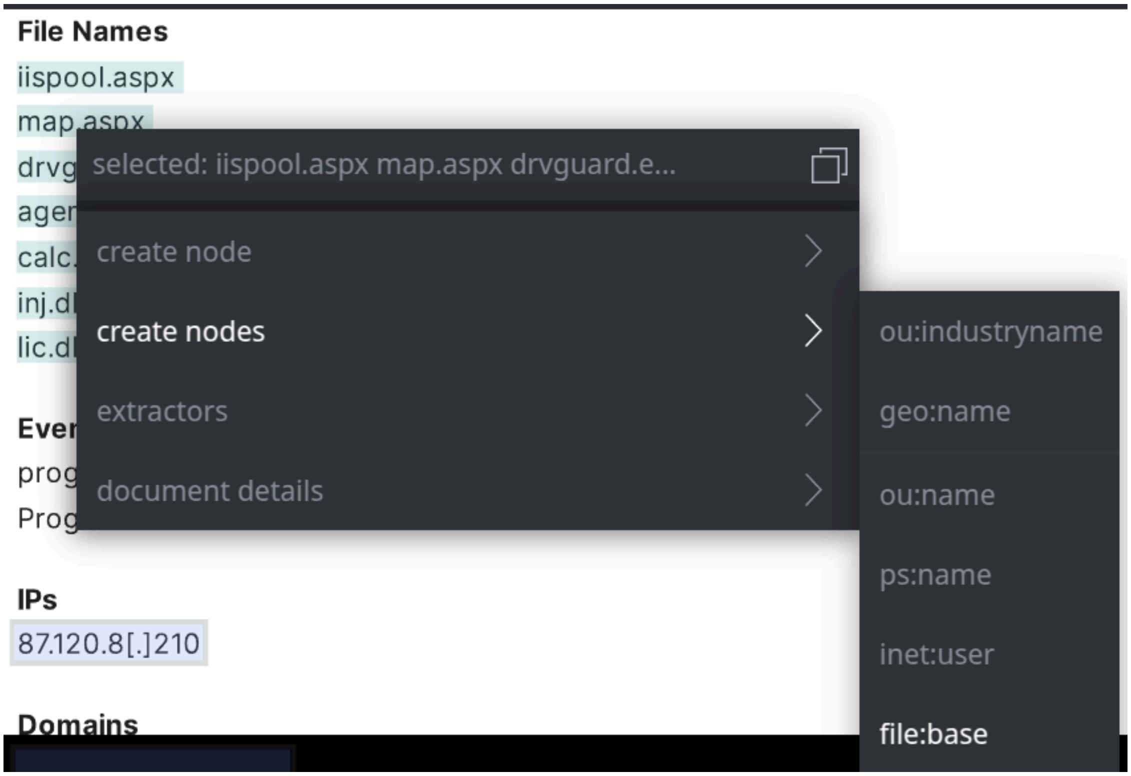


iispool.aspx↵map.aspx↵drvguard.exe↵agent4.exe↵calc.exe↵inj.dll↵lic.dll

File Names

iispool.aspx
map.aspx
drvguard.exe
agent4.exe
calc.exe
inj.dll
lic.dll

- **Right-click** the highlighted text and select **create nodes > file:base**:



File Names

iispool.aspx
map.aspx
drvg
ager
calc.
inj.dl
lic.dl

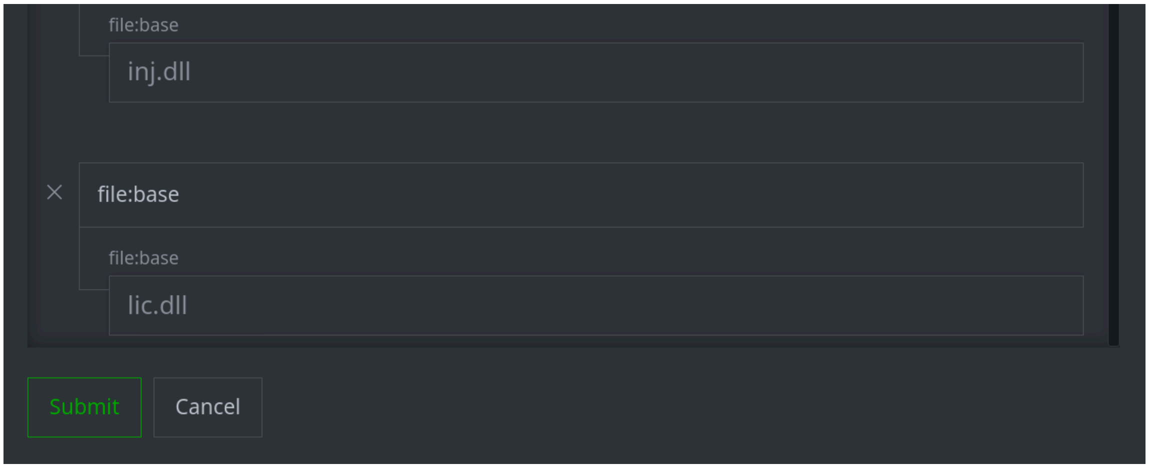
Ever
prog
Prog

IPs
87.120.8[.]210

Domains

Question 5: What happened? Did Spotlight create the **`file:base`** nodes?

- In the **Create Nodes** dialog, review the suggested nodes. Click **Submit** to create the nodes:



file:base

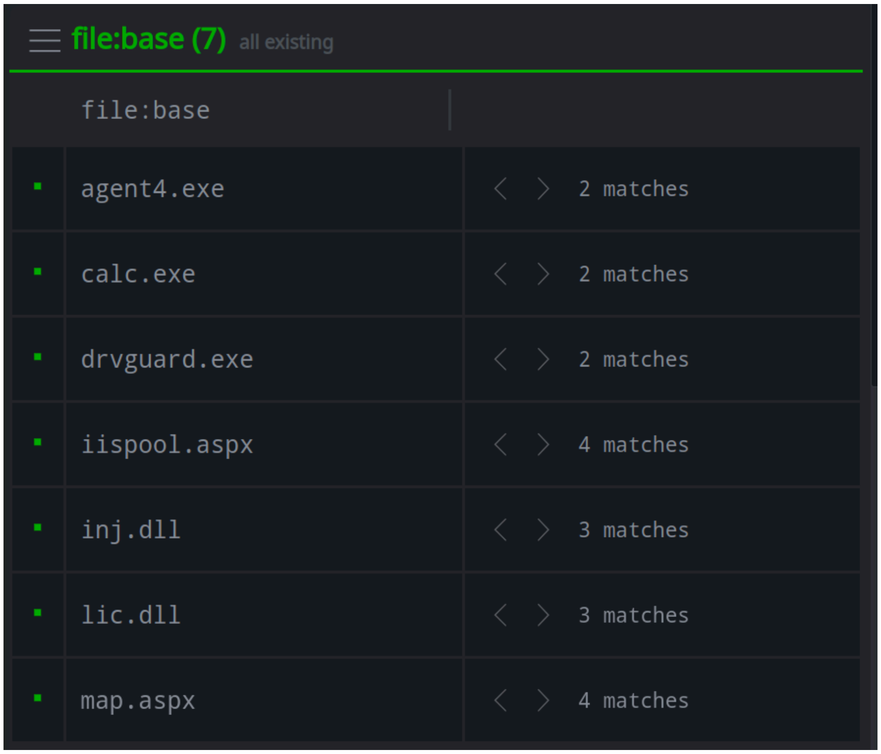
inj.dll

× file:base

file:base

lic.dll

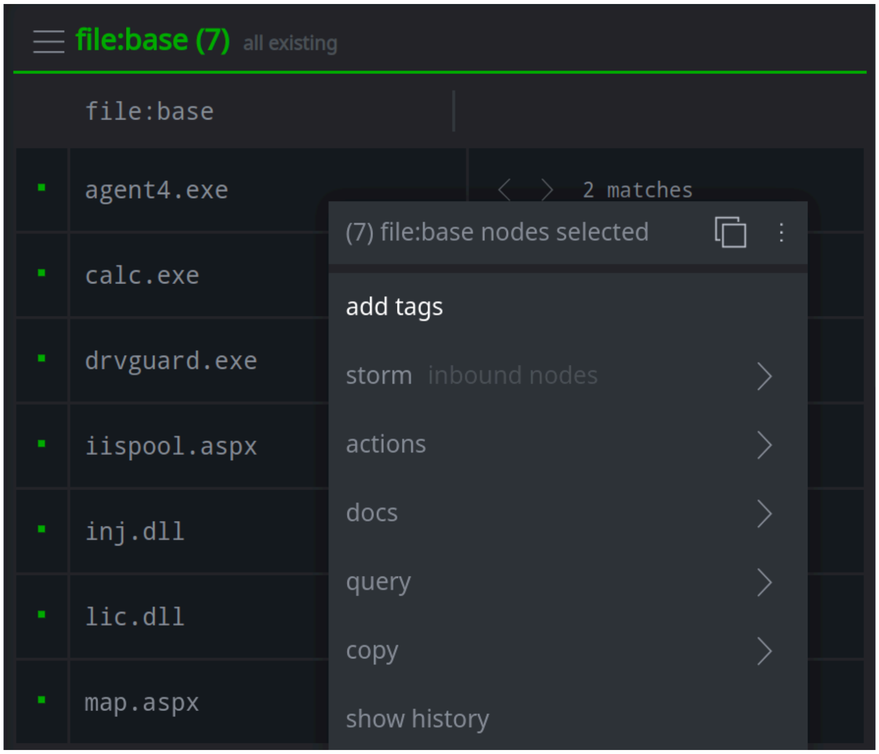
- Spotlight created and selected the seven **`file:base`** nodes:



file:base (7) all existing

	file:base	
▪	agent4.exe	2 matches
▪	calc.exe	2 matches
▪	drvguard.exe	2 matches
▪	iispool.aspx	4 matches
▪	inj.dll	3 matches
▪	lic.dll	3 matches
▪	map.aspx	4 matches

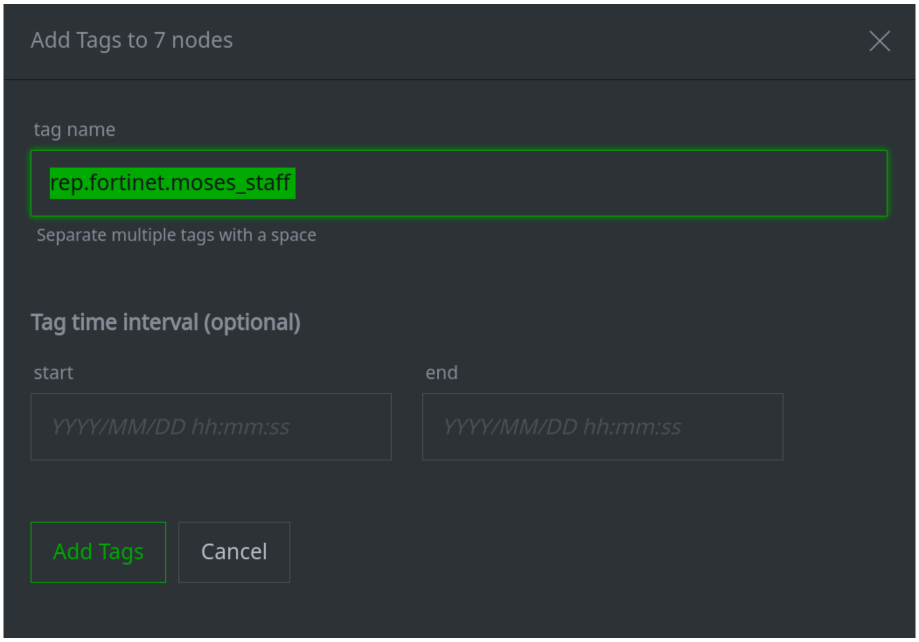
- **Right-click** any of the selected nodes and choose **add tags:**



file:base (7) all existing

file:base
agent4.exe
calc.exe
drvguard.exe
iispool.aspx
inj.dll
lic.dll
map.aspx

- Use the **Add Tags** dialog to add the tag **rep.fortinet.moses_staff**:



Add Tags to 7 nodes

tag name

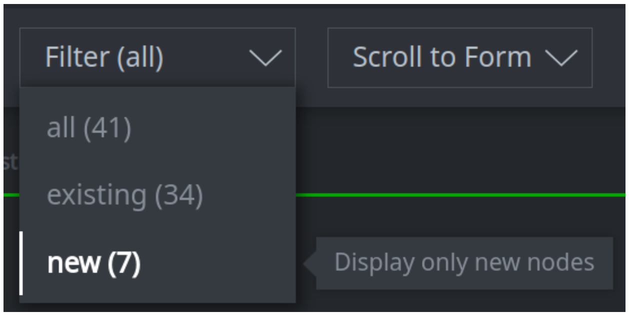
rep.fortinet.moses_staff

Separate multiple tags with a space
Tag time interval (optional)
start
YYYY/MM/DD hh:mm:ss
end
YYYY/MM/DD hh:mm:ss
Add Tags
Cancel

Part 5 - Review Suggested Nodes

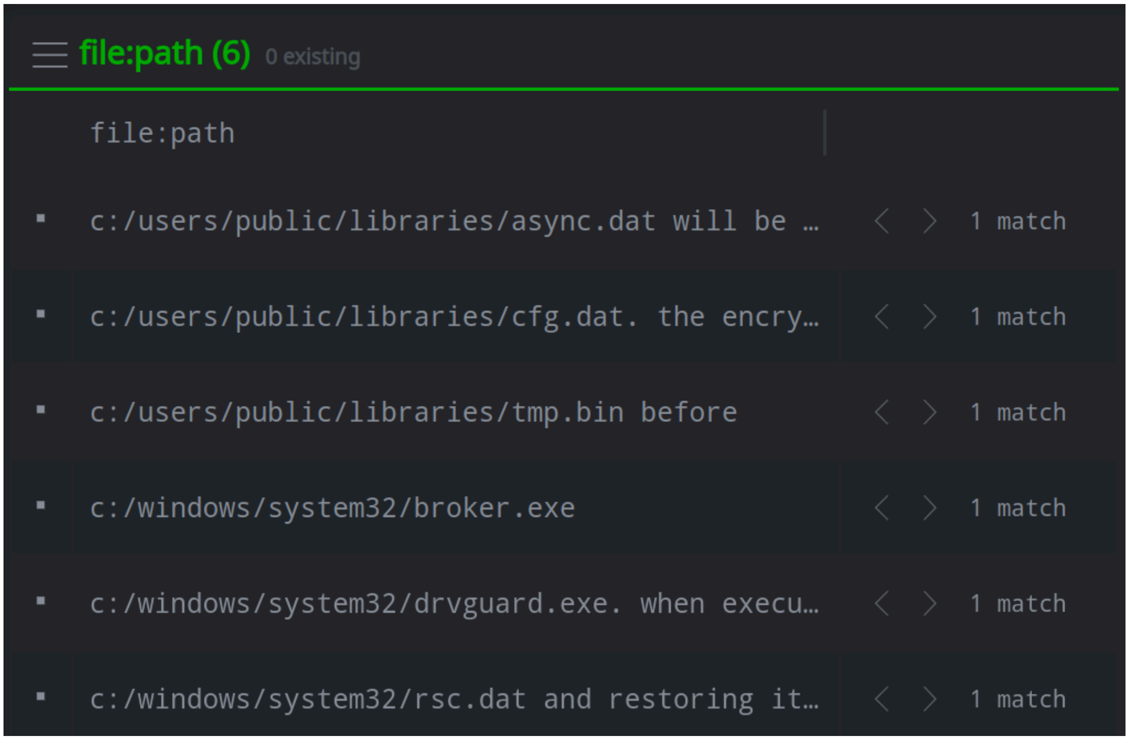
You want to review additional nodes that Spotlight scraped and suggested.

- In the Spotlight **Results**, click the **Filter** button and select **new (7)** to only display new (suggested) nodes:



The numbers on your menu may vary slightly depending on the data in your demo instance.

- In the Spotlight **Results,** locate the `file:path` nodes:

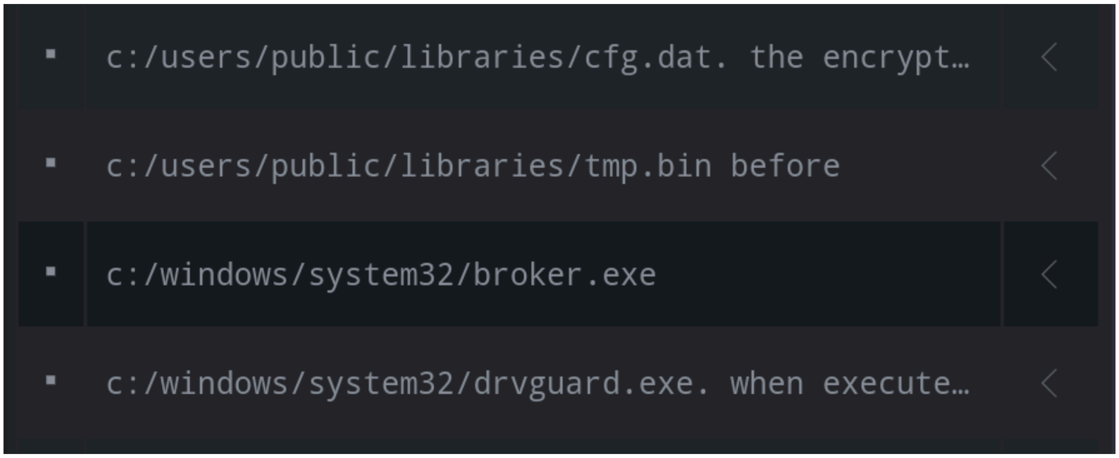


file:path (6) 0 existing

file:path	
c:/users/public/libraries/async.dat will be …	1 match
c:/users/public/libraries/cfg.dat. the encry…	1 match
c:/users/public/libraries/tmp.bin before	1 match
c:/windows/system32/broker.exe	1 match
c:/windows/system32/drvguard.exe. when execu…	1 match
c:/windows/system32/rsc.dat and restoring it…	1 match

Note that only **one** suggested node is a valid file path.

- **Select** the node for the file path **c:/windows/system32/broker.exe:**



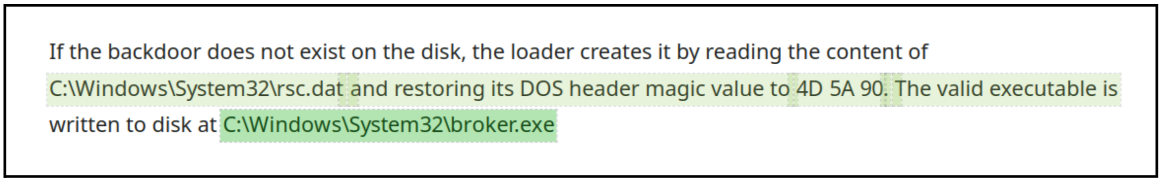
c:/users/public/libraries/cfg.dat. the encrypt…

c:/users/public/libraries/tmp.bin before

c:/windows/system32/broker.exe

c:/windows/system32/drvguard.exe. when execute…

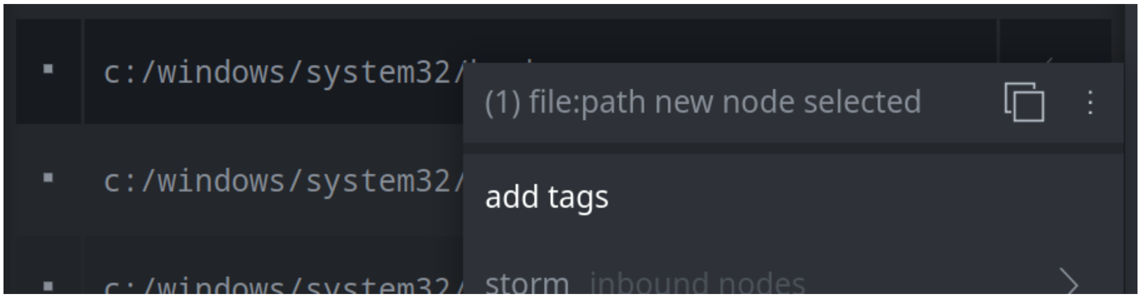
Note that Spotlight takes you to the location of this path within the document:



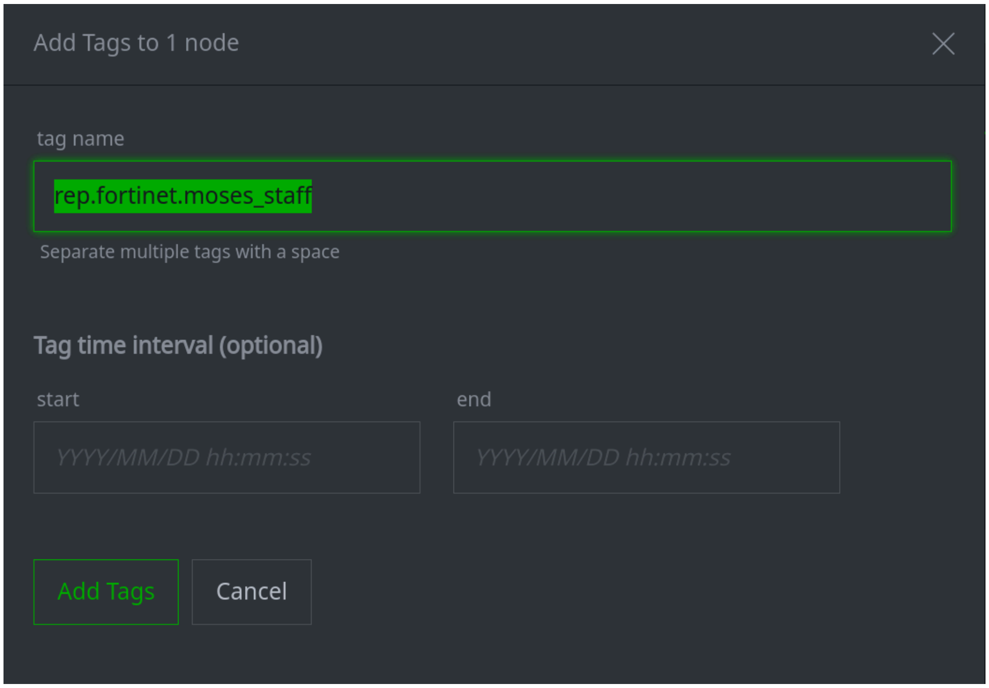
If the backdoor does not exist on the disk, the loader creates it by reading the content of C:\Windows\System32\rsc.dat and restoring its DOS header magic value to 4D 5A 90. The valid executable is written to disk at C:\Windows\System32\broker.exe

The path is the location of a backdoor used by Moses Staff. We want to add the node to Synapse and tag it.

- **Right-click** the node and select **add tags:**



- Use the **Add Tags** dialog to apply the tag **rep.fortinet.moses_staff:**



Add Tags to 1 node

tag name

rep.fortinet.moses_staff

Separate multiple tags with a space

Tag time interval (optional)

start

YYYY/MM/DD hh:mm:ss

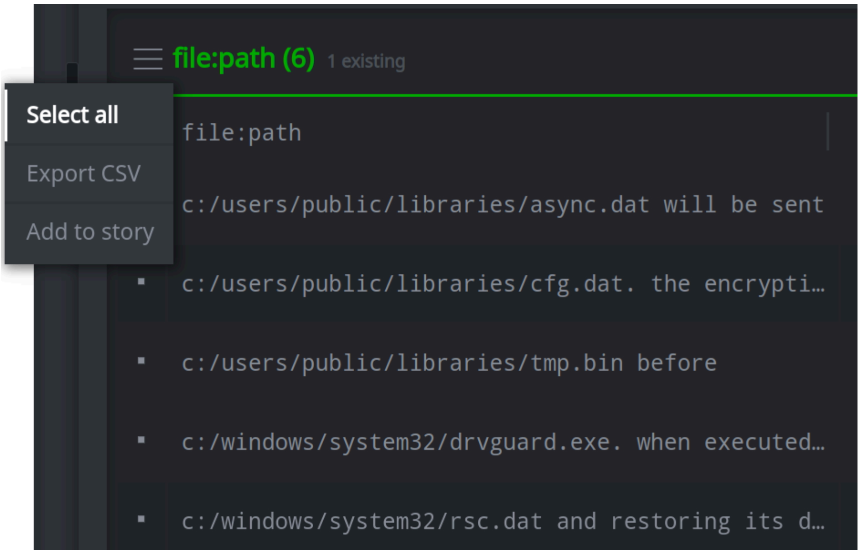
end

YYYY/MM/DD hh:mm:ss

Question 6: What happens when you tag and create the node?

We want to "forget" the rest of the `file:path` nodes. For these nodes, Spotlight included extra text that is not part of the file path.

- In the Results, click the **hamburger menu** next to the **file:path** header and choose **Select all:**

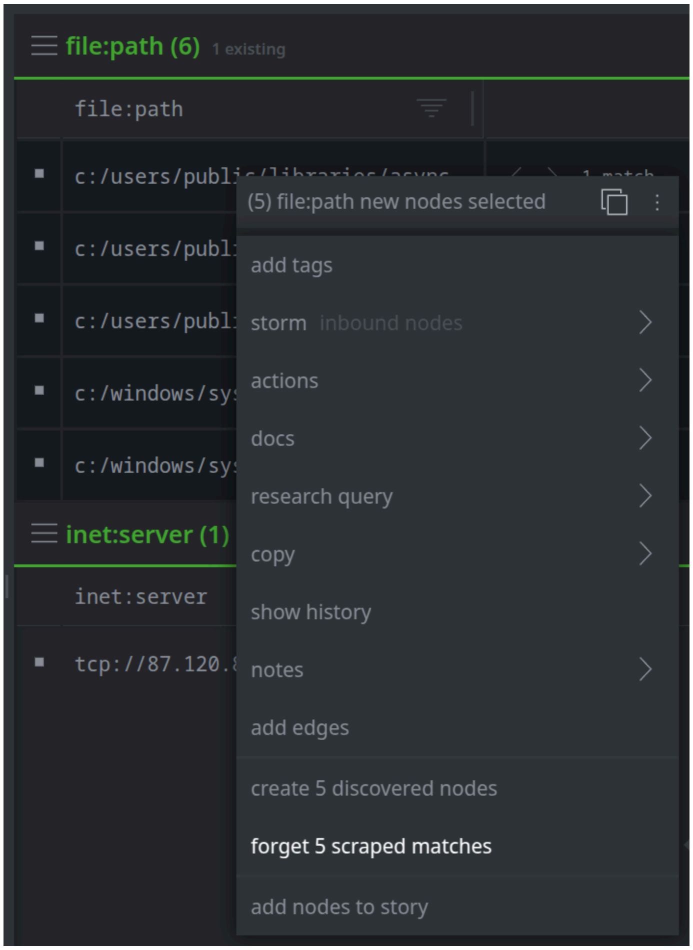


file:path (6) 1 existing

Select all
Export CSV
Add to story

```
file:path
c:/users/public/libraries/async.dat will be sent
c:/users/public/libraries/cfg.dat. the encrypti…
c:/users/public/libraries/tmp.bin before
c:/windows/system32/drvguard.exe. when executed…
c:/windows/system32/rsc.dat and restoring its d…
```

- **Right-click** any selected node and choose **forget 5 scraped matches:**



file:path (6) 1 existing

```
file:path
c:/users/public/libraries/async
c:/users/publ
c:/users/publ
c:/windows/sys
c:/windows/sys
```

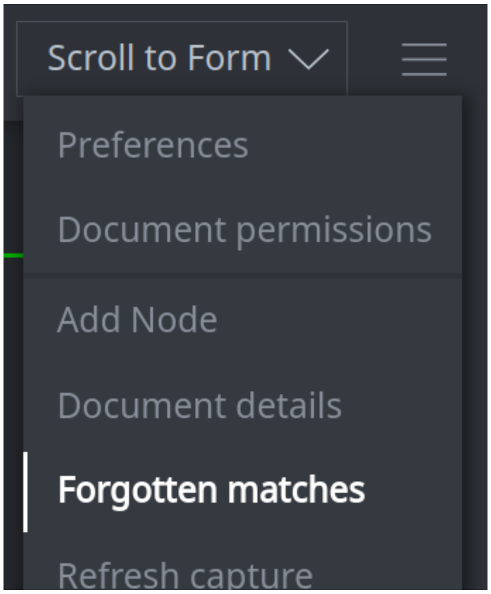
inet:server (1)

```
inet:server
tcp://87.120.8
```

(5) file:path new nodes selected

add tags
storm inbound nodes
actions
docs
research query
copy
show history
notes
add edges
create 5 discovered nodes
forget 5 scraped matches
add nodes to story

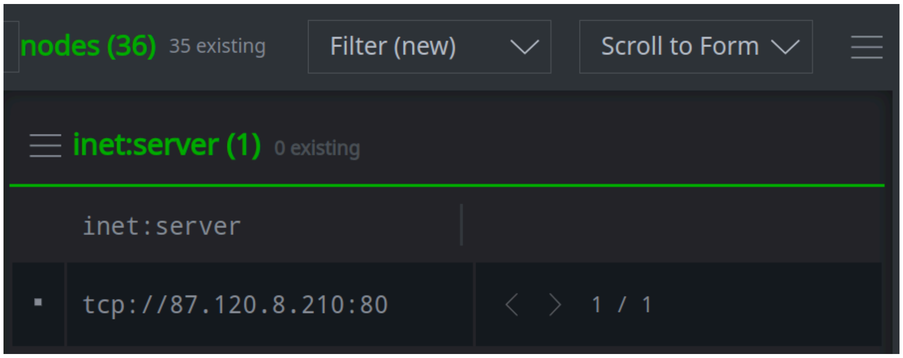
The nodes are removed from the **Filter (new)** list. You can always review (and re-add) "forgotten" nodes by clicking the Spotlight **hamburger menu** and selecting **Forgotten Matches:**



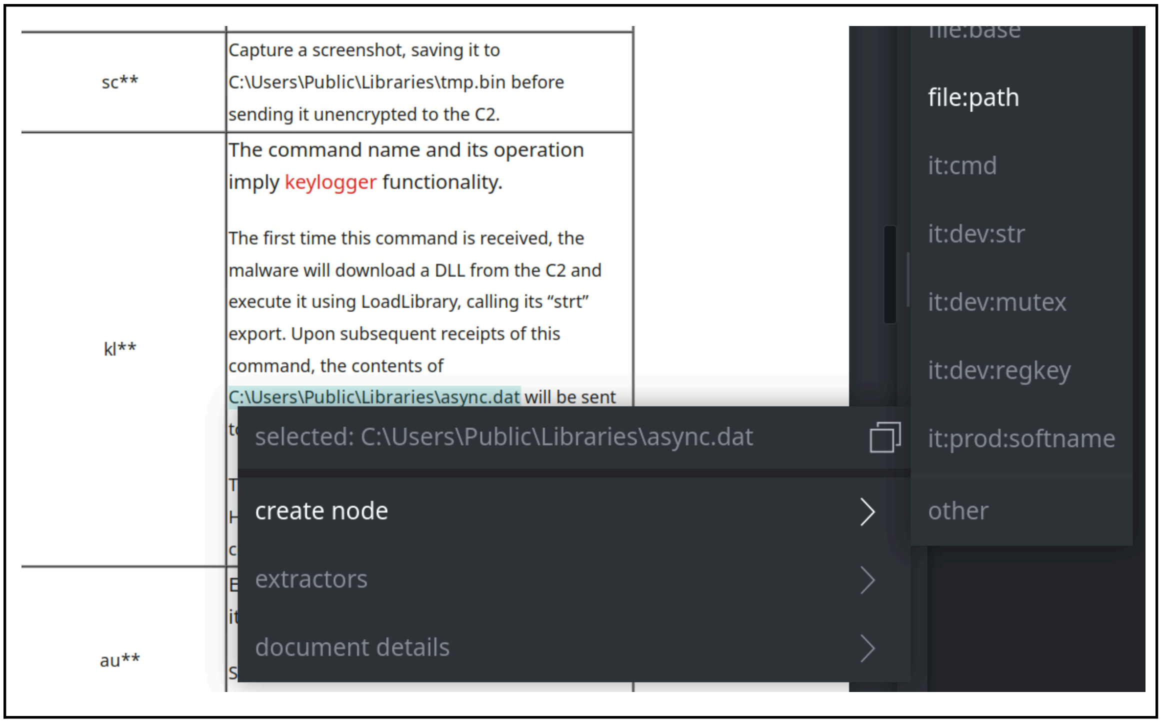
Part 6 - If Time Allows

If you still have time, continue to practice using Spotlight!

- **Review** (and create or forget) the last "suggested" node:



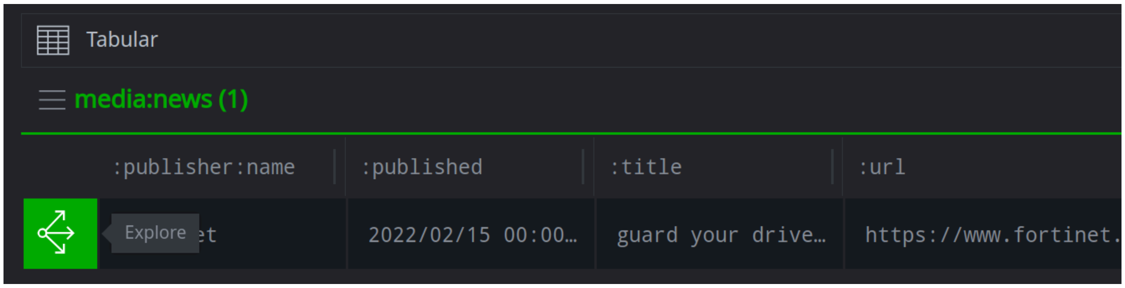
- Use Spotlight's **Quick Forms** to highlight and create the **`file:path`** nodes that were scraped incorrectly:



sc**	Capture a screenshot, saving it to C:\Users\Public\Libraries\tmp.bin before sending it unencrypted to the C2.
kl**	The command name and its operation imply keylogger functionality. The first time this command is received, the malware will download a DLL from the C2 and execute it using LoadLibrary, calling its “strt” export. Upon subsequent receipts of this command, the contents of C:\Users\Public\Libraries\async.dat will be sent t
au**	E it S

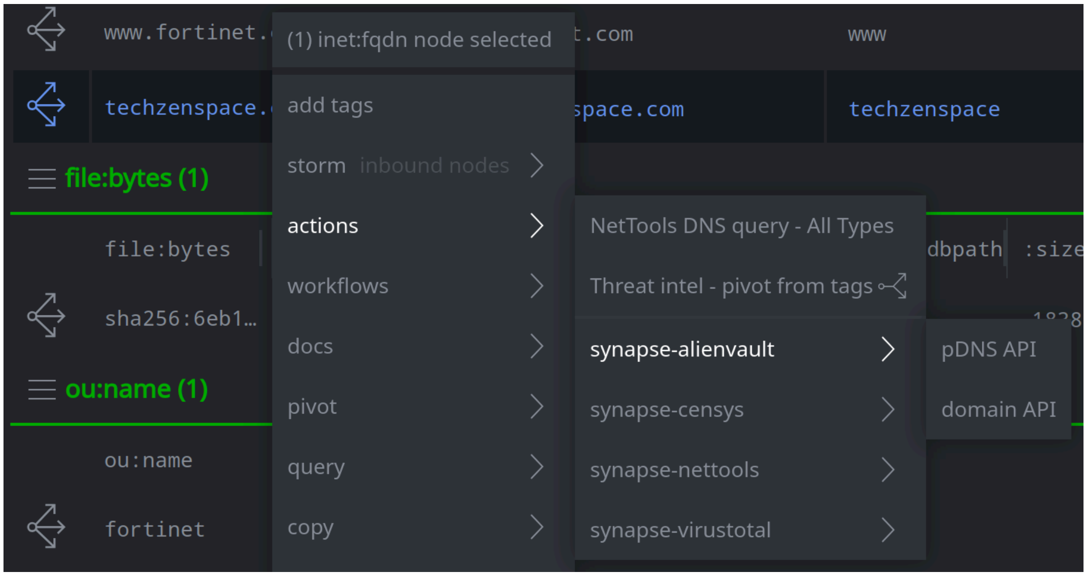
- **Lift** the **media:news** node in the **Research Tool**:
  Click the **hamburger menu** and select **media:news node > query > selected node.**

  In the Research Tool, **Explore** from the **media:news** node to view your connected nodes:



:publisher:name	:published	:title	:url
et	2022/02/15 00:00…	guard your drive…	https://www.fortinet.

- Use **Node Actions** to enrich the indicators:


www.fortinet.
t.com
www
techzenspace.
space.com
techzenspace
file:bytes (1)
file:bytes
dbpath
:size
sha256:6eb1…
1828
ou:name (1)
ou:name
fortinet
(1) inet:fqdn node selected
add tags
storm inbound nodes
actions
workflows
docs
pivot
query
copy
NetTools DNS query - All Types
Threat intel - pivot from tags
synapse-alienvault
synapse-censys
synapse-nettools
synapse-virustotal
pDNS API
domain API